STATE OF WASHINGTON
Daniel J. Evans, Governor
DEPARTMENT OF WATER RESOURCES
H. MAURICE AHLQUIST, Director

Water Supply Bulletin No. 26

RECONNAISSANCE OF GEOLOGY AND OF GROUND-WATER OCCURRENCE IN WHITMAN COUNTY, WASHINGTON

By
KENNETH L. WALTERS
and
P. A. GLANCY

Prepared in cooperation with
UNITED STATES GEOLOGICAL SURVEY
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FOREWORD

Whitman County historically has been a dry-farmed area, principal crops being wheat, lentils, peas and some hay crops. In recent years the addition of fertilizer and water to some lands have greatly increased yields and generated an interest in further developing irrigation water supplies.

Most available naturally occurring surface water sources have been fully appropriated and further irrigation will require full development of available ground water, storage projects on the upper Palouse River and perhaps other streams, and importing water by pumping directly from the Snake River which borders Whitman County on the south. Recent interest in these storage and pumping projects has clearly shown the concern of people in the area and pointed up the need for a thorough understanding of the total water resource available to serve the needs of Whitman County residents.

The purposes of this study are to: (1) map and interpret geohydrologic conditions as they pertain to the storage and yield of ground water and obtain some idea of the safe-sustaining yield of the ground water body; and (2) assist Department of Water Resources personnel in their administrative responsibilities and provide accurate information for geologists, engineers, well drillers and others actively involved in the planning and development of ground water projects in Whitman County.

Water Supply Bulletin 26 is a product of our cooperative program with the U.S. Geological Survey designed to evaluate the state's ground water resources.

I wish to take this opportunity on behalf of the Department of Water Resources to express our appreciation to the authors, well drillers, well owners and others who have contributed data, time and talent toward completion of the Whitman County report. A special note of gratitude is extended to Joanne Larsen for her assist in editing and dedicated manuscript typing.

-Robert H. Russell
Chief, Basic Data Section
Division of Planning & Development
Department of Water Resources

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RECONNAISSANCE OF GEOLOGY AND OF GROUND-WATER OCCURRENCE AND DEVELOPMENT IN WHITMAN COUNTY, WASHINGTON

By

Kenneth L. Walters and P. A. Glancy

ABSTRACT

Whitman County covers about 2,200 square miles in southeastern Washington, adjacent to the Washington-Idaho boundary. Average annual precipitation in the county ranges from about 14 to 20 inches. Agriculture is the principal industry--chiefly dry-land wheat farming, although some pasture and hay crops are irrigated. Much of the county is underlain by a thick sequence of basalt flows mantled by loess. Locally, older nonbasaltic crystalline rocks are exposed, principally in the eastern part of the county.

The crystalline rocks normally contain very little water. Where they are fractured, however, they may contain enough water to meet domestic needs. Elsewhere, deposits of coarse-grained materials weathered from crystalline rocks may yield several hundred gallons per minute to individual wells.

Basalt of the Columbia River Group is the principal consolidated rock exposed in Whitman County. The Picture Gorge Basalt is exposed in the area south of Uniontown; elsewhere in the county only the Yakima Basalt is exposed. The maximum total thickness of basalt in the county is not known but probably exceeds 5,000 feet. In this study, only the Roza Member of the Yakima Basalt was differentiated. The yield of large-diameter wells that penetrate several hundred feet of basalt in Whitman County is about 125 to 200 gpm (gallons per minute) for every 100 feet of saturated basalt penetrated.

Adequate yields of water for domestic and stock supplies are commonly obtained from loess or from the contact between the loess and the underlying basalt. Pleistocene gravel deposits and Recent alluvium characteristically yield little water. Locally, however, yields of several hundred gallons per minute are obtained from wells that penetrate the gravel, or the alluvium in the Snake River valley.

Hydrographs of wells in the Pullman area indicate a continuing decline in water level. Elsewhere in the county, water levels fluctuate primarily in response to cyclic climatic conditions; they indicate no long-term change in ground-water storage.

The quality of ground water in Whitman County generally is acceptable for domestic, agricultural, and most common industrial purposes.

More ground water is used for irrigation than for any other purpose in the county. All public supplies are obtained from ground-water sources, and these constitute the second largest use. The amount of ground water used in Whitman County during 1963 was about 16,000 acre-feet.

INTRODUCTION

PURPOSE AND SCOPE

The purpose of this report is to evaluate and summarize, in general terms, the availability and degree of development of ground water on a county-wide basis. The principal problems of ground-water management occur in the Pullman area, and were discussed earlier (Foxworthy and Washburn, 1963). This report is intended to present basic information to agencies that are responsible for the planning and administration of water resources in the county, and to individuals as a guide in evaluating the local availability of water to meet specific needs.

Collection of much of the hydrologic data presented in this report (tables 2, 3, and 4; pls. 1 and 2) was started in 1953 in connection with the study of ground water in the Pullman area by Foxworthy and Washburn (1963). The degree of ground-water development in the Pullman area and increased interest in irrigation from wells in other parts of Whitman County after 1953 led to the reconnaissance study upon which the present report is based. Fieldwork for this study was done in 1955-56 and 1962-64. During the years from 1956 to 1962, work on the project was limited to maintenance of an observation-well network.

The geology of the area was mapped with special emphasis on its relation to the occurrence of ground water, and hydrologic data were collected in most detail in areas of present or potential ground-water development or problems. The investigation was made under the supervision of A. A. Garrett of the U. S. Geological Survey, and Robert H. Russell of the State Department of Water Resources.

SETTING

Whitman County, in southeastern Washington, adjacent to the Washington-Idaho boundary, has an area of about 2,200 square miles (fig. 1). Most streams in the county drain into the Palouse River, which in turn flows into Snake River at the southwest corner of the county. In about 400 square miles, or 18 percent of the total area, drainage is generally southward directly into the Snake River or its shorter tributaries; about 20 square miles--less than one percent--drains northward into the Spokane River.

Much of Whitman County is mantled by eolian (wind-deposited) silt, or loess. The succession of unusually large, rolling hills common to much of southeastern Washington, and known locally as Palouse topography, is formed chiefly

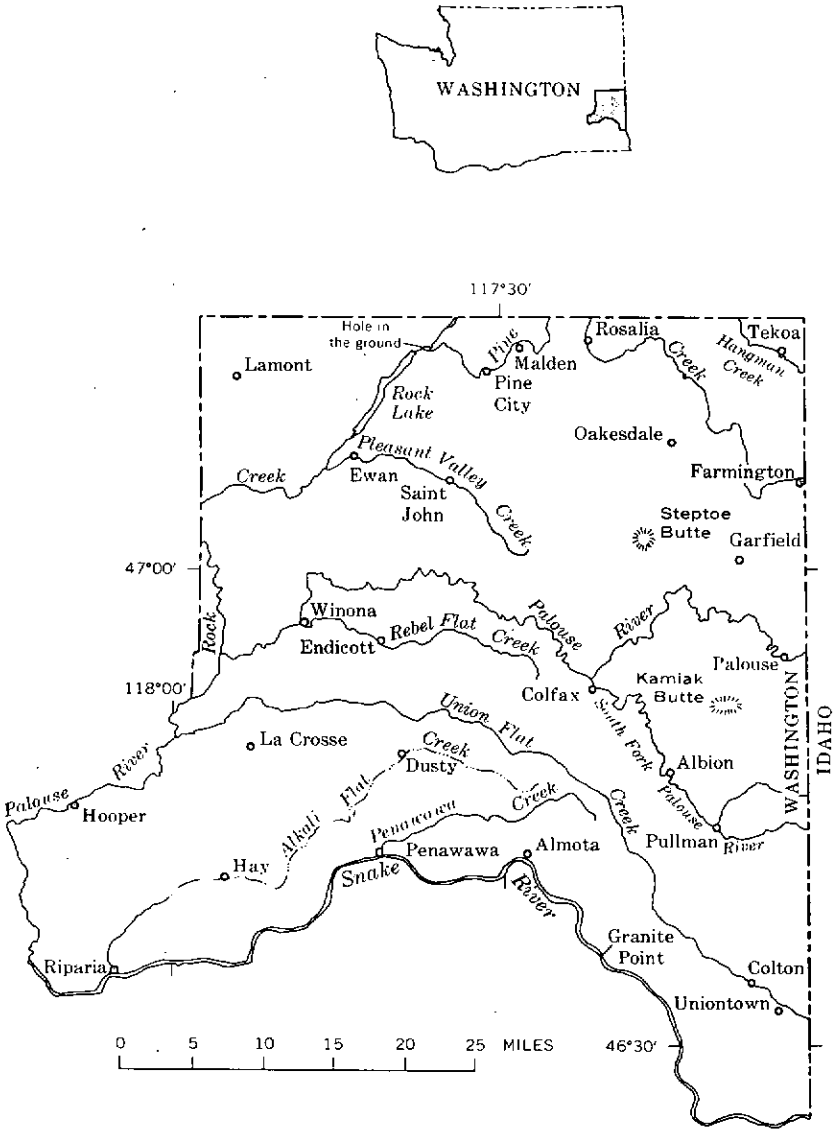


Figure 1 - Index map of Whitman County

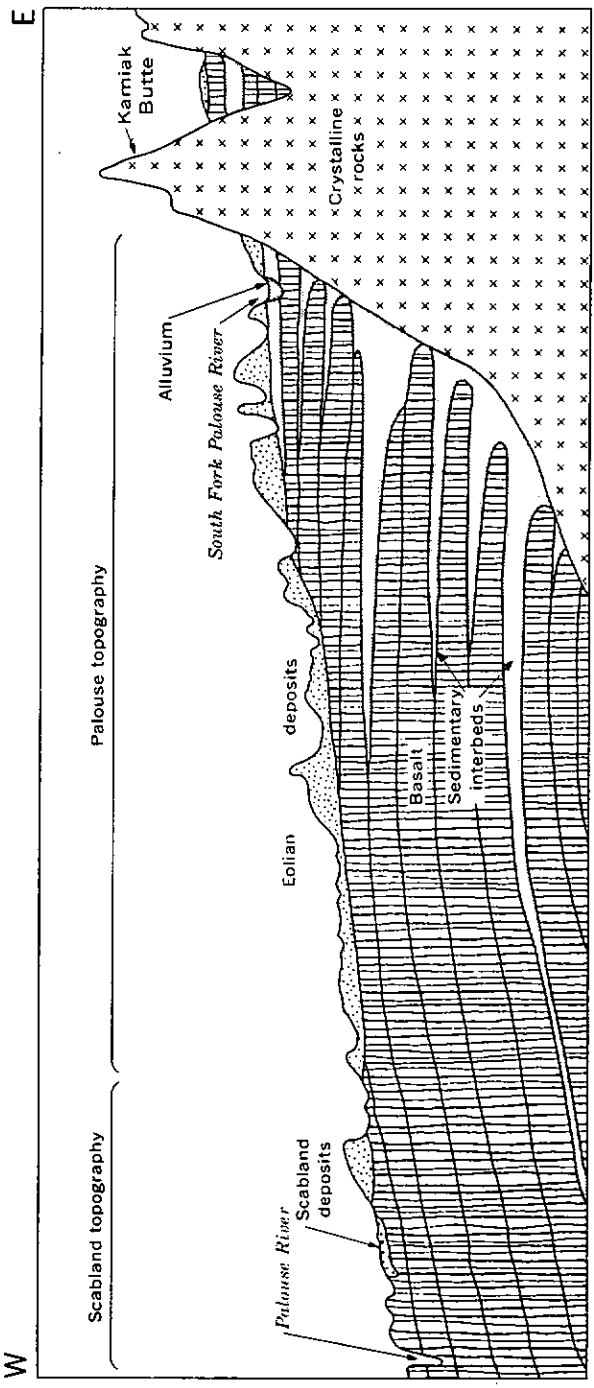


Figure 2 - Schematic east-west geologic section through southern Whitman County.

of this material (fig. 2). The loess is underlain nearly everywhere by a great thickness of basalt. Locally, hills of older nonbasaltic crystalline rocks were not covered by the lava flood and are preserved as islands in a sea of basalt. In the eastern three quarters of the county, evidence of stream erosion and deposition is limited mostly to valleys now occupied by streams. In the western part of the county, large areas have been swept by floods that removed most of the loess and locally scoured the basalt to considerable depth. These areas are called channeled scablands or simply, scablands. The floods that formed the scablands deposited sand and gravel in places that were protected from the main water currents. About 325 square miles (15 percent) of Whitman County was covered by the scabland floods.

Whitman County generally has hot dry summers and cold moist winters. According to the U. S. Weather Bureau (1964) the normal annual temperature for the period 1931-60 was 48.4°F at Colfax and 49.7°F near La Crosse. The coldest month usually is January, with a normal temperature at Colfax of 29.2°F. The hottest month generally is July, with a normal temperature at Colfax of 67.8°F.

Average annual precipitation ranges from 20.29 inches (1892-1964) at Colfax to 14.26 inches near La Crosse (1909-1964). The long-term annual precipitation at Colfax, and the cumulative departure from average at that station, are shown in figure 3. Normal precipitation at Colfax and near La Crosse for December--the wettest month-- is 3.04 and 2.05 inches respectively, whereas values for July--the dryest month--are 0.46 and 0.28 inches, respectively. About one fourth of the precipitation falls during the growing season, from May through September.

The principal industry of Whitman County is agriculture. Winter wheat, grown by dry-land farming, is the chief product. Other crops that are grown in significant quantities include barley, peas, hay, lentils, and oats. Livestock in Whitman County consists chiefly of hogs and beef cattle. Irrigation of hay crops and pasture is practiced to a limited extent, principally in the western part of the county. Fruit is grown at several localities in the Snake River valley.

PREVIOUS INVESTIGATIONS

Systematic collection of ground-water data in Whitman County started in 1934. At that time the U. S. Geological Survey cooperated with the U. S. Soil Conservation Service in a water-level observation program in the South Palouse Soil Conservation Project. Conclusions from that program were released in 1938 as an unpublished report by W. A. Rockie and others of the U. S. Soil Conservation Service and U. S. Geological Survey for administrative use. Periodic measurement of water levels in several wells that were included in the program has continued through 1965. In 1953 the Geological Survey, in cooperation with the Washington State Department of Conservation, began a detailed investigation to determine whether ground-water withdrawal exceeded the perennial yield of the developed aquifers in the Pullman area. The investigation also was meant to determine whether additional aquifers could be developed, and whether the yield of the developed aquifers could be increased by artificial recharge. The results of that investigation were published in 1963 (Foxworthy and Washburn).

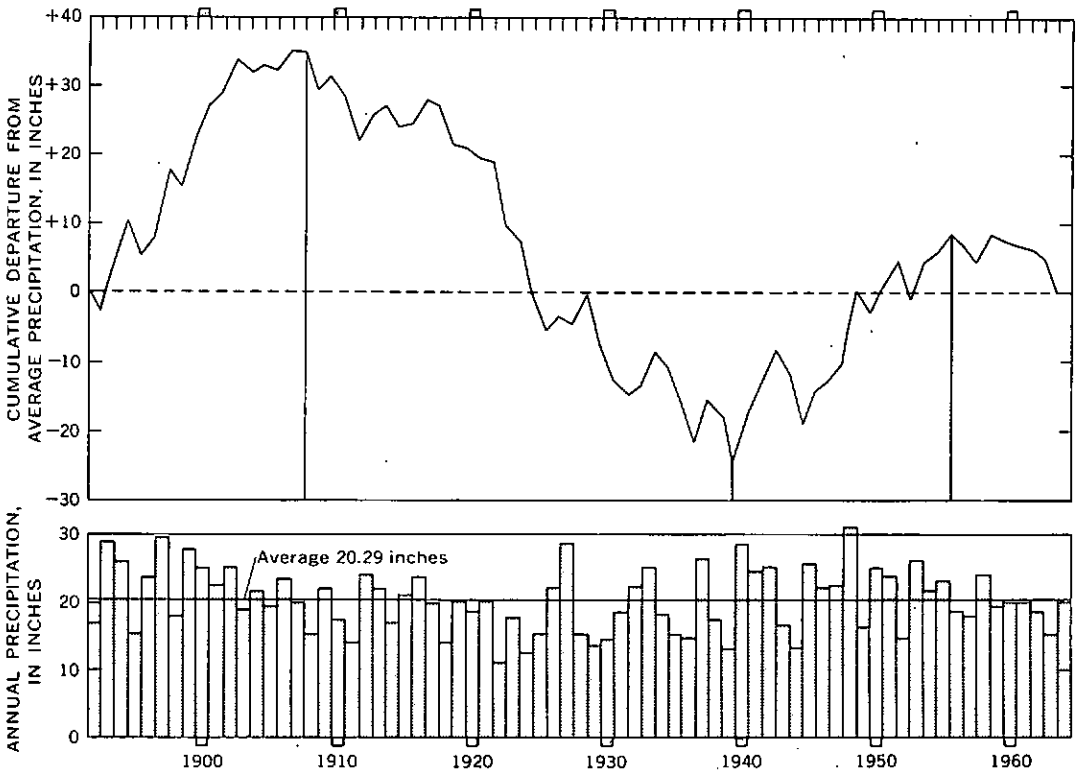


Figure 3 - Annual precipitation at Colfax and cumulative departure from average for the 73-year period 1892-1964.

Several additional reports deal with the geology or ground-water resources of various parts of the county. A report of ground-water problems in the vicinity of Moscow, Idaho, was published by the U. S. Geological Survey in 1960. (Stevens). The results of a geologic investigation of the Moscow basin, using geophysical methods, were also published in 1960 (Crosby and Cavin). The stratigraphic relationships and distribution of basalt flows in the Clearwater embayment of western Idaho was described in 1963 by Bond. The geology of the Starbuck, Hay, and Penawawa quadrangles, in southwestern Whitman County, was mapped by Waldron and Gard (Gard and Waldron, 1954; Waldron and Gard, 1954, 1955).

ACKNOWLEDGEMENTS

Appreciation is expressed to the many well owners, well drillers, and municipal water superintendents who cooperated in the collection of well data. L. M. Gard, Jr., provided unpublished geologic maps of the Benge, La Crosse, and Endicott quadrangles; these were used in preparation of the geologic map that accompanies this report.

OCCURRENCE OF GROUND WATER

GEOLOGIC CONTROLS

The quantity and quality of ground water available in an area are governed primarily by rates of precipitation and by the nature of the rocks in which it occurs and through which it moves. In Whitman County, only five major geologic units occur at or near the land surface and thus are important to the occurrence of ground water (pls. 3 and 4). They are, from oldest to youngest: nonbasaltic crystalline rocks, basalt, eolian deposits, scabland deposits, and alluvium. In general, the water-bearing characteristics of these units are fairly predictable and are determined by such primary properties as grain size and rock type. Areal differences in the water-bearing characteristics of the units are caused by such secondary properties as the degree of compaction, cementation, jointing, weathering, and erosion.

Crystalline Rocks

Rocks older than the Columbia River Group are considered as a single geologic unit in this report, and are referred to as crystalline rocks. These rocks include both metamorphic and igneous varieties; the most common rock types are quartzite, schist, and granite. The metamorphic rocks--the quartzites and schists--are considerably older than the granitic rocks. They crop out more extensively than the granitic rocks, and probably underlie the Columbia River Group throughout much of the county. The crystalline rocks are exposed principally in the eastern one-third of the county. However, two exposures--an outcrop of granitic rock along the Snake River at Granite Point and a commercially developed "flagstone schist" outcrop near the north end of Rock Lake at Hole-in-the-Ground (pls. 3 and 4)--are somewhat west of the main group of exposures. Although very few wells in Whitman County are known to have reached the crystalline rocks except in the eastern one-third, there are possibly many places within 10 miles east of a line through Hole-in-the-Ground and Granite Point where such rocks are within a few hundred feet of the surface.

The areas of crystalline rocks shown in plates 3 and 4 are somewhat generalized as to shape and size; the rocks are covered by surficial materials at most places and are well exposed only on the highest parts of the hills or buttes that they underlie. Where extensively altered their presence can be deduced from the appearance of the soil mantle. Where a thin loess cover is present the contact between basalt and crystalline rocks cannot be located with certainty. However, in the crystalline-rock areas shown on plates 3 and 4, wells probably would penetrate little or no basalt before entering crystalline rocks.

The crystalline rocks, in their original unaltered condition, contain very little water. However, where they have been deformed, they are fractured, and at shallow depths the fractured zones may contain enough water to meet domestic needs. At depths of a few hundred feet, pressures are so great that fractures are held tightly together and they do not contain much water.

Locally, the weathering products of the crystalline rocks have remained in place and have undergone very little sorting action. The result is a deposit of sandy to gravelly clay capable of yielding only moderate amounts of water. In other places, streams have transported and sorted the weathering products. Such deposits may locally yield several hundred gallons of water per minute to wells. The finer grained weathering products--sand, silt, and clay--commonly have been carried some distance from the source and are interbedded with basalt flows. The discussion of ground-water occurrence within these sedimentary interbeds is included in the discussion of the basalt.

Stream-reworked deposits of detritus from the crystalline rocks are not flat lying, but in general retain the gradient of the stream that deposited them. For this reason, water in these deposits is commonly under artesian pressure if the deposits lie between relatively impermeable beds. Many flowing wells in eastern Whitman County tap these deposits.

Because the crystalline rocks normally yield water to wells at rates of only a few gallons per minute or less, and relatively little basalt overlies them in much of eastern Whitman County, development of an adequate water supply for domestic or stock purposes may be difficult. Test drilling is especially helpful in locating a water supply under these conditions, as yields may vary greatly within short distances.

Basalt of the Columbia River Group

Nearly all the consolidated rock exposed in the western two-thirds of Whitman County is basalt. The basalt is Miocene and Pliocene in age and is included in the Columbia River Group of Brown and Thayer (1966). Waters (1961, p. 607) has subdivided the group into the Picture Gorge Basalt and the overlying Yakima Basalt. The Picture Gorge Basalt and also possibly the Yakima Basalt are exposed in a structurally elevated area south of Uniontown. In the remainder of Whitman County, only the Yakima Basalt is exposed (pls. 3 and 4).

The basalt is a dark, generally gray to black, dense rock. It weathers light gray to red brown, and commonly exhibits columnar jointing. The individual flows give a definite layered appearance to exposures. Certain groups of flows, and in some places individual flows, have characteristics by which they can be recognized and correlated. In this study, one unit--the Roza Member of the Yakima Basalt (Bingham and Walters, 1965)--was differentiated chiefly on the basis of the presence of numerous feldspar phenocrysts. The contact of the Roza Member with the overlying Priest Rapids Member (Mackin, 1961) is shown on plates 3 and 4. The thickness of the Roza Member probably averages about 100 feet in Whitman County.

The maximum exposed thickness of basalt and the number of exposed flows were not determined in this investigation. However, Waters (1961, p. 585) measured 1,735 feet of basalt comprising 25 flows near Uniontown. He also reported as much as 1,460 feet of basalt and as many as 32 flows exposed in the walls of the canyon of the Grand Ronde River in Asotin County, Washington. The greatest thickness of basalt underlying Whitman County is unknown, but

probably is much more than 5,000 feet. Adjacent to exposures of crystalline rocks, however, the thickness probably ranges from a few feet to several hundred feet.

Individual basalt flows do not everywhere rest on an older flow. Locally, flows are separated by sedimentary interbeds. The sedimentary interbeds extend progressively farther westward with increased depth. The interbeds at greatest depth are located in prebasalt canyons, draining generally westward, that were dammed by the earliest basalt flows. Thus, these deeper interbeds are restricted in areal extent. The shallower interbeds are more extensive because they were deposited after the canyons were filled. They accumulated between the eastern edges of later basalt flows and the uplands. The surface of western Whitman County and the area to the west has subsided since the basalt was extruded and the regional dip of the basalt is west-southwest about 25 feet per mile. Northeast of a line through Malden and Colton the basalt probably is more nearly flat lying, and locally may still retain the original eastward-flow gradient. Not all basalt in the county is flat lying or only gently tilted, however. Rather widespread departures from the regional dip pattern in the area southwest of La Crosse are suggested by the occurrence of flowing wells near Hooper, and by deformation of the basalt in the Snake River canyon south of Uniontown.

Basalt and the associated sedimentary interbeds are the principal aquifers in Whitman County. Not only are they tapped by more wells than are the other aquifers, but some of the largest yields in the county are obtained from them. Wells can be made to yield 1,000 gpm or more almost everywhere in Whitman County if they are drilled deep enough into basalt. Because most aquifers in basalt are in rubbly zones near contacts between successive flows, the factor that determines the yield of most basalt wells is not their depth, but rather the number of flows penetrated. Waters (1961, p. 585) tabulated the total thickness and number of flows exposed in 28 stratigraphic sections in Washington, Oregon, and Idaho. The average thickness of flows, based on Waters' work, is about 80 feet. Newcomb (1961, p. A-2) stated that the average yield of 10- or 12-inch wells penetrating 300 or more feet of basalt and having 50 to 100 feet of drawdown is 1 gpm for each foot of penetration below the water table. He points out that later work indicated a somewhat greater yield. In Whitman County, information gained during the present study suggests that the yield of wells of comparable diameter penetrating several hundred feet of saturated basalt probably increases in increments of about 125 to 200 gpm for each additional 100 feet of penetration below the water table. This statement is based on averages and may not apply to a particular well.

About 100 of the drilled wells listed in table 2 and shown on plates 1 and 2 were selected, on the basis of completeness of data, to relate the occurrence of ground water to basalt stratigraphy. The generalized top of the Roza Member was used as a datum to which the principal aquifer was related. The principal aquifer tapped by most of the selected wells is in the interval from about 80 to 130 feet below the top of the Roza. This interval undoubtedly includes the base of the Roza Member and the top of the underlying Frenchman Springs Member (Mackin, 1961). Wells in Pullman tap an artesian zone within this interval at about 150 to 170 feet below the valley floor. Other intervals within which significant numbers of wells obtain their principal yields are 180 to 225 feet and

265 to 310 feet below the top of the Roza. These intervals probably include contact zones between individual flows within the Frenchman Springs Member.

The chief area in which wells obtain water from the Priest Rapids Member and upper part of the Roza Member appears to be south of Pullman. In the area southwest of a line through La Crosse and Penawawa, and northeast of a line through Malden and Pullman, aquifer altitudes ranged widely. Therefore, the writers were not able to relate them to a common datum as was done elsewhere. Different water-bearing zones have markedly different static water levels. The massive, impermeable centers of basalt flows impede the vertical movement of ground water and cause perched zones above the deeper water bodies. Locally, within the zone of saturation the impermeable parts may act as confining beds and cause artesian pressures in underlying inclined permeable basalt zones or sedimentary interbeds. Artesian aquifers within the basalt are especially common in eastern Whitman County, where basalt fills valleys eroded into the prebasalt crystalline-rock surface. In other places, the static water level may decrease as successive water-bearing zones are penetrated during well drilling.

Near the canyon of the Snake River and along the Palouse River canyon in Tps. 13 and 14 N., most of the rocks at relatively shallow depths are drained of water. The drained areas range in width from about half a mile in the eastern part of Whitman County to about 5 miles near the confluence of the Snake and Palouse Rivers. Springs and shallow dug wells may yield enough water locally for small domestic or stock supplies, but wells must extend to or below the level of the river to obtain larger supplies.

Large springs are conspicuously lacking in the walls of the Snake and Palouse River canyons in Whitman County. Southeast of Almota, the regional southwest dip may reverse sufficiently to prevent significant loss of water from the basalt flows exposed in the canyon walls. West of Almota, the amount of ground water that discharges by seepage from basalt and finally enters the Snake River as flow and underflow of deeply incised Alkali Flat and Penawawa Creeks is unknown. Finally, in much of the area west of Hay, aquifers above 800 feet altitude yield only small amounts of water, whereas aquifers below that altitude have high artesian pressures, suggesting that the regional dip may also be reversed here. This reversal may prevent the discharge of water from basalt exposed in the lower Palouse Canyon.

Structural deformation of the Columbia River Group in the Lewiston, Idaho, area is well recognized. The structural features have been partially mapped and described by C. E. Graham (1949) and by Bond (1963). The deformation appears to be restricted to the area east of Steptoe Canyon (Tps. 11 and 12 N., R. 45 E.) and south of Colton (T. 13 N., R. 45 E). An interruption of stratigraphic continuity, apparently related to the deformation, occurs a short distance west of Steptoe Canyon in the northwest corner of T. 12 N., R. 45 E. There the Roza Member of the Yakima Basalt pinches out and apparently is not present eastward in the county. The structural elements generally consist of a northeast-trending series of faults and folds that become more east-west oriented at the eastern border of the county. The deformation influences ground-water movement in the southeastern part of the county, and its net effect probably is to impede southward and southeastward migration of ground water.

Scabland Deposits

Floods that resulted from the collapse of a glacial ice dam and the subsequent draining of a large lake in Montana (Bretz, 1959, p. 52), swept through parts of western Whitman County in Pleistocene time. These torrential floods crossed the divides between the Spokane and Snake Rivers, locally removed the loess cover, and deeply scoured the basalt. Large areas of nearly bare, channeled and basined basalt--called scablands--are the most conspicuous products of the floods in Whitman County.

Many northeast-trending ridges or islands of loess project above the general level of the scablands. Originally, they probably were high points on the preflood loess surface, and were never inundated by the floodwaters. These islands, which range in area from a few acres to several square miles, rise about 200 feet above the surrounding basalt surface. They generally have somewhat rounded tops and steep sides, and most of the precipitation that falls on them runs off. Basaltic gravel was deposited by the floodwaters at points of decreased gradient, gravel bars were formed downstream from loess islands, and deltas were formed in ponded water.

Although the scabland deposits in Whitman County are laterally extensive, most of them are thin. At most places where the gravels are thick, they are dissected and unsaturated. However, they retard surface runoff and promote recharge to the underlying basalt. Locally, where the scabland deposits are saturated, they yield large quantities of water to shallow wells or infiltration trenches such as 19/40-15D1. Numerous springs issue from the contact between scabland deposits and the underlying basalt in T. 20 N., R. 41 E. In some of the stream valleys east of the principal scabland tracts, the deposits contain silt and clay and are less permeable than in the areas to the west. In the Snake River valley downstream from Riparia, large yields are obtained from scabland deposits.

Eolian Deposits

Almost all of the upland area of Whitman County is mantled by eolian silt called loess. It was carried into the area by prevailing winds from the southwest (Fryxell and Cook, 1964). The loess of eastern Washington commonly has been referred to collectively as the Palouse Formation. This designation was used by Foxworthy and Washburn (1963, p. 12) in the Pullman basin. However, the eolian deposits of Whitman County appear to have been derived from several different sources, and range in age from Pleistocene to Recent. Because of the diverse nature of these deposits, a formation name is not applied to them in this report.

The eolian deposits most commonly range from a few feet to about 100 feet in thickness, but locally they are about 300 feet thick. The loess probably accumulated with an irregular upper surface, and the greatest thicknesses probably accumulated in lee areas much as snow accumulates in drifts. A drainage pattern was established on the basalt surface before deposition of the loess, and the rolling Palouse topography may, in part, reflect the existence of the buried basalt hills

and valleys; however, the unusual appearance of this topography is probably more closely related to the erosional characteristics of the loess.

The porosity of the loess is high, and where the loess is saturated it contains a large volume of water. However, the permeability is low and water moves through the loess slowly. Much of the precipitation that falls on loess-covered surfaces runs off; however, in the winter, when precipitation is highest and evapotranspiration is lowest, there is some recharge if the ground is not frozen. Drilled wells normally do not obtain appreciable quantities of water from loess though large-diameter dug wells tapping loess are important sources of domestic and stock-water supplies in Whitman County.

Despite the low permeability of the loess, dug wells with their large storage capacities are adequate for limited use. Where the loess cover is thin, as in draws and along ravines, dug wells commonly extend through it and a few feet into the underlying basalt. Locally, the upper surface of the basalt may impede downward percolation and perch water in the lower part of the loess; at other places, the top few feet of the basalt may be permeable and substantial yields are obtained immediately below the contact between the loess and basalt. Many springs issue from the contact in Whitman County (table 3), and many farmsteads that are situated in a draw or along a ravine are supplied with water from springs.

Alluvium

In Whitman County, the character and thickness of alluvial deposits of Recent age differ greatly from stream to stream. Near the headwaters of some of the smaller streams the alluvium consists entirely of reworked loess and is indistinguishable from the eolian deposits of the uplands except by position. This type of alluvium is not shown on plates 3 and 4 where it occurs only in narrow bands, or where the change in slope is so small that the contact between eolian deposits and alluvium is unrecognizable. No distinction is made on plates 3 and 4 between alluvium on stream flood plains and alluvium that is on a low terrace adjacent to the streams.

Alluvium of the Snake River ranges from silt or clay to coarse gravel. The thickness of alluvium in the Snake River valley locally is as much as 170 feet. In the Palouse River valley and its major tributaries, as well as in major tributaries of the Snake, the alluvium consists of a few feet of predominantly basaltic rubble overlain by 10 to 20 feet of silt.

Alluvium yields as much as several hundred gallons of water per minute to wells in the Snake River valley and locally in the Palouse River valley downstream from Winona. In the walls of many of the smaller valleys, water is discharged at the contact between loess and basalt from perched water bodies that underlie the uplands. This water recharges the alluvium, and results in a second perched water body. Alluvial material in these valleys yields only a few gallons of water per minute to wells.

WATER-LEVEL FLUCTUATIONS

Fluctuations of water levels in wells tapping unconfined ground-water bodies indicate changes in the amount of water stored in the ground-water reservoir. Rising or declining water levels, as in surface reservoirs, result from an imbalance between recharge and discharge.

In confined (artesian) aquifers, lowering of the water level is a pressure effect and does not indicate dewatering of the aquifer in the area of ground-water discharge unless the water level declines below the base of the upper confining bed. Lowering of the artesian head in an aquifer may be noticeable at a considerable distance from the points of discharge, but dewatering of the aquifer may take place only near the area of recharge.

Long-Term Fluctuations

Water levels in the artesian aquifers tapped by wells of Washington State University and the city of Pullman have been declining since early in this century. The declining trend since about 1934 is shown by hydrographs for wells 14/45-4N1, 14/45-5F1, 15/45-32N2, and 15/45-32N3. Hydrographs for wells 14/45-4N1 and 14/45-5F1 were included in U. S. Geological Survey Water-Supply Paper 1655 (Foxworthy and Washburn, 1963, p. 23), where well 14/45-5F1 was mistakenly identified as 5B1. The two hydrographs are repeated here (fig. 4) to illustrate the total decline from the beginning of record through 1965. Water levels declined about 0.75 foot per year from the beginning of record until 1945. The annual decline increased to about 2 feet during the post-war years 1946-51, when ground-water withdrawal was greatly increased. The decline was about 0.8 foot per year from 1952 to 1959, and has been 1.7 to 2.0 feet per year since 1960. The annual fluctuation in water level in these wells--the normal seasonal fluctuation superimposed upon the net yearly decline--ranges from about a foot to as much as 4.5 feet. The cause of the pronounced rises in water level in well 14/45-5F1 in 1954 and 1961 is not known. It is probably related to some local condition at the well, though, and does not represent general recharge to the aquifer.

A hydraulic connection between deep and shallow artesian basalt aquifers in the Pullman area is indicated by the hydrographs of concentric wells 15/45-32N2 and 15/45-32N3, in figure 5. (The two concentric wells together are termed "well 4" by the city of Pullman.) The hydrograph for well 15/45-32N2 indicates the water level in aquifers between the depths of 400 and 954 feet, whereas the hydrograph for well 15/45-32N3 applies to aquifers in the depth interval between 110 and 234 feet. Production in Pullman well 4 is presently limited to the deeper group of aquifers (well N2). The annual decline in water level of about 2 feet in both the shallow and deep aquifers could be coincidental; however, the small but measurable decline in water level in the shallow aquifers (15/45-32N3) when the deeper aquifers (15/45-32N2) are pumped suggests partial hydraulic connection.

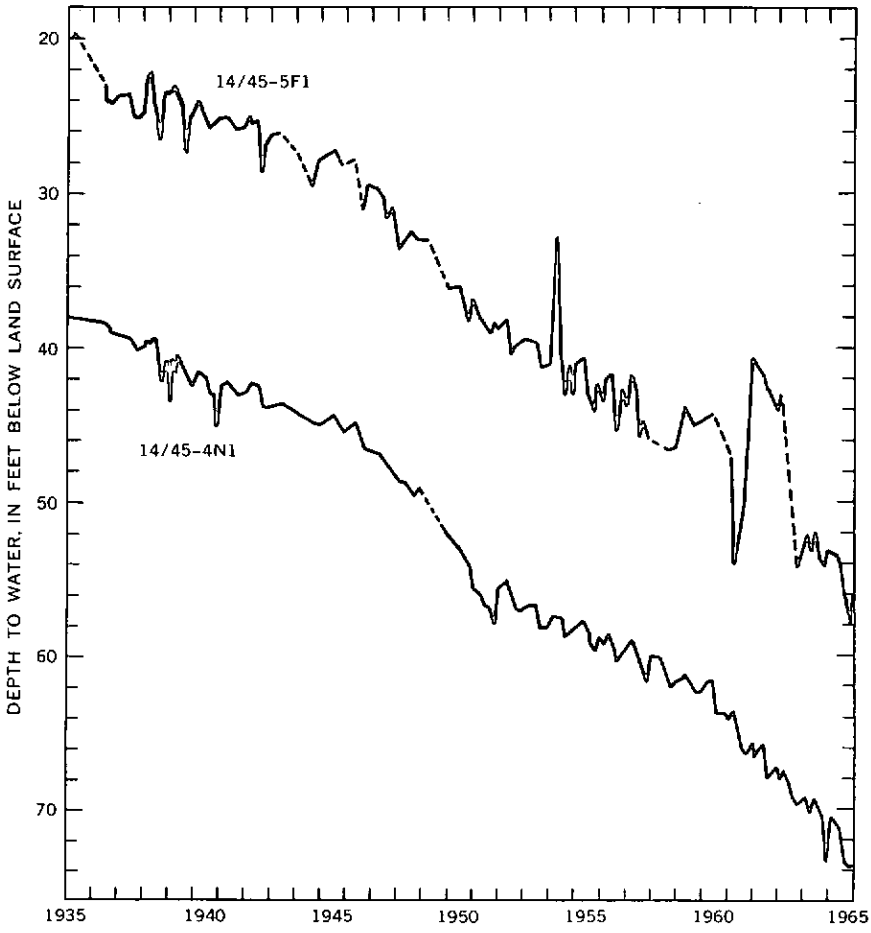


Figure 4 - Ground-water depletion in the Pullman area since 1934, shown by declining water levels in wells 14/45-4N1 and -5F1.

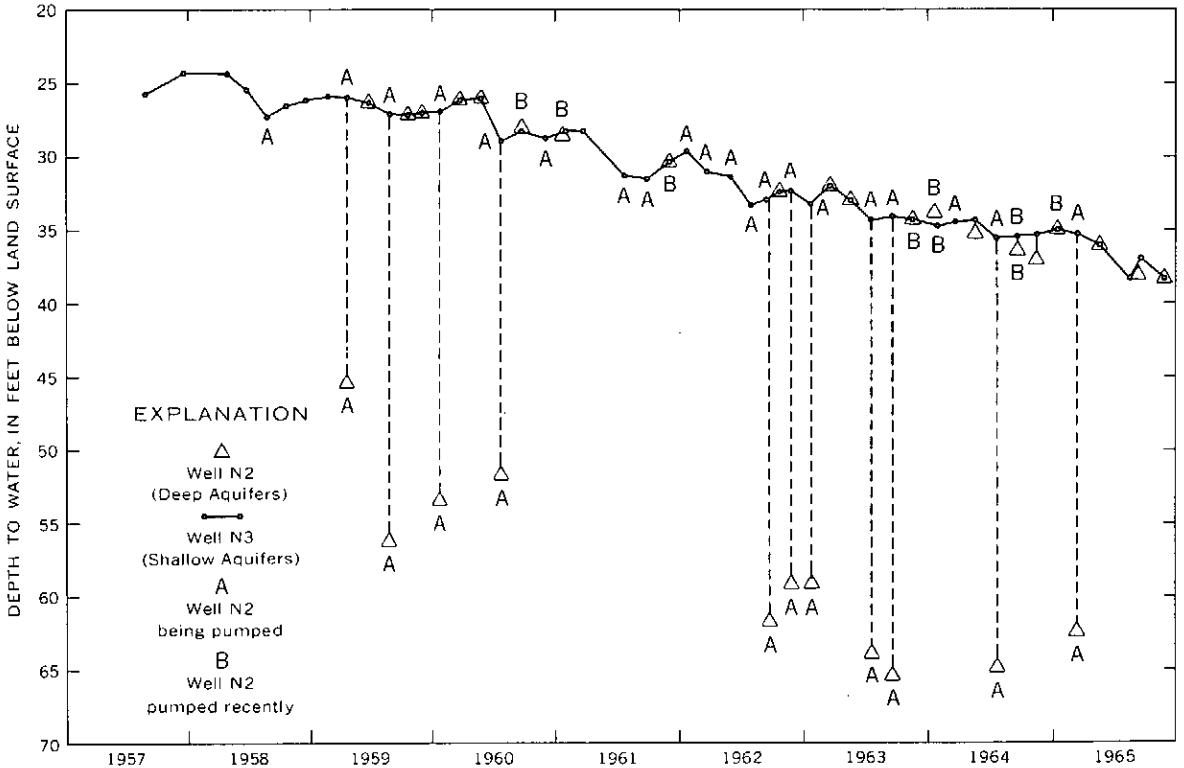


Figure 5 - Relation between water levels in deep and shallow aquifers at Pullman, shown in concentric wells 15/45-32N2 and -N3, for period 1957-65.

The pumping of irrigation wells tapping basalt aquifers in the LaCrosse and Dusty areas apparently has had no noticeable long-term effect on the water level in basalt aquifers tapped by most domestic wells in those areas. Wells 16/39-26J1 (fig. 6) and 15/41-9K1 (fig. 7) are shallower than most irrigation wells, and possibly are incapable of reflecting water-level changes in the deeper aquifers. However, if the shallow and deep aquifers are connected even poorly, as at Pullman, lowering of water levels in the deeper aquifers presumably would cause a slight water-level decline in the shallow zones. Irrigation from wells is common in the Ewan area, but observations of water levels were not made there and the effects of pumping are not known.

Short-Term Fluctuations

In most parts of Whitman County, water-level fluctuations in wells result from drawdown or recovery in the vicinity, or from natural annual or cyclic imbalance of recharge and discharge. The high stage of water levels usually occurs (1) in the winter or spring, when recharge exceeds discharge, or (2) at the end of a period of several years of above-normal precipitation. The low stage usually occurs (1) in the summer or fall, when discharge by pumping and evapotranspiration is at a maximum and precipitation is low, or (2) following a period of several years of below normal precipitation. The annual high and low water-level stages are not determined entirely by total annual precipitation, but are also governed by the time and intensity of precipitation.

Annual water-level fluctuations that are caused principally by variations in precipitation range from less than 1 foot (well 19/41-36R2, fig. 8) to almost 10 feet (well 16/39-26J1, fig. 6) in Whitman County. Figure 8 shows hydrographs for wells 18/43-35P1, 18/45-32H1, and 19/41-36R2, and the cumulative departure from average monthly precipitation at Colfax for the period 1950-1965. Water levels in wells 18/43-35P1 and 18/45-32H1 correlate closely with the cumulative-departure curve. The correlation for well 19/41-36R2 is not obvious, because of the consistent and unexplained high water stage about 2.3 feet below land surface.

Some aquifers in Whitman County appear to be recharged only after prolonged heavy precipitation when evaporation and transpiration are low. For example, during the period 1954-65 the water level in well 16/39-26J1 rose sharply at approximately 2-year intervals following periods of gradual decline (fig. 6). These fluctuations cannot be interpreted on the basis of the yearly precipitation totals shown in figure 3. However, figure 6 shows that when the precipitation near La Crosse exceeds 2 inches per month in several months during the winter period of low evaporation and transpiration, there is appreciable recharge to the aquifer. A similar relationship between precipitation and recharge probably exists in much of Whitman County.

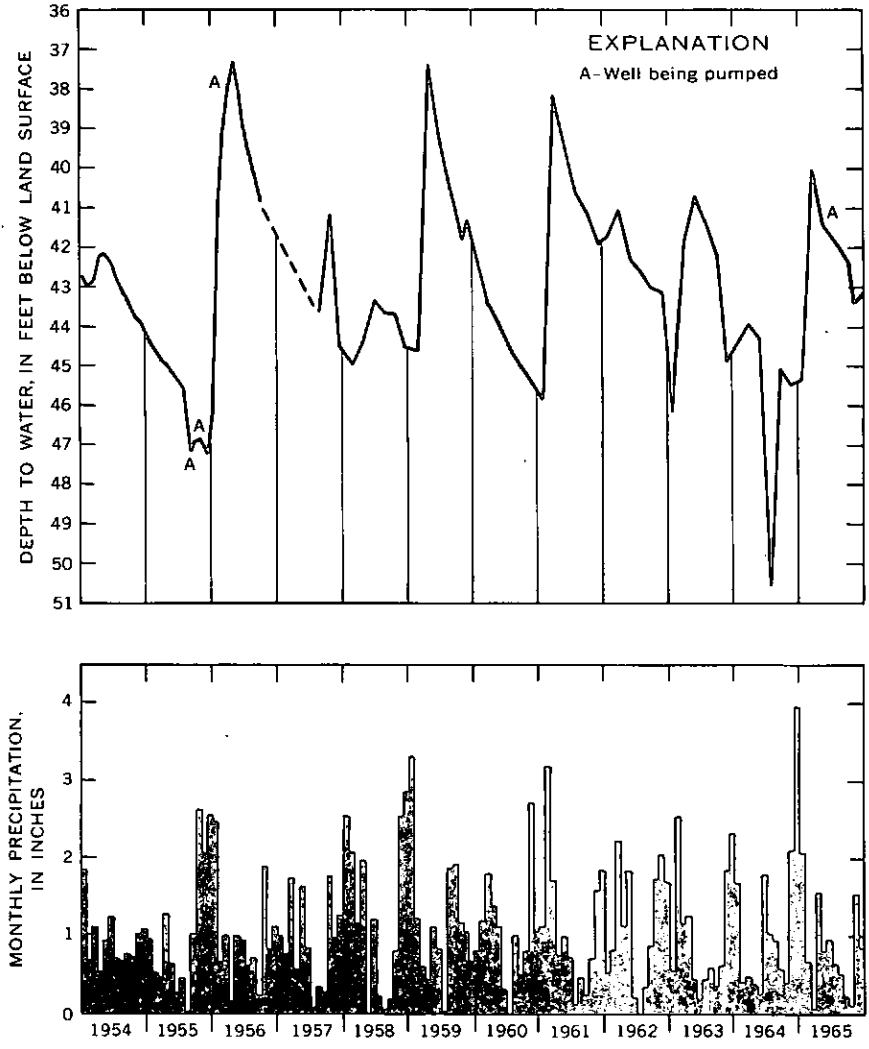


Figure 6 - Relation between water level in well 16/39-26J1 and monthly precipitation near La Crosse, 1954-65.

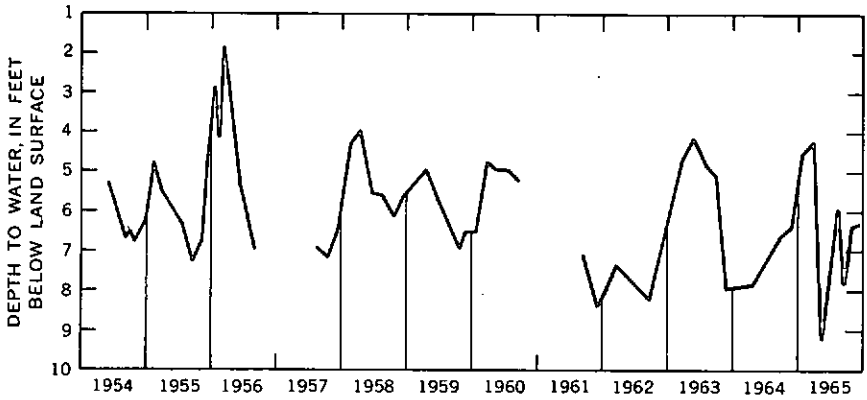


Figure 7 - Water levels in well 15/41-9K1 near Dusty, 1957-65.

QUALITY OF GROUND WATER

The quality of ground water in Whitman County is generally acceptable for domestic, agricultural, and industrial purposes. This conclusion is based on the 45 partial and complete chemical analyses shown in table 5, for water samples collected between 1946 and 1964. Most of the samples are from public-supply wells; several represent domestic supplies. The distribution of towns and cities where samples were collected is not uniform over the county. The sparsely populated western half, particularly the far northern and southern parts, is represented by only a few analyses. Consequently, the available data may not be representative of ground-water quality throughout the county, although they do represent the major supplies currently being exploited.

Most ground water in the county can be classified as the silica-calcium-bicarbonate type. Samples of water from wells producing from aquifers of pre-Tertiary crystalline rock lithology, including those tapping granitic sand, generally tend to contain more calcium and sulfate, and in some cases more magnesium, than those producing from basalt and related interbeds. The calcium-sulfate content of water from wells 12/46-7G1, 14/45-5D1, and 15/45-26K1, which produce from basalt, is anomalous to this general characteristic. In well 14/45-5D1, the concentrations of calcium and sulfate, as well as those of magnesium and chloride, have increased appreciably in the period between 1946 and 1963 (table 5). This 164-foot well has been pumped consistently for many years by the city of Pullman, and the long-term withdrawals undoubtedly have been accompanied by declining water levels similar to those in other wells nearby (fig. 4). This ground-water depletion may in turn have caused lateral or upward migration of water originally associated with rocks having a mineralogic character different from that of the aquifers originally tapped by the well. Similar phenomena may help to explain the changes in chemical quality of water from well 15/45-26K1 between 1955 and 1961 (table 5).

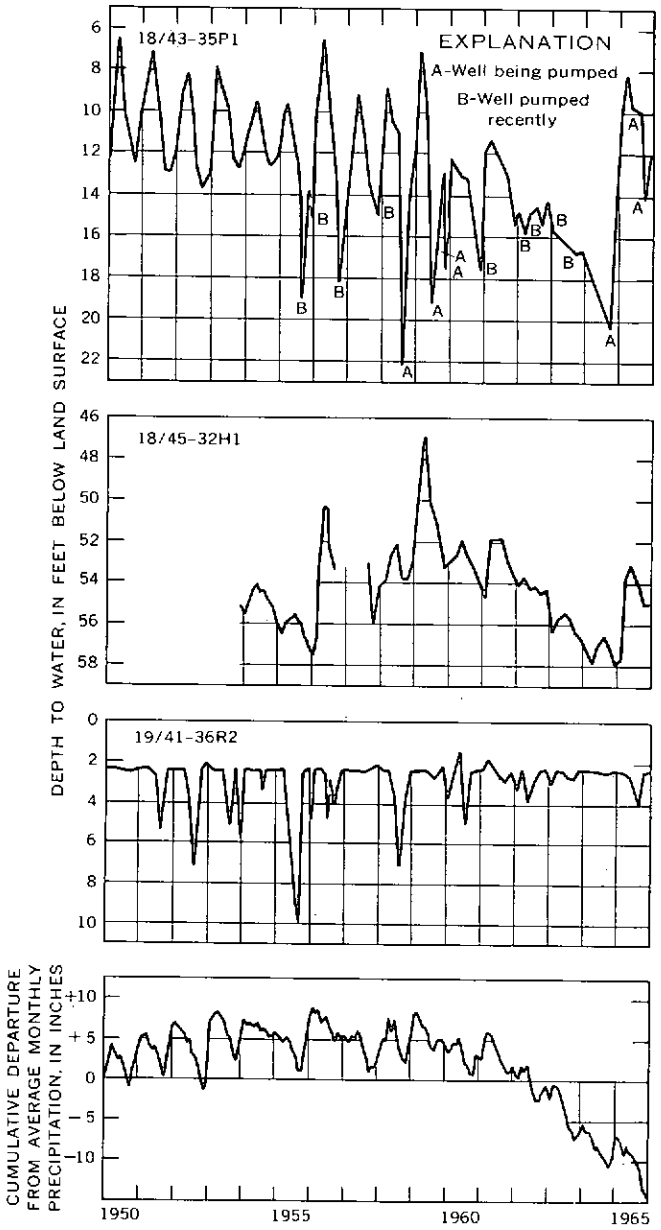


Figure 8 - Relation between water levels in wells 18/43-35P1, 18/45-32H1, and 19/41-36R2 and precipitation at Colfax, 1950-65. Precipitation graph shows cumulative departure from average monthly precipitation (1.75 in.) for the U. S. Weather Bureau "normal" period 1931-60.

Well 15/45-32N2 in Pullman was sampled several times during drilling. The analyses show variations of dissolved constituents with increased depth. Variations are probably the result of differences in the chemical quality of water from individual basalt aquifers. Water from the well shows a slight general improvement in quality during the period since drilling.

The dissolved-solids content of the sampled ground water in Whitman County ranges from 135 to 311 mg/l (milligrams per liter)--well below the 500 mg/l limit recommended for drinking water by the U. S. Public Health Service (1962, p. 7). [U. S. Public Health Service limits referred to in this report are those which "should not be exceeded whenever more suitable supplies are, or can be made, available at reasonable cost." (U. S. Public Health Service, 1962, p. V).] Individual chemical constituents show a considerable range from sample to sample. These variations are discussed below.

Silica concentrations range from 26 to 69 mg/l and average about 52 mg/l. The analyses do not suggest any correlation between silica content and differences in lithology or well depth; nor is an areal pattern apparent.

Iron concentrations in several of the ground waters sampled are greater than 0.3 mg/l, the limit of suitability suggested by the U. S. Public Health Service (1962, p. 7). Except for well water in the Endicott area, the higher concentrations seem to be restricted to the eastern one-third of the county.

The sulfate content of most ground water in Whitman County is low--less than 20 mg/l. Analyses showing the highest concentrations are for water from wells 14/45-5D1 (34 mg/l) and 15/45-26K1 (72 mg/l) in the southeastern part of the county. The water from each of the two wells is represented by two analyses; in both, the sulfate content increased appreciably during the production life of the wells.

The nitrate content of samples from several wells is relatively high compared to the other samples, but the values do not exceed the 45 mg/l U. S. Public Health Service limit recommended for drinking water (1962, p. 7).

Chloride concentrations are well below the 250 mg/l limit recommended for drinking water by the U. S. Public Health Service (1962, p. 7); they range from 1.2 to 40 mg/l. Many of the waters that contain the most chloride also contain appreciable amounts of sulfate and nitrate.

Hardness of water, expressed as $CaCO_3$, ranges from 75 to 243 mg/l among the analyses in table 5. Water in the upper part of this range is noticeably "hard" to domestic consumers. Many consumers use chemical treatment to reduce hardness and improve water for domestic use.

The relative abundance of sodium (Na^+), calcium (Ca^{++}), and magnesium (Mg^{++}) in a water help to determine its suitability for irrigation. The relation can be expressed in terms of the sodium-adsorption ratio (SAR), as follows:

$$SAR = \frac{Na^+}{\sqrt{\frac{Ca^{++} + Mg^{++}}{2}}}$$

where the ionic concentrations are expressed in equivalents per million. The ratio is generally used as an index of the sodium (alkali) hazard of water used for irrigation. In addition to the sodium-adsorption ratio, the salinity hazard of a water is also an important indicator of suitability for irrigation. The salinity hazard is generally based on its electrical conductivity. Irrigation water of high quality is typified by low SAR and conductivity. A comparison of SAR and conductivity values for analyses listed in table 5 indicates that the tested waters exhibit a very low sodium (alkali) hazard and a low to medium salinity hazard. These comparisons are based on methods outlined in the U. S. Department of Agriculture Handbook No. 60 (U. S. Salinity Laboratory Staff, 1954, p. 69-82).

GROUND-WATER DEVELOPMENT

WITHDRAWALS

The largest use of ground water in Whitman County is for irrigation. According to information supplied by individual irrigation well owners and the Washington State Department of Conservation, about 10,000 acre-feet of ground water is pumped annually to irrigate about 2,400 acres. Irrigation is practiced principally in the western one-third of the county, where topographic relief is not so great as elsewhere in the county, and the climate is more arid.

Public-water supplies, all of which are obtained from ground-water sources, constitute the second largest use of ground water in Whitman County. In 1963, about 4,800 acre-feet (1,570 million gallons) of water was used for public supplies (table 1). About 60 percent of this amount was for domestic use. More than 90 percent of the water for public supplies in Whitman County is pumped from the eastern one-third of the county.

About 6,500 people in Whitman County are supplied with water from domestic wells or springs. Withdrawal from these systems probably amounts to about 600 acre-feet per year.

The effect of prolonged heavy pumping on water levels in the Pullman area is shown in figures 4 and 5. Hydrographs of wells 18/43-35P1, 18/45-32H1, and 19/41-36R2 suggest that no appreciable lowering of water level has as yet occurred at Steptoe, Garfield, and Saint John (fig. 8).

Based on a recent agriculture census of Washington Counties (U. S. Bureau of the Census, 1961, p. 175), about 750 acre-feet of water are consumed annually by livestock in Whitman County. Most of this is from ground-water sources.

The total amount of ground water used in 1963 in Whitman County was about 16,000 acre-feet. Of this, about 14,500 acre-feet was withdrawn during the summer months when precipitation and recharge were low. The amount of ground water that leaves the county as unused streamflow following natural discharge by undeveloped springs and seeps is not known; however, it probably exceeds the amount withdrawn by wells and developed springs.

Table 1 - Public ground-water supplies

Public-supply system	Population served	Type of Use (by percentage)			Annual usage (millions of gallons)	Peak daily demand (millions of gallons)	Maximum yield of wells (gpm)
		Domestic	Industrial	Other			
Albion	280	100	--	--	a/16	--	200
Colfax	2,855	60	20	20	253	1.5	2,150
Colton	262	85	15	--	20	.12	--
Endicott	445	75	15	10	27	.11	280
Ewan	59	95	5	--	2.4	.01	105
Farmington	80	100	--	--	2.9	.02	100
Garfield	750	95	5	--	23	.09	415
Hooper	44	100	--	--	a/ 2.5	--	--
La Crosse	475	80	20	--	35	.12	1,400
Lamont	110	100	--	--	9.3	.05	150
Malden	276	95	5	--	29	.12	300
Oakesdale	475	75	--	25	a/27	--	--
Palouse	900	85	15	--	18	.13	450
Pullman	6,850	60	10	30	448	2.85	--
Rosalia	670	75	20	5	40	.30	400
Steptoe							
Steptoe Cabinet Shop	40	80	15	5	2.4	.01	--
Steptoe Water Co.	23	85	5	10	.6	.01	--
Saint John	650	76	12	12	36	.12	--
Tekoa	1,000	85	10	5	28	.11	385
Uniontown	270	95	5	--	14	.10	555
Washington State Univ.	14,000	50	--	50	535	3.02	--

a/Estimated.

TRENDS IN DEVELOPMENT

The rate of ground-water use in Whitman County in the past has varied principally with population trends and with technological developments that have affected water use. The annual use of ground water by the city of Pullman increased from 175 million gallons in 1936 (Foxworthy and Washburn, 1963, p. 20) to 448 million gallons in 1963. The annual use by Washington State University increased from 176 million gallons in 1936 to 535 million gallons in 1963. Much of this increased use of water can be attributed to population growth and increased enrollment at the university, but some can be attributed to greater per-capita use. Use of ground water by the city of Pullman and Washington State University may continue to increase. If, as a result, the ground-water reservoir in the Pullman area becomes greatly overdeveloped, the use of surface water for public supplies may be necessary. Also, it may be possible to inject surface water into specially constructed wells to artificially recharge the ground-water reservoir. Streamflow is normally available for this type of recharge during periods of high runoff in the winter and spring. U. S. Geological Survey analyses of miscellaneous surface-water samples collected from the Palouse River prior to 1960, and monthly samples collected from that river near Hooper since 1959, indicate that chemical quality of the streams is satisfactory for recharge purposes. However, fluvial-sediment studies currently in progress in the area indicate that the suspended sediment transported during high runoff is substantial and turbidity is appreciable even during low streamflow periods; therefore, removal of the sediment prior to recharge injection would be necessary.

The population of cities other than Pullman and the rural population of Whitman County have remained fairly constant or have decreased during the past 50 years. Thus, the use of ground water for domestic and public supply outside the Pullman area probably will not change appreciably either.

Most of the land now irrigated in Whitman County was brought under irrigation between 1947 and 1960; irrigation has increased only slightly since 1960. About 5 percent--80,000 acres--of Whitman County is potentially suitable for irrigation. The best suited land is already irrigated with surface or ground water, and appreciable additional development probably will not take place until economic conditions are more favorable for irrigation. The amount of land that could be irrigated by ground water without overdevelopment of the reserve is unknown, but the land that is suitable for irrigation is so widely scattered that widespread overdevelopment is not likely.

REFERENCES CITED

Bingham, J. W., and Walters, K. L., 1965, Stratigraphy of the upper part of the Yakima Basalt in Whitman and eastern Franklin Counties, Washington: U. S. Geol. Survey Prof. Paper 525-C, p. 87-90.

Bond, J. G., 1963, Geology of the Clearwater Embayment: Idaho Bur. Mines and Geology Pamph. 128, 83 p.

Bretz, J H., 1959, Washington's channeled scabland: Washington Div. Mines and Geology Bull. 45, 57 p.

Brown, C. E., and Thayer, T. P., 1966, Geologic map of the Canyon City Quadrangle, northeastern Oregon: U. S. Geol. Survey Misc. Geol. Inv. Map I - 447.

Crosby, J. W., III, and Cavin, R. E., 1960, Geologic investigation of the Moscow ground water basin employing geophysical studies: Washington State Inst. of Technology Bull. 250, 23 p.

Foxworthy, B. L., and Washburn, R. L., 1963, Ground water in the Pullman area, Whitman County, Washington: U. S. Geol. Survey Water-Supply Paper 1655, 71 p.

Fryxell, Roald, and Cook, E. F., editors, 1964, A field guide to the loess deposits and channeled scablands of the Palouse area, eastern Washington: Pullman, Washington State Univ., Laboratory of Anthropology, Rept. of Inv. no. 27, 32 p.

Gard, L. M., Jr., and Waldron, H. H., 1954, Geology of the Starbuck quadrangle, Washington: U. S. Geol. Survey Geol. Quad. Map GQ 38.

Graham, C. E., 1949, Structure of the western portion of the Lewiston downwarp in southeastern Washington: Pullman, Washington State Univ., unpublished master's thesis, 58 p.

Mackin, J. H., 1961, A stratigraphic section in the Yakima Basalt and the Ellensburg Formation in south-central Washington: Washington Div. Mines and Geology Rept. Inv. no. 19, 45 p.

Newcomb, R. C., 1961, Storage of ground water behind subsurface dams in the Columbia River Basalt, Washington, Oregon, and Idaho: U. S. Geol. Survey Prof. Paper 383-A, 15 p.

Stevens, P. R., 1960, Ground-water problems in the vicinity of Moscow, Latah County, Idaho: U. S. Geol. Survey Water-Supply Paper 1460-H, p. 325-358.

U. S. Bureau of the Census, 1961, United States census of agriculture, 1959: U. S. Bur. Census Final Rept., v. 1, pt. 46, 225 p.

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

U. S. Salinity Laboratory Staff, L. A. Richards, ed., 1954, Diagnosis and improvement of saline and alkali soils: U. S. Dept. Agriculture, Agriculture Handb. 60, 160 p.

U. S. Weather Bureau, 1964, Climatological data, Washington; annual summary, 1963: U. S. Weather Bur. Climatological Data Ser. v. 67, no. 13, p. 210-222.

Waters, A. C., 1961, Stratigraphic and lithologic variations in the Columbia River Basalt: Am. Jour, Sci., v. 259, no. 8, p. 583-611.

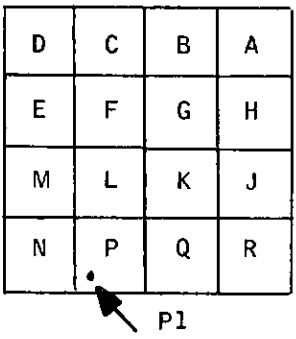
Waldron, H. H., and Gard, L. M., Jr., 1954, Geology of the Hay Quadrangle, Washington: U. S. Geol. Survey Geol. Quad. Map GQ-48.
-----1955, Geology of the Penawawa Quadrangle, Washington: U. S. Geol. Survey Geol. Quad. Map GQ-56.

APPENDIX

WELL-NUMBERING SYSTEM

Well numbers used in this report show the location of wells according to the rectangular system for subdivision of public land; that is, they indicate the township, range, section, and the 40-acre tract within the section. For example, in the well number 18/43-35P1, the two numbers preceding the hyphen indicate the township and range (T. 18 N., R. 43 E.) north and east of the Willamette base line and meridian. The first number following the hyphen indicates the section (sec. 35) and the letter (P) gives the 40-acre subdivision of the section, as follows:

Section 35



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. 35, T. 18 N., R. 43 E., would have the number 18/43-35P1, and the second well would have the number 18/43-35P2. Springs are numbered separately in the same manner, with the letter "s" added.

GROUND-WATER DATA

The following tables include basic data collected during the investigation. They include an inventory of wells (table 2) and springs (table 3), a compilation of well logs (table 4, and a tabulation of chemical analyses of well waters (table 5).

The intensity of the well inventory was governed by several factors: areas of intense ground-water development and problems received a higher intensity of coverage than relatively undeveloped areas; the geologic environment influenced the degree of coverage, and canvassing included wells drilled in all major geologic units; time and economic considerations also affected the intensity of canvassing.

Intensity of the spring inventory also was influenced by most of the above factors. However, a multitude of small springs and seeps that occur throughout the county are not included in the inventory because their development seems improbable and only remote possibilities exist that they might yield a significant quantity of water.

Drillers' logs are listed in table 4. They are, for the most part, published as originally recorded. However, when interpretive modifications of lithologic units are possible and necessary, they are included in brackets.

Table 2 - Records of representative wells

Table 2 - Records of representative wells

(Locations of wells are shown on pls. 1 and 2)

Altitude: Interpolated from topographic maps.

Depth: Depth of well below land surface, recorded to nearest foot.

Water level: Water levels expressed in feet and decimals were measured by the Geological Survey; those in whole feet were reported by the owner, tenant, or driller; "flowing" indicates that the level is above land surface, but the height above land surface is not known.

Use of Water: D, domestic; I, irrigation; Ind, industrial; N, none; P, public supply; S, stock.

Remarks: C, Chemical analysis in table 5; L, log in table 4; Obs, periodic water-level measurements taken during the years indicated. Entries concerning well yields and materials penetrated are reported chiefly by owners, tenants, and well drillers.

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 11 N., R. 45 E.								
1H1	Hillyard & Berg	2,880	100	6	46.04	8-17-54	D,S	
18H1	J. A. Pring	740	65-75	6	--	--	D,S	
24B1	Wilma School Dist.	750	109	6	60	--	D	Principal aquifer is sand underlying basalt at 100 ft.
T. 11 N., R. 46 E.								
5M1	Walter Faber	2,825	85	6	50	1930	D,S	Basalt at 40 ft. Reported yield 25 gpm.
6A1	Dan Dahmen	2,850	55	42	43.20	8-16-54	N	Obs., 1954-56.
6A2	Walter Faber	2,845	192	6	36	1947	D,S	Reported yield 4-5 gpm. L.
19A1	Gray Taylor	710	32	72	26	--	D,S	Water level reportedly fluctuates with river level.
19A2	Wayne Wilson	810	104	6	--	--	D,S	L.

19C1	Ray McCann	790	102	6	97.23	8-17-54	S	
T. 12 N., R. 45 E.								
1H1	George Weber	2,580	90	6	20	--	D	
1N1	Kenneth Meyers	2,740	140	6	21.61	12-10-53	D,S	
2D1	George Druffel	2,680	93	6	15	--	D,S	
5F1	Andrew Schultheis	2,765	92	6	76	--	D,S	Reported yield 20 gpm. L.
5F2	. . . do . . .	2,750	90	6	64.68	7-13-54	D	L.
5H1	Henry Zellerhoff	2,825	20	42	10	--	D,S	Entirely in clay.
8J1	George Druffel	2,755	100	6	--	--	S	
9A1	Frank Stewart	2,750	13	54	6.82	6-15-54	D	
11G1	Theodore Kirpes	2,775	85	6	3	--	D,S	Basalt at 35 ft. Bailed at 75 gpm.
11K1	C. M. Busch	2,790	20	36	9.80	6-15-54	D,S	
12N1	Otto Moehrle	2,780	200+	6	18.46	6-15-54	D,S	Basalt at 80 ft.
13C1	Norbert Heistuman	2,740	65	6	10.66	6-15-54	D,S	
14C1	Senora Cameron	2,840	80	6	30	10- -53	D,S	Will pump dry in 10 minutes.
14G1	Richard Moehrle	2,835	45	6	23.79	8-13-54	N	
15C1	C. M. Busch	2,730	140	6	30	--	D	
22B1	E. A. Moehrle	2,800	100+	6	39.54	8-13-54	D,S	
23C1	R. D. Stout	2,745	132	5	67.30	8-13-54	D,S	Basalt at 30 ft. Reported yield 10 gpm.
23F1	Hubert Meyer	2,730	52	6	21.71	8-13-54	D,S	
24E1	Otto Taufen	2,840	123	6	60	--	D	Drawdown 5-6 ft. after 4½ hrs pumping 14 gpm.
24N1	Wilson Archibald	2,780	10	30	1	--	D	Basalt at 9½ ft.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 12 N., R. 45 E. - Cont.								
25Q1	Jake Schultheis	2,860	185	6-4	135	--	D,S	L.
26Q1	Weis Estate	2,840	95	6	--	--	S	
36E1	Hillyard & Berg	2,860	18	42	9.68	8-16-54	D,S	
36R1	Ted Druffel	2,875	21	30	12.10	8-17-63	--	
T. 12 N., R. 46 E.								
5G1	Joe Bielenberg	2,690	18	48	10.45	6-14-54	D,S	
6F1	John Weber	2,560	110	6	14	--	D,S	Reported yield 20-25 gpm. L.
6P1	Steve Dahmen	2,560	65	6	15.85	6-14-54	D,S	Reported yield 30-50 gpm.
6P2	Ted Druffel	2,570	85	6	50	--	D,S	Reported yield 11 gpm. L.
6R1	Bart Wilson	2,575	22	4	18	--	D	
7B1	Town of Uniontown	2,670	170	12	11.20	11-22-64	P	
7G1	. . . do . . .	2,680	227	12-10	60	--	P	Reported yield 80 gpm. C, L.
7G2	. . . do . . .	2,680	120	6	--	--	P	C.
7G3	. . . do . . .	2,680	255	8-6	--	--	N	Basalt at 10 ft. Abandoned.
7R1	J. B. Morbeck	2,610	65	6	40	--	D	Rock at 4 ft.
8C1	Mrs. B. J. Hoefer	2,630	95	6	30	2- -55	D,S	Reported yield greater than 18 gpm. L.

8N1	Tom Gooch	2,640	73	6	35.91	6-14-54	N	Oil from tank has seeped into well.
8N2	. . . do . . .	2,625	75	6	12	--	D	
17D1	Ed Dahm	2,660	97	6	28.06	6-14-54	N	
17H1	John Warnecke	2,695	165	6	76.34	6-14-54	N	"Rock" at 27 ft.
17N1	Ed Dahm	2,665	85	8	20	--	N	Basalt at 25 ft. Supply inadequate.
17P1	Alfred Heitstuman	2,740	126	6	40	5- -54	D,S	L.
18A1	Ed Dahm	2,640	125	8	50	--	D,S	
18B1	Joe Sauve	2,610	40	6	--	--	D	
18M1	J. W. Tuschoff	2,735	165	8	80	--	D,S	
19H1	Henry Weis	2,680	14	36	--	--	D,S	
19R1	Ed Wittman	2,775	120	8	50	--	D,S	
20G1	Jake Schlee	2,740	7	60	3	--	D,S	
20G2	. . . do . . .	2,730	41	6	11.94	8-16-54	N	
29F1	Lester Wolf	2,795	120	6	23.56	8-16-54	D,S	Supply barely adequate.
29P1	R. L. Stout	2,795	75	6	22.99	8-17-54	D,S	
30L1	John Luy	2,805	100	6	53.75	8-17-54	D	
31J1	M. L. Barry	2,840	44	36	23.37	8-16-54	D,S	
32E1	Eugene Heitstuman	2,805	30	48	15	--	D,S	
33L1	Bob Collins	2,675	150	6	10	1930	N	City of Lewiston test hole.
33M1	R. C. Collins	2,690	150	6	10	1930	N	Basalt at less than 20 ft. City of Lewiston test hole.
T. 13 N., R. 37 E.								
2R1	Dr. Craig	1,275	250	6	125	--	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 13 N., R. 37 E. - Cont.								
10B1	Urgel Bell	1,050	72	6	10	1952	S	
15A1	. . . do . . .	1,250	850	6-5	300	1950	D,S	Basalt at 100 ft.
22C1	Charles Bucher	1,340	190	6	170	--	N	Supply inadequate.
T. 13 N., R. 38 E.								
4J1	Unknown	800	58	6	42.30	7-26-55	N	
7B1	Harvey Barr	1,400	125	6	--	--	D,S	Reported yield 7 gpm.
8D1	. . . do . . .	1,200	308	6	292.08	9-27-54	N	
10Q1	J. Pierson	1,200	330	6	--	--	S	
15D1	. . . do . . .	1,120	220	6	--	--	D,S	
29M1	John Henley, Jr.	590	97	6	52.83	12- 2-53	D	
29Q1	. . . do . . .	590	120	12	65	1951	I	Drawdown 45 ft after 4 hr pumping 990 gpm. L.
30Q1	Union Pacific Ry. Co.	550	32	126	23	1945	--	Coarse gravel from 20 to 32 ft. Drawdown 6 ft after 4 hr pumping 220 gpm.
T. 13 N., R. 39 E.								
3E1	R. D. Smith	1,640	1,205	6	850	--	D,S	Adequate for 500 head stock. L.
6K1	Carl Magee	1,585	740	6	40	1912	D,S	

7E1	Andy Saylor	1,520	500	6	482	1953	D	Reported yield less than 3 gpm.
22P1	R. D. Smith	620	320	12	98	1951	I	Drawdown 23 ft after 4-1/3 hr pumping 1,036 gpm. L.
T. 13 N., R. 40 E.								
3F1	Benjamin Collier	600	223	8	142	1947	I	Drawdown 11 ft after 4 hr pumping 600 gpm. L.
3M1	. . . do . . .	600	176	6	139	1948	I	Reported yield 200 gpm. L.
5R1	Central Ferry School District	690	249	8	118.68	2- 2-55	N	
8F1	Harold Morgan	600	96	6	--	--	I	Entirely in sand and gravel. Reported yield 750 gpm.
8L1	Union Pacific Ry. Co.	590	80	8	--	--	D	Reported yield 275 gpm.
9F1	Centennial Milling Co.	620	100+	6	100	--	D,I	
T. 13 N., R. 43 E.								
3R1	I. E. Wilson	690	136	12	31.62	--	N	Bottoms in basalt. Reported yield 150 gpm.
10R1	. . . do . . .	660	62	10	40	--	I	Entirely in sand and gravel. Reported yield 350 gpm.
T. 13 N., R. 44 E.								
1P1	Ida Little	2,650	--	6	130	--	D	
4J1	Henry Travis	2,450	140	6	60	1953	D	Basalt at 40 ft. Reported yield 12 gpm.
4J2	C. A. Hood	2,450	111	6	20.30	8-13-54	N	
9L1	Jim Morrison	2,580	14	48	7.94	5-27-54	D,S	
10L1	Tom Martin	2,570	245	6	120	4- -54	D	Reported yield more than 12 gpm. L.
12B1	W. A. Meister	2,655	74	6	8	--	D	Basalt at 74 ft.
14L1	L. C. Hatley	2,640	12	48	6	--	D,S	Bottoms in clay.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 13 N., R. 44 E. - Cont.								
14R1	Harold Neuman	2,650	25	48	12	--	D,S	
15H1	Paul Ledeman	2,640	16	96	4.18	5-27-54	D,S	Bottoms in clay.
23H1	L. E. Mahon	2,680	23	36	9.65	5-27-54	D	Bottoms in clay. Supply inadequate.
23P1	R. H. Parkhuff	2,625	6	48 by 72	3	--	D,S	Bottoms in clay.
24P1	Dan Hood	2,740	18	30	9.52	5-26-54	D	
25P1	Ed Kramer	2,780	40	--	29.22	7-13-54	D,S	
36F1	Andrew Schulthies	2,705	165	6	135	--	S	Basalt at 3 ft. Reported yield 16 gpm.
T. 13 N., R. 45 E.								
3E1	Earl Harper	2,660	86	6	50	--	D,S	Basalt at 38 ft.
3E2	. . . do . . .	2,640	65	6	35.13	6- 9-54	N	Reported yield low.
3L1	B. F. Druffel	2,635	90	6	12	--	D,S	Penetrates decomposed granite. Drawdown 8 ft bailing 20 gpm.
3M1	. . . do . . .	2,615	15	30	7.80	7- 3-34	--	Obs., 1934-40.
3M2	Franz Druffel	2,620	100	6	4.85	6- 9-54	D,S	Reported yield 20 gpm. L.
4E1	. . . do . . .	2,610	20	36	10.13	6- 9-54	N	Temp 47°F.
5H1	. . . do . . .	2,605	61	6	31.64	6- 9-54	N	
6A1	M. L. Markham	2,560	15	48	3.89	5-25-54	D,S	

6C1	Joe Gregerson	2,625	9	60	3	--	D	
7Q1	Martin Druffel	2,670	78	6	18.40	12- 9-53	D	Basalt at 30 ft.
8B1	J. W. Maxwell	2,640	304	6	60	1948	D,S	L.
8K1	Martin Druffel	2,695	18	72	3.83	5-27-54	--	
10C1	Tony Frei	2,640	125	6	60	1953	D,S	Reported yield 30 gpm.
10C2	Alfred Hoffman	2,640	133	6	20	1945	D	L.
10C3	John Ellerson	2,630	145	72 by 60	25	--	D	L.
10D1	Alfred Druffel	2,640	175	6	100	--	D	Reported yield 10 gpm. L.
10D2	. . . do . . .	2,630	100	6	9.78	12- 9-53	N	Obs., 1953-56. L.
10E1	Frank Busch	2,635	65	6	22.20	9- 7-55	D	Basalt at 27 ft. Bailed more than 15 gpm.
10L1	. . . do . . .	2,660	137	6	70	--	D,S	Basalt at 50 ft.
11G1	Wilmar Cooper	2,760	12	96	4	--	D	Entirely in clay.
11N1	John Druffel	2,700	273	6	100	--	D,S	Basalt at about 200 ft.
12E1	Leo Broemmeling	2,865	25	48 by 30	6	--	D	
13A1	R. J. Niehenke	2,780	55	60	35	1953	D,S	
13L1	Mike Becker	2,680	222	6	68	--	D	Basalt from 180 ft to bottom of well. Reported yield more than 60 gpm.
13M1	John Becker	2,695	232	6	118.92	6-10-54	D,S	L.
13M2	. . . do . . .	2,690	37	48	11.83	6-10-54	D	
14P1	L. H. Druffel	2,630	206	6	70	--	D,S	
14P2	. . . do . . .	2,630	206	6	--	--	N	
15J1	Eugene Reisenauer	2,655	242	6	112.84	12-10-53	N	Drawdown 40 ft after 1/3 hour bailing 10 gpm. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 13 N., R. 45 E. - Cont.								
15R1	J. Reisenauer	2,650	123	6	47	1- -46	D,S	Basalt at 66 ft.
19F1	Walt Meyer	2,510	219	6	44.60	5-26-54	D,S	Basalt at 30 ft. Supply inadequate.
19N1	J. R. Semler	2,640	15	36	9.36	5-26-54	N	
20A1	Walt Sodorff	2,595	168	6	--	--	N	Basalt at 15 ft.
20E1	Vince Meyer	2,520	180	6	--	--	D,S	
22J1	A. J. Reisenauer	2,595	90	4	31.20	6- 9-54	D,S	
24J1	Frank Druffel	2,675	89	6	5	--	D,S	Bottoms in basalt. Reported yield 10 gpm.
24L1	Joe Druffel	2,650	214	8	30.61	6-10-54	N	
24Q1	John Bauer	2,650	65	6	Flowing	12-10-53	D,S	Bottoms in "quicksand." Reportedly flows more than 26 gpm.
25E1	Stella Mustard	2,600	14	36	11.50	6-10-54	D	
25Q1	Frank Bauer	2,690	205	6	13.88	6-11-54	D,S	Clay to 45 ft; granite, 45-206 ft.
26G1	Tony Moser	2,595	75	5	18.04	6- 9-54	D,S	
26M1	Tony Reisenauer	2,570	100	8	6.48	6- 9-54	D,S	
27A1	Leroy Webber	2,600	100	6	40	1948	D,S	
27R1	St. Gauls Cemetery	2,600	170	6	70	--	I	Basalt at about 85 ft.

28B1	Herbert Druffel	2,555	93	6	46.93	8-17-54	D,S	L.
28C1	Vic Druffel	2,557	98	6-4	--	--	D	
28Q1	Ray Meyer	2,550	12	48	1	--	D	Entirely in silt.
29P1	Albert Druffel	2,645	124	4	69.65	5-26-54	D,S	Supply inadequate.
29P2	. . . do . . .	2,645	12	42	7.63	5-26-54	N	
30J1	W. J. Entel	2,620	19	48	11	--	D	Bottoms in clay.
32F1	Unknown	2,720	11	30	5.46	--	N	
33B1	Paul Druffel	2,575	12	36	6	--	D	Entirely in clay.
34A1	Town of Colton	2,530	143	12	25	1963	P	L.
34A2	. . . do . . .	2,540	136	6	25	--	P	C.
34D1	Jake Schulthies	2,539	73	6	15.23	6-11-54	D,S	Basalt at 9 ft. Reported yield 30 gpm.
34L1	Walt Meyer	2,580	90	6	37.36	5-26-54	D,S	
35D1	Northern Pacific Ry. Co.	2,540	22	204	5	9- -47	Ind	Drawdown 4 ft after 4 hr pumping 50 gpm.
35N1	Pete Busch	2,590	85	6	46.95	1-18-54	S	Basalt at 4 ft. Drawdown 5 ft. after 4 hr bailing 30 gpm. Obs., 1954-56.
35R1	Albert Bauer	2,555	164	6	27	--	D,S	Basalt at 54 ft.
36E1	John Ellerson	2,595	--	6	30	--	D,S	
36L1	Alex Bauer	2,590	5	48	1.76	6-11-54	D	
T. 13 N., R. 46 E.								
5N1	August Kopf	3,005	125	6	19.53	6-11-54	D	"Mica" at 40 ft.
7A1	Frank Becker	2,960	75	8	10	1944	D,S	"Rock" at 40 ft.
7D1	Walter Semler	2,920	10	54	2.84	6-11-54	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 13 N., R. 46 E. - Cont.								
7Q1	C. W. Russell	2,920	30	36	17.42	6-11-54	D,S	
8K1	Frank Niehenke	2,820	155	6	--	--	N	L.
17N1	Mrs. Frank Busch	2,790	460	6	21.51	6-10-54	S	Granite at 10 ft.
17Q1	Glenn Simpson	2,785	165	6	60	--	D,S	L.
19C1	Francis Niehenke	2,725	395	6	30.27	6-10-54	D,S	Reported yield 10 gpm. L.
19E1	Elmer Riedner	2,690	64	6	21.16	6-10-54	D,S	Supply inadequate. L.
20R1	--Rauch	2,675	43	6	13.25	--	N	
29G1	Frank Wolf	2,655	43	6	25	--	D	Bottoms in "rock."
29N1	Walter Wieber	2,640	60	6	20	--	D	
30J1	Tony Reisenauer	2,740	115	6	20	--	D,S	"Rock" at about 50 ft.
30N1	A. S. Reisenauer	2,690	110	6	10	--	D,S	L.
32A1	Henry Mengelkamp	2,620	60	6	--	--	D,S	
32G1	Carl Grief	2,610	100	6	--	--	D,S	
T. 14 N., R. 37 E.								
13E1	McGregor Land Co.	1,420	10	30	6.97	8-31-54	S	
24R1	Ira Daniel	1,440	129	6	98.42	12- 2-53	D,S	Drawdown 29 ft pumping 20 gpm.
26A1	Clanton Eccles	1,355	80	6	45	--	D,S	Reported yield 15 gpm.

26K1	Ira Daniel	1,360	262	6	94.63	12- 2-63	N	Obs., 1953-56.
34F1	. . do . .	1,375	250	6	224.45	8-31-54	N	
35B1	John Mays	1,450	430	6	120	--	D,S	
T. 14 N., R. 38 E.								
3H1	Ray Myklebust	1,540	270	6	105.90	7-26-55	D	
4P1	William Mays	1,600	343	10	180	1954	D,S,I	Basalt at 20 ft. Drawdown 120 ft after 6 hr pumping 40 gpm.
7G1	. . .do. . .	1,480	180	12	29	--	--	Reported yield 25 gpm. L.
8F1	McGregor Land Co.	1,560	1,400	9	190	--	D,S	
10H1	Amanda Gordon	1,580	70	6	40.86	7-26-55	N	
14E1	Arnold Burgess	1,385	51	6	17.56	7-26-55	N	Penetrates principally basalt.
15H1	Walter Schweiter	1,520	56	6	35	1952	D	Basalt at 20 ft.
24B1	Henry Davis	1,350	7	48	3	--	D	
26M1	Mrs. Allen Lacey	1,050	25	96	22	--	D	Basalt at 20 ft. Supply inadequate in summer.
T. 14 N., R. 39 E.								
2P1	Dave McIntosh	1,430	10	36	2.10	7-10-56	D, I	Reported yield 60-70 gpm.
6H1	D. Dorman	1,675	142	6	96	1940	D	Basalt at 40 ft.
8K1	--Chandler	1,720	150	6	119.22	6-27-56	N	
12F1	B. M. Stephenson	1,320	81	6	20	5- -44	D	L.
12G1	. . . . do	1,360	604	12-8	--	--	I	Reported yield 510 gpm. L.
12M1	Fred Zimmer	1,310	32	48	8.15	6-27-56	D	
14B1	Harry Nervig	1,280	92	6	45	5- -44	D	Driller bailed well at 50 gpm. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 39 E. - Cont.								
14L1	Harry Nervig	1,240	55	5	19.66	5-28-54	N	Obs., 1954-56.
21R1	Anna Delashmudd	1,120	155	6	150	--	D	
22N1	M. W. Moore	1,120	260	6	--	--	D	
22P1	Hay School Dist.	1,120	205	6	190	--	D	Reported yield 75 gpm.
25H1	Dallas Cox	1,285	27	1½	20	1930	D	
30D1	John Henley	1,000	220	6	140	--	D	
T. 14 N., R. 40 E.								
2E1	T. Kyllo	1,600	140	6	110	4- -56	--	
4H1	G. Carlson	1,510	232	6	--	--	D	
5D1	H. Wigen	1,440	35	6	--	--	--	Reported yield 10 gpm.
6A1	Selbu Lutheran Church	1,415	183	8	100	4- -51	P	Reported yield 65 gpm. L.
6D1	Don Kyllo	1,400	102	8	87	1951	D	
6G1	Brown Emerson	1,400	107	6	101	--	D	
8R1	J. Kjosness	1,440	130	6	116	10- -55	D	Reported yield 100 gpm.
9F1	Mrs. E. Neil	1,470	180	6	--	--	--	
10Q1	Unknown	1,620	95	6	39.50	7-21-56	S	

17P1	Al Reynolds	1,395	175	6	74	1951	D,S	
20R1	Unknown	1,430	175	6	125.15	7- 2-56	S	
22D1	Mrs. K. Kneal	1,595	400	4	--	--	D	
30M1	Dallas Cox	1,300	120	6	40	1943	D,S	Drawdown 40 ft after 4 hr pumping 300 gpm.
34Q1	Ben Collier	640	150	10	98	2- -51	I	Drawdown 15 ft after 4 hr pumping 810 gpm. L.
T. 14 N., R. 41 E.								
17B1	Maynard Smith	620	40	8	20	--	D	
17C1	K. E. Wallace	620	75	6	40	--	D	Reported yield 12 gpm.
17D1	Ken Pierce	640	101	6	56.40	8- 3-55	D	
18F1	Stacey Eggers	615	32	72	20	1939	D, I	Reported yield 160 gpm.
18G1	Jim Delegans	615	56	48	48	--	D	
T. 14 N., R. 42 E.								
4F1	L. H. Largent	1,770	60	6	15.90	7-28-55	D	Basalt at 25 ft.
4G1	. . . do . . .	1,780	24	48	7.00	7-28-63	S	
4H1	Earl Schluneger	1,830	118	6	50	1- -54	D	Reported yield greater than 7 gpm.
4M1	Charles Shemwell	1,735	76	5	14.80	7-28-55	D,S	Reported yield about 10 gpm.
9D1	Gerhart Dyke	1,760	151	6	103.10	7-28-55	N	
10A1	Frank Sever	1,880	305	6	175	1944	D	Reported yield about 2½ gpm. L.
10N1	Melvin Ensley	1,840	15	48	10	--	N	
13B1	Union Pacific Ry. Co.	760	90	6	30.50	10-28-51	D	"Shattered" basalt and volcanic ash at 26 ft. Drawdown 12-3/4 ft after 6 hr pumping 37 gpm.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 43 E.								
1K1	Claude Davis	2,398	150	6	20.67	8- 5-54	D	
2E1	Richard Wilbourn	2,355	8	36	3.45	8- 5-54	D	
3K1	Frank Carothers	2,365	9	36	.58	8- 5-54	D,S	
4C1	George Gault	2,310	363	7	301.55	8- 5-54	--	Supply inadequate. L.
4C2	. . . do . . .	2,300	33	48	27.70	8- 5-54	D,S	
11C1	Harold Halpin	2,360	9	32 by 48	5.56	8- 5-54	D,S	
12D1	Orval Rittenhouse	2,420	12	60	--	--	D,S	Bottoms in gravel.
13A1	Claude Kunz	2,360	87	6	17	1951	D,S	Penetrates principally basalt. Reported yield greater than 20 gpm.
22E1	Hungate and Young	2,320	308	6	188	--	D,S	Basalt at 60 ft.
22J1	Lloyd Storey	2,310	21	36	8.40	8- 4-54	N	
23F1	. . . do . . .	2,415	190	6	--	--	N	Supply inadequate for domestic use.
23F2	. . . do . . .	2,425	16	75	11.31	8- 4-54	D,S	
24E1	Wade Young	2,425	18	60	10.61	8- 4-54	D,S	Has gone dry in fall. L.
24M1	. . . do . . .	2,420	165	6	73.15	8- 4-54	P	L.
24R1	H. F. Wegner	2,325	162	6	1	--	D,S	L.

T. 14 N., R. 44 E.								
1J1	Ellen Barclay	2,520	210	6	120	--	D,S	
1J2	Floris Gray	2,545	30	42	23.03	8-13-54	D	Supply inadequate in summer.
1L1	Rexford Daubenmire	2,580	275	6	205	--	D	Obtains water principally from white quartz sand at 270-275 ft.
1M1	Ray Harlow	2,540	241	6	91	--	D,S	Basalt at 90 ft.
1M2	Jay Snyder	2,540	87	6	17	--	D,S	Basalt at 30 ft.
2A1	Shiro Okazaki	2,495	50	6	13.18	7-14-54	D	Basalt at 47 ft.
2K1	Max Hinrichs	2,500	79	6	15	--	D,S	L.
2M1	Floyd Bloomfield	2,500	93	8	48	1950	D,S	Drawdown about 14 ft after 1 hr pumping 7 gpm.
3P1	Gana Jones	2,660	176	6	110	--	N	Entirely in silt.
6B1	Floyd Lyle	2,195	60	6	15	--	D,S	Basalt at about 15 ft.
7R1	W. C. Kamerrer	2,275	7	72	1-2	--	D,S	Entirely in silt.
9J1	Mrs. A. E. Olson	2,470	100	6	69.20	11-11-54	D	Pumps dry in about 1 hr.
10E1	Allen Manring	2,555	143	6	62	8- -49	D,S	
10E2	. . . do . . .	2,530	23	36	7.79	12- 9-53	N	
12J2	E. L. Harms	2,530	100	6	87	1952	D,S	
12P1	Pullman County Club	2,630	100	6	--	--	D	
13H1	Arnold Greenwell	2,530	90	6	46	--	D,S	Basalt at 50 ft. and sand at 90 ft.
14J1	. . . do . . .	2,545	62	6	14	--	D	L.
14P1	Wash. State Univ.	2,550	600	10-8	236	2-25-59	S,Ind	Drawdown 24 ft after 24 hr pumping 329 gpm. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 44 E. - Cont.								
16Q1	Mrs. R. H. Morton	2,325	65	6	25	1949	D	
21F1	Neal Klemgard	2,445	90	6	17.60	8- 4-54	D	Basalt at 3 ft. Reported yield 7 gpm.
21H1	Ben Henson	2,395	68	8-6	22	1943	N	Basalt at 11 ft.
21M1	Neal Klemgard	2,625	175	6	85.60	8- 4-54	D	Basalt at 125 ft. Well pumps dry in ½ hr.
23B1	Paul Ledeman	2,580	20	72 by 54	11.24	8- 3-54	D	Well entirely in soil.
24J1	Bob Barbee	2,625	162	6	60	1951	D,S	Basalt at 87 ft.
28J1	J. E. Peterson Estate	2,390	114	6	--	--	N	
30B1	Gordon Klemgard	2,460	57	6	25	7- -52	D	Drawdown 5 ft after 1 week pumping 7 gpm. L.
32Q1	Mrs. Jessie Ryan	2,535	13	48	10.53	8-12-54	D	
34C1	Nora Hatley	2,455	200	8-6	1	--	I,D,S	L.
35H1	A. L. Dunning	2,570	--	2	--	--	D,S	Drilled horizontally into hillside.
36J1	Ada Swofford	2,635	60	6	23.72	8-12-54	D	
T. 14 N., R. 45 E.								
1F1	--Emerson	2,485	--	6	--	--	D	
2F1	Larry Thonney	2,530	35	6	6.29	10-21-53	D	Temp. 52°F.
2F2	. . . do . . .	2,485	125	6	53.80	10-22-53	N	L.

3H1	R. L. Thonney	2,460	238	6	155	1940	D,S	Bottoms in sand.
3H2	. . . do . . .	2,495	34	48	9.39	10-21-53	N	Basalt at 40 ft.
3H3	Wash. Water Power Co.	2,470	259	8	152	8- -57	D	Reported yield 102 gpm. L.
3K1	William Halpin	2,460	230	6	108	1940	D,S	Basalt at 16 ft.
3P1	Sig Jorstad	2,460	60	6	22.26	10-20-53	I	
4H1	Wash. State Univ.	2,455	265	6	116.70	2- 1-55	D,S,I	Obs., 1953-56. L.
4N1	. . . do . . .	2,430	100	6	58.30	10-20-53	D, S	Obs., 1934-65. L.
4Q1	King Evers and C. A. Cole	2,560	205	6	95.65	10-21-53	D	L.
4Q2	Wash. State Univ.	2,410	65	6	11	1932	N	Destroyed. L.
4R1	Stanley Buckley	2,440	125	6	35	1946	D	
5D1	City of Pullman, well 1	2,360	164	10	Flows	1938	P	Reported pressure head about 34 ft above land surface, flow 2,400 gpm when drilled in 1913. C, L.
5D2	Standard Lumber Co.	2,370	162	6	11.72	2-15-52	N	Flowed when drilled. Obs., 1934-52.
5D3	City of Pullman, well 3	2,340	167	15	26.50	6- 5-62	P	Drawdown 106 ft pumping 1,400 gpm. C, L.
5D4	Northern Pacific Ry. Co.	2,360	166	6	10.03	7- 8-55	N	Reportedly flowed 55 gpm originally. Destroyed, C, L.
5E1	City Ice Co.	2,335	95	6	18.86	10-16-53	Ind	Reportedly flowed 240 gpm originally. C, L.
5E3	J. R. Rupley	2,345	73	6	--	--	--	L.
5E4	M. C. True	2,345	77	6	Flows	1894	N	Formerly supplied hotel by natural pressure. L.
5E5	City of Pullman	2,340	84	6	--	--	N	Reported pressure head originally about 20 ft. above land surface. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 45 E. - Cont.								
5F1	Wash. State Univ.	2,365	144	4	43.16	1-23-63	N	Reported yield 500 gpm. Former flowed. Obs., 1935-64. L.
5F2	. . . . do	2,365	237	8	41.24	10-14-53	P	Reported yield 500 gpm. C.
5F3	. . . . do	2,365	223	16-12	44.69	7-15-57	--	Drawdown 3 ft pumping 1,500 gpm. C, L.
5F4	. . . . do	2,400	275	20-12	57	11-18-63	P	Drawdown 1½ ft after 7½ hr pumping 1,690 gpm. L.
5G1	. . . . do	2,400	213	10	24.30	10-14-38	P	Obs., 1935-38. C, L.
6C1	Nora C. Murray	2,480	200	6	--	--	N	Destroyed.
6D1	J. C. Hodge	2,520	190	6	126.20	10-14-54	D	L.
6D2	. . . do . . .	2,540	236	6	40	--	D	Supplies 3 families. L.
6D3	George Utzman	2,500	190	6	130.20	7-15-54	D	
6D4	James Anderson	2,515	220	6	146.98	3- 7-56	D	Drawdown 21 ft after 1 hr pumping 11.4 gpm. L.
6E1	Weskel and Gray	2,500	180	6	6	6- -53	D,Ind	Basalt at 6 ft.
6F1	A. A. Samuelson	2,465	142	6	62	--	D	L.
7E1	Harvey Cole	2,530	82	6	36.32	6-18-54	D	L.
7F1	G. R. Spencer	2,495	70	6	32.87	12- 9-53	D	L.
7F2	Evergreen Builders	2,540	270	8-6	129.77	10-13-54	P	Reported yield 110 gpm. Obs., 1954-55. L.
7F3	Mrs. Baldwin	2,490	65	6	25	1940	D	L.

7K1	Mrs. Baldwin	2,470	29	6	2.79	5-25-54	N	
7M1	Don Adams	2,520	68	6	33.63	5-24-54	D	L.
7M2	Blosser and Loughrey	2,525	90	6	43.24	6- 9-54	D	Reported yield 30 gpm. L.
7M3	Tomlinson & Baldwin	2,500	87	6	34.08	7- 7-54	D	L.
7N1	Max Hinrichs	2,505	50	6	12	--	D,S	
8A1	James Cook	2,380	85	6	43.59	5-19-54	D	Basalt at 20 ft.
8A2	Marion Wise	2,380	105	6	46.53	5-19-54	D	Basalt at about 20 ft.
8G1	Ben Woolliscroft	2,380	11	42	5.21	5-19-54	N	Obs., 1954-56.
8G2	. . . . do	2,400	110	8	72.96	10- 4-54	D,S	Basalt at 10 ft.
8H1	Herbert Neil	2,414	136	6	86	1948	D	Basalt at 20 ft.
8H2	H. C. Weller	2,425	140	6	119.40	10-15-54	D,S	
8J1	James Askins	2,420	85	6	55	--	D, S	Basalt at 20 ft.
8L1	City Cemetery	2,565	355	6	100	--	I	L.
8R1	Vern Hickman	2,430	145	6	55	1947	D,S	Basalt at about 20 ft.
9E1	C. H. Hinchliff	2,420	67	6	5	--	D	Basalt at 14 ft.
10Q1	Herbert Stratton	2,540	200	6	40	--	D,S	Basalt at 50 ft.
11F1	R. N. Vosburgh	2,560	6	96 by 120	3	--	D,S	Entirely in clay.
11N1	Unknown	2,540	15	1½	6.53	11-26-63	N	Obs., 1934-65.
11P1	Eathel Baud	2,560	82	6	9.70	5-19-54	D	
12M1	T. E. Wiley	2,605	11	48	.25	5-19-54	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 45 E. - Cont.								
13F1	Howard Brown	2,545	16	60	12	--	D	Basalt at 14½ ft.
13F2	. . . do . . .	2,545	20	72	2.06	5-20-54	D,S	
13G1	Kenneth Brown	2,550	11	100 by 54	2.28	5-20-54	D	Entirely in clay.
14R1	Unknown	2,495	6	36 by 72	2.08	5-20-54	N	Bottoms in white clay.
15B1	George Leonard	2,620	213	6	140.42	5-19-54	D,S	Basalt at 90 ft.
16E1	C. A. Stratton	2,400	80	6	65.69	5-21-54	S	Basalt at about 15 ft. Obs., 1954-56.
16F1	. . . do . . .	2,410	6	72	2.31	5-21-54	S	
16G1	Wash. State Univ. Agronomy Farm	2,485	400	10	179.50	7-17-57	I	Drawdown 55 ft pumping 340 gpm. L.
16P1	Ronald Haynes	2,420	7	72	2.26	5-25-54	D	
17A1	H. M. Jacobsen	2,420	175	6	90	1950	D	Basalt at about 50 ft. Reported yield greater than 20 gpm
18M1	T. Griffen	2,535	18	48	7.50	1934	N	
19D1	A. W. Kienholz	2,560	74	6	2	1943	D,S	Basalt at 14 ft. Reportedly flowed at about 30 ft depth when drilled.
19P1	Sig Jorstad	2,590	38	48	12.97	5-25-54	--	Obs., 1934-38.
20E1	Claude Kirkendall	2,635	16	60-36	10.14	5-25-54	D	
21H1	L. C. Staley	2,435	206	8-6	130	--	D,S	Basalt at about 20 ft.

22P1	John Staley	2,465	100	6	20	1950	D,S	Basalt at 15 ft.
22Q1	F. A. Jennings	2,475	37	6	1	--	D,S	
23J1	M. Mathison	2,485	12	48	--	--	D,S	
24H1	R. B. Haley	2,495	10	24	.17	5-20-54	D	
24Q1	W. Benedict	2,530	26	48	12.00	5-25-34	N	Obs., 1934-38.
24R1	. . . do . . .	2,510	12	48	13.00	7-13-34	N	Obs., 1934-38.
25D1	Robert Lyon	2,520	55	6	13.55	5-21-54	D	Bedrock at about 14 ft.
25M1	Albert Webber	2,540	18	96	4.72	5-24-54	D	
25Q1	Don Whitman	2,620	140	6	112.29	5-21-54	N	
26C1	Stanton Bursch	2,535	60	6	21.95	5-20-54	D,S	
26J1	Floyd Weber	2,545	26	96	11.03	5-21-54	D,S	Entirely in clay.
28H1	L. C. Staley	2,515	150	8-6	10	1941	D,S	Backfilled from 165 ft. L.
28H2	Harold Boyd	2,520	100	8	15	--	D	"Bedrock" at 10 ft. Drawdown 25 ft bailing 30 gpm.
28K2	L. C. Staley	2,505	80	8	7.90	7-14-54	N	"Bedrock" at about 10 ft.
28L1	Harold Lacey	2,510	86	6	11	6- -53	D	"Bedrock" at about 20 ft.
29D1	Howard Gimlen	2,620	90	6	35	1948	D,S	
29H1	. . . do. . . .	2,575	92	6	33.13	5-25-54	D,S	
31J1	F. A. Jennings	2,555	37	6	8.12	5-25-54	D	
31R1	Glen Glover	2,555	20	36	9.36	5-25-54	D	
31R2	. . do . .	2,550	13	30	4.80	5-25-54	S	
35E1	Kenneth and Arthur Gray	2,560	148	6	18.57	5-24-54	D	"Rock" at 100 ft. Supply barely adequate.
35M1	Earl Harper	2,580	18	54	4.17	5-24-54	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 14 N., R. 45 E. - Cont.								
35N1	G. O. Swales	2,620	117	6	Flowing	5-24-54	D,S	Bottoms in granite.
36Q1	Harry Johnson	2,735	190	6	14.19	5-24-54	N	Granite at 20 ft.
T. 14 N., R. 46 E.								
5Q1	Edgar Anderson	2,760	123	--	106.23	5-19-54	N	Obs., 1936-40.
6R1	. . . do . . .	2,710	212	7	90	1945	D,S	L.
6R2	. . . do . . .	2,660	350	6	--	--	N	L.
7G1	Harlan Reid	2,615	180	6	40	--	D,S	Basalt at about 160 ft.
7N1	C. J. Bowers	2,560	100	6	9.04	5-20-54	N	
7N2	Howard Shriver Est.	2,575	242	6	40	1954	D	L.
7P2	Edgar Anderson	2,580	140	6	101.58	5-19-54	D	Supply inadequate.
8K1	Arnold Anderson	2,620	125	6	35	1947	D,S	Granite at 125 ft.
8K2	. . . . do . . .	2,600	240	6	--	--	N	Bottomed in "quicksand" underlying "granite." Destroyed.
17B1	H. M. Peterson	2,530	120	6	65	1945	D,S	Principal aquifer reported to be granitic sand. Reported yield greater than 18 gpm.
19M1	Elmer Haynes	2,480	80	6	9.63	5-20-54	D	L.
20K1	--Cameron	2,545	13	6	7.54	5-20-54	N	

29L1	C. V. Strohm	2,555	278	60-6	--	--	D,S	Dug to 30 ft. L.
29P1	Jesse Hawley	2,625	42	54	38	--	D	Supply inadequate in summer.
29Q1	. . . do . . .	2,615	13	48	1.32	5-24-54	N	
30L1	Harold Snow	2,560	15	48	3.44	5-20-54	--	
31F1	--Steiner	2,660	33	48	3.87	5-20-54	N	
32C1	C. V. Strohm	2,655	20	36	5.48	5-24-54	N	Obs., 1934-40.
27R1	McGregor Land Co.	1,100	281	8	30	--	S,P	Supplies town of Hooper and about 7,000 cattle.
27R2	. . . do . . .	1,080	248	6	Flowing	11- 6-63	I	
27R3	. . . do . . .	1,080	286	6	12	9- -63	I	Flows in winter.
32Q1	Ira Scott	1,040	25	60 by 60	20	--	I	Entirely in sand and gravel.
34A1	Union Pacific Ry. Co.	1,045	184	10	Flows	1914	--	Flows 900 gpm. L.
T. 15 N., R. 38 E.								
13C1	Herb Camp	1,370	14	30	12.42	9-27-55	S	
22E1	Staley Hereford Ranch	1,140	106	8	--	--	I,D,S	Reported yield about 50 gpm.
24R1	L. F. Arlt	1,320	73	6	35	--	--	
27A1	--Staley	1,195	108	6	--	--	S	
34J1	Mrs. Amanda Gordon	1,430	49	6	32.40	9-27-55	I,D,S	
T. 15 N., R. 39 E.								
1G1	Floyd F. Fields	1,560	165	6	--	--	N	Supply inadequate for domestic use.
1K1	Mary Scharpenberg	1,560	180	6	--	--	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 39 E. - Cont.								
2F1	Union Pacific Ry. Co.	1,480	210	13	46	1945	N	Drawdown 15 ft after 4 hr pumping 110 gpm. To be used by town of La Crosse.
2K1	Town of LaCrosse	1,520	273	12	151	--	P	Reported yield 584 gpm. C, L.
2K2	. . . . do	1,520	261	8	150	--	P	Reported yield 500 gpm. C, L.
3G1	Harold Snow	1,550	175	6	--	--	D,S	
3R1	W. M. Camp	1,480	250	10	80	6- -61	D,S	Drawdown 13 ft pumping 100 gpm. L.
4D1	Harold Snow	1,525	200	6	141.00	9-27-55	S	Pumping when measured.
5M1	Peter Schwieger	1,505	13	36	12.20	9-27-55	N	
6R1	Herb Camp	1,485	27	36	26.10	9-27-55	S	
8D1	Peter Schwieger	1,600	190	6	90	--	S	
10B1	Lester Camp	1,485	600	6	60	--	S	Formerly used for irrigation.
10B2	. . . do . . .	1,485	260	12	60	--	I	Pumps 650 gpm.
10D1	Schweiger Bros.	1,530	138	6	88	4- -54	D,S	Drawdown 5 ft pumping 100 gpm.
10G1	M. S. Myklebust	1,480	780	7	52	--	I	Reported specific capacity 14.7 gpm per ft of drawdown.
12R1	Homer Hopkins	1,520	138	6	43	--	D,I	Reported yield 90 gpm.
14A1	R. Camp	1,500	--	6	--	--	D	

14B1	. . do . .	1,480	67	6	48.28	6-27-56	I	
16C1	W. Schweiger	1,465	70	6	40	--	D,S	Reported yield 7 gpm.
17N1	P. Schweiger	1,400	90	6	4	--	D,I	Reported yield 7 gpm.
19P1	Chet Gordon	1,320	86	6	30	--	D,S	
20D1	LaCrosse Grain Elev.	1,355	13	8	5.87	--	D	
20D2	O. M. Fleming	1,360	49	6	20	--	D	
20D3	J. F. Gordon	1,360	9	36	2.00	7- 9-56	D	
20K1	Carl Mackleit	1,400	--	6	8	--	D	
22J1	Herb Camp	1,540	165	6	59.40	6-28-56	D,I	
28C1	C. O. Camp	1,550	120	6	70	--	D	Basalt at 40 ft.
28G1	Dale Bryan	1,560	198	8	45	--	D	
29P1	O. Fleming	1,515	160	10-8	58	4- -55	D	Reported yield 25 gpm. L.
T. 15 N., R. 40 E.								
4N1	Weldon Washburn	1,580	60	6	15	--	D	Basalt at 60 ft.
4N2	. . . do . . .	1,575	80	10-6	12	--	N	L.
7G1	Urgel Bell	1,520	50	6	--	--	D	
8D1	Frank Guske	1,540	75	6	42	7- -54	D,S	
9B1	Ira Dark	1,600	101	6	28.89	7-12-55	D	
9M1	Melvin Camp	1,600	116	8	84	--	D	L.
10F1	Gilbert Ferris	1,615	60	6	25	1953	D,S	Entirely in silt.
11E1	Robert and Gilbert Ferris	1,640	60	--	--	--	D	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 40 E. - Cont								
11H1	Robert and Gilbert Ferris	1,640	108	6	49.80	11-25-53	D	
12A1	Ray Forney	1,690	100	6	--	--	D,S	
12C1	E. J. Moore	1,645	128	8	45	1953	D,S	Drawdown 20 ft pumping 164 gpm. L.
14C1	Unknown	1,725	125	6	108.60	8- 6-54	N	
14P1	J. Schoeff	1,680	130	6	--	--	D	
15R1	Fred Stueckle	1,645	450	12	110	4- -53	I	Drawdown 265 ft after 8 hr pumping 1,200 gpm. L.
19J1	J. R. Wigen	1,530	190	6	90	8- -53	D,S	Drawdown 30 ft pumping 28 gpm.
21B1	Melvin Camp	1,595	90	6	--	--	D,S	
24B1	J. A. Stueckle	1,750	311	8	110.47	12- 9-54	I	Drawdown 63 ft after 8 hr pumping 122 gpm. L.
24B2	. . . do . . .	1,710	140	6	70	--	D,S	
24H1	Ed Stueckle	1,780	190	6	84.31	7-12-55	D,S	Supply inadequate in summer.
25K1	Paul Zaring	1,600	355	6	195	1952	D	L.
25K2	. . . do . . .	1,650	110	6	60	--	D	Basalt at 30 ft. Supply inadequate.
28C1	Ole Kyllo	1,560	80	6	70	5- -56	D	
36F1	Mrs. Della Zaring	1,590	236	6	216	2- -52	D	Supply inadequate in summer. L.

T. 15 N., R. 41 E.								
4F1	Walter Scholz	1,720	100	6	59.60	11-25-53	D,S	
4R1	Dusty Farm Bureau	1,675	52	6	12	1948	D	L.
4R2	Walter Scholz	1,740	125	6	83.30	8-20-54	D	
6N1	Bill Anderson	1,695	80	42	--	--	D	
7C1	Fred Stueckle	1,700	100	6	--	--	D,S	Supply inadequate.
8D1	Ernie Stueckle	1,750	93	6	75	--	D	
8R1	Rev. Ruben Maier	1,685	101	6	64.20	10-22-54	D	Pumping when measured.
9F1	Chris Stueckle	1,675	90	6	--	--	D,S	Supply inadequate.
9K1	John Scheideman	1,670	96	10-6	5.28	5-28-54	N	Obs., 1954-65.
9L1	Chris Stueckle	1,675	92	6	13	5- -53	D,I	Basalt at 15 ft. Drawdown 10 ft after 12 hr pumping 35 gpm.
10C1	Dusty Cemetery	1,690	68	6	16	5- -53	I	
10D1	Charles Lambert	1,675	106	6	15.95	8- 6-54	D,P	Supplies community of Dusty.
12A1	Fritz Steiger	1,805	--	6	65.00	9- 8-55	D,S	
14R1	Conrad Ochs	1,760	76	6	28	1940	D,S	
16A1	John Schiedeman	1,730	120	6	60.01	10-22-54	D,S	
16C1	--Elliot	1,665	71	6	18.47	10-22-54	D	
17C1	Vince Natziger	1,665	80	6	15	--	D,S	Basalt at about 30 ft.
17E1	P. F. Broeckel	1,660	80	6	15	--	D,S	
17E2	. . . do . . .	1,630	408	10	18	1951	I	Drawdown 180 ft after 4 hr pumping 670 gpm. L.
19J1	E. D. Broeckel	1,510	80	10	7	1956	S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 41 E. - Cont.								
19L1	Albert Broeckel	1,625	475	10	7	5- -51	I	Reported yield 600 gpm. L.
20F1	Sam Vogler	1,670	80	6	50	--	D,S	
20Q1	Walter Broeckel	1,685	80	6	--	--	D	
22D1	E. D. Broeckle	1,720	80	6	14	5- -56	D	
23A1	Conrad Ochs	1,815	163	6	32	1942	D,S	
23A2	L. C. Ochs	1,800	136	6	70	1926	D,I	Reported yield 100 gpm.
24E1	--Helm	1,800	70	6	62.36	8- 2-55	N	
24M1	Bill Genero	1,795	120-150	6	--	--	D,S	
25H1	Albert Niehenke	1,750	110	6	30	--	D,S	
25Q1	R. L. Looney	1,750	154	6	63.03	8- 3-55	S	Supply inadequate.
30A1	Art Broeckel	1,640	--	6	37.50	7-15-55	D,S	Pumping when water level measured.
30L1	Ben Krom	1,600	65	6	22.99	7-15-55	D,S	
T. 15 N., R. 42 E.								
1B1	Delbert Kammerzel	2,040	111	6	5.07	7-14-55	D,S	
4A1	Elbert Wise	2,040	180	6	150	--	D,S	
6M1	Unknown	1,835	111	6	73.34	9- 8-55	N	
7G1	Lester Sauer	1,780	100	6	18	--	D,S	

7H1	John Sauer	1,770	80	6	10	--	S	
7H2	Adam Machlied	1,770	80	6	14	--	D,S	
7J1	. . . do . . .	1,780	78	6	14.68	9- 8-55	S	
8F1	Alby Ochs	1,850	101	6	53.61	7-29-55	D,S	L.
8L1	Wesley Ochs	1,790	90	6	7	--	D,S	Drawdown 18 ft after 4 hr pumping 150 gpm.
9C1	H. J. Niehenke	1,960	140	6	50	--	D,S	
9N1	E. R. Sittner	1,830	10	84	2	1953	D,S	Entirely in clay.
10Q1	A. D. Nafziger	1,950	180	6	30	1955	D	
11G1	John Heilsberg	1,875	146	6	73	--	D,S	Basalt at 30 ft.
11G2	. . . do . . .	1,880	236	6	136	1922	N	
11N1	. . . do . . .	2,020	150	6	6	--	N	Basalt at 50 ft. Well flowed when drilled in 1915.
12K1	Fred Stonaker	2,040	16	45	5.69	7-14-55	D,S	
14M1	Unknown	1,915	19	36	1.70	7-29-55	N	
15C1	Unknown	1,860	8	72 by 60	6.56	7-29-55	N	Entirely in clay.
16H1	M. W. Carroll	1,840	152	6	13.70	7-29-55	D,S	L.
17M1	John Rudy	1,810	130	6	69.82	8- 2-55	N	
17N1	. . do . .	1,790	30	72	26	--	D,S	Water-bearing gravel at 29 ft.
19F1	Marvin Link	1,750	95	6	25	1952	D	
19M1	Mamie Kneale	1,790	110	6	52.14	8- 2-55	N	
21Q1	Unknown	1,790	14	24	3.26	8- 1-55	D	
22N1	Pauline Miller	1,880	75	6	35.25	8- 1-55	D,S	
25Q1	Alvin Rubin	1,925	98	6	12	1945	D,S	Basalt at 18 ft.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 42 E. - Cont.								
26M1	Les Rubin	1,880	115	6	60.56	8- 1-55	N	
28D1	Archie Hennigar	1,775	81	--	48.30	8- 1-55	D,S	
29A1	Frank Miller	1,750	85	6	25	--	D,S	
35J1	Ida Aeschliman	1,820	62	6	25	--	D	Basalt at 20 ft.
36L1	Leslie Rubin	1,885	112	6	15.79	7-27-55	D,S	L.
T. 15 N., R. 43 E.								
6R1	Elmer Broweleit	1,870	186	10	105	8- -54	D,I	Reported yield about 200 gpm. L.
7M1	Loren Klaus	2,160	175	6	90	1949	D,S	L.
10D1	Herb Mohr	2,225	60	6	20	--	D,S	
13H1	Harold Upshaw	2,405	112	6	15	--	D	Basalt at 50 ft.
13N1	John O'Neil	2,380	16	--	4	--	D,S	
16P1	Rhoda Stevick	2,270	38	60	24.68	7-27-55	D,S	Entirely in clay.
17K1	C. A. Stevick	2,170	120	6	30	--	D	Basalt at 20 ft.
18R1	Milton Ensley	2,140	60	6	--	--	D,S	
24H1	Ellery Johnson	2,410	13	48	11.16	8-19-54	D,S	
26L1	Berne Davis	2,395	189	8	32	1951	D,S	L.
26L2	. . do . .	2,380	240	6	120.20	8- 5-54	N	Obs., 1954-56.

27J1	Kenneth Kincaid	2,370	5	84	3.41	7-27-55	D	
30J1	Rupert Aeschliman	2,015	70	6	15	--	D	Basalt at about 25 ft.
30J2	H. D. Rogers	2,050	154	6	12	9- -54	D	L.
30L1	Harold Aeschliman	1,960	56	6	17.91	7-27-55	D	Basalt at 20 ft.
31D1	Elliot Gay	1,960	90	6	--	--	D,S	
32A1	Bernard Jenkins	2,255	10	48	3.02	--	D,S	
33C1	. . . do . . .	2,320	100	6	50	--	D,S	
35L1	Bert Davis	2,440	240	6	170	1927	D	Basalt at 70 ft.
35R1	Clyde Davis	2,380	148	8	--	--	D	Basalt at 50 ft.
T. 15 N., R. 44 E.								
1G1	A. V. Clark, Jr.	2,370	157	6	19.45	11-24-53	D	L.
1L1	Jim Kinzer	2,420	13	24	4.05	--	N	Temp 47°F.
1N1	A. V. Clark, Sr.	2,450	73	6	Flowing	11-24-53	D,S	Basalt at 35 ft.
2R1	Boyd Kelso	2,510	142	6	30	1946	D,S	Basalt at 30 ft.
4A1	Union Pacific Ry. Co.	2,200	200	6	6	--	D	
5A1	Fred Hoffman	2,360	120	6	60	--	D,S	
5B1	Mrs. Mary Buri	2,390	16	48	4	--	D,S	
5L1	Fred Hoffman	2,420	170	6	28	1931	D,S	Basalt at 70 ft.
9E1	Bob Matsen	2,470	100	6	--	--	D,S	
10P1	P. G. Christopher	2,230	115	6	72	--	D,S	Dug 0-20 ft , drilled 20-115 ft.
10Q1	Town of Albion	2,255	83	6	28.60	10- 1-54	N	On standby.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 44 E. - Cont.								
10R1	Town of Albion	2,330	234	6	--	--	N	Supply inadequate.
11A1	Joe Bryan	2,515	150	6	132	--	D,S	L.
11F1	Clarence Johnson	2,440	140	7	3.79	11-24-53	N	Reported, "quicksand" overlies "bedrock."
11F2	. . . . do	2,430	225	6-4	Flowing	11-24-53	D	Reported, "quicksand" overlies "granite bedrock."
13J1	. . . . do	2,510	178	8	56.64	11-23-53	N	
14D1	Town of Albion	2,290	235	10-6	12.78	11-23-53	N	"Granite" at 20 ft. Obs., 1953-56.
15A1	Pete Christopher	2,250	63	6	30	--	D	
15A2	Town of Albion	2,260	78	10-8	16	1- -54	N	On standby. C, L.
15A3	. . . do . . .	2,290	150	10-8	11	1952	P	C.
15A4	. . . do . . .	2,240	--	--	--	--	P	C.
15F1	R. A. Mitchum	2,245	25	42	12.42	8-18-54	D,S	
15G1	Union Pacific Ry. Co.	2,240	19	6	13.30	10- 1-54	N	Well plugged.
15G2	Town of Albion	2,390	290	8	127.50	11-23-64	P	
15H1	George Martin	2,275	150	6	45.59	12- 3-53	D,S	
15R1	Carl Boyd	2,280	12	48	2.23	11-24-53	D,S	Temp 49°F.
16B1	P. G. Christopher	2,345	--	60	8.80	8-19-54	N	

16K1	Frank Dober	2,365	--	6	29.19	8-18-54	D,S	
16L1	Ed Jones	2,410	78	6	76.24	7-15-54	D,S	Basalt at 73 ft.
16L2	. . do . .	2,430	363	6	72	1944	N	L.
17E1	Albion School Dist.	2,345	18	36	6.48	5-16-34	N	Obs., 1934-38.
17L1	R. Barr	2,330	27	48	15.45	5-16-34	N	Obs., 1934-40.
18J1	Harold Upshaw	2,350	107	6	--	--	D,S	L.
19B1	Johnson Brothers	2,365	91	8	18	--	D	L.
20D1	Leon Cay	2,355	280	6	150	--	D,S	
20G1	Joe Babbitt	2,350	65	6	--	--	D	
20G2	. . . do . . .	2,370	60	36-6	9.70	7-15-54	S	Dug 0-22 ft. Drilled 22-60 ft.
21C1	John Fulfs	2,375	130	6	30	1948	D	Basalt at 113 ft.
21D1	O. V. McCroskey	2,355	177	8	100	--	D	Basalt at 10 ft.
21D2	. . . do . . .	2,350	165	8	90	--	D	
26L1	Merle Harlow	2,395	160	8	73.55	7- 8-55	D,S	L.
28B1	Tom Bush	2,380	50	6	19.44	12-11-53	D	"Bedrock" at 10-15 ft.
31P1	Floyd Lyle	2,145	40	6	15	1950	D	Basalt at about 20 ft.
32A1	--Brown	2,435	11	60	4.00	8-12-54	--	
33B1	Leonard Small	2,435	175	9	60	1944	D	L.
34H1	V. L. Michaelson	2,420	28	180	1	--	S,I	Reported yield about 30 gpm.
35B1	John Fulfs	2,430	75	6	7	--	D	
35E1	V. L. Michaelson	2,415	300	12-10	88.87	6- 8-54	I	Drawdown 34 ft pumping 490 gpm. Obs., 1954-56. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 44 E. - Cont.								
35F1	V. L. Michaelson	2,440	96	6	--	--	D,S	
35R1	John Fulfs	2,495	56	5	11.61	7-15-54	D,S	
T. 15 N., R. 45 E.								
1H1	Paul Mader	2,575	26	36	17.61	11- 9-53	D	
1H2	. . do . .	2,585	17	30	4.34	11- 9-53	D	
2M1	Harry Ledeman	2,600	100	5	--	--	D	Supply inadequate for domestic use.
3J1	Unknown	2,580	17	1½	4.66	11-12-53	N	Obs., 1934-40.
3Q1	I. A. Zakarison	2,555	18	92 by 72	1.67	11-23-53	D	Hard clay at 12 ft.
3R1	Unknown	2,570	20	48	6.33	11- 6-53	S	
4N1	J. H. Peterson	2,505	14	60	7.18	11-12-53	D,S	Entirely in silt and clay.
6H1	Ray Parvin	2,420	10	48	1.73	11-12-53	N	
6H2	. . do . .	2,425	146	6	60.01	11-12-53	D,S	Obs., 1953-55. L.
7D1	Unknown	2,465	26	48	9.91	11-24-53	N	
7Q1	W. E. Lawson	2,530	150	6	51.55	11-13-53	D,S	
7R1	Oscar Anderson	2,540	34	42	18.33	11-13-53	D	Supply inadequate.
8L1	Helmer Rossebo	2,485	123	6	30	1938	D	L.

8M1	Ross Howell	2,495	30	48	8.84	11-13-53	N	L.
8M2	. . do . .	2,490	290	6	60	--	D,S	Basalt at 45 ft. Reported yield about 20 gpm.
9B1	J. H. Petersen	2,555	14	36	.57	11-12-53	D,S	
9C1	Paul Vernier	2,540	260	6	160	1938	D,S	
9C2	. . . do . . .	2,545	30	36	24.64	11- 5-63	D	
9H1	Kenneth Knight	2,630	25	36	14.70	11-23-53	D,S	
9R1	Paul Vernier	2,505	116	8	17.70	11- 5-53	D	Basalt at 45 ft.
10E1	A. H. Nelson	2,555	263	6	229.65	11- 6-63	N	Obs., 1953-56.
10E2	. . do . .	2,555	15	42	7.68	11- 6-53	D,S	
10F1	. . do . .	2,535	72	10	42.78	11- 6-53	D,S	Basalt at 38 ft.
10F2	. . do . .	2,535	17	42	14.20	11- 6-53	D	Supply inadequate.
11K1	Roy Held	2,560	30	24	20.47	11-10-53	N	"Rock" at 20 ft.
11N1	Jim Kimzey	2,585	150	6	79.82	11- 6-53	N	Supply inadequate for domestic use.
13A1	Omer Pogue	2,610	40	96	30	--	N	
13N1	Earmel Cunningham Est.	2,545	165	6	19.83	10-29-53	N	
14E1	Carl Gray	2,535	10	36	.77	11- 9-53	D,S	
14M1	B. I. Pickell	2,505	10	48	2.56	11- 9-53	D	
14Q1	Mary Stirewalt	2,520	285	6	146	10- -49	D,S	L.
14Q2	. . . do . . .	2,530	33	30	25.28	10-29-53	N	
15H1	Roy Held	2,540	85	6	27.13	11-10-53	D,S	Basalt at 25 ft. Reported yield about 40 gpm.
15R1	Unknown	2,510	51	6	20.88	11- 5-53	N	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 45 E. - Cont.								
16E1	Unknown	2,540	10	36	7.70	11-23-53	N	
17E1	Rose Howell	2,565	90	6	27.05	11-13-53	D	Basalt at 30 ft.
17M1	Carl Reid	2,530	253	6	18.76	10- 1-54	D,S	Basalt at 24 ft.
18F1	Mrs. August Johnson	2,515	13	72	.62	11-23-53	D	
19F1	Milton Johnson	2,470	135	6	57.04	5-27-54	D,S	
19G1	C. H. Malmquist	2,470	8	60	2	--	D,S	
19P1	Unknown	2,505	17	54	15.69	5-27-54	N	
20H1	Wendell Gwinn	2,520	74	6	10.71	11- 5-53	D	
20K1	Don Sodorff	2,500	20	96	4	--	D,S	Pumps dry in about 6 hrs.
20K2	. . . do . . .	2,500	173	6	8.78	11- 5-53	N	Basalt at 16 ft; granite or quartzite at 120 ft.
20P1	Whelan Grange	2,490	14	120	4.80	11- 5-53	D	
21H1	Carl Boyd	2,480	248	6	193.30	8- 3-55	D	Basalt at 31 ft. Obs., 1955-56.
22K1	Cliff Wexler	2,515	8	60 by 72	5	--	D	
22M1	Tim Pritchard	2,480	20	96	6.59	10-29-53	D	Basalt at 19 ft. Supply inadequate.
23B1	Mary Stirewalt	2,500	50	6	31.43	10-29-53	D	Supply inadequate. Obs., 1936-37.
24C1	Jesse Gray	2,535	20	36	17.12	10-29-53	D,S	

25A1	Merrill Boyd	2,645	137	6	112.13	10-22-53	D,S	Basalt at 96 ft.
25G1	--Driscoll	2,605	22	42	17.53	10-23-53	N	Obs., 1935-40.
25Q1	W. M. Boyd	2,610	264	6	59.53	10-23-53	D,S	L.
26K1	Orval Boyd	2,620	302	6	281.05	10-27-53	D,S	Reported yield 50 gpm. Obs., 1953-55. C, L.
26K2	. . do . .	2,620	120	6	60	--	D	
27M1	Frank Boyd	2,520	150	8	30	--	D,S	
28J1	D. R. Burnham	2,545	40	48	34.92	11- 4-53	D	Basalt at about 38 ft.
28J2	. . . do . . .	2,540	162	6	76.53	11- 4-53	D	L.
29P1	Kenneth Hall	2,455	140	6	120.38	4-29-55	D,S	L.
29P2	. . . do . . .	2,460	120	5	--	--	N	
30G4	Experimental Farm	2,520	371	6	204.40	10-18-54	D,S	Obs., 1955-56. L.
31G1	Mrs. Beuche	2,500	190	6	--	--	N	Basalt at about 4 ft.
31M1	Wash. State Univ.	2,345	172	10	23	5- -57	D,S	Drawdown 9 ft pumping 396 gpm. L.
32C1	O. O. Turner	2,400	105	8	60	--	D,S	
32G1	D. R. Berry	2,380	26	30	11.54	11- 9-53	N	
32N1	City of Pullman, well 2	2,355	231	15	36	10- -64	P	Drawdown 34 ft after 4 hr pumping 800 gpm. C,L.
32N2,) 32N3)	City of Pullman, well 4	2,355	954	20-12	--	--	P	Drawdown 18.6 ft after 24 hr pumping 1,000 gpm. Annular space between 16- and 20-inch casing is designated well 15/45-32N3. Obs., 1957-65. C, L.
33J1	Wash. State Univ.	2,610	438	6	271	9- -33	N	L.
34L1	Ted Taylor	2,540	45	6	22.99	10-28-53	S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 15 N., R. 45 E. - Cont.								
34L2	Wash. State Univ., well 5	2,505	396	16-10	196	1964	P	Drawdown 2½ ft. pumping 500 gpm. L.
34N1	Earl Whitlow	2,485	52	6	6	--	D	Basalt at about 10 ft.
35F1	Pullman-Moscow Airport	2,530	172	8	--	--	P	L.
36Q1	H. E. Hagedorn	2,585	10	60	1.52	10-21-53	D	Supply inadequate in summer.
36Q2	. . . do . . .	2,580	200?	6	--	--	N	Plugged and dry at 50 ft.
T. 15 N., R. 46 E.								
6B1	Theodore Quist	2,615	65	6	24	10- -52	D,S	Basalt at 30 ft.
6E1	Lilly Hall	2,590	100	6	50	--	D,S	
6P1	Paul Mader	2,620	78	6	24.89	11- 9-53	D	
7B1	Sam Fleener	2,635	14	30	5.15	11- 9-53	N	
7C1	. . . do . . .	2,640	72	42	47.12	11- 9-53	D,S	"Bedrock" at 72 ft.
7J1	Percy Doyle	2,660	150	7	20	10- -42	D	"Granite" at 18 ft.
8G1	Allan Gillispie	2,760	14	60	3.17	11-10-53	N	
8Q1	Marvin Dahl	2,800	135	8	95	1947	D	
17B1	James Williams	2,800	106	6	36.45	11-10-53	D	Supply inadequate.

18J1	Carl Boyd	2,655	213	6	23.43	10-29-53	N	Obs., 1953-56.
19J1	John O'Donnell	2,575	59	8	16.34	10-29-53	D	"Rock" at about 4 ft.
19R1	W. M. O'Donnell	2,570	41	6	6	--	D	Basalt at about 10 ft.
20K1	N. T. Carson	2,590	15	48	6.38	10-28-53	N	Obs., 1934-62.
20P1	. . . do . . .	2,590	250	6	101.55	10-28-53	S	Originally 400 ft deep. Obs., 1953-56. C, L.
29N1	Charles Paul	2,670	120	5	65	1923	D,S	Basalt at 55 ft.
30N1	John Goughnour	2,620	23	48	7.93	10-23-53	D,S	
31H1	Gerry Hagedorn	2,610	100	6	70.10	10-22-53	D,S	
31J1	Ed Metzgar	2,520	117	6	8.22	10-22-53	--	Supplies drive-in theater. L.
31K1	Carrie Yarborough	2,515	18	36	11.01	10-22-53	N	
32Q1	Henry Guske	2,540	180	6	--	--	D,S	
T. 16 N., R. 39 E.								
1A1	J. H. Robinette	1,535	111	6	54.31	7-27-56	N	
12B1	. . . do. . .	1,720	275	6	195	1934	D,S	Reported basalt at 210 ft.
13P1	. . . do . . .	1,490	524	12	70	12- -51	I	Drawdown 83 ft after 4 hr pumping 1,165 gpm. L.
24D1	. . . do . . .	1,500	--	6	50	--	D,S	
24Q1	C. O. Camp	1,490	495	12	60	1951	I	Drawdown 290 ft after 1½ hr pumping 1,000 gpm. L.
25P1	J. S. Branch	1,525	72	6	20.76	7-26-55	S	
26J1	. . . do . . .	1,540	59	6	42.74	1-18-54	S	Obs., 1954-65.
35J1	Paul Scharpenberg	1,485	125	8-6	63.65	9-27-55	N	Drawdown 1 ft after 4 hr pumping 75 gpm. Obs., 1955-56.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 16 N., R. 40 E.								
2N1	--Hayes	1,730	84	6	2.92	7-13-56	N	
4E1	H. O. Storment	1,640	260	6	200	10- -56	D,S	Basalt at 50 ft.
4P1	D. Storment	1,635	150	6	120	--	D,S	
10C1	E. C. Hay Ranch	1,670	58	48	30.35	7-13-56	D	
12R1	L. Wakefield	1,780	120	6	35	--	D,S	
13B1	Bill Hughes	1,710	160	6	90	--	D	
20M1	J. S. Branch	1,525	42	6	18	1944	D,S	
22J1	A. Knott	1,515	65	6	30	1946	D	L.
23A1	W. H. Hughes	1,555	90	8	20	10- -55	D	
24K1	Kate Litzenberg	1,550	135	6	90	--	D	
28D1	Joe Guske	1,520	37	36	26.15	7-12-56	N	
29D1	F. G. Wesselman	1,515	115	6	75	1947	D,I	Reported yield 60 gpm.
30K1	Floyd Fields	1,590	50	6	19.20	8-11-54	N	
30K2	. . . do . . .	1,610	211	6	175	1954	N	L.
31E1	Franklin Rockwell	1,590	93	6	--	--	D,S	Reported yield 17 gpm.
32R1	Floyd Fields	1,640	265	6	100	1954	D	Basalt at 60 ft.

34H1	Philip Swent	1,680	80	4	60	--	D	
34R1	Hattie Hopkins	1,635	--	6	--	--	D,S	
T. 16 N., R. 41 E.								
4R1	A. Repp	1,800	140	6	70	--	D	
6K1	. . do . .	1,820	190	6	100	--	D	Supply inadequate.
8P1	--Day	1,800	145	6	35	--	D	
9A1	B. Whites	1,760	165	6	45	--	D	Basalt at 50 ft.
10N1	D. Whites	1,720	84	6	--	--	D	
11A1	Richard Kyser	1,850	27	36	11.10	7-17-56	D	
12L1	W. Clark	1,920	65	60	40	--	D,S	Entirely in blue clay.
14R1	B. Pendergrass	1,900	145	6	45	--	D,S	
19E1	F. L. Stapleton Ranch	1,570	90	6	90	8- -42	D,S	L.
24N1	D. Appel	1,650	135	6	50	--	D,S	
26C1	H. Breeden	1,660	106	6	51.30	7-16-56	N	
26C2	. . do . .	1,620	65	6	--	--	D,S	
26P1	J. W. Mader	1,680	120	6	60	--	D	
27F1	A. E. Foundain	1,590	120	6	40	--	D	
33D1	H. C. Ackerman	1,750	107	6	50	--	D,S	
T. 16 N., R. 42 E.								
1F1	Lloyd Smick	2,090	103	6	33.42	8- 3-62	D	
2B1	Uni-Chem Fertilizer Co.	2,030	100	8	12	--	Ind	L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 16 N., R. 42 E. - Cont.								
2H1	Ralph Bumgarner	2,060	160	6	55	--	D,S	
4C1	E. Hamilton	2,020	30	6	18	--	D,S	
5K1	--Blevins	1,995	33	48	8.40	7-27-56	D	
6R1	Unknown	2,030	300	6	46.30	7-27-56	N	
11F1	Oscar Steiger	2,155	105	6	4.83	8-29-62	D	
13F1	Fay McNeilly	2,150	150	6	42	--	D	
13H1	Jack Pittman	2,195	100	6	34	--	D,S	
13L1	Orville Krueger	2,130	94	6	Flowing	8-29-62	D,S	
14N1	Z. M. Chestnut	2,030	28	--	4	--	D	
19N1	M. W. Klettke	1,655	50	6	Flowing	7-17-56	D	
25G1	Maurice Ousley	2,135	96	6	53.47	8- 1-55	D,S	
26J1	John Moore	2,030	160	6	--	--	D	
26K1	F. E. Naffziger	1,980	63	6	41.15	8- 1-55	D,S	
36L1	Alex Teade	2,060	90	6	18	1955	D	
T. 16 N., R. 43 E.								
3F1	Ira Roberts	2,205	187	6	16	--	D	Basalt at 70 ft.

3H1	George Appel	2,270	102	6	62	--	D	
3J1	--McGuire	2,370	30	6	4.62	8-29-62	D	
3M1	Irwin McGuire	2,270	96	6	30	--	D	
7G1	M. F. Townsend	2,135	152	6	14	--	D,S	
7Q1	Robert Dugger	2,160	190	8	24.64	9-30-62	D	Slight drawdown after 24 hr pumping 38 gpm. L.
9L1	J. W. Daubert	2,230	67	6	8.02	8-26-62	D	
11G1	City of Colfax, well 2	1,970	600	12	180	--	P	Reported yield 711 gpm. L.
11M1	City of Colfax, Sewer Dept.	1,975	125	6	100	1953	N	Destroyed. L.
12A1	--Griffin	2,340	--	6	61.38	10- 3-56	N	
12A2	W. R. Heilsberg	2,395	90	6	--	--	D,S	
14A1	Colfax Cemetery, Dist. 6	2,265	97	8	25	1945	D	
14A2	. . . . do . . . . . do ..	2,265	340	8	14.23	10-14-64	N	Formerly used to irrigate cemetery.
14N1	Harvey Ackerman	2,230	65	6	3	2- -55	D	
14N2	City of Colfax, well 3	2,115	750	20-12	340	8- -55	P	C, L.
15D1	R. Turner	2,140	70	6	42	--	D	Basalt at 20 ft.
15R1	Charles Stevick	2,260	247	6	135	2- -54	D	. . . Do . . . .
15R2	. . . . do . . .	2,290	338	6	189.60	7-28-55	N	
16B1	Maude Jeffries	2,265	178	6	79.69	8-26-62	D	
16J1	Wayne Hopkins	2,210	21	48	7.30	7-29-55	D	Supply inadequate in summer.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 16 N., R. 43 E. - Cont.								
17A1	Josh Davis	2,200	14	6	5.22	8-26-62	D	
18H1	L. G. Sarver	2,160	67	6	18.88	8-30-62	D	
20E1	Whitman County Fairgrounds	2,135	94	8	12.16	7-14-55	P	Basalt at 54 ft.
20G1	Arthur Jensen	2,150	100	6	20	1955	D,S	
20P1	Alfred Teal	2,155	69	6	30	--	D,S	L.
21L1	Arthur Jensen	2,200	106	6	11.75	1-18-54	N	Obs., 1954-62.
21P1	Colfax Airport	2,190	175	8	2.49	7-14-55	D,Ind	
22A1	Whitman County	2,280	190	6	19.89	7-28-55	D	
22G1	Ed Broeckel	2,390	190	6	156	7- -55	D,S	Basalt at 18 ft.
22P1	Eugene Mohr	2,290	80	6	60.13	7-13-55	D,S	
25D1	Henry Schmick	2,130	17	48	9	--	D	Basalt at 17 ft.
25F1	L. W. Smawley	2,170	418	7	400	1952	--	Supply inadequate. L.
27E1	A. A. Anderson	2,240	33	42	19.42	7-13-55	D	
28P1	Eugene Mohr	2,180	87	--	--	--	D,S	
29H1	D. C. McClintock	2,210	93	6	38	1949	D,S	Basalt at 60 ft.
29H2	. . . . do	2,210	248	6	242	--	N	Destroyed.

30M1	Mrs. Ruby Lloyd	2,215	141	6	22	7- -55	D	Reported yield 60 gpm. L.
32D1	E. Filan	2,130	68	6	.75	7-14-55	D	
33H1	Lewis Day	2,185	74	8	39	10- -54	D	Reported yield 35 gpm. L.
33R1	John Getz	2,205	17	60	8.05	7-13-55	D,S	
36J1	W. D. Jeffries	2,250	--	4	20	--	D	Basalt at 20 ft.
36J2	E. W. Boldt	2,245	55	6	--	--	D	. . . Do . . .
T. 16 N., R. 44 E.								
1D1	C. W. Howell	2,470	55	6	2	12- -50	D,S	Basalt at 16 ft.
2R1	R. L. Hill	2,445	30	8	1.97	10-3-56	D,S	. . . Do . . .
4E1	Mrs. E. M. Thompson	2,470	320	6	120	--	D,S	Supply inadequate.
5J1	Unknown	2,420	28	48	16.19	10-3-56	N	
6M1	Unknown	2,370	8	36	1.33	10-3-56	N	
7M1	Ed Roberts	2,395	40	6	--	--	D,S	
8N1	Dale Enos	2,415	220	6	29.70	10-3-56	D,S	
11F1	C. E. Hodge	2,370	46	8	10	1947	D	L.
11M1	. . . do . . .	2,395	26	42	10	6- 56	D	Basalt at 26 ft.
13E1	A. W. Shelledy	2,475	176	8	141	1955	D,S	Basalt at 38 ft.
17E1	Dale Enos	2,385	274	6	235	9- -56	D,S	Basalt at 30 ft.
22K1	P. S. Brownell	2,415	25	48	5.87	10-2-56	D	"Quicksand" at 24 ft.
24D1	Richard Koenig	2,520	190	6	--	--	D	
24H1	Orvel Walker	2,595	259	8-6	Flowing	9- -55	D,S	Backfilled from 290 ft. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 16 N., R. 44 E. - Cont								
24M1	Henry Koenig	2,530	10	54	5.58	10- 2-56	N	
26J1	J. K. McIntosh	2,490	125	6	40	10- -44	D	L.
29F1	Elgie Day	2,330	11	42	6.93	10- 2-56	D	Bottoms in basalt.
30F1	Paul Cocking	2,390	300	6	--	--	D,S	
31Q1	Katie Hensle	2,320	68	6	17.50	8-19-54	D	
32N1	Jack Ensley	2,430	11	36	1.13	8-18-54	D	
32P1	Harold Johnson	2,395	50	40	24.10	8-19-54	D,S	"Bedrock"at about 45 ft.
35L1	Boyd Harlow	2,300	95	8	24.99	10- 2-56	D	L.
35L2	. . . do . . .	2,300	113	6	8.71	10- 2-56	N	Report "quicksand" in well.
T. 16 N., R. 45 E.								
1J1	Glen Grady	2,510	18	54	6.16	10-21-54	D	Entirely in silt.
1K1	W. A. Meinig	2,535	186	6	115	--	N	Supply inadequate for domestic use.
1M1	Marvin Styer	2,560	180	6	125	--	D,S	Basalt at 24 ft.
3A1	Fred Olson	2,540	30	60	17.37	12- 4-53	D,S	
3R1	John Daily	2,580	44	48	32.23	12- 4-53	D,S	
6M1	Jim Hensle	2,560	30	36	7	--	D	

6N1	. . . do. . .	2,560	30	36	6.01	10-21-54	D	
9D1	Fred Slonaker	2,590	46	42	22.39	10-21-54	D,S	Supply inadequate.
9G1	Dan Dailey	2,565	160	6	60	--	D	
10A1	H. L. Miller	2,555	150	6	17.48	10-21-54	D,S	Entirely in silt.
10H1	W. S. Redman	2,560	115	6	112.53	12- 4-53	N	
10H2	Joe Mader	2,565	52	6	20	--	D	L.
10J1	Allan Flansburg	2,550	92	6	--	--	D	Supply inadequate.
11D1	H. L. Miller	2,580	60	6	15	--	D	Basalt at 25 ft. Reported yield 21 gpm.
11N1	E. L. Flansburg	2,575	77	36-6	40	--	D	Basalt at 40 ft.
12D1	A. W. Leistner	2,560	110	48-6	60	1925	D	Basalt at 54 ft.
12J1	Raymond Hanson	2,580	120	8	50	--	D,S	Basalt at about 110 ft.
12N1	Boyd Beeson	2,620	198	6	118.20	12- 8-54	N	Obs., 1954-56.
13F1	. . . do . . .	2,615	125	6	65.31	10-20-54	N	
13H1	Lamona Garrison	2,565	147	6	20	1948	D,S	Basalt at 40 ft.
13N1	Harvey Beeson	2,540	32	42	20.68	10-20-54	N	
14K1	Joe Mader	2,605	80	6	73	--	N	
15F1	J. A. Twitmeyer	2,520	50	48	31.43	12- 3-53	D,S	Basalt at 30 ft.
15P1	Clarence Kuehner	2,495	100	6	--	--	D	
16A1	John Kuehner	2,565	60	36	48.26	12- 4-53	D,S	
17L1	Kamiak Butte State Park	2,875	400	8	168.30	12- 3-53	P	"Rock" at 10 ft. Supply inadequate.
18A1	Welden Askins	2,605	8	36	5.29	10- 3-56	D	Blue clay at 8 ft.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 16 N., R. 45 E. - Cont.								
22M1	A. L. Swecker	2,460	25	36	12.67	12- 3-53	D,S	
24J1	Glen Glover	2,610	30	42	12.40	10-19-54	N	
25D1	W. M. Stipe	2,520	240	6	30	1951	D	L.
25R1	John Tate	2,595	24	48	10.54	11-11-53	D	Entirely in clay.
27Q1	Jack Leonard	2,460	135	6	20	7- -50	D,S	"Rock" at about 15 ft. Sand reported below rock.
27R1	Jacob Greenwalt	2,480	147	6	40	--	D,S	Entirely in basalt.
30K1	Carl King	2,340	99	6	22	11- -55	D,S	Basalt at 5 ft.
30Q1	C. C. King	2,345	120	6	--	--	D	Reported yield about 60 gpm.
32N1	Roy Parvin	2,520	140	6	50	1940	N	Basalt at 12 ft.
33P1	Unknown	2,520	30	42	11.13	8-19-54	N	
35R1	Paul Mader	2,520	10	60	3.04	11- 9-53	D	
36B1	Lloyd Knapp	2,580	100	36-6	5.95	11-11-53	N	
T. 16 N., R. 46 E.								
5E1	Bernard Redman	2,630	301	6	200	--	D	L.
6D1	City of Palouse	2,425	284	8	70	1964	P	Only slight drawdown after 24 hrs pumping 325 gpm. C.
6D2	. . . do . . .	2,430	170	6	8	1954	P	This well and 6D3 are in the bottom of an underground reservoir about 18 ft. deep. The two wells flow at about 100 to 150 gpm. C.

6D3	. . . . do	2,430	115	8	8	1954	P	C.
8M1	Earl McKenzie	2,720	115	6	63.16	10-20-54	D	
18B1	Harold McKenzie	2,635	69	48	22.40	10-20-54	D,S	Pumping when water-level measured.
18G1	Pete Bodker	2,600	57	48-8	20.63	10-20-54	D,S	L.
18M1	Walter Main	2,565	225	6	22.85	10-20-54	D,S	
19N1	Glen Glover	2,565	24	54	8.05	10-19-54	N	
20C1	Bessie Anderson	2,650	35	48	24.92	10-20-54	D,S	
29N1	Howard Hill	2,595	13	72	3.92	11-12-53	D	
29Q1	R. E. Schaffer	2,605	9	36	2.40	11-12-53	D,S	
29Q2	. . . do . . .	2,605	29	48	10.22	11-12-53	D,S	
30M1	Frank Wilson	2,560	24	42	21.13	10-20-54	D	
30Q1	E. V. Parker	2,600	32	42	21.75	11-11-53	D	
31B1	R. E. Schaffer	2,560	15	48	8.69	11-11-53	D,S	
31R1	--Kaster	2,630	34	28	16.17	11-10-53	N	
32M1	Otto McCoy	2,600	11	40	3.82	11-12-53	D,S	
32N1	Merl Hill	2,620	21	42	13.56	11-12-53	D,S	
T. 17 N., R. 39 E.								
2J1	Don Jordan	1,760	200	6	60	--	D	
10A1	Unknown	1,670	60	6	31.82	7-11-56	N	
23A1	Harry Lienweber	1,560	16	2½	10	--	N	
25M1	Catherine Lust	1,560	235	6	144.98	11- 7-63	N	
26B1	M. K. Shawgo	1,600	20	48	15	1956	N	Destroyed.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 17 N., R. 39 E. - Cont.								
26B2	M. K. Shawgo	1,600	286	8	20	1964	D,S,I	L.
27J1	Faye Storment	1,600	110	6	70	9- -55	D,S	Did not reach "rock."
30N1	Gene Marsh	1,560	15	48	6	--	D,S	
31D1	E. A. Norris	1,565	12	36	3	--	D,S	
T. 17 N., R. 40 E.								
4B1	Paul Brown	1,530	96	6	35	--	D	
4H1	E. N. Aldridge	1,520	80	6	40	--	D	
8C1	Abe Leinweber	1,540	7	48	3	--	D	Basalt at 7 ft.
8A1	Kirk McCall	1,550	102	8	45	--	N	Reportedly in sand from 45 to 100 ft.
8L1	--Knott	1,530	5	--	3	--	D	Entirely in basalt.
10D1	E. Richter	1,595	14	84	7.60	7-30-56	D	
12M1	Henry Kackman	1,550	49	6	19.37	9-27-63	D	
15F1	W. G. Carter	1,780	110	6	51.60	11- 9-54	D	Obs., 1954-56.
22P1	W. Leinweber	1,550	33	8	18	1941	D,S	
23N1	William Hughes, Jr.	1,580	80	6	50	--	D,S	
25L1	Unknown	1,665	64	6	7.57	9-27-63	N	

26A1	C. S. Storment	1,640	114	8	35	--	D	
26D1	William Hughes, Jr.	1,600	140	6	110	--	D,S	
26H1	C. S. Storment	1,620	101	12	25	1953	I	Drawdown 44 ft after 4 hrs pumping 800 gpm. L.
29B1	R. M. Hughes	1,480	50	9	30	--	D	
29C1	Union Pacific Ry. Co.	1,470	16	144	10	1964	D	
30A1	Emmett Cain	1,480	33	10	35.32	10- 2-63	D,S	
31P1	E. V. Storment	1,605	195	6	75.32	7-10-56	D,S	
33P1	J. R. Setters	1,680	120	4	13	--	D,S	
34H1	Phillip Swendt	1,740	101	6	32.71	9-27-63	D	
36M1	Unknown	1,830	137	6	101.84	9-27-63	N	
T. 17 N., R. 41 E.								
2B1	Carl Schmick	1,615	103	6	62	--	D,S	
6D1	F. C. Lueknos	1,890	253	6	220.17	10- 3-63	D,S	
9E1	J. Grove	1,560	10	36	8	--	D,S	
10R1	Don Scheurman	2,040	196	6	25	--	D	
11P1	H. H. Smick	1,880	70	6	15	--	D	
13A1	Allan Whitney	2,020	82	6	39.78	9-11-62	S	
15F1	M. L. Kleweno	2,040	293	6	200	--	D,S	Basalt at 156 ft.
16K1	. . . do . . .	1,910	36	48	15.27	7-25-63	S	
16N1	G. M. Smick	1,880	40	36	35	--	D	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 17 N., R. 41 E. - Cont.								
17A1	Zendse Smick	1,880	165	6	160	--	D	
18D1	Floyd Bafus	1,860	190	6	84	--	D,S	
18P1	Unknown	1,880	34	4	3.67	9-27-63	N	
20H1	Dan Lust	1,840	185	8	85	--	D,S	Basalt at 100 ft.
23H1	Dan Whites	1,955	245	6	150	--	D,S	
25H1	Ben Huntley	1,900	270	6	--	--	D	
26K1	Solomon Ochs	1,805	50	6	20	--	D,S	
30D1	Ralph Garrett	1,760	100	6	60	--	D	
30R1	Town of Endicott	1,760	175	8	40	7- 3-45	P	Drawdown less than 1 ft after 5 hr pumping 229 gpm. C, L.
31G1	. . . . do	1,800	314	6	100	--	P	C.
31J1	Jack Schmick	1,720	160	6	60	--	D,S	
31N1	J. Whites	1,810	273	6	105	--	D	
32H1	B. Leinweber	1,800	100	6	30	--	S	
32J1	. . . do . . .	1,755	85	6	20	--	D	
32M1	Fred Green	1,710	50	8	12	--	I	Reported yield 65 gpm. L.
33A1	G. Bafus	1,760	90	6	40	--	D,S	

T. 17 N., R. 42 E.								
1F1	A. L. Nickerson	2,250	199	8	44	1959	D	L.
5N1	Garnett White	1,760	109	8	14.23	9-13-62	D,S	
6K1	Ray DeLong	1,720	105	8	Flowing	9-13-62	D,S	
10A1	Carlos White	2,220	300	6	--	--	D,S	
10N1	Frank Feenan	2,140	360	8	30	1951	I	Reported yield about 300 gpm.
10P1	. . do . .	2,140	363	8	30	1951	I	. . . . . Do . . . . .
11A1	Unknown	2,270	23	48	17.59	8-25-62	--	
13N1	Gene Feenan	2,240	70	6	55	--	D	
14C1	. . do . .	2,170	130	6	80	--	D	
18M1	Phillip Smick	2,035	204	6	146.59	11-13-54	D,S	Reported yield about 12 gpm. Obs., 1954-56.
19E1	Adam Batus	2,120	268	6	86.86	8- 5-55	--	Obs., 1955-56.
20N1	Forrest Garrett	2,000	129	7	68.30	8- 5-55	D	Basalt at 36 ft.
22L1	John Shields	1,800	27	6	Flowing	8-24-62	D,S	
27G1	Jerry Simmons	2,080	328	6	--	--	D	
33E1	A. C. Swift	1,955	72	6	18.52	8-30-62	D	
33N1	E. Hamilton	2,000	30	6	18	--	D	
34N1	Unknown	2,000	15	6	10.00	7-27-56	N	
35N1	--Guske	2,070	61	6	33.42	8-26-62	D	
T. 17 N., R. 43 E.								
2B1	School Dist.	2,330	64	8	28	--	P	Supply for school.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 17 N., R. 43 E. - Cont.								
2B2	Robert Alderman	2,310	117	8	2	10- -61	D	L.
2C1	General Mills Inc.	2,310	18	48	13.32	9-19-62	N	
4C1	Dale Hall	2,365	90	6	40.00	8- 8-56	D	
6N1	Unknown	2,260	9	96	4.43	8-25-62	D,S	
7H1	John Morgan	2,380	370	6	160	--	D	Basalt at 80 ft.
8E1	Unknown	2,320	17	48	6.24	8-22-62	N	
8M1	Lee Tate	2,310	103	7	Flows	Winter	D	Basalt at 30 ft.
10K1	B. C. Pettibone	2,255	48	8	15.32	8-22-62	D	
14E1	J. T. Danaher	2,215	12	48	.83	8-22-62	D,S	
17B1	Vern Faires	2,280	147	6	--	--	D	Basalt at 47 ft.
17P1	R. B. Pogue	2,255	526	6	458	--	D	
18A1	Norman Willson	2,350	222	6	103	--	D	
18P1	Unknown	2,310	183	6	65.57	8-22-62	N	
18Q1	Vern Faires	2,300	111	6	68.22	8-28-62	S	
20J1	George Massingale	2,200	230	6	94.66	8-22-62	D	
20R1	Leo Lynch	2,070	64	6	55.11	8-21-62	I	Irrigates lawn and garden.

25L1	Fayne Cochran	2,360	185	8-6	51.96	10- 5-56	S	L.
25L2	. . . do . . .	2,370	120	6	--	--	D	Originally 230 ft deep.
26Q1	Unknown	2,385	142	6	54.59	8-21-62	N	
30C1	C. B. Kennedy	1,865	24	48	21.73	8-28-62	D	
34R1	W. H. Willson	2,335	195	8	52.82	8-21-63	D,S	Drawdown 35 ft pumping 45 gpm. L.
35E1	. . . do . . .	2,310	12	48	--	--	--	Dry 8-21-62.
35Q1	L. L. Saylor	2,345	115	6	18	6- -51	I	Reported yield 30 gpm.
35Q2	. . . do . . .	2,350	278	8	18	--	--	
36B1	Leslie Shahan	2,425	33	36	12.26	9-18-62	D	
T. 17 N., R. 44 E.								
8F1	Orville Eskelson	2,470	171	8	18.59	9-18-62	D,S	
9F1	George Imler	2,375	169	5	101.33	9-20-62	D,S	
14P1	F. W. Draper	2,485	140+	5	80	--	D,S	
16E1	E. G. Curtis	2,395	115	8	44	5- -49	D, I	Drawdown 44 ft after 6 hr pumping 350 gpm. L.
18J1	Charles Rodgers	2,350	90	6	27.43	9-18-62	D,S	
20E1	Unknown	2,450	20	48	4.51	9-20-62	N	
23C1	Roy Lohman	2,480	100+	6	15	--	D	
26A1	O. R. Brown	2,560	83	6	--	--	D,S	
30B1	Fayne Cochran	2,485	12	60	3.21	10- 5-56	D,S	
30E1	P. L. Crumbaker	2,450	40	48	4	--	D,S	Entirely in silt.
32A1	City of Colfax	2,075	100	10	Flowing	10-31-63	P	East Glenwood well. Flows about 625 gpm.
32A2	. . . do . . .	2,075	105	12-8	Flowing	10-31-63	P	West Glenwood well. Flows about 625 gpm.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 17 N., R. 44 E. - Cont.								
33C1	City of Colfax	2,090	380	12	--	--	N	Was drilled for public supply, but yield is insufficient.
33G1	E. W. Johnson	2,390	69	6	17.22	10- 4-56	D	Probably entirely in basalt.
33Q1	. . . do . . .	2,405	80	8	30.18	10- 3-56	D,S	
34M1	Paul Johnson	2,475	85	6	20	10- -56	D	
34N1	. . . do . . .	2,505	400	8	--	--	N	Depth to water in excess of 300 ft. 10-4-56.
35F1	Adolf Harder	2,540	180	6	30	--	D,S	
T. 17 N., R. 45 E.								
4C1	Town of Garfield	2,485	380	10	130	--	P	Drawdown 1 ft after 4 hr pumping 300 gpm. C, L.
6J1	J. C. Gwinn	2,480	170	6-4	72	--	D	L.
8D1	John Gwinn	2,530	266	6-4	180	12- -46	D	L.
13D1	W. S. Redman	2,555	9	36	2.77	12- 4-53	D,S	
13M1	Harry Curtis	2,500	240	6	140	--	D	
14K1	J. E. Miller	2,480	60	4	19	--	D,S	"Bedrock" at 25 ft.
14P1	Glen Curtis	2,480	47	6	32	--	N	
19K1	D. F. Lange	2,520	197	6	90	1940	N	
19P1	. . . do . . .	2,460	190	8-6	98	12- -55	D	Backfilled from 237 ft. Drawdown 89 ft after 4 hrs pumping 73 gpm. L.

22A1	J. E. Miller	2,500	200	--	120	--	D,S	Originally 220 ft deep. Drawdown 20 ft after 4 hr bailing 2 gpm. L.
22J1	. . . do . . .	2,520	500	6	300	1930	N	
26F1	W. S. Redman	2,555	240	6	--	--	D,S	Reported yield in excess of 8 gpm.
31P1	Unknown	2,760	78	6	23.98	10- 4-56	N	
36N1	Frank Kuehner	2,510	60	6	20	--	D,S	Basalt at 5 ft.
T. 18 N., R. 39 E.								
6A1	Unknown	1,765	175	6	158.75	7-25-56	N	
8G1	Mary Smick	1,670	170	6	34.47	7-31-56	D,S	L.
12K1	G. D. Ferris	1,740	115	6	58	7- -51	D,I	Drawdown 15 ft after 4 hr pumping 125 gpm.
12K2	. . . do . . .	1,750	16	48	6	--	D,I	Entirely in basalt.
22P1	Willis Lamb	1,780	102	6	60	--	D,S	
26N1	G. D. Sayles	1,850	325	6	215	--	D,S	Basalt at 280 ft.
35M1	. . . do . . .	1,720	90	6	60	--	D	
T. 18 N., R. 40 E.								
1D1	Joe Hargrave	1,860	84	6	6.00	7-26-56	D	Basalt at 6 ft.
1H1	--Davis	1,920	90	6	40	--	D	
1J1	--Conover	1,930	80	6	30	--	D	
2A1	E. M. Hays, Jr.	1,840	297	12	51	1954	I	Drawdown 89 ft pumping 1,200 gpm. L.
2A2	. . . do . . .	1,840	140	6	90	--	--	L.
9M1	Unknown	1,740	10	36	7.00	11- 5-64	S	
10F1	B. G. Trull	1,835	352	10	104	10- -52	I	Reported yield 361 gpm. L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 18 N., R. 40 E. - Cont.								
11B1	Ray Honn	1,840	200	6	110	--	N	Supply inadequate, well abandoned.
11C1	. . do . .	1,815	320	12	31	5- -49	I	Drawdown 200 ft after 4 hr pumping 300 gpm. L.
13F1	Jack Smith	1,940	171	6	13	8- -45	D	L.
14D1	Delbert Countryman	1,855	150	6	95	--	D	
20B1	E. Wolfe	1,735	9	48	6.31	7-26-56	N	
28K1	J. Christensen	1,780	122	6	77	--	D	Basalt at 4 ft.
30R1	Unknown	1,750	18	54	15.87	11-18-64	S	
32P1	Jack Smith	1,520	105	--	36	11- -64	I	
T. 18 N., R. 41 E.								
1A1	City of St. John	1,965	150	12	9.18	9-14-39	N	Destroyed. C.
1A2	Roy Freeman	1,970	100	6	3.57	9-26-63	I	Irrigates two lawns.
1H1	City of St. John, well 3	2,050	350	12	140	--	P	
1J1	City of St. John, well 1	2,140	315	6	135	--	P	
3B1	H. Oakes	2,050	125	6	70	--	D	
3C1	Adam Lautenschlager	2,035	130	6	75	--	D	

6M1	Lylé Harwood	1,935	132	6	72	--	D	Basalt at 25 ft.
6Q1	. . . do . . .	1,960	129	6	60	1964	D,S	
11F1	A. H. Stubbe	2,010	60	6	37.45	9-17-62	D	
12L1	J. W. Freier	2,090	74	6	41.22	9-17-62	D	
16F1	Harvey Schneid-milfer	1,930	110	6	30	--	D	
18K1	Harry Pierce	1,980	87	6	28	--	D	
18L1	Mrs. H. O. Conn	1,955	90	6	69.10	9-30-63	N	
19D1	Harry Pierce	1,970	89	6	61.78	9-30-63	N	
20H1	Edwin Schierman	1,850	56	6	20.31	10- 3-63	D	
20R1	Ben Schierman	1,830	149	6	8.01	9-27-63	D	
21E1	Frank Oswald	1,850	110	6	60.81	9-27-63	D	
22R1	Dave Repp	1,960	142	8	20	1953	D,I	Drawdown 35 ft pumping 85 gpm. L.
23N1	Paul Marcus	1,955	33	6	28.33	9-14-62	D	
23Q1	Marvin Repp	1,975	83	6	58.81	9-14-62	D	L.
24A1	Herb Scheuerman	1,970	68	6	35.51	9-17-62	D	
26P1	B. W. Kerkman	1,975	252	6	198.71	9-14-62	D,S	
28G1	C. J. Schierman	1,855	62	6	53.31	9-17-62	D	Basalt at 15 ft.
28L1	. . . . do	1,845	310	8	42.48	9-14-62	I	L.
29A1	Ben Schierman	1,850	210	8	12.33	10-30-63	D	Reported "no" drawdown after 4 hr bailing 20 gpm.
29L1	Dan Smick	1,845	150	6	48.16	10- 2-63	D,S	
29P1	Brennan Smick	1,800	55	6	20	--	D	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 18 N., R. 41 E. - Cont.								
31A1	Catherine Andor	1,865	55	6	25	--	D	
34B1	Ed Jones	2,005	134	6	120.13	9-14-62	D	
T. 18 N., R. 42 E.								
4E1	Larry Miller	2,120	210	6	33.91	10-29-62	D	
4N1	St. John Cemetery Assoc.	2,130	167	6	64	--	I	
10H1	Unknown	2,230	91	6	16.70	10-26-62	N	
11Q1	Unknown	2,280	12	30	4.21	10-26-62	S	
14K1	James Curtis	2,275	120	8	55.24	10-26-62	D	L.
18N1	Randall Henry	2,090	70	6	18	1962	D	
21C1	Dan Lautenschlager	2,170	49	6	38.98	9-17-62	S	
23B1	James Schmidt	2,315	225	6	175	--	D,S	Basalt at 30 ft.
23C1	Ben Cook	2,275	22	24	17.43	10-25-62	D,S	
29L1	Dean Morse	2,115	125	6	93	--	D,S	
31N1	Art Mattingly	1,980	108	6	46.31	9-13-62	D,S	
31P1	Ray Schneider	2,020	84	6	50.67	9-13-62	D	
34J1	Donald Hooper	2,180	160	6	118	--	D,S	

35J1	Roy Taylor	2,155	200	6	180	--	D,S	
35M1	John Miller	2,175	40	6	10.00	8- 7-56	D	
36B1	E. M. Hayes	2,170	41	6	3.48	8- 8-56	D	
36M1	Jesse Lowe	2,170	130	6	21	6- -55	D,S	
T. 18 N., R. 43 E.								
2A1	C. Hampton	2,380	190	6	37.65	8-11-56	D	
4J1	J. T. Ellis	2,300	80	6	25	--	D	
5D1	Hugh McDonald	2,250	84	6	8	--	D,S	Drawdown 25 ft pumping 130 gpm.
5E1	Elmer Huntley	2,270	116	10	5	--	D,I	L.
9B1	B. Blakemore	2,420	77	6	23.50	8-10-56	D	
9R1	Guy Alderman	2,350	50	6	20	8- -56	D	
10J1	Virgil Klaveano	2,375	90	6	65	--	D	
12C1	Orval Greer	2,460	125	6	84.95	8- 9-56	D	L.
13H1	Anna Ripley	2,460	30	30	4.38	10-15-64	D,S	
17P1	Jim Hereford	2,350	142	6	58.23	8- 8-56	D,S	
17P2	. . . do . . .	2,350	20	60	5.10	8- 8-56	S	
20Q1	Henry Tiegs	2,265	100	8	20	--	D,S	
21P1	Ed Fournier	2,330	140	6	35	--	D,S	
23B1	Ben Mohr	2,405	90	6	20	--	D	
24R1	Unknown	2,510	26	48	17.58	10-15-64	N	Formerly domestic and stock supply.
27M1	Fred Gfeller	2,370	100	6	50	--	D	
30N1	Harold Dodds	2,200	117	6	17	--	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 18 N., R. 43 E. - Cont.								
32B1	Dwayne Shahan	2,290	24	72	16	--	D	Basalt at 14 ft.
33R1	Richard Hall	2,390	102	6	30	--	D,S	
35D1	V. McGrady	2,370	103	6	--	--	D	
35D2	B. Fisher	2,398	20	36	--	--	D	Entirely in silt.
35L1	Eugene Goss	2,330	42	6	4.81	9-19-62	D	
35N1	Don Hall	2,340	286	8	16	--	D	Basalt at about 85 ft.
35N2	Robert Suess	2,335	53	6	22.85	9-19-62	D	
35P1	G. H. Noe	2,320	140	6	18.99	9- 7-55	D	Obs., 1940-65.
35P2	Mrs. Bontadelli	2,320	45	6	11	--	N	Flows in spring.
35P3	--Mitchell	2,325	81	6	5.71	9-19-62	D	
35P4	Colfax Grain Growers	2,320	14	36	6	--	D	
35P5	Bud Harvey	2,335	58	6	8	--	D	
35P6	Bill Ratliffe	2,320	29	6	24.98	9-19-62	D	
36L1	C. H. Watson	2,390	40	48	20	--	D	
T. 18 N., R. 44 E.								
5K1	W. MacQuarrie	2,450	60	6	--	--	D,S	Entirely in clay.

8E1	Hermon Brown	2,490	90	6	40	--	D,S	
11A1	Hobart Huggins	2,540	74	8	28.67	9-12-63	D	
14E1	Ora Fox	2,585	92	6	63.66	9- 6-63	D,S	
18Q1	H. Parson	2,510	92	8	52	--	D	Basalt at 48 ft.
19L1	Unknown	2,590	140	6	75.70	10-15-64	N	Formerly domestic and stock supply.
22E1	Warren Hanford	2,540	68	8	16	--	D,S	Reported yield 20 gpm.
22H1	. . . do . . .	2,550	22	48	17.04	9- 6-63	D	
24F1	M. J. Gump	2,530	28	36	16.93	9- 6-63	D	Unfit for drinking. Supply inadequate.
30N1	Nellie Ward	2,510	34	--	18.89	9-18-62	D,S	
33J1	W. E. Haun	2,460	145	8	110.37	9-11-62	D	
T. 18 N., R. 45 E.								
1H1	Albert Leonard	2,605	87	6	Flowing	9- 5-63	D	
2K1	Ed Robinson	2,585	62	--	31.56	9- 4-63	D,S	
3N1	Carl Repp	2,540	51	6	28	--	D	
7B1	Roy Peringer	2,510	80	6	30	--	D,S	L.
7F1	. . . do . . .	2,510	245	12-8	12	11- -52	I	Drawdown 188 ft after 24 hr pumping 130 gpm. L.
9E1	George Miller	2,560	153	8	34.55	12- 7-53	D	Reported yield 40 gpm. L.
11M1	Dean Johnson	2,570	165	6	130	--	D,S	
12J1	Hannah Boyer	2,680	160	6	81.43	9-10-63	D,S	
14B1	Unknown	2,660	223	6	47.64	9-10-63	N	
16C1	Gerald Miller	2,570	150	6	23.11	9- 6-63	D	
20J1	Solomon Schroetlin	2,550	130	6	Flowing	9- 6-63	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 18 N., R. 45 E. - Cont.								
22F1	Art Walters	2,580	210	6	39.08	9- 6-63	D	
23P1	P. H. Johnson	2,535	122	6	Flowing	9-10-63	D,S	
23R1	James Walters	2,550	113	2	Flowing	11-20-64	N	L.
32A1	J. E. Love	2,545	165	6	32.04	12- 7-53	D	Basalt at about 30 ft.
32H1	. . do . .	2,525	131	6	55.15	12- 7-53	N	Obs., 1953-65.
33L1	Town of Garfield, well 1	2,510	195	6	115	--	P	Drawdown 25 ft after 12 hr pumping 75 gpm.
33P1	Town of Garfield, well 2	2,470	325	8	100	1938	P	C.
T. 18 N., R. 46 E.								
6G1	Town of Farmington	2,625	225	6	Flowing	11- 5-63	P	Reported yield about 100 gpm. C.
6H1	Union Pacific Ry. Co.	2,630	24	120	5	1- -46	--	Drawdown 12 ft after 4 hr pumping 25 gpm.
7C1	Earl Crowe	2,655	167	6	32	--	D,S	Supply inadequate.
7N1	Paul Wagner	2,680	152	6	70	--	D	
18R1	Albert Schoepflin	2,690	232	6	63.32	9-10-63	D,S	
19P1	Unknown	2,600	33	6	15.89	9-10-63	N	

T. 19 N., R. 39 E.								
1A1	Charles Phillips	1,990	112	6	23.47	10- 7-54	N	Obs., 1954-56.
4A1	Ernest Bailey	2,020	137	8	20	--	D,S	
5N1	C. T. Shields	1,980	65	6	45	--	D	
12C1	Clint Dirks	1,990	90	6	20	--	D	
12Q1	E. V. Appel	1,950	180	6	20	--	D	
15A1	H. E. Davis	1,905	140	6	32	--	D,S	
15K1	Mary Bradley	1,890	180	6	30	--	D	
16M1	B. Potts	1,910	30	36	20	--	D,S	
16M2	. . do . .	1,920	180	6	Flows	1963	D,S	
18E1	Arthur Tuggle	1,955	38	8	20	--	D,S	Drawdown 10 ft pumping 30 gpm.
20L1	L. Potts	1,840	100	6	12	--	D,S	
22G1	D. E. Morton	1,860	100	6	16	--	D,S	
22P1	Earl Colyer	1,835	120	6	60	--	D,S	
26L1	Bard Cook	1,790	52	6	10	--	D,S	
27B1	Unknown	1,800	11	60	6.30	7-31-56	N	
30F1	Cecil Wagner	1,810	60	6	30	--	D,S	
31G1	Sorrel Bros.	1,800	250	6	160	--	D,S	
31G2	. . . do . . .	1,810	250	6	225	--	D,S	
34B1	Willard Bowen	1,770	154	6	90	--	D,S	
35L1	Julius Sauer	1,800	60	6	20	--	D,S	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 19 N., R. 40 E.								
2B1	Leon Miller	2,080	99	6	88.29	8- 8-63	D,S	
4R1	Emmett Shawgo	2,010	180	8	88	4- -55	D,S	L.
7A1	John Wiltzius	1,910	128	6	6.68	8- 2-56	D,S	
8A1	. . . do . . .	1,995	195	6	155	--	D	
10L1	Emmett Shawgo	1,830	177	12	4	2- -64	I	Drawdown 50 ft pumping 500 gpm. L.
10M1	. . . do . . .	1,880	31	8	Flows	1951	D,S	
15D1	Glorfield Bros.	1,830	20	--	5	1964	I	Infiltration trench about 20 by 30 ft. Reported yield 550 gpm.
15M1	J. P. Glorfield	1,875	101	6	40	1951	D,S	Basalt at 35 ft.
16J1	L. D. Shawgo	1,820	192	8	10	2- -54	I	Drawdown 28 ft pumping 540 gpm. L.
16K1	. . . do . . .	1,840	88	8	10	1959	D	L.
17R1	Fred Bailey	1,890	60	--	57	--	D	
18M1	Roy Cook	1,885	254	8	30.70	8- -56	D	L.
21M1	Glorfield Bros.	1,820	278	12	19	11- -64	I	Drawdown 70 ft pumping 1,200 gpm. L.
25C1	Mrs. J. P. Glorfield	1,740	98	6	Flowing	11- 3-64	D,I	Flows 80 gpm slight drawdown after 4 hr pumping 316 gpm. L.
26B1	City of Ewan	1,750	105	6	30	--	P	Reported yield 105 gpm; slight drawdown. Formerly supplied railroad.

30K1	Dean Deschane	1,845	119	8	12	1958	D,S	L.
32D1	Fred Wagner	1,140	90	6	13.50	7-26-56	D	
T. 19 N., R. 41 E.								
3A1	Dan Hopkins	2,145	23	36	12.76	8-14-63	N	
8G1	Ronald Schuster	1,930	61	6	37.73	8-13-63	D,S	Pumping when measured.
8P1	Ruth Hixson	2,080	100	6	70	--	D	
10C1	Fred Hollingsworth	2,070	76	6	35	--	D,S	
14Q1	C. C. Countryman	2,040	266	10	4	11- -64	I	Drawdown 92 ft pumping 300 gpm. L.
16L1	Mrs. Emma Brophy	1,980	43	6	28.85	8- 3-63	D	
18Q1	Fred Bailey	1,950	72	6	27	--	D,S	
21E1	Eugene Webb	1,935	185	6	150	--	D,S,I	
34C1	D. F. Hamilton	1,890	73	6	32.83	9-27-63	D,S	
36R1	City of St. John, well 2	1,970	256	8	125	--	P	Drawdown 22 ft after 4 hr pumping 110 gpm. C.
36R2	Thomas Kimball	1,970	84	6	3.58	12- 5-41	N	Obs., 1941-65.
T. 19 N., R. 42 E.								
5C1	M. L. Crites	2,290	239	8	--	--	D	L.
6C1	Leonard Heimbigner	2,315	120	6	50.50	8-13-63	D	
7A1	J. H. Gordon	2,305	150	8	--	--	D	L.
7R1	Paul Kratzer	2,280	80	6	21.53	8-28-62	D	
8R1	Donald Crites	2,350	94	6	27	--	N	
9J1	Unknown	2,300	30	48	22.41	10-30-62	N	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 19 N., R. 42 E. - Cont.								
11J1	Lester Kile	2,195	126	6	52.98	10-31-62	D	L.
11N1	Lelah Pettibone	2,195	74	8	47.91	10-30-62	D,S	
12N1	Lester Kile	2,200	115	6	8	--	D,S	
15B1	Mayberry Davis	2,210	90	6	37	--	D	
18H1	Vernon Kratzer	2,275	55	--	17	--	D	
19N1	Samuel Hergert	2,090	56	6	11.39	10-26-62	D,S	
20E1	Darwin Smith	2,175	146	10	43.02	10-28-62	D,S	
23N1	W. P. Pollock	2,110	110	6	25	--	D,S	
26D1	Ray Reich	2,105	114	6	5	--	D,S	
26G1	James Henning	2,130	70	6	10	--	D,S	
26H1	. . . do . . .	2,135	140	6	40	--	N	
30M1	Gene Weiss	2,010	315	8	30.84	10-25-62	D	
32R1	Elmer Eades	2,135	90	6	25.00	9-27-63	N	
35A1	Harry Davis	2,245	82	6	64.69	10-25-62	D	
36B1	Burdett Prince	2,290	519	12	245	1954	N	Drawdown 55 ft pumping 470 gpm. L.
T. 19 N., R. 43 E.								
6N1	W. Dawson	2,290	107	6	65	--	D	Basalt at 87 ft.

14Q1	Sam Hester	2,500	225	6	80	--	D	
18K1	L. Maley	2,260	68	6	32.10	8-13-56	D	
19F1	Unknown	2,345	102	6	25.64	8-25-56	N	
19L1	Unknown	2,280	100	6	16.90	8-11-56	N	
20D1	R. G. Harvey	2,350	29	36	22.80	8-13-56	D	
24P1	F. S. Henning	2,470	98	36	90	--	D	Basalt at 10 ft.
27G1	Robert Scholz	2,350	64	6	9.16	8-21-62	D,S	
27N1	Anson Patterson	2,310	124	6	Flowing	2- -53	I	Drawdown 9 ft after 4 hr pumping 450 gpm.
28B1	McGregor Co.	2,285	84	8	Flowing	9-12-63	Ind	
28C1	--Good	2,295	72	6	Flowing	8-11-56	D	Basalt at 26 ft.
28M1	Adam Witte	2,440	260	8	90	--	D	
28M2	. . do . .	2,440	230	6	80	--	D	
34K1	C. Comegys	2,340	117	6	60.20	8-11-56	D	
35J1	William Kilpatrick	2,375	300	8	--	--	D	
35N1	H. Comegys	2,375	157	6	67	--	D	L.
T. 19 N., R. 44 E.								
11C1	T. R. Kendall	2,515	165	6	45	--	D	
12D1	Unknown	2,470	25	36	14.56	9-10-56	D	
14C1	Mrs. E. P. Lamb	2,555	60	48	50	--	D,S	
14N1	J. J. Russell	2,550	55	36	50	--	D	
16A1	David Hanford	2,495	21	30	4.77	5-18-54	N	Obs., 1954-56.
18B1	Gerald Shahan	2,555	61	48	39.65	10-20-64	D	Supply inadequate in summer.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 19 N., R. 44 E. - Cont.								
20J1	Howard Rambo	2,580	70	6	35	1943	D	
21P1	Charles Crow	2,510	20	--	5.73	8-21-62	D,S	
22K1	Town of Oakesdale	2,450	481	12-8	13	9- -51	P	Drawdown 175 ft after 4 hr pumping 206 gpm. C, L.
30M1	Harry Setters	2,510	105	36	91.13	8-21-62	D	
32F1	Mrs. J. Eckahart	2,595	169	6	42.12	8- 9-56	D	Reported "mica" at 169 ft.
33C1	Lee Ellis	2,550	130	6	50	--	D,S	"Bedrock" at 30 ft.
33N1	R. E. Blakemore	2,520	110	6	--	--	D	
T. 19 N., R. 45 E.								
3F1	Unknown	2,655	50	6	20.17	9-11-56	N	
10R1	Eugene Logan	2,500	160	6	44.52	12- 8-53	D,S	
12J1	Howard Thompson	2,565	58	6	9.44	12- 8-53	D,S	L.
14A1	Paul Thompson	2,545	78	6	17	--	D,S	Drawdown 46 ft bailing 25 gpm. Obs., 1953-56. L.
14A2	. . . do . . .	2,545	36	5	22.89	12- 8-53	N	
14P1	Mrs. Clizer	2,640	190	6	100	--	N	"Rock" at about 60 ft.
18E1	Milton Silzel	2,420	67	6	--	--	D,S	"Rock" at about 1 ft.
18F1	Clement Est.	2,420	100+	6	--	--	N	Entirely in gray "rock".
20L1	Dave Doneen	2,475	6	48	Flowing	9-12-63	D,S	

20L2	. . . do . . .	2,480	20	8	18.38	9-12-63	D,S	
28R1	Roy Auvil	2,540	28	36	15.47	9-12-63	D	
32P1	Fred Zimmerman	2,500	74	8	6	12- -51	D,S	L.
33J1	Harold Doneen	2,535	235	8-6	90	1- -48	D,S	L.
T. 19 N., R. 46 E.								
30N1	C. R. Stemm	2,620	45	42	21.73	12- 8-53	D	
T. 20 N., R. 39 E.								
12N1	H. J. Swift	2,110	140	6	130	6- -55	D,S	
12N2	. . . do . . .	2,110	284	10	164	10- -57	D,S	Reported yield 332 gpm. L.
14A1	Earl Swift	2,150	--	12	148.08	8- 6-63	D,S,I	
22H1	Curtis Melville	2,040	267	12	93	1957	I	Drawdown 149 ft pumping 300 gpm. L.
22H2	Unknown	2,050	155	6	54	1964	N	
23H1	P. B. Pool	2,105	120	8	12	--	D,S	Basalt at 18 ft.
23J1	Unknown	2,190	80	6	29.50	8- 1-56	N	
24F1	Arno Melville	2,130	115	6	30	--	D	Supply inadequate.
27D1	R. Rehn	2,030	100	6	70	--	D,S	
28A1	Lamont School Dist.	1,960	138	8	27	1954	--	Supplies school. L.
28E1	Spokane, Portland and Seattle Ry. Co.	1,935	480	10	45	1908	N	Drawdown 180 ft after 4 hr pumping 600 gpm.
28F1	. . . . do	1,960	700	10	28	7-22-38	N	Drawdown 180 ft after 4 hr pumping at 50 gpm. L.
28F2	. . . . do	1,960	132	--	28	--	N	Reported yield 200 gpm. L.
28F3	. . . . do	1,960	300	--	28	--	N	

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 20 N., R. 39 E. - Cont.								
28G1	Town of Lamont	1,950	202	12	10	11- -64	P	Drawdown 69 ft pumping 150 gpm. L.
28H1	R. Kelly	1,970	80	6	30	4- -56	D	
32G1	C. W. Shields	1,955	250	12-10	3	4- -54	I	Drawdown 135 ft pumping 307 gpm. L.
32K1	. . . do . . .	1,975	15	--	10	--	D	
33D1	E. Shields	1,955	57	6	3	--	D	
34J1	W. C. Swannack	2,020	88	6	50	--	D,S	
T. 20 N., R. 40 E.								
5R1	G. J. Cree	2,135	8	60	5	--	D,S	
11F1	R. W. Becker	2,245	92	8	18.19	8- 7-63	D	
13A1	Unknown	2,290	121	6	38.62	8- 2-56	N	
15F1	Caroline Spuler	2,185	72	6	2.31	8- 7-63	D	
16G1	Ernest Bageant	2,215	85	6	43	--	D,S	
18M1	Mrs. E. Pool	2,170	66	6	--	--	D	
18R1	Austin Pool	2,170	54	6	18	--	D	Basalt at 25 ft.
19D1	Arno Melville	2,150	90	6	20	--	D	Supply inadequate in dry years.
24G1	F. J. Smith	2,160	9	48	.01	8- 7-63	D	

27D1	G. P. Gibson	2,110	40	6	28	--	D	
33H1	Leon Miller	2,090	66	6	28	--	D,S	
34L1	Unknown	2,060	74	24	34.31	8- 7-63	N	
35F1	Elmer Smith	2,010	268	12	12	--	I	Drawdown 150 ft pumping 300 gpm. L.
T. 20 N., R. 41 E.								
3N1	Osborne Belsby	2,160	60	6	46	--	D,S	
4J1	. . . do . . .	2,170	435	10	330	4- -51	N	Destroyed. Drawdown 95 ft after 4 hr pumping 286 gpm. L.
8D1	Unknown	2,180	78	6	51.18	11- 3-64	N	
18A1	Unknown	2,180	19	4	14.39	8- 7-63	D	
20Q1	Unknown	2,140	72	6	25.94	8- 1-56	N	Basalt at about 10 ft.
34F1	Robert Schuster	2,115	28	--	15.43	8-13-63	D	
T. 20 N., R. 42 E.								
8A1	Ted Gustin	2,285	70	6	14	--	D	
13J1	Nellie Ferrell	2,070	31	6	19.81	8-22-56	N	
13L1	Town of Malden	2,080	375	12-10	80	--	P	Formerly railroad well. C.
13M1	. . . do . . .	2,100	83	48	70	3- -40	N	Destroyed. L.
13N1	. . . do . . .	2,280	460	10	270	--	P	Drawdown 3 ft after 8 hr pumping 75 gpm.
14F1	Andrew Melhuse	2,100	55	6	18	--	D	
17C1	A. L. Cook	2,220	90	6	Flowing	8-15-63	D,S	
19H1	Isaac Tye	2,025	203	6	99.98	8-15-63	D	
19J1	. . do . .	2,030	241	8	178	1956	D	L.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 20 N., R. 42 E. - Cont.								
24N1	Frank Dennis	2,200	12	--	9.31	9-11-63	D	
27N1	Pine City Cemetery Assoc.	2,210	204	8	29	--	I	Drawdown 151 ft pumping 150 to 175 gpm. L.
28H1	Unknown	2,130	800	8	4	1956	N	Reportedly an oil test hole.
28L1	R. Johnson	2,020	140	8	Flows	1964	D,S	Drawdown 20 ft pumping 100 gpm. L.
29L1	Leo Addington	1,995	15	36	10.59	8-15-63	D	
30B1	. . . do . . .	2,185	70	6	30	--	D	
31C1	Unknown	2,230	127	--	34.45	11-20-64	N	
33Q1	W. W. Kimm	2,040	40	36	23.23	10-29-62	D,S	
36F1	Ronald Dube	2,240	218	8	95.99	9-11-63	D	
T. 20 N., R. 43 E.								
10R1	Town of Rosalia	2,220	308	12	60	11- -64	P	Drawdown 4.62 ft after 2 hr pumping 250 gpm. Temp 52°F. C, L.
15K1	. . . do . . .	2,210	220	6	80	--	P	
19D1	C. J. Shindler	2,190	107	6	17.20	10-18-54	N	Obs., 1954-56.
20J1	W. R. Boozer	2,390	81	6	32.23	9-11-63	D,S	
23Q1	Rose Donahoe	2,250	100	6	Flowing	8-14-56	D	

24G1	H. Huether	2,320	53	6	23.00	9- 7-56	D	
26M1	--Dowling	2,320	14	48	10.75	8-14-56	D	Supply inadequate.
29E1	W. R. Boozer	2,340	50	8	12	--	N	
30K1	. . . do . . .	2,355	81	--	Flowing	9-11-63	N	
34F1	J. Olson	2,450	50	36	35.75	8-14-56	D	
T. 20 N., R. 44 E.								
8Q1	E. R. Merritt	2,405	120	6	30	--	D	
10H1	G. Pittman	2,420	170	6	19.00	9- 7-56	D,S	
29B1	Andy Johnson	2,480	135	6	30	--	D,S	
31M1	R. H. Heineman	2,370	160	6	20	1951	D,S	
32B1	H. C. St. John	2,490	171	8	166	8- -56	D,S	Basalt at 40 ft.
32P1	N. Hodges	2,450	17	36	6	--	D,S	
35P1	Bob Lamb	2,560	21	36	15	--	D,S	
T. 20 N., R. 45 E.								
8D1	Reuben Born	2,600	160	6	--	--	D	
13Q1	Town of Tekoa	2,490	170	8	20	--	P	Drawdown 40 ft after 20 hr pumping 204 gpm. C.
13Q2	. . . do . . .	2,490	175	12	20	1938	P	Basalt at 20 ft.
13Q3	Chicago, Milwaukee St. Paul & Pacific RR Co.	2,490	432	10	--	--	N	Abandoned.
16D1	Kenneth Sieveke	2,580	240	6	--	--	D	
16D2	. . . . do	2,590	476	8	150	11- -57	S, I	L.
21C1	A. L. Wolf	2,560	160	6	30	--	D	Supply inadequate.

Table 2 - Records of representative wells - Continued

Well no.	Owner or tenant	Altitude (feet)	Depth (feet)	Diam. (inches)	Water level below land surface		Use	Remarks
					Feet	Date		
T. 20 N., R. 45 E. - Cont.								
21D1	A. L. Wolf	2,590	40	6	18	--	D	Supply inadequate.
24C1	Union Pacific Ry. Co.	2,500	300	13	15	12- -39	--	
28P1	R. Warner	2,525	12	36	10.00	9-10-56	D	
30R1	Unknown	2,525	32	6	28.31	9-12-63	N	
32E1	H. T. Brandt	2,535	83	6	49.08	9-12-63	--	
34A1	Roy Gumm	2,605	102	6	47.90	9-10-56	N	
34M1	Unknown	2,575	91	6	39.20	9-12-56	N	

Table 3 - Records of representative springs

(Altitude interpolated from topographic maps; D, domestic; S, stock)

Spring	Owner or tenant	Altitude (feet)	Use	Remarks
12/45- 2G1s	G. B. Druffel	2,685	D, S	Issues at contact between soil and basalt.
- 6J1s	Andrew Schultheis	2,650	S	Issues from basalt. Yields about 3 gpm.
12/46- 7N1s	Gerald Druffel	2,670	D, S	
13/44-10A1s	Glen Kimble	2,470	D, S	Supplies three homes.
-11R1s	Allan Stewart	2,500	D	Supply inadequate.
-16H1s	B. W. Davidson	2,480	D, S	Known locally as Cold Spring.
-26P1s	Unknown	2,580	N	
13/45-16E1s	Harry Sodorff	2,640	D	Issues from red clay.
-18P1s	Raymond Schmidt	2,520	D; S	
-20L1s	Albert Redinger	2,510	D, S	
14/38-27R1s	Harry Fennimore	960	S	Issues from basalt. Yields about 2 gpm.
14/42- 7E1s	Stella Roth	1,550	D, S	Issues from basalt.
- 7K1s	Wayne Shemwell	1,480	D, S	Yield fluctuates considerably.
14/43- 1G1s	Ralph Gillespie	2,400	D	
-36E1s	Unknown	2,410	S	
-36P1s	Unknown	2,410	S	
14/44- 3F1s	Dick Carstens	2,450	D, S	Yields about 10 gpm.
- 6P1s	Milvern Story	2,280	D	
- 9D1s	C. O. Meinhart	2,450	D	
-14B1s	Lulu Poston	2,580	D	Yields about 5 gpm.
-29L1s	O. R. Neil	2,570	D, S	
-34M1s	George Marshall	2,400	D, S	Reported yield about 10 gpm.
14/45-15N1s	William Mennet	2,440	D, S	
-27J1s	Henry Meiners	2,520	D	Issues from decomposed granite. Yields about 30 gpm.

Table 3 - Records of representative springs - Continued

Spring	Owner or tenant	Altitude (feet)	Use	Remarks
14/46-20M1s	Stanton Bursch	2,500	D, S	
15/42-11D1s	Ewald Heilsberg	1,850	D, S	Issues at contact between soil and basalt.
-19A1s	J. H. Link	1,740	D, S	
15/43- 1B1s	Unknown	2,315	D, S	
-13J1s	Ralph Bremmer	2,360	D, S	
-15R1s	Elsie Davis	2,230	D, S	Issues near contact between soil and basalt.
-19P1s	Evaline Schlunger	2,030	D, S	
-21A1s	Sam Aeschliman	2,130	D, S	Issues near contact between soil and basalt.
-24H1s	Unknown	2,365	S	Issues at contact between soil and basalt. Yields 5 gpm.
15/43-25B1s	Stanley Long	2,150	D	
-25J1s	George Fischer	2,180	D	
-27G1s	Fred Brannon	2,320	D, S	
-33H1s	Unknown	2,260	D, S	Issues at contact between soil and basalt. Yields 5 gpm.
15/44- 3L1s	Jack Snead	2,290	D, S	
- 8L1s	Calvin Appel	2,360	D, S	
-14B1s	Unknown	2,420	N	
-19H1s	Melvin Martin	2,380	D, S	
-20Q1s	Unknown	2,420	S	
-23M1s	S. H. Perkins	2,340	D, S	
-27E1s	Merle Harlow	2,425	D, S	Issues at contact between soil and basalt.
-30K1s	Joe Dober	2,420	D	
-30N1s	Unknown	2,320	S	Issues at contact between soil and basalt. Yields about 5 gpm.

Table 3 - Records of representative springs - Continued

Spring	Owner or tenant	Altitude (feet)	Use	Remarks
-36A1s	Harry Lederman	2,330	D, S	
15/45- 2C1s	F. L. Titus	2,540	D	
-30K1s	Roscoe Cox	2,500	D, S	
16/39- 5G1s	Frank Miguelma	1,360	D, S	Issues from basalt. Yields 10-15 gpm.
16/41-19A1s	--Morasch	1,570	D	
-20B1s	C. E. Tate	1,560	D	
-20D1s	E. Helt	1,575	D	
16/42-14N1s	Sabina Schrieber	2,040	D, S	
-21G1s	Fred McNeilly	1,880	D, S	
-22H1s	Mrs. Carl Stewart	1,980	D, S	
-26J1s	John Moore	2,040	D	
-27B1s	Max McNeilly	1,920	D	Yields about 2½ gpm.
16/43- 9M1s	Frank Wood	2,090	D	Yields about 7 gpm.
-23R1s	Dana McCroskey	2,220	D, S	
16/44-18D1s	Edwin Roberts	2,320	D, S	
-34B1s	Edward Harter	2,270	D	Owner reports numerous springs in area.
16/45- 6C1s	Morton Swanson	2,600	D	Do.
-31P1s	Benton Collins	2,490	D, S	Issues from white sand.
17/39- 3R1s	M. W. Lamb	1,600	D	
-23A1s	Joseph Lienweber Est.	1,560	S	Yields about 7½ gpm.
17/42-17D1s	Elmer Lautenschlager	2,000	D, S	Yields about 10 gpm.
-26K1s	Roy Myer	2,050	D, S	Yields about 7 gpm.
-29K1s	Ralph Colyer	1,985	D	
-33C1s	Adam Lienweber	1,980	D	

Table 3 - Records of representative springs - Continued

Spring	Owner or tenant	Altitude (feet)	Use	Remarks
17/43- 2N1s	Unknown	2,310	N	Yields about 3 gpm.
- 5K1s	E. T. Hall	2,310	D, S	
-10D1s	Walter Hoffman	2,225	D, S	
-14Q1s	Howard Humphrey	2,215	D, S	Yields about 7 gpm.
-21P1s	Unknown	2,110	D, S	
-31D1s	Fred Snider	2,250	D, S	
17/44- 4L1s	Rex Chase	2,435	D	
- 5Q1s	Bill Ragon	2,450	D	
- 6P1s	R. G. Bafus	2,435	D, S	
- 6R1s	Eugene Kinsinger	2,480	D	
- 8M1s	Gene Osmun	2,460	D	
-34H1s	Roy Hammer	2,450	D, S	Issues from basalt.
18/41-25L1s	Dan Blumenshein	1,980	D, S	
-35P1s	Don Giles	1,690	D	
18/44- 7B1s	Ward Brown	2,440	N	Issues at surface of basalt.
-15C1s	Unknown	2,590	D	
-30A1s	Washington State Park	3,030	S	
-32E1s	Delbert Moore	2,480	D	Supply inadequate in summer.
-32R1s	J. W. Divine	2,415	D, S	
-33D1s	Unknown	2,520	N	Issues at surface of basalt.
19/40- 2D1s	Unknown	1,970	--	
-14J1s	Bailey Bros.	1,755	D	Supply inadequate in summer.
-16C1s	L. D. Shawgo	1,890	I	Irrigates 12 acres.
19/42- 4Q1s	Elmer Burnham	2,260	D, S	

Table 3 - Records of representative springs - Continued

Spring	Owner or tenant	Altitude (feet)	Use	Remarks
19/42-29J1s	Fitzgerald and Son	2,065	D, S	Issues from basalt.
-29R1s	James Herron	2,150	D, S	
19/45- 6J1s	R. C. Murphy	2,450	D	
-16Q1s	W. F. Jameson	2,455	D, S	
20/41- 8J1s	Glen Miller	2,025	D	
-10M1s	Unknown	2,030	D, S	Issues from gravel at many points on hillside.
20/41-12L1s	J. C. Ashley	2,010	D, S	Yields 10 to 20 gpm.
-23Q1s	Harry Bach	2,145	D	
-27L1s	A. R. Simpson	2,000	D, S	
20/42- 6R1s	Hugh Siegel	2,150	D	
- 7N1s	Unknown	2,135	S	
-15A1s	John Tye	2,240	D	Issues from top of basalt.
-33K1s	Nell Cook	2,150	D, S	
20/44-12M1s	C. Waterman	2,440	D	
-23M1s	J. W. Bongarts	2,365	D	
-31K1s	L. E. Barton	2,405	D, S	

Table 4 - Drillers' logs of representative wells, Whitman County

Materials	Thickness (feet)	Depth (feet)
11/46-6A2. Walter Faber. Altitude about 2,845 ft. Drilled by George Woodard, 1947. Cased to 68 ft.		
Soil	65	65
Basalt	120	185
Clay, blue	5	190
Opening in basalt	2	192
11/46-19A2. Wayne Wilson. Altitude about 810 ft. Drilled by James Burns. Cased to 35 ft.		
Silt	15	15
"Rock" [basalt]	20	35
Basalt	69	104
12/45-5F1. Andrew Schultheis. Altitude about 2,765 ft. Drilled in 1926. Cased to 75 ft. (Log from owner's memory.)		
Soil	10	10
Basalt	60	70
Sand	5	75
Basalt	17	92
12/45-5F2. Andrew Schultheis. Altitude about 2,750 ft. Drilled by John Woodruff, 1926. Cased to 73 ft. (Log from owner's memory.)		
Soil	8	8
Basalt	60	68
Sand	5	73
Basalt	17	90
12/45-25Q1. Jake Schultheis. Altitude about 2,860 ft. Drilled by George Woodard about 1935. (Log from owner's memory.)		
Soil	100	100
Basalt	30	130
"Soapstone," blue-green; clay	30	160
Basalt	25	185
12/46-6F1. John Weber. Altitude about 2,560 ft. Drilled by George Woodard, 1934. Cased to 90 ft. (Log from owner's memory.)		
Clay	27	27
"Sandstone"	58	85
"Soft material"	2	87

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
12/46-6F1 - Continued		
"Sandstone" or decomposed granite	3	90
Granite	20	110
12/46-6P2. Ted Druffel. Altitude about 2,570 ft. Drilled in 1935. Cased to 40 ft. (Log from owner's memory.)		
Clay	38	38
"Rock," loose	2	40
Basalt	45	85
12/46-7G1. Town of Uniontown. Altitude about 2,680 ft. Drilled by James Burns, 1956. Cased to 130 ft.; perforated from 85 to 107 ft.		
Clay and shale, hard	68	68
Basalt, hard, gray	15	83
"Rock," loose (caving)	3	86
Shale, hard; clay and "rock," water-bearing	14	100
Clay, gray	12	112
"Boulder"	2	114
"Soapstone"	16	130
Shale, firm	25	155
Basalt, light-gray	69	224
Crevice in basalt	3	227
12/46-8C1. Mrs. B. J. Hoefer. Altitude 2,630 ft. Drilled by Spray Bros., 1955. Cased to 55 ft.		
Clay, soil, and soft basalt	50	50
Basalt, solid	25	75
Basalt, broken, water-bearing at 75 ft.	20	95
12/46-17P1. Alfred Heitstuman. Altitude about 2,740 ft. Drilled in 1927. Cased to 65 ft.		
Soil	17	17
"Rock," soft, porous	48	65
Basalt, blue, hard	61	126
13/38-29Q1. John Henley, Jr. Altitude about 590 ft. Drilled by Davisson & Dreyer. Cased to 105 ft.		
Clay, sandy	12	12
Sand and gravel	93	105
"Rock," soft, yellow	15	120

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
13/39-3E1. R. D. Smith. Altitude about 1,640 ft. Drilled by J. W. Queen. Cased to 100 ft.		
Gravel and soil	90	90
Basalt	310	400
Basalt, honeycombed	805	1205
13/39-22P1. R. D. Smith. Altitude about 620 ft. Drilled by Oliver Zinkgraf. Cased to 132 ft.		
Soil	5	5
Gravel, loose	10	15
Gravel, boulders, hard, cemented	100	115
Gravel, boulder, clay	14	129
Sand, hard, white	2	131
Basalt, broken, water-bearing	24	155
Basalt, caving (cemented hole)	13	168
Basalt, hard, black	6	174
Rock, red, water-bearing	26	200
Basalt, hard, blue	20	220
Basalt, red with some black	17	237
Basalt, black	17	254
Basalt, brown and black, water-bearing	66	320
13/40-3F1. Frank Collier. Altitude about 600 ft. Drilled by John Davisson, 1947. Cased to 167 ft.		
Sand and gravel	142	142
Gravel	25	167
Basalt, hard, blue	56	223
13/40-3M1. Benjamin Collier. Altitude about 600 ft. Drilled by Ben Dreyer, 1948. Cased to 165 ft.		
Soil	4	4
Sand and gravel	133	137
Gravel	28	165
Basalt, medium-black	11	176
13/44-10L1. Tom Martin. Altitude about 2,570 ft. Drilled by Spray Bros. Cased to 52 ft. (Log from owner's memory.)		
Soil and sand	45	45
Basalt	75	120
"Shell rock," soft, water-bearing (5gpm)	5	125
Basalt, hard	120	245
Basalt, soft, water-bearing	--	--

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
13/45-3M2. Franz Druffel. Altitude 2,620 ft. Drilled by Mike Braden. (Log from owner's memory.)		
Clay and sand	30	30
Basalt	60	90
Clay, basalt, and sand, water-bearing	10	100
13/45-8B1. J. W. Maxwell. Altitude about 2,640 ft. Drilled by A. R. McInroy. Cased to 40 ft. (Log from owner's memory.)		
Topsoil	2	2
Clay [loess]	38	40
Basalt	264	304
13/45-10C2. Alfred Hoffman. Altitude about 2,640 ft. Drilled by Spray Bros., 1945. Cased to 44 ft. (Log from owner's memory.)		
Overburden [loess]	44	44
Basalt	76	120
Granite, decomposed	13	133
13/45-10C3. John Ellerson. Altitude about 2,630 ft. Drilled by Spray Bros., 1955. Cased to 45 ft., and from 85 to 125 ft.		
Soil [loess]	45	45
Basalt, water-bearing (2 gpm at 85 ft.)	40	85
Clay	40	125
Basalt, water-bearing at 125 ft.	20	145
13/45-10D1. Alfred Druffel. Altitude about 2,640 ft. Drilled by Spray Bros., 1952. Cased to 60 ft.		
Topsoil	2	2
Clay [loess]	58	60
"Rock" [basalt]	113	173
Sand	2	175
13/45-10D2. Alfred Druffel. Altitude about 2,630 ft. Drilled by Spray Bros., 1948. Cased to 60 ft.; perforated from 25 to 60 ft.		
Topsoil	2	2
Clay [loess]	58	60

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
13/45-10D2 - Continued		
"Rock" [basalt]	40	100
Sand (?)	--	--
13/45-13M1. John Becker. Altitude about 2,695 ft. Drilled by Mike Braden, 1930. Cased to 213 ft. (Log from owner's memory.)		
Clay	70	70
Sand	4	74
Clay, sand, and mica	106	180
Sand	32	212
Basalt	4	216
Granite	16	232
13/45-15J1. Eugene Reisenauer. Altitude about 2,655 ft. Drilled by Spray Bros., 1953. Cased to 187 ft.		
Topsoil	3	3
Clay	183	186
"Rock" [basalt]	56	242
13/45-28B1. Herbert Druffel. Altitude about 2,555 ft. Drilled by Mike Braden, 1946. (Log from owner's memory.)		
Soil	10	10
Basalt, hard	50	60
Clay	33	93
13/45-34A1. Town of Colton. Altitude about 2,530 ft. Drilled by James Burns. Casing to 143 ft.; perforated from 113 to 143 ft.		
Topsoil and clay	8	8
"Rock," broken, and boulders	16	24
Basalt, hard, blue-black	52	76
Clay, gray and yellow	29	105
Basalt, honeycombed, water-bearing	28	133
Basalt, blue-black, water-bearing	10	143
13/46-8K1. Frank Niehenke. Altitude about 2,820 ft. Drilled by Spray Bros., 1950. Casing to 60 ft.		
Soil, black	4	4
Clay, red	76	80
"Quicksand," water-bearing	75	155

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
13/46-17Q1. Glenn Simpson. Altitude about 2,785 ft. Drilled in 1914. Cased to 40 ft.		
Silt, black	5	5
Clay	13	18
Granite	18	36
"Quicksand"	4	40
Granite	125	165
13/46-19C1. Francis Niehenka. Altitude about 2,725 ft. Drilled by De Tray and Hughes, 1954. Cased to 55 ft. (Log from owner's memory.)		
Clay	55	55
Granite	337	392
Granite, broken, water-bearing	3	395
13/46-19E1. Elmer Riedner. Altitude about 2,690 ft. Drilled by Mike Braden, 1940. Cased to 58 ft. (Log from owner's memory.)		
Clay	17	17
Gravel	41	58
Granite	6	64
13/46-30N1. A. S. Reisnauer. Altitude about 2,690 ft. Drilled by Spray Bros., 1952. Cased to 100 ft.		
Clay	50	50
Granite, decomposed	50	100
Granite	10	110
14/38-7G1. William Mays. Altitude about 1,480 ft. Drilled by owner, 1955. Cased to 57 ft.; perforated from 38 to 53 ft.		
Soil	30	30
Basalt	18	48
Sand	2	50
Basalt, water-bearing at 102 ft.	130	180
14/39-12F1. B. M. Stephenson. Altitude about 1,320 ft. Drilled by Joseph Devorak, 1945. Cased to 40 ft.		
"Dirt and rock"	35	35
Basalt, brown	25	60
Basalt, gray	21	81

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/39-12G1. B. M. Stephenson. Altitude about 1,360 ft. Drilled by Barnett Drilling Co., 1958. Cased to 604 ft.		
Clay	15	15
"Rock" [basalt], soft gray	5	20
"Rock" [basalt], soft, brown	47	67
"Rock" [basalt], broken, brown, some water	30	97
"Rock" [basalt], hard, gray	18	115
"Rock" [basalt], medium-hard, gray	15	130
Shale, blue	143	273
"Rock" [basalt], hard, gray	17	290
"Rock" [basalt], medium-hard, gray	30	320
Shale, blue; clay	100	420
"Rock" [basalt], hard, gray	10	430
Basalt, medium-hard, gray	20	450
"Rock" [basalt], hard, gray	20	470
Shale, blue; clay	40	510
"Rock" [basalt], broken, honeycombed, some water	6	516
Shale, blue	63	579
"Rock" [basalt], gray	25	604
14/39-14B1. Harry Nervig. Altitude about 1,280 ft. Drilled by Joseph Devorak, 1944. Cased to 28 ft.		
"Dirt and little rocks" [topsoil]	20	20
"Rock" [basalt], soft	5	25
"Rock" [basalt], hard	14	39
Basalt, hard, brown	10	49
Basalt, porous	16	65
"Rock" [basalt], soft	27	92
14/40-6A1. Selbu Lutheran Church. Altitude about 1,415 ft. Drilled by John Davisson, 1951. Cased to 80 ft.		
Soil	10	10
Gravel, sand, and clay	61	71
Basalt, hard	13	84
Shale	64	148
Basalt	11	159
Opening	20	179
Basalt	4	183
14/40-34Q1. Ben Collier. Altitude about 640 ft. Drilled by Ben Dreyer, 1951. Cased to 130 ft.		
Soil, sandy	10	10
Sand and gravel	93	103
Gravel	27	130
Basalt, hard, black	12	142
Basalt, soft, black	8	150

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/42-10A1. Frank Sever. Altitude about 1,880 ft. Drilled by Oliver Zinkgraf, 1944.		
Soil	17	17
Basalt	158	175
Basalt, porous, water-bearing	5	180
Basalt, water-bearing at 275 ft.	95	275
Clay, black	2	277
Basalt	28	305
14/43-4C1. George Gault. Altitude about 2,310 ft. Drilled by Don Smith, 1949. Cased to 191 ft.		
Topsoil	2	2
Clay, brown	48	50
"Hardpan"	3	53
Clay, brown	62	115
Clay, light-gray	38	153
"Hardpan"	4	157
"Hardpan" and "rock"	13	170
Clay, sandy, brown	17	187
Basalt, black	9	196
Basalt, gray	140	336
Basalt, brown, water-bearing	22	358
Basalt, black	5	363
14/43-24E1. Wade Young. Altitude 2,425 ft. Dug. Cased to 18 ft.		
Clay and soil	12	12
Clay, blue	3	15
Basalt	3	18
14/43-24M1. Wade Young. Altitude 2,420 ft. Drilled by Spray Bros., 1953. Cased to 140 ft.		
"Dirt"	2	2
Clay	18	20
Clay and rock	8	28
"Rock" [basalt]	54	82
Clay	6	88
"Rock" [basalt], porous	2	90
Clay	4	94
"Rock" [basalt], porous	1	95
Clay and "rock"	29	124
"Rock" [basalt], porous	18	142
"Rock" [basalt], hard	8	150
"Rock" [basalt], hard with crevices, water-bearing	15	165

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/43-24R1. H. F. Wegner. Altitude about 2,325 ft. Drilled by Spray Bros., 1952. Cased to 7 ft.		
Soil	6	6
Basalt, hard	98	104
Basalt, porous, underlain by hard basalt	56	160
Basalt, soft, water-bearing	2	162
14/44-2K1. Max Hinrichs. Altitude about 2,500 ft. Drilled by J. W. Queen about 1943. Cased to 79 ft.		
Soil [loess]	13	13
Basalt, hard, blue	12	25
Basalt, soft, gray	15	40
Clay, blue	4	44
Basalt, porous, black	35	79
14/44-14J1. Arnold Greenwell. Altitude about 2,545 ft. Drilled by Spray Bros., 1954. Cased to 39 ft.		
Soil [loess]	31	31
Basalt, soft, some water	10	41
Basalt, hard	14	55
Basalt, soft, some water	3	58
Basalt, hard	3	61
Basalt, soft, porous, water-bearing	1	62
14/44-14P1. Washington State University. Altitude about 2,550 ft. Drilled by Midland Drilling Co., 1959. Cased to 400 ft.		
Clay, sticky, brown	37	37
Clay, and dark, medium hard "hardpan"	39	76
Basalt, hard, dark-gray	37	113
Basalt, medium-hard, broken	11	124
Basalt, medium-hard, dark	7	131
Shale, medium-hard, sandy, gray	2	133
Basalt, medium-hard, gray	3	136
Basalt, hard, gray	105	241
Shale, medium-hard, green	15	256
Clay, medium-hard, yellow	10	266
Basalt, medium-hard, broken, brown	10	276
Basalt, hard, black	5	281
Shale, medium-hard, sticky, blue and gray	12	293
Basalt, medium-hard, light gray	27	320
Shale, medium-hard, sandy, gray	53	373
Basalt, medium-hard, dark-gray	2	375
Basalt and shale, medium hard, broken, black	25	400
Basalt, medium-hard, broken, muddy, gray	11	411
Basalt, medium-hard, muddy, brown	9	420
Basalt, hard, brown	4	424

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/44-14P1 - Continued		
Basalt, hard, light-gray	26	450
Basalt, hard, gray	50	500
Basalt, medium-hard, light-gray	9	509
Basalt, medium-hard, brown	21	530
Basalt, hard, gray	15	545
Basalt, medium-hard, gray	19	564
Basalt, hard, gray	2	566
Basalt, soft, gray	3	569
Basalt, hard, gray	31	600
14/44-30B1. Gordon Klemgard. Altitude about 2,460 ft. Drilled by Spray Bros., 1952. Cased to 30 ft. (Log from owner's memory.)		
Loam, black	4	24
Soil and clay	24	28
Basalt, black	22	50
Crevice	7	57
14/44-34C1. Nora Hatley. Altitude about 2,455 ft. Drilled about 1895. Cased to 19 ft.		
Soil [loess]	19	19
"Rock" [basalt], hard	160	179
Sand, soft, water-bearing	21	200
14/45-2F2. Larry Thonney. Altitude about 2,485 ft. Drilled by Nelson, 1947. Cased to 6 ft.		
Soil	2	2
Basalt	120	122
"Shale"	3	125
14/45-3H3. Washington Water Power Co. Altitude about 2,470 ft. Drilled by A. A. Durand & Son, 1957. Cased to 178 ft.		
Topsoil, soft, black	3	3
Basalt, and soft, brown clay	8	11
Basalt, medium-hard, black	11	22
Basalt, medium-hard, brown	1	23
Basalt, hard, brown	9	32
Basalt, very hard, gray	5	37
Basalt, hard, brown	2	39
Basalt, hard, gray	2	41
Basalt, medium-hard, brown	1	42
Basalt, hard, dark-gray	55	97

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-3H3 - Continued		
Basalt, medium-hard, dark-gray	5	102
Clay, soft, light-gray	15	117
Basalt, medium-hard, dark gray	86	203
Basalt, medium-hard, black	11	214
Basalt, soft, black	10	224
Basalt, medium-hard, black	2	226
Basalt, soft, black	10	236
Basalt, medium-hard, black	7	243
Basalt, hard, dark-gray	16	259
14/45-4H1. Washington State University. Altitude 2,455 ft. Drilled by J. W. Queen, 1935. Cased to 175 ft.		
Soil	7	7
Boulders	8	15
Basalt, very hard, black	36	51
Basalt, hard, gray	25	76
Basalt, blue	1	77
Basalt, soft, black	5	82
Basalt, soft, gray	10	92
Basalt, porous, black, water-bearing (5 gpm)	23	115
Basalt, soft, black	55	170
Basalt, water-bearing (20 gpm)	50	220
Basalt, porous at 250 to 260 ft., black	45	265
14/45-4N1. Washington State University. Altitude about 2,430 ft.		
Topsoil	6	6
Basalt	89	95
"Rock" [basalt], water-bearing	5	100
14/45-4Q1. King Evers and C. A. Cole. Altitude about 2,560 ft. Drilled by Spray Bros., 1953.		
Topsoil	2	2
"Clay," [loess], yellow	48	50
"Rock" [basalt]	155	205
14/45-4Q2. Washington State University. Altitude 2,410 ft. Drilled by J. W. Queen, 1938.		
Soil	8	8
Boulders	14	22
Basalt, hard, black	12	34
"Rock" [basalt], soft, gray; some blue clay	11	45
"Rock" [basalt], hard, black	15	60
"Rock" [basalt], soft, and sand [aquifer]	5	65

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-5D1. City of Pullman, well 1. Altitude 2,360 ft. Drilled in 1913. Cased to 34 ft.		
"Valley fill" [soil]	6	6
"Hardpan," blue, contains rock fragments	15	21
Basalt, hard	35	56
"Rock" [basalt], porous	91	147
No record	--	164
14/45-5D3. City of Pullman, well 3. Altitude about 2,340 ft. Drilled by R. J. Strasser, 1946. Cased to 40 ft.		
"Fill" [soil]	7	7
Silt, gray	9	16
"Rock" [basalt], decomposed, yellow	6	22
"Rock" [basalt], hard, gray	2	24
"Rock" [basalt], soft, yellow	25	49
"Rock" [basalt], hard, yellow	14	63
"Rock" [basalt], soft, gray	16	79
"Rock" [basalt], hard, gray	13	92
"Rock" [basalt], medium-hard, gray	6	98
"Rock" [basalt], soft, green	8	106
"Rock" [basalt], hard, black	6	112
"Rock" [basalt], hard, gray	10	122
"Rock" [basalt], soft, black	29	151
"Rock" [basalt], soft, red	8	159
"Rock" [basalt], with crevices, gray, water-bearing	3	162
"Rock" [basalt], soft, red	5	167
14/45-5D4. Northern Pacific Ry. Co. Altitude about 2,360 ft.		
"Overburden"	10	10
Basalt, black	27	37
"Rock" [basalt], hard, gray	23	60
"Rock" [basalt], soft	29	89
"Rock" [basalt], honeycombed	10	99
Basalt, black	67	166
14/45-5E1. City Ice Co. Altitude about 2,335 ft. Drilled in 1926. Cased to 19 ft.		
Soil	10	10
Clay, blue	5	15
Basalt	45	60
Sand, granitic, with some lignite	20	80
Clay, blue, underlain by porous basalt, underlain by fine-grained sand	15	95

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-5E3. J. R. Rupley. Altitude about 2,345 ft. Drilled in 1889.		
Soil and loose rocks	10	10
Basalt	63	73
Sand, micaceous, water-bearing	--	--
14/45-5E4. M. C. True. Altitude about 2,345 ft. Drilled in 1894.		
Soil and cobblestones	12	12
Basalt	53	65
Sand, water-bearing	12	77
14/45-5E5. City of Pullman. Altitude about 2,340 ft. Drilled in 1890.		
Soil	3	3
Clay	10	13
Basalt	60	73
Gravel and sand with "lignite," water-bearing	11	84
14/45-5F1. Washington State University. Altitude about 2,365 ft. Drilled about 1910.		
Basalt	65	65
Clay	30	95
Basalt	49	144
14/45-5F3. Washington State University. Altitude about 2,365 ft. Drilled by R. J. Strasser, 1946.		
Topsoil	3	3
Clay, yellow, with scattered rock	10	13
"Rock" [basalt], hard gray	25	38
"Rock" [basalt], soft, yellow	9	47
Basalt, hard, gray	21	68
"Rock" [basalt], soft, black	4	72
Conglomerate, blue and gray	13	85
"Rock" [basalt], soft, black	2	87
"Rock" [basalt], soft, gray	21	108
"Rock" [basalt], porous, black, water-bearing	4	112
"Rock" [basalt], hard, black	11	123
"Rock" [basalt], soft, black, underlain by hard, gray "rock" [basalt]	27	150
"Rock" [basalt], fairly hard, black	17	167
"Rock" [basalt], soft, black	3	170
"Rock" [basalt], hard, gray	8	178
"Rock" [basalt], soft, black, underlain by "rock" [basalt], very hard, gray	14	192

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-5F3 - Continued		
"Rock" [basalt], hard, black	3	195
"Rock" [basalt], soft, porous, black, water-bearing	25	220
"Rock" [basalt], hard, gray	3	223
14/45-5F4. Washington State University. Altitude about 2,400 ft. Drilled by Holman Drilling Co., 1962.		
Topsoil	15	15
"Hardpan," brown, and clay	8	23
Basalt	7	30
Basalt, hard, gray	15	45
Basalt, firm, brown	3	48
Basalt, hard, gray	17	65
Basalt, firm, gray	3	68
Basalt, soft, black	2	70
Clay and sand	15	85
Conglomerate, green and blue	13	98
Basalt, soft, gray	7	105
Basalt, medium-soft, black	3	108
Basalt, medium-hard, gray	12	120
Basalt, firm, gray	11	131
Basalt, hard, gray	13	144
Basalt, medium-hard, gray	7	151
Basalt, hard, gray	10	161
Basalt, medium-hard, gray	3	164
Basalt, hard, gray	7	171
Crevice	8	179
Basalt	11	190
Basalt, very hard	2	192
Basalt, hard, gray	7	199
Basalt, soft, black	11	210
Basalt, broken, "cavey," black	5	215
Basalt, black	5	220
Basalt, hard	5	225
Basalt, broken, gray	10	235
Basalt, hard and "sharp," gray	7	242
Basalt, hard, gray	4	246
Basalt, broken, gray	10	256
Basalt, hard	1	257
Basalt, firm and broken, gray	6	263
Crevice in gray basalt, water-bearing	7	270
Basalt, firm, gray	5	275
14/45-5G1. Washington State University. Altitude about 2,400 ft.		
Soil [loess]	15	15
Basalt, hard	71	86
Clay, blue	14	100

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-5G1 - Continued		
Basalt, dense	16	116
Basalt, vesicular, water-bearing	14	130
Basalt, dense	15	145
(?)	68	213
14/45-6D1. J. C. Hodge. Altitude about 2,520 ft. Drilled by Spray Bros., 1951. Cased to 10 ft.		
Soil	5	5
Basalt	185	190
Sand, water-bearing	--	--
14/45-6D2. J. C. Hodge. Altitude about 2,540 ft. Drilled by Spray Bros., 1949. Cased to 12 ft.		
Soil [loess]	10	10
Basalt	225	235
Sand, water-bearing	1	236
14/45-6D4. James Anderson. Altitude about 2,515 ft. Drilled by Spray Bros., 1955. Cased to 40 ft.		
"Dirt and clay" [loess]	28	28
Basalt, hard	15	43
"Rock" [basalt], soft	2	45
"Rock" [basalt], hard	30	75
"Rock" [basalt], soft	30	105
"Rock" [basalt], hard	68	173
Clay	37	210
Basalt	10	220
Sand, white, water-bearing	--	--
14/45-6F1. A. A. Samuelson. Altitude about 2,465 ft. Drilled by Spray Bros., 1948. (Log from owner's memory.)		
Soil	6	6
"Rock" [basalt], soft	34	40
"Rock" [basalt], hard	65	105
"Rock" [basalt], very hard	35	140
Sand, water-bearing	2	142
14/45-7E1. Harvey Cole. Altitude about 2,530 ft. Drilled by Spray Bros., 1954. Cased to 8 ft.		
Soil [loess]	7	7

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-7E1 - Continued		
Basalt, hard, gray	63	70
Basalt, soft, black	12	82
14/45-7F1. G. R. Spencer. Altitude about 2,495 ft. Drilled by Spray Bros., 1952. Cased to 27 ft.		
Clay [loess]	20	20
"Rock" [basalt]	6	26
Gravel and clay, some water	6	32
"Rock" [basalt]	38	70
14/45-7F2. Evergreen Builders. Altitude 2,540 ft. Drilled by Spray Bros., 1954. Cased to 31 ft. and from 135 to 223 ft.		
Soil [loess]	11	11
Basalt	17	28
Basalt, porous, water-bearing	2	30
Basalt, hard	110	140
"Seams" and boulders	25	165
Clay, blue	15	180
Sand, quartzose, micaceous, water-bearing	5	185
Basalt, hard and soft layered	80	265
Basalt, soft, broken, water-bearing	5	270
14/45-7F3. Mrs. Baldwin. Altitude about 2,490 ft. Drilled by Spray Bros., about 1940. Cased to 20 ft. (Log from owner's memory.)		
Soil [loess]	15	15
"Rock" [basalt], soft	50	65
"Rock" [basalt], hard		
14/45-7M1. Don Adams. Altitude about 2,520 ft. Drilled by Spray Bros., 1954. Cased to 30 ft.		
Soil	5	5
Clay [loess]	9	14
Basalt, hard, black	46	60
Basalt, porous	8	68
14/45-7M2. Blosser & Loughrey. Altitude about 2,525 ft. Drilled by Spray Bros., 1954. Cased to 62 ft.		
Soil	4	4

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-7M2 - Continued		
Clay [loess]	26	30
Basalt, hard, black	22	52
Clay	8	60
Basalt, hard, black	25	85
Basalt, soft	5	90
14/45-7M3. Dr. Tomlinson and Baldwin. Altitude about 2,500 ft. Drilled by Spray Bros., 1954.		
Clay [loess]	17	17
Basalt, hard, black	63	80
Basalt, soft, water-bearing	7	87
14/45-8L1. City Cemetery. Altitude about 2,565 ft. Drilled in 1932.		
Topsoil and loess	44	44
Basalt, hard	148	192
Basalt, soft, black	7	199
Clay; intermixed basalt and sand; blue clay, water-bearing	29	228
Basalt, medium-hard	66	294
Basalt, soft, porous, water-bearing	21	315
Basalt, hard	40	355
14/45-16G1. Washington State University Agronomy Farm. Altitude about 2,485 ft. Drilled by A. A. Durand & Son, 1956. Cased to 400 ft.		
Topsoil [loess]	14	14
Basalt, weathered, black	15	29
Basalt, very hard, black	12	41
Basalt, porous, brown, water-bearing	1	42
Basalt, very hard, dark-gray	151	193
Basalt, medium-hard, dark-gray	7	200
Basalt, medium-hard, broken, dark-gray	5	205
Clay, soft, blue-green	17	222
Basalt, porous, fractured; clay	16	238
Basalt, very hard, dark-gray	33	271
Basalt, medium-hard to soft, broken, dark-gray	44	315
Basalt, hard, gray	20	335
Basalt, very hard, gray	8	343
Basalt, hard to very hard, gray	13	356
Basalt, medium-hard, gray	18	374
Basalt, hard, gray	26	400

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/45-28H1. L. C. Staley. Altitude about 2,515 ft. Drilled by J. W. Queen, 1941. Cased to 20 ft. (Log from owner's memory.)		
Clay [soil]	5	5
"Rock" [basalt]	145	150
Sand, fine, white	15	165
14/46-6R1. Edgar Anderson. Altitude about 2,710 ft. Drilled by J. W. Queen, 1940. Cased to 90 ft. (Log from owner's memory.)		
Loess	90	90
Basalt	--	--
Clay	6	--
Basalt	--	202
Basalt, porous, water-bearing	10	212
14/46-6R2. Edgar Anderson. Altitude about 2,660 ft. Drilled by J. W. Queen. Cased to 50 ft.		
Soil [loess]	50	50
Basalt	201	251
Clay, blue	30	281
Sand	20	301
(Deepened later)	49	350
Sand, heaving	--	--
14/46-7N2. Howard Shriver Est. Altitude about 2,575 ft. Drilled by Spray Bros., 1937.		
Clay [loess]	14	14
Basalt, soft	50	64
Basalt, hard	2	66
Basalt, soft	24	90
Basalt, hard	55	145
Clay, blue; black sand	20	165
Basalt, soft and hard	77	242
14/46-19M1. Elmer Haynes. Altitude about 2,480 ft. Drilled by Spray Bros., 1951. Cased to 30 ft.		
Clay, blue	20	20
"Rock" [basalt]	59	79
Sand	1	80

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
14/46-29L1. C. V. Strohm. Altitude about 2,555 ft. Drilled by George Woodard. Cased to 278 ft.		
"Dirt" [loess]	15	15
"Rock" [basalt]	260	275
Sand	3	278
15/37-34A1. Union Pacific Ry. Co. Altitude about 1,045 ft. Drilled in 1914. Cased to 20 ft.		
"Earth" [soil]	2	2
Basalt, soft, gray, some water at about 44 ft.	42	44
Basalt, hard, black	9	53
"Lava" [basalt], soft, water-bearing	3	56
Basalt, hard, gray	64	120
Shale	10	130
"Lava" [basalt], porous	9	139
Basalt, hard, black	37	176
"Disintegrated volcanic strata" [porous basalt], water-bearing	8	184
15/39-2K1. Town of LaCrosse. Altitude about 1,520 ft. Drilled by A. A. Durand & Son, 1939. Cased to 86 ft.		
Soil	10	10
Soil and "hardpan"	25	35
"Hardpan"	25	60
"Rock" [basalt], broken	1	61
Basalt, brown	1	62
"Rock" [basalt], porous, broken	7	69
"Rock" [basalt], solid, brown	1	70
"Rock" [basalt], brown	3	73
"Rock" [basalt], porous	5	78
"Rock" [basalt], broken, black	5	83
Basalt, black	5	88
Basalt, gray	11	99
Basalt, broken, black	2	101
Basalt, black	2	103
Basalt, broken, black	12	115
Basalt, hard, gray	72	187
"Rock" [basalt], decomposed, black and brown	12	199
Basalt, black	2	201
Basalt, soft, black	8	209
Basalt, hard, black	2	211
Basalt, black	16	227
Basalt, brown	5	232
"Rock" [basalt], "ashy," red	3	235
Basalt, porous, brown, some water	2	237
Basalt, brown	36	273

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/39-2K2. Town of LaCrosse. Altitude about 1,520 ft. Drilled by N. C. Jannsen, 1939.		
Clay [soil]	63	63
"Rock" [basalt], soft, brown	37	100
Basalt, hard, blue	70	170
"Rock" [basalt], porous, brown	26	196
"Rock" [basalt], soft, black	17	213
Basalt, hard, black	15	228
"Rock" [basalt], soft, brown	26	254
Basalt, black	7	261
15/39-3R1. W. M. Camp. Altitude about 1,480 ft. Drilled by Jones Drilling Co., 1961. Cased to 112 ft.		
"Overburden"	100	100
Basalt	6	106
Basalt, broken; some gravel (?)	41	147
Basalt, clay; some gravel (?)	23	170
Basalt, porous; some gravel (?)	40	210
Basalt, dense; some gravel (?)	16	226
Basalt, dense, water-bearing	24	250
15/39-29P1. O. Fleming. Altitude about 1,515 ft. Drilled by L. Cousineau. Cased to 66 ft.		
Soil	30	30
Basalt, broken	36	66
Basalt, hard	54	120
Basalt, soft, water-bearing at 120 ft.	40	160
15/40-4N2. Weldon Washburn. Altitude about 1,575 ft. Drilled by Ralph Smith.		
Soil	10	10
Clay, white, with "alkali"; mud	30	40
Clay and soft "rock"	20	60
Basalt, hard	20	80
15/40-9M1. Melvin Camp. Altitude about 1,600 ft. Drilled by John Davisson. Cased to 58 ft.		
Soil	57	57
Gravel	4	61
Clay, sandy; shale, water-bearing	8	69
Sand	15	84
"Rock" [basalt], hard, black	31	115
"Rock", hard, green	1	116

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/40-12C1. E. J. Moore. Altitude about 1,645 ft. Drilled by John Davisson, 1953. Cased to 60 ft.		
Soil	57	57
"Rock" [basalt], soft	23	80
Clay, sandy, water-bearing	5	85
"Rock" [basalt], soft	15	100
"Rock" [basalt], hard	10	110
"Rock" [basalt], soft, water-bearing	18	128
15/40-15R1. Fred Stueckle. Altitude about 1,645 ft. Drilled by John Davisson. Cased to 163 ft.		
"Earth" [silt]	126	126
"Rock" [basalt], "shelly," water-bearing	19	145
Sand and clay	42	187
"Rock" [basalt], hard, black	40	227
"Rock" [basalt], gray	51	278
"Rock" [basalt], "shelly," brown, water-bearing	59	337
"Rock" [basalt], hard, gray	25	362
"Rock" [basalt], "shelly," black	29	391
"Rock" [basalt], broken, red, water-bearing	24	415
Sand, green	35	450
15/40-24B1. J. A. Stueckle. Altitude about 1,750 ft. Drilled by John Davisson, 1954. Cased to 91 ft.		
Soil	12	12
Clay	79	91
Basalt	23	114
Gravel, water-bearing	2	116
Clay and gravel	34	150
Gravel	2	152
Clay and gravel	16	168
Basalt, soft	10	178
"Break" water-bearing (?)	18	196
Basalt, hard	4	200
Basalt, soft	25	225
Basalt, hard	2	227
Basalt, soft	11	238
Basalt, hard	49	287
Basalt, soft, red, water-bearing	13	300
Basalt, hard	11	311
15/40-25K1. Paul Zaring. Altitude about 1,600 ft. Drilled by A. A. Durand & Son, 1947. Cased to 25 ft. (Log from owner's memory.)		
Soil	25	25

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/40-25K1 - Continued		
Basalt, hard	150	175
Sand and gravel	30	205
Basalt, hard	40	245
Crevice in basalt	30	275
Basalt	80	355
15/40-36F1. Mrs. Della Zaring. Altitude about 1,590 ft. Drilled by Joseph Devorak, 1920. Cased to 25 ft.		
Silt	25	25
Basalt, hard	105	130
Sand, black, water-bearing	20	150
Basalt, hard	86	236
15/41-4R1. Dusty Farm Bureau. Altitude about 1,675 ft. Drilled by Fredericks, 1948. Cased to 24 ft. (Log from owner's memory.)		
Clay	10	10
"Rock," [basalt], soft	10	20
"Rock," soft	32	52
15/41-17E2. P. F. Broeckel. Altitude about 1,630 ft. Drilled by Davisson & Dreyer, 1961. Cased to 40 ft.		
Soil, sandy	28	28
"Rock," "shaley," water-bearing	12	40
"Rock" [basalt], hard, blue	15	55
"Rock" [basalt], medium-hard, yellow	25	80
"Rock" [basalt], hard, blue	110	190
"Rock" [basalt], soft, blue, water-bearing	22	212
"Rock" [basalt], hard, black	38	250
"Rock" [basalt], soft, black, water-bearing	45	295
"Rock" [basalt], medium-hard	30	325
"Rock" [basalt], hard, black	15	340
"Rock" [basalt], soft, black, water-bearing	18	358
"Rock" [basalt], hard, blue	19	377
"Rock" [basalt], medium-hard, black, water-bearing	31	408
15/41-19L1. Albert Broeckel. Altitude about 1,625 ft. Drilled by Davisson & Dreyer, 1961. Cased to 51 ft.		
Soil	36	36
Sand, brown	4	40
"Rock" [basalt], red, water-bearing	6	46
"Rock" [basalt], hard	88	134

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/41-19L1 - Continued		
Sand, brown, water-bearing	11	145
"Rock" [basalt], hard, gray	24	169
Sand, brown	25	194
"Rock" [basalt], hard, gray	42	236
Sand, brown, water-bearing	45	281
"Rock" [basalt], soft, black	34	315
"Rock" [basalt], hard, gray	56	371
"Rock" [basalt], hard, black	35	406
Sand, water-bearing	52	458
"Rock" [basalt], hard, black	17	475
15/42-8F1. Alby Ochs. Altitude about 1,850 ft. Drilled by Oliver Zinkgraf, 1940. Cased to 101 ft.		
Soil	60	60
Basalt	40	100
Crevice in basalt	1	101
15/42-16H1. M. W. Carroll. Altitude about 1,840 ft. Drilled about 1917. Cased to 31 ft.		
Soil	31	31
Gravel	9	40
Basalt	112	152
15/42-36L1. Leslie Rubin. Altitude about 1,885 ft. Drilled by John Davisson, 1954.		
Soil	5	5
Clay	7	12
Boulders	5	17
Basalt, soft, water-bearing	25	42
Basalt, hard	6	48
Basalt, soft	11	59
Basalt, hard	18	77
Basalt, soft	12	89
Basalt, hard	4	93
Basalt, soft	4	97
Basalt, hard	3	100
Basalt, soft, water-bearing	12	112
15/43-6R1. Elmer Broweleit. Altitude about 1,870 ft. Drilled by John Davisson, 1954.		
Soil	5	5
Clay	11	16

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/43-6R1 - Continued		
Gravel	2	18
Basalt	5	23
Basalt, hard	85	108
Basalt	7	115
Basalt, broken, water-bearing	6	121
Basalt, hard	6	127
Basalt, broken	11	138
Basalt, soft, water-bearing	45	183
Basalt, hard	3	186
15/43-7M1. Loren Klaus. Altitude about 2,160 ft. Drilled by John Davisson. Cased to 100 ft.		
Soil	60	60
Basalt	1	61
"Rock," white, some water at 61 ft.	39	100
Basalt	75	175
15/43-26L1. Berne Davis. Altitude about 2,395 ft. Drilled by Davisson & Dreyer, 1951. Cased to 60 ft. (Log from owner's memory.)		
Clay	60	60
Basalt	47	107
Shale	80	187
Basalt	2	189
15/43-30J2. H. D. Rogers. Altitude about 2,050 ft. Drilled by John Davisson, 1954.		
Soil	5	5
Clay	40	45
Gravel	3	48
Basalt	8	56
Basalt, hard	12	68
Basalt, soft, water-bearing	6	74
Basalt, hard	74	148
Basalt, soft, water-bearing	2	150
Basalt, hard	4	154
15/44-1G1. A. V. Clark, Jr. Altitude about 2,370 ft. Drilled by Spray Bros. Cased to 40 ft.		
"Silt" [loess]	15	15
"Rock" [basalt], soft, decomposed	25	40
"Rock" [basalt], hard	117	157

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/44-11A1. Joe Bryan. Altitude about 2,515 ft. Drilled by Spray Bros. Cased to 90 ft.		
Soil	4	4
"Clay" [loess]	66	70
Clay and boulders	20	90
Basalt	30	120
Basalt, vesicular	15	135
Crevice	15	150
15/44-15A2. Town of Albion. Altitude about 2,260 ft. Drilled by Elmer Ray, 1954. Cased to 78 ft.		
Topsoil	3	3
"Shale" [loess], brown	9	12
"Silt" [loess]	12	24
Gravel, some water	1	25
"Shale" [loess], brown	5	30
Granite, decomposed	12	42
Shale, brown	3	45
Granite, decomposed	2	47
Granite, decomposed; silt, water-bearing (40 gpm)	23	70
Granite, coarse, decomposed, water-bearing (70 gpm)	2	72
Granite, hard	2	74
Granite, decomposed, crevice at 78 ft., water-bearing (90 gpm)	4	78
15/44-16L2. Ed Jones. Altitude about 2,430 ft. Drilled in 1924. Cased to 72 ft. (Log from owner's memory.)		
Clay and shell rock	72	72
Basalt, hard, blue	240	312
Basalt	51	363
15/44-18J1. Harold Upshaw. Altitude about 2,350 ft. Drilled by John Davisson, 1948.		
Soil	12	12
Clay	7	19
Basalt, soft, some water	26	45
Basalt, hard	45	90
Basalt, soft	12	102
Basalt, hard, water-bearing	5	107
15/44-19B1. Johnson Bros. Altitude about 2,365 ft. Drilled by Hickam, 1939. Cased to 80 ft. (Log from owner's memory.)		
Soil	80	80

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/44-19B1 - Continued		
Basalt	5	85
Crevice in basalt	6	91
15/44-26L1. Merle Harlow. Altitude about 2,395 ft. Drilled by John Davisson, 1950. Cased to 20 ft.		
Soil	5	5
Basalt	150	155
Basalt, soft	5	160
15/44-33B1. Leonard Small. Altitude about 2,435 ft. Drilled in 1901.		
Soil	6	6
Basalt	169	175
Sand, black (?)	--	--
15/44-35E1. V. L. Michaelson. Altitude about 2,415 ft. Drilled by Art Yaeger, 1951. Cased to 39 ft.		
Soil and brown clay [loess]	16	16
"Rock" [basalt], broken, brown	22	38
"Rock" [basalt], hard, gray	103	141
Shale, soft, black	24	165
"Rock" [basalt], soft, black	80	245
"Rock" [basalt], soft, brown	47	292
"Rock" [basalt], soft, red, water-bearing	8	300
15/45-6H2. Ray Parvin. Altitude about 2,425 ft. Drilled by J. W. Queen, 1940. Cased to 8 ft. (Log from owner's memory.)		
Soil [loess]	8	8
"Rock" [basalt]	137	145
Sand	1	146
15/45-8L1. Helmer Rossebo. Altitude about 2,485 ft. Drilled by J. W. Queen. Cased to 40 ft.		
"Soil" [loess]	25	25
Basalt, soft, gray (bailed 5 gpm at 65 ft.)	50	75
Basalt, hard, black	29	104
Basalt, soft, porous, water-bearing	19	123

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/45-8M1. Ross Howell. Altitude about 2,495 ft. Drilled in 1888. Cased to 30 ft.		
Soil, black	4	4
Clay, white and yellow	25	29
"Rock" [basalt]	1	30
15/45-14Q1. Mary Stirewalt. Altitude about 2,520 ft. Drilled in 1938.		
Basalt, dense	240	240
Basalt, porous	26	266
Quartzite (?)	19	285
15/45-25Q1. W. M. Boyd. Altitude about 2,610 ft. Drilled by Spray Bros., 1941. Cased to 65 ft.		
Silt	65	65
Basalt, hard; stringer of sand	135	200
Basalt, very hard	64	264
15/45-26K1. Orval Boyd. Altitude about 2,620 ft. Drilled by owner, 1953. Cased to 74 ft.		
Dirt, black	2	2
Clay (water below 60 ft.)	62	64
Shale, water-bearing	10	74
Basalt	124	198
Rock, porous, brown	6	204
Soapstone (?)	12	216
Basalt	14	230
Soapstone (?)	25	255
Basalt	37	292
Rock, porous, brown	10	302
15/45-28J2. D. R. Burnham. Altitude about 2,540 ft. Drilled by Noel, 1926.		
Soil [loess]	41	41
"Rock" [basalt]	97	138
Clay	24	162
15/45-29P1. Kenneth Hall. Altitude about 2,455 ft. Drilled by A. R. McInroy. Cased to 16 ft.		
Soil [loess]	16	16

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/45-29P1 - Continued		
"Rock" [basalt], hard	50	66
"Shale rock" [basalt], black, with two thin layers of hard rock	74	140
"Rock" [basalt], hard	--	--
15/45-30G4. Soil Conservation Service Experimental Farm. Altitude about 2,520 ft. Drilled by U.S. Government, 1938		
Soil	60	60
Basalt, hard, black, with crevices at 124 ft. and 129 ft.	107	167
Basalt, hard, black	11	178
Basalt, soft, gray	11	189
Basalt, hard, black	21	210
Basalt, very hard, black	20	230
Sand, water-bearing (3 gpm)	10	240
Basalt, broken, black	9	249
Basalt, black; green shale	1	250
Basalt, broken, black	17	267
Basalt, hard, black	19	286
Basalt, very hard, black; crevices at 286 and 297 ft.	49	335
Basalt, soft, porous, black (water, large flow; not able to lower level perceptibly with bailer; no change in water level)	25	360
Basalt, hard, black	11	371
15/45-31M1. Washington State University. Altitude about 2,345 ft. Drilled by A. A. Durand & Son, 1957. Casing to 52 ft.		
Soil, clay; clay and basalt talus	29	29
Basalt, brown and weathered	11	40
Basalt, hard, dense, black	15	55
Basalt, (no interbeds)	117	172
15/45-32N1. City of Pullman, well 2. Altitude about 2,355 ft. Drilled by R. J. Strasser, 1946. Cased to 24 ft.		
Topsoil	3	3
"Rock" [basalt], broken, gray	10	13
"Rock" [basalt], soft, black	6	19
"Rock" [basalt], hard, gray	8	27
"Rock" [basalt], hard, black	4	31
"Rock" [basalt], hard, gray	4	35
"Rock" [basalt], soft, black	6	41
"Rock" [basalt], hard, gray	4	45
"Rock" [basalt], soft, black	4	49
"Rock" [basalt], hard, gray	2	51
"Rock" [basalt], soft, black	2	53
"Rock" [basalt], soft, blue	15	68
"Rock" [basalt], hard, gray	1	69
Sandstone [?], gray	4	73

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/45-32N1 - Continued		
"Rock" (basalt), soft, gray	7	80
"Rock" (basalt), hard, black	16	96
"Rock" (basalt), hard, gray	13	109
"Rock" (basalt), soft, gray	15	124
"Rock" (basalt), hard, gray	4	128
"Rock" (basalt), soft, black	1	129
"Rock" (basalt), hard, gray; crevices	17	146
"Rock" (basalt), hard, gray	5	151
"Rock" (basalt), very hard, gray	19	170
"Rock" (basalt), soft, black, water at 170 to 176 ft.	6	176
"Rock" (basalt), soft, brown	11	187
"Rock" (basalt), soft, black	19	206
"Rock" (basalt), soft, brown	6	212
"Rock" (basalt), soft, black	3	215
"Rock" (basalt), soft, red	11	226
"Rock" (basalt), hard, gray	5	231
15/45-32N2. City of Pullman, well 4. Altitude about 2,355 ft. Drilled by A. A. Durand & Son, 1956. Cased to 399 ft.		
Topsoil	3	3
Clay and gravel	5	8
Gravel	2	10
Clay and gravel	5	15
Gravel, cemented	3	18
Basalt, hard, dark	2	20
Sand, dark, water-bearing	1	21
Basalt, hard, dark	6	27
Basalt, hard, gray	23	50
Shale, soft, black	25	75
Clay, soft, gray	5	80
Basalt, broken	20	100
Basalt, hard, gray	5	105
Basalt, medium-hard, dark	44	149
Shale sandy, soft, gray	4	153
Basalt, medium-hard, gray	18	171
Basalt, medium-hard, dark	27	198
Basalt, hard, dark	2	200
Basalt, hard, gray	3	203
Basalt, medium-hard, variegated	11	214
Basalt, hard, gray	12	226
Basalt, medium-hard, gray	40	266
Basalt, soft, gray	2	268
Basalt, medium-hard, gray	6	274
Basalt, hard, gray	6	280
Basalt, medium-hard, broken, dark	10	290
Basalt, hard, gray	15	305
Basalt, very hard, gray	3	308

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness, (feet)	Depth (feet)
15/45-32N2 - Continued		
Basalt, hard, gray	5	313
Basalt, medium-hard, gray	22	335
Basalt, hard, gray	13	348
Basalt, medium-hard, dark	11	359
Basalt, medium-hard, gray	44	403
Basalt, medium-hard, dark	49	452
Basalt, soft, broken, dark	2	454
Basalt, medium-hard, gray	10	464
Basalt, soft, dark	3	467
Basalt, medium-hard, dark	64	531
Basalt, soft, broken, dark	9	540
Basalt, medium-hard, dark	32	572
Shale, medium-hard, sticky, gray	13	585
Basalt, medium-hard, broken, dark; mixed with shale	21	606
Basalt, medium-hard, dark; shale	4	610
Basalt, medium-hard, dark	10	620
Basalt, soft, dark	3	623
Basalt, medium-hard, dark	19	642
Shale, soft, sticky, brown	5	647
Basalt, medium-hard, dark	23	670
Basalt, medium-hard, brown; brown shale	14	684
Basalt, medium-hard, gray	4	688
Basalt, hard, gray	22	710
Basalt, medium-hard, dark	13	723
Basalt, hard, dark	15	738
Basalt, medium-hard, dark	11	749
Basalt, medium-soft, brown	26	775
Basalt, medium-hard, gray	10	785
Basalt, hard, gray	4	789
Basalt, medium-hard, gray	87	876
Basalt, hard, gray	8	884
"Basalt crevice," hard, gray	2	886
Basalt, hard, gray	3	889
Basalt, medium-hard, gray; shale	4	893
Basalt, medium-hard, gray	11	904
Basalt, hard, gray	2	906
Basalt, medium-hard, gray	48	954
15/45-33J1. Washington State University. Altitude about 2,610 ft.		
Topsoil and loess	91	91
Basalt, solid	180	271
Basalt, in flows not more than 10 ft. thick, variable hardness	149	420
Basalt, water at 420 ft.	18	438

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/45-34L2. Washington State University. Altitude about 2,505 ft.		
Topsoil	3	3
Clay, soft, yellow	8	11
Basalt, medium-hard, black	5	16
Basalt, hard, black	118	134
Basalt, medium-hard, black	4	138
Basalt, hard, black	1	139
Basalt, medium-hard, blue	16	155
Basalt, medium-hard, black	21	176
Basalt, hard, black	18	194
Basalt, medium-hard, black	4	198
Basalt, hard, black	6	204
Basalt, medium-hard, black	7	211
Basalt, hard, black	24	235
Basalt, hard, gray	13	248
Basalt, medium-soft, black	32	280
Basalt, medium-hard, black	2	282
Basalt, hard, black	74	356
Basalt, soft, black	9	365
Basalt, medium-hard, black	7	372
Basalt, hard, black	2	374
Basalt, medium-hard, black	22	396
15/45-35F1. Pullman-Moscow Airport. Altitude about 2,530 ft. Drilled by Spray Bros., 1933.		
Topsoil [loess]	12	12
Basalt [weathered]	10	22
Basalt, firm, fresh	46	68
Basalt, vesicular, weathered, soft	3	71
Basalt, firm, fresh, black	4	75
Basalt, firm, fresh	33	108
Basalt, platy	5	113
Basalt, firm, fresh	15	128
Clay, siltstone, and carbonized wood	2	130
Basalt, slightly vesicular, firm	42	172
15/46-20P1. N. T. Carson. Altitude about 2,590 ft. Cased to 180 ft.		
Old well, mostly basalt	196	196
"Shale," soft [basalt]	3	199
Clay, blue	51	250
Sand, hard, granitic	30	280
Clay, brown	120	400

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
15/46-31J1. Ed Metzgar. Altitude about 2,520 ft. Drilled by Spray Bros. (Log from owner's memory.)		
Silt [loess]	18	18
"Rock" [basalt]	62	80
"Rock" [basalt], hard	20	100
"Porous or soft formation" [porous basalt]	17	117
16/39-13P1. J. H. Robinette. Altitude about 1,490 ft. Drilled by John Davisson, 1951. Cased to 8 ft.		
"Shale rock"	3	3
"Rock" [basalt], red	15	18
"Boulders"	7	25
"Shale rock"	23	48
"Rock" [basalt], hard, gray	19	67
"Rock" [basalt], medium-hard, brown	11	78
"Rock" [basalt], hard, gray	18	96
Basalt, brown, with break; small amount of water	14	110
"Rock" [basalt], hard, gray	146	256
"Rock" [basalt], medium-hard, black, water-bearing	33	289
"Rock" [basalt], hard, gray	37	326
Basalt, green, with break	111	437
"Rock" [basalt], hard, gray	26	463
"Rock" [basalt], hard, black	25	488
"Rock" [basalt], medium-hard, green	22	510
Sand, soft, black	14	524
16/39-24Q1. C. O. Camp. Altitude about 1,490 ft. Drilled by John Davisson, 1951. Cased to 91 ft.		
Soil	12	12
"Shale rock"	5	17
Clay, yellow	23	40
Gravel, sandy	5	45
Clay, blue	33	78
"Rock" [basalt], soft, black	15	93
"Rock" [basalt], hard, blue	16	109
"Rock" [basalt], soft, black	10	119
"Rock" [basalt], hard, black	138	257
"Rock" [basalt], soft, black	13	270
"Rock" [basalt], hard, black	71	341
"Rock" [basalt], soft, black	36	377
"Rock" [basalt], hard, black	65	442
Shale, sandy, black	53	495

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/40-22J1. A. Knott. Altitude about 1,515 ft. Drilled by Oliver Zinkgraf, 1946. Cased to 65 ft.		
Soil	40	40
Sand	20	60
"Shale rock," water-bearing	5	65
16/40-30K2. Floyd Fields. Altitude about 1,610 ft. Drilled in 1943. Cased to 38 ft.		
Not reported	40	40
Basalt, hard, gray, water at 97-100 ft.	142	182
Basalt, creviced	12	194
Basalt, gray	5	199
Basalt, badly creviced	11	210
"Creek bottom," lots of water	1	211
16/41-19E1. F. L. Stapleton Ranch. Altitude about 1,570 ft. Drilled by Oliver Zinkgraf, 1942. Cased to 30 ft.		
"Dirt" [silt]	20	20
Shale	6	26
"Boulders"	10	36
Shale	52	88
"Rock" [basalt], hard	2	90
16/42-2B1. Uni-Chem Fertilizer Co. Altitude about 2,030 ft. Drilled by John Davisson.		
Soil	15	15
Basalt, broken, "shelley," brown	5	20
Basalt, "shelley," gray	50	70
Clay blue	10	80
Gravel, water-bearing	18	98
Basalt, gray	2	100
16/43-7Q1. Robert Dugger. Altitude about 2,160 ft. Drilled by Jones Drilling Co.		
Clay, silty	40	40
Basalt, broken	6	46
Clay, sandy, silty	58	104
Basalt, hard	30	134
Basalt, broken, with streak of sand	56	190

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/43-11G1. City of Colfax. Altitude about 1,970 ft. Drilled by A. A. Durand & Son, 1949. Cased to 306 ft.		
Clay	5	5
Gravel, coarse	3	8
Gravel, cemented	17	25
Basalt, broken	4	29
Basalt	28	57
Clay	6	63
Basalt, fractured	26	89
Basalt, hard	2	91
Basalt, honeycombed	5	96
Basalt, hard	4	100
Basalt, soft	2	102
Basalt, hard	7	109
Basalt, fractured; clay seams	2	111
Basalt, hard	3	114
Basalt, broken; clay	14	128
Basalt, honeycombed	9	137
Clay, yellow	9	146
Basalt, fractured	6	152
Basalt, hard	5	157
Basalt, honeycombed	1	158
Basalt, hard	9	167
Basalt, fractured	8	175
Basalt, medium-soft	15	190
Basalt, dense, with crevices	7	197
Basalt, dense, black	35	232
Basalt, black; sand, some water	6	238
Basalt, black	3	241
Basalt, "cinder," red, some water	7	248
Basalt, broken, red	8	256
Basalt, "cinder," black	9	265
Basalt, fractured, black	8	273
Conglomerate, "caving badly"	37	310
Basalt, hard, black	19	329
Basalt, porous, black	7	336
Basalt, very hard, gray	33	369
Basalt, fractured, with blue clay seams	15	384
Basalt, very hard, gray	10	394
Basalt, fractured, with blue clay seams	72	466
Basalt, very hard, gray	29	495
Basalt, sandy, water-bearing	3	498
Basalt, very hard, gray	17	515
Basalt, fractured, black (caving)	30	545
Basalt, very hard	55	600

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/43-11M1. Colfax Sewer Dept. Altitude about 1,975 ft. Drilled by Spray Bros., 1953. Cased to 18 ft.		
"Dirt" (soil)	10	10
Basalt, broken	30	40
Basalt, hard, dense	60	100
Basalt, honeycombed, water-bearing	25	125
16/43-14N2. City of Colfax, well 3. Altitude about 2,115 ft. Drilled by A. A. Durand & Son.		
Clay and basalt, broken	28	28
Basalt, broken, medium-hard	12	40
Basalt, broken, very little clay	6	46
Basalt, dark, very hard	6	52
Basalt, very hard, gray	8	60
Basalt, hard, gray	5	65
Basalt, medium-hard, dark-gray	7	72
Basalt, very hard, dark-gray	3	75
Basalt, hard, gray	3	78
Basalt, very hard, dark-gray	2	80
Basalt, hard, gray	13	93
Basalt, medium-hard, broken	1	94
Basalt, hard, gray	5	99
Basalt, medium-hard, gray	2	101
Basalt, hard, gray	2	103
Basalt, broken; gravel	2	105
Basalt, medium-soft, broken, brown	15	120
Basalt, medium-hard, broken, brown; some clay	16	136
Basalt, medium-soft, broken, brown; clay	5	141
Basalt, medium-hard, dark	5	146
Basalt, broken, brown; some clay	10	156
Clay, medium-hard, yellow	10	166
Clay, medium-hard, blue	15	181
Basalt, medium-hard, dark	64	245
Basalt, medium-hard, gray	10	255
Basalt, medium-hard, dark	22	277
Basalt, medium-hard, broken; some blue clay	10	287
Basalt, medium-soft, broken; blue clay	18	305
Basalt, medium-hard, broken, dark	11	316
Basalt, medium-hard, dark	9	325
Basalt, medium-hard, broken, dark	15	340
Basalt, medium-hard, broken, dark	15	355
Basalt, medium-hard, broken, gray	10	365
Basalt, medium-hard, dark	20	385
Basalt, medium-hard, brown	15	400
Basalt, medium-hard, dark	36	436
Basalt, hard, gray	5	441
Basalt, hard, dark	2	443
Basalt, hard, gray	25	468

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/43-14N2 - Continued		
Basalt, soft, variegated, brown	18	486
Basalt, medium-hard, variegated	9	495
Basalt, soft, broken, brown	13	508
Basalt, porous, dark brown (caving)	5	513
Basalt, medium-hard, dark	14	527
Basalt, medium-hard, dark-gray	14	541
Basalt, medium-hard, broken, brown	7	548
Basalt, medium-hard, dark gray	7	555
Basalt, medium-hard, broken, gray	14	569
Basalt, medium-hard, gray	97	666
Basalt, hard, gray	18	684
Basalt, medium-hard, reddish-brown	28	712
Basalt, gray and red	2	714
Basalt, medium-soft, brown	9	723
Basalt, medium-soft, broken, dark	5	728
Basalt, medium-hard, dark	3	731
Basalt, hard, gray	19	750
16/43-20P1. Alfred Teal. Altitude about 2,155 ft. Drilled by Adams and Wilson.		
"Dirt" and clay	22	22
Basalt, hard, blue	45	67
Crevice in basalt, water-bearing	2	69
16/43-25F1. L. W. Smawley. Altitude about 2,170 ft. Drilled in 1952. Cased to 30 ft.		
Soil	20	20
Basalt	200	220
"Lava formation," soft	198	418
16/43-30M1. Mrs. Ruby Lloyd. Altitude about 2,215 ft. Drilled by John Baumgardner, 1929.		
Soil	48	48
Basalt	63	111
"Soapstone," water-bearing	30	141
16/43-33H1. Lewis Day. Altitude about 2,185 ft. Drilled by John Davisson, 1954. Cased to 20 ft.		
Soil, clayey	20	20
Basalt, hard	51	71
Basalt, soft, broken	3	74

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/44-11F1. C. E. Hodge. Altitude about 2,370 ft. Drilled by John Davisson, 1947. Cased to 40 ft.		
"Soil" [silt and clay]	25	25
"Rock," light-colored	20	45
Sand, black	1	46
16/44-24H1. Orvel Walker. Altitude about 2,595 ft. Drilled by John Davisson, 1955. Cased to 258 ft.		
Soil	4	4
Clay	225	229
Basalt	4	233
Clay, sandy, water-bearing	5	238
Basalt	4	242
Clay, sandy	6	248
"Granite, wash" [sand and gravel, granitic]	8	256
Basalt	4	260
Clay	6	266
Basalt	2	268
Clay, sandy, water-bearing	22	290
16/44-26J1. J. K. McIntosh. Altitude about 2,490 ft. Drilled in 1944.		
Soil	50	50
Basalt, hard	60	110
"Gravel and sand"	15	125
16/44-35L1. Boyd Harlow. Altitude about 2,300 ft. Drilled by John Davisson, 1952.		
Soil	5	5
Clay, yellow	22	27
Clay, micaceous, water-bearing	32	59
Basalt	1	60
Clay	22	82
Basalt, soft	9	91
Clay	4	95
16/45-10H2. Joe Mader. Altitude about 2,565 ft. Drilled by J. W. Queen, 1940. Cased to 28 ft.		
Topsoil	3	3
Clay	17	20
Basalt	32	52

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
16/45-25D1. W. M. Stipe. Altitude about 2,520 ft. Drilled by Spray Bros., 1951. Cased to 25 ft.		
Soil	25	25
Basalt (?)	175	200
"Gravel"	40	240
16/46-5E1. Barnard Redman. Altitude about 2,630 ft. Drilled by Oliver Zinkgraf, 1948. Cased to 90 ft. (Log from owner's memory.)		
Clay	88	88
Basalt	212	300
Sand, micaceous, fine, white	1	301
16/46-18G1. Pete Bodker. Altitude about 2,600 ft. Drilled by Oliver Zinkgraf. Cased to 48 ft. (Log from owner's memory.)		
Soil	27	27
"Rock" [basalt], soft, dark	30	57
Sand, black	--	--
17/39-26B2. M. K. Shawgo. Altitude about 1,600 ft. Drilled by John Davisson, 1962. Cased to 50 ft.		
Basalt, "shelly"	22	22
Basalt, soft	6	28
Basalt, broken	4	32
Basalt, soft	10	42
Basalt, hard	38	80
Basalt, soft, water-bearing	2	82
Basalt, hard	23	105
Basalt, hard	55	160
Basalt, soft	5	165
Basalt, hard	10	175
Basalt, soft	3	178
Basalt, hard	12	190
Basalt, soft	3	193
Basalt, hard	13	206
Basalt, soft	9	215
Basalt, hard	3	218
Basalt, soft	18	236
Basalt, hard	5	241
Basalt, soft	6	247
Basalt, hard	3	250
Basalt, soft, water-bearing	30	280
Basalt, hard	6	286

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
17/40-26H1. C. S. Storment, 1953. Altitude about 1,620 ft. Drilled by John Davisson, 1953.		
"Dirt" [clay]	25	25
Boulders	10	35
Sand	2	37
"Rock" [basalt], hard, green	13	50
Sand, hard, brown	12	62
Sand, soft, brown	3	65
Sand, broken, brown	7	72
Sand, red and brown	14	86
Sand, brown	11	97
Sand, hard	4	101
17/41-30R1. Town of Endicott. Altitude about 1,760 ft. Drilled by A. A. Durand & Son, 1945. Cased to 55 ft.		
Soil	38	38
Basalt	6	44
Basalt, hard	11	55
Basalt	15	70
Basalt, hard and "sharp"	15	85
Basalt, hard	13	98
Basalt, soft	12	110
Basalt, broken	20	130
Basalt [bailed 48 gpm]	20	150
Basalt, porous, black	10	160
Basalt, hard, grayish	5	165
Basalt, hard, gray to black (bailed 48 gpm)	8	173
Basalt, hard, black	2	175
17/41-32M1. Fred Green. Altitude about 1,710 ft. Drilled by John Davisson, 1949. Cased to 19 ft.		
Soil	12	12
Sand and gravel, water-bearing	7	19
"Rock" [basalt], hard, blue	27	46
"Rock" [basalt], soft, blue, water-bearing	4	50
17/42-1F1. A. L. Nickerson. Altitude about 2,250 ft. Drilled by John Davisson, 1953.		
Soil	6	6
Clay, water-bearing at 20 ft.	58	64
"Rock" [basalt], hard	57	121
"Rock" [basalt], sand and yellow clay, water-bearing at 122 ft.	43	164
"Rock," broken	35	199

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
17/43-2B2. Robert Alderman. Altitude about 2,310 ft. Drilled by John Davisson, 1961. Cased to 100 ft.		
Soil, black	6	6
Clay, yellow	14	20
Clay and gravel	10	30
Clay	68	98
Basalt, broken	2	100
Basalt, hard	1	101
Gravel, water-bearing	8	109
Basalt	8	117
17/43-25L1. Fayne Cochran. Altitude about 2,360 ft. Drilled by Lewis Cousineau. Cased to 35 ft.; perforated from 150 to 185 ft.		
Soil	34	34
Basalt	123	157
Clay	28	185
17/43-34R1. W. H. Willson. Altitude about 2,335 ft. Drilled in 1958. Cased to 195 (?) ft.		
Soil	6	6
Clay	40	46
Gravel and clay	63	109
Basalt, soft	2	111
Basalt, hard	9	120
Basalt, soft	2	122
Basalt, hard	31	153
Basalt, soft	37	190
Basalt, hard	5	195
17/44-16E1. E. G. Curtis. Altitude about 2,395 ft. Drilled by John Davisson, 1947. Cased to 41 ft.		
Soil, black	10	10
Clay, yellow	6	16
"Rock" [basalt], "shaley"	2	18
"Rock" [basalt], hard	8	26
"Rock," medium-hard	4	30
Sand, black	8	38
"Rock" "shaley"	9	47
"Rock" [basalt], medium-hard, black	25	72
"Rock" [basalt], soft, black	8	80
"Rock" [basalt], hard	8	88
"Rock" [basalt], soft	15	103
"Rock" [basalt], hard	12	115

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
17/45-4C1. Town of Garfield. Altitude about 2,485 ft. Drilled by Oliver Zinkgraf, 1948. Cased to 282 ft.		
"Dirt and clay" [soil]	35	35
Clay and loose rock	35	70
"Rock" [basalt]	128	198
Clay, blue and yellow	47	245
"Rock" [basalt], honeycombed	15	260
Clay, blue and yellow	20	280
"Rock" [basalt], variable hardness, water-bearing	100	380
17/45-6J1. J. C. Gwinn. Altitude about 2,480 ft. Drilled by Ralph Smith, 1948. Cased to 160 ft. (Log from owner's memory.)		
Clay, yellow	20	20
Basalt, hard	120	140
"Quicksand"	1	141
"Rock"	16	157
"Quicksand"	2	159
"Rock"	11	170
17/45-8D1. John Gwinn. Altitude about 2,530 ft. Drilled by Oliver Zinkgraf, 1946. Cased to 252 ft.		
Silt (old well)	46	46
Basalt, hard	139	185
Sand, gray and yellow, water-bearing	21	206
"Rock," hard, sandy	2	208
Sand, soft, yellow	10	218
Clay, green and brown	33	251
"Rock," soft, porous, black	5	256
Basalt, hard	10	266
17/45-19P1. D. F. Lange. Altitude about 2,460 ft. Drilled by Bloyed Bros., 1955. Cased to 190 ft.		
Soil and clay	20	20
Basalt, hard, water-bearing (½ gpm at 60 ft.)	75	95
Basalt, blocky and soft; small streaks of green shale	25	120
Basalt, water-bearing (73 gpm at 146 ft.)	45	165
Shale, blue and green	25	190
Basalt, broken; shale	30	220
Basalt	17	237

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
17/45-22A1. J. E. Miller. Altitude about 2,500 ft. Drilled by John Baumgardner, 1930. Cased to 20 ft. (Log from owner's memory.)		
Clay	19	19
"Rock"	121	140
Clay, chalky, blue	1	141
Sand, very fine	79	220
18/39-8G1. Mary Smick. Altitude 1,670 ft. Drilled by John Davisson, 1955.		
Soil	12	12
Shale	50	62
Basalt, hard, gray	12	74
Basalt, soft	61	135
Sand	18	153
Basalt, hard, black	17	170
18/40-2A1. E. M. Hays, Jr. Altitude 1,840 ft. Drilled by John Davisson, 1954. Cased to 28 ft.		
Soil	4	4
Basalt	10	14
Basalt, large boulders, water-bearing	12	26
Basalt	6	32
Sand, soft, red	116	148
Basalt	4	152
Sand, soft, brown	16	168
Sand, soft, red	42	210
Basalt, brown	4	214
Basalt, red	16	230
Sand, soft, red	17	247
Basalt, hard	7	254
Sand, brown, water-bearing	14	268
Basalt, hard	5	273
Sand, brown, water-bearing	7	280
Basalt	6	286
Sand, brown, water-bearing	9	295
Basalt	2	297
18/40-2A2. E. M. Hays, Jr. Altitude about 1,840 ft. Drilled by John Davisson, 1954. Cased to 71 ft.		
Soil	5	5
Basalt, soft	50	55
Clay	30	85
Basalt, soft	35	120
Basalt, soft, red, water-bearing	20	140

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
18/40-10F1. B. G. Trull. Altitude about 1,835 ft. Drilled by John Davisson, 1953. Cased to 31 ft.		
Soil and clay	15	15
"Rock," "shelly,"	16	31
"Rock" [basalt], soft	15	46
"Rock," hard	12	58
"Rock," soft	9	67
"Rock," hard	12	79
Shale, broken	29	108
"Rock," hard	7	115
Sand, soft, water-bearing	27	142
"Rock" [basalt], hard	26	168
"Rock" [basalt], soft	24	192
"Rock" [basalt], hard	4	196
"Rock" [basalt], soft	23	219
"Rock" [basalt], hard	5	224
"Rock" [basalt], soft	17	241
"Rock" [basalt], hard	45	286
"Rock" [basalt], soft	2	288
"Rock" [basalt], hard	3	291
"Rock" [basalt], soft	2	293
"Rock" [basalt], hard	2	295
"Rock" [basalt], soft, water-bearing	17	312
Clay	10	322
"Rock" [basalt], soft	3	325
Clay	12	337
"Rock" [basalt], soft, water-bearing	3	340
Clay	6	346
"Rock" [basalt], soft	3	349
Clay	3	352
18/40-11C1. R. Hann. Altitude about 1,815 ft. Drilled by John Davisson, 1946.		
Soil	9	9
"Rock" [basalt], shaley	22	31
"Rock" [basalt], hard, blue	12	43
"Rock" [basalt], soft, red, water-bearing	74	117
"Rock" [basalt], hard, blue	78	195
Shale, sandy, water-bearing	125	320
18/40-13F1. Jack Smith. Altitude about 1,940 ft. Drilled by A. A. Durand & Son, 1945. Cased to 34 ft.		
Old well, no record	30	30
Gravel and mud (caved)	28	58
Basalt, creviced at 92 ft., gray	41	99
Clay, sandy	53	152
Basalt, creviced at 171 ft., gray	19	171

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
18/41-22R1. Dave Repp. Altitude about 1,960 ft. Drilled by John Davisson, 1953. Cased to 46 ft.		
Soil	35	35
Clay	9	44
"Rock" [basalt], hard	18	62
"Rock" [basalt], soft, water-bearing	9	71
"Rock" [basalt], hard	9	80
"Rock" [basalt], soft	12	92
"Rock" [basalt], hard	6	98
"Rock" [basalt], sand, water-bearing	12	110
"Rock" [basalt], hard	12	122
Clay, yellow	6	128
"Rock" [basalt], soft, water-bearing	11	139
"Rock" [basalt], hard	3	142
18/41-23Q1. Marvin Repp. Altitude about 1,975 ft. Drilled in 1954.		
Soil	15	15
Clay	7	22
Gravel, water-bearing	2	24
Basalt, soft, water-bearing	28	52
Basalt, hard	13	65
Basalt, soft, water-bearing	10	75
Basalt, hard	8	83
18/41-28L1. C. J. Schierman. Altitude about 1,845 ft. Drilled by John Davisson, 1958.		
Soil	15	15
Clay, water-bearing at 110 ft.	250	265
Shale, sandy, water-bearing 265-308 ft.	45	310
18/42-14K1. James Curtis. Altitude about 2,275 ft. Drilled by John Davisson, 1958.		
Clay	31	31
Basalt, "shelly"	15	46
Basalt, hard	40	86
Basalt, soft	19	105
Sand	15	120
18/43-5E1. Elmer Huntley. Altitude about 2,270 ft. Drilled in 1953. Cased to 22 ft.		
Soil	18	18
"Rock," soft, water-bearing	7	25

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
18/43-5E1 - Continued		
"Rock," hard	5	30
"Rock," soft	8	38
Boulders and sand, water-bearing	6	44
"Break," sandy clay	14	58
Sand, brown	21	79
Clay, sandy	26	105
Sand	11	116
18/43-12C1. Orval Greer. Altitude about 2,460 ft. Drilled by A. A. Durand & Son, 1948. Cased to 19 ft.		
Soil	6	6
Gravel	1	7
"Rock," brown	23	30
Basalt, broken, black, some water	15	45
"Rock," brown	2	47
"Rock" [basalt], broken, brown	43	90
"Rock" [basalt], hard, gray	2	92
"Rock" [basalt], broken, brown	23	115
"Rock" [basalt], broken, brown, water-bearing	10	125
18/45-7B1. Roy Peringer. Altitude about 2,510 ft. Drilled by Ralph Smith, 1948. Cased to 20 ft.		
Topsoil	2	2
Clay, red	18	20
"Rock"	60	80
18/45-7F1. Roy Peringer. Altitude about 2,510 ft. Drilled by Elmer Ray, 1952. Cased to 111 ft.		
Soil	2	2
Clay, some water	12	14
Clay	9	23
Gravel, fine; clay, water-bearing at 25 ft. (25 gpm)	3	26
Shale, brown	13	39
Basalt, hard	21	60
Basalt, honeycombed, silted	10	70
Shale, brown (caving)	38	108
Basalt, honeycombed, silt	12	120
Basalt, "coarse"	45	165
Basalt, "coarse," water-bearing	20	185
Basalt, "very coarse," water-bearing	8	193
Basalt, "coarse"	11	204
Basalt, very hard	2	206
Basalt, "coarse," black	19	225
Basalt, "coarse," heavy [dense]	11	236

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
18/45-7F1 - Continued		
Shale, blue	1	237
Shale, blue, and clay	8	245
18/45-9E1. George Miller. Altitude about 2,560 ft. Drilled by Don Smith, 1950. Cased to 96 ft.		
Topsoil	4	4
Clay, yellow	39	43
Clay, brown	4	47
"Hardpan"	8	55
"Rock" [basalt], cemented, broken	14	69
Basalt, hard, gray	29	98
Clay, blue	8	106
Basalt, black	34	140
Basalt, broken, black, water-bearing	13	153
18/45-23R1. James Walters. Altitude about 2,550 ft. Drilled in 1892.		
"Dirt" [soil]	16	16
Basalt	65	81
Clay, blue	5	86
Clay, gray	5	91
"Cement," hard	2	93
Clay, blue and yellow; "quicksand," water-bearing	20	113
19/40-4R1. Emmett Shawgo. Altitude about 2,010 ft. Drilled by John Davisson, 1955. Cased to 51 ft.		
Soil	44	44
Sand	3	47
"Shale rock"	15	62
"Rock" [basalt], hard, gray	96	158
"Rock" [basalt], black	22	180
19/40-10L1. Emmett Shawgo. Altitude about 1,830 ft. Drilled by John Davisson, 1959.		
Sand, water-bearing	25	25
Boulders	6	31
Basalt, hard, brown	31	62
Basalt, broken, blue, water-bearing	21	83
Basalt, hard, gray	6	89
Basalt, soft, black	38	127
Basalt, hard, gray	29	156
Basalt, soft, black, water-bearing	19	175
Basalt, hard, gray	2	177

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
19/40-16J1. L. D. Shawgo. Altitude about 1,820 ft. Drilled by John Davisson, 1951. Cased to 27 ft.		
Soil	5	5
"Rock;" gravel	15	20
Gravel	7	27
"Rock" [basalt]	18	45
"Rock" [basalt], soft; gravel	12	57
"Rock" [basalt], clay	5	62
"Rock" [basalt], hard	8	70
"Rock" [basalt], soft	6	76
"Rock" [basalt], hard	30	106
"Rock" [basalt], soft	10	116
"Rock" [basalt], hard	17	133
"Rock" [basalt], soft	20	153
"Rock" [basalt], hard	4	157
"Rock" [basalt], soft, water-bearing	35	192
19/40-16K1. L. D. Shawgo. Altitude about 1,840 ft. Drilled by John Davisson, 1959.		
Soil and clay	20	20
Basalt, "shelly"	14	34
Basalt, hard	14	48
Basalt, "loose"	4	52
Basalt, hard, blue	17	69
Basalt, "loose"	19	88
19/40-18M1. Roy Cook. Altitude about 1,885 ft. Drilled by John Davisson, 1956. Cased to 83 ft.		
"Dirt" [soil]	12	12
Shale, water-bearing	51	63
Clay	15	78
Basalt, hard	29	107
Basalt, broken, gray, water-bearing	61	168
Basalt, hard	69	237
Basalt, soft, black, water-bearing	17	254
19/40-21M1. Glorfield Bros. Altitude about 1,820 ft. Drilled by John Davisson, 1957. Cased to 43 ft.		
Gravel, water-bearing from 18 to 38 ft.	40	40
"Rock," hard, brown	32	72
"Rock," hard, gray	11	83
Clay, brown	14	97
"Rock" [basalt], hard, gray	13	110
"Rock" [basalt], hard, brown	17	127
"Rock" [basalt], hard, green	22	149

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
19/40-21M1 - Continued		
"Rock" [basalt], hard, black	23	172
"Rock" [basalt], hard, gray	22	194
"Break," sandy, blue, brown, red clay, water-bearing	84	278
19/40-25C1. Mrs. J. P. Glorfield. Altitude about 1,740 ft. Drilled by Oliver Zinkgraf. Cased to 27 ft.		
Soil	22	22
Basalt, black	40	62
Basalt, hard, gray	28	90
Basalt, honeycombed, black	8	98
19/40-30K1. Dean Deschane. Altitude about 1,845 ft. Drilled by John Davisson, 1958.		
Soil	2	2
Gravel	24	26
Clay	16	42
Basalt	6	48
Basalt, hard	12	60
Basalt, soft, water-bearing	1	61
Basalt, hard	21	82
Basalt, soft	2	84
Basalt, hard	5	89
Basalt, soft	2	91
Basalt, hard	11	102
Basalt, soft, water-bearing	16	118
Basalt, hard	1	119
19/41-14Q1. C. C. Countryman. Altitude about 2,040 ft. Drilled by E. A. Holman, 1961. Cased to 121 ft.		
Sand and gravel	85	85
Clay and broken basalt	20	105
Basalt, black	20	125
Basalt, blue	7	132
Basalt, decomposed; blue basalt	33	165
Basalt, blue	8	173
Clay, hard, green; broken basalt	12	185
Basalt, hard, black	13	198
Clay, all colors	27	225
Basalt, broken	8	233
Basalt, hard, blue	2	235
Basalt, black	10	245
Basalt, hard, gray	13	258
Basalt, blue	8	266

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
19/42-5C1. M. L. Crites. Altitude about 2,290 ft. Drilled by John Davisson, 1958.		
Soil	2	2
Clay	110	112
Basalt, soft	5	117
Basalt, hard	41	158
Basalt, soft, water-bearing	6	164
Basalt, hard	12	176
Basalt, soft	6	182
Basalt, hard	16	198
Basalt, soft, water-bearing	41	239
19/42-7A1. J. H. Gordon. Altitude about 2,305 ft. Drilled by John Davisson, 1958.		
Soil	4	4
Clay	16	20
Gravel	2	22
Clay	13	35
Basalt, hard	8	43
Clay	25	68
Basalt, soft	21	89
Basalt, hard	4	93
Basalt, soft	57	150
19/42-11J1. Lester Kile. Altitude about 2,195 ft. Drilled by John Davisson, 1956.		
Soil	25	25
Shale, water-bearing	48	73
Clay, sandy	39	112
"Rock," hard, gray	6	118
"Rock," broken, brown, water-bearing	8	126
19/42-36B1. Burdett Prince. Altitude about 2,290 ft. Drilled by A. A. Durand & Son, 1954. Cased to 15 ft.		
Topsoil	3	3
Clay, sticky, brown	8	11
Basalt, hard, black	11	22
Basalt, medium-hard, broken, black	23	45
Basalt, hard, black	3	48
Basalt, hard, blue	5	53
Basalt, medium-hard, black	9	62
Basalt, hard, gray	3	65
Basalt, medium-hard, brown	16	81
Basalt, medium-hard, black	7	88
Basalt, medium-hard, broken, black	25	113

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
19/42-36B1 - Continued		
Sand, black	2	115
Basalt, broken, black	45	160
Basalt, hard, black	32	192
Basalt, medium-hard, broken, black	86	278
Basalt, hard, black	33	311
Basalt, medium-hard, broken, black	79	390
Basalt, hard and soft	24	414
Basalt, soft, water-bearing	2	416
Basalt	32	448
Basalt, very hard	71	519
19/43-35N1. H. Comegys. Altitude about 2,375 ft. Drilled by J. W. Queen.		
Soil	32	32
"Quicksand"	88	120
"Rock," solid	37	157
19/44-22K1. Town of Oakesdale. Altitude about 2,450 ft. Drilled by A. A. Durand & Son, 1951. Cased to 77 ft.		
Topsoil and clay	5	5
Basalt	18	23
Boulders, gravel and basalt	19	42
Basalt, gray, brown; blue mud	7	49
Basalt, hard, gray	31	80
Basalt, hard	10	90
Basalt, hard, gray and dark, with crevices	36	126
Basalt, medium-hard and hard, dark-gray	98	224
Basalt, soft, shaley, black, some water	4	228
Basalt, dark	1	229
Clay, blue	15	244
Basalt, soft, fractured, some water at 265 ft.	43	287
Basalt, soft, brown	3	290
Basalt, hard, gray	17	307
Basalt, hard and soft streaks	74	381
Basalt, medium-hard, black	9	390
Basalt, hard, black	27	417
Basalt, porous, black, water-bearing	64	481
19/45-12J1. Howard Thompson. Altitude about 2,565 ft. Drilled by Ralph Smith, 1948. Cased to 25 ft. (Log from owner's memory.)		
Clay	8	8
Gravel	8	16
"Rock"	42	58

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
19/45-14A1. Paul Thompson. Altitude about 2,545 ft. Drilled by Elmer Roy.		
Soil, black	2	2
Clay	9	11
"Rock" [basalt]	67	78
19/45-32P1. Fred Zimmerman. Altitude about 2,500 ft. Drilled by Don Smith, 1951.		
Topsoil	4	4
Clay, very hard, yellow	6	10
"Rock" [basalt], broken, gray	2	12
"Rock" [basalt], hard gray	4	16
"Rock" [basalt], gray, water-bearing	4	20
Clay, brown	9	29
Basalt, black	38	67
"Rock" [basalt], broken, brown, water-bearing	1	68
Basalt, gray	6	74
19/45-33J1. Harold Doneen. Altitude about 2,535 ft. Drilled by A. A. Durand & Son, 1948. Cased to 54 ft. (Log from owner's memory.)		
Topsoil	4	4
Clay	50	54
"Rock," soft, blue, underlain by hard, black basalt	161	215
Clay, blue	5	220
Sand	5	225
"Rock"	9	234
Coal	1	235
20/39-12N2. H. J. Swift. Altitude about 2,110 ft. Drilled by John Davisson, 1957. Cased to 79 ft.		
Clay, water-bearing, some water	74	74
"Rock" [basalt], hard, gray	108	182
"Rock" [basalt], broken, brown	8	190
"Rock" [basalt], hard, black	13	203
"Rock" [basalt], broken, brown	28	231
"Rock" [basalt], hard, black	9	240
"Rock" [basalt], broken, brown	5	245
Sand, water-bearing	6	251
[Basalt], hard, black	33	284

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
20/39-22H1. Curtis Melville. Altitude about 2,040 ft. Drilled by John Davisson. Cased to 45 ft.		
Boulders	12	12
Gravel	29	41
Boulders and sand, water-bearing	9	50
"Rock" [basalt], hard, gray	8	58
"Rock" [basalt], broken, green	5	63
"Rock" [basalt], red, water-bearing	16	79
"Rock" [basalt], hard, brown	63	142
Clay, green	5	147
"Rock" [basalt], soft, black	26	173
"Rock" [basalt], hard, gray	19	192
"Rock" [basalt], soft, gray	18	210
Sand	5	215
"Rock" [basalt], hard, gray	28	243
"Rock" [basalt], soft, brown, water-bearing	20	263
"Rock" [basalt], hard, gray	4	267
20/39-28A1. Lamont School Dist. Altitude about 1,960 ft. Drilled by John Davisson.		
Soil, clayey	24	24
Basalt	25	49
"Break," water-bearing	8	57
Basalt, hard	15	72
Basalt, soft, water-bearing	4	76
Basalt, hard	18	94
Basalt, soft	28	122
Basalt, hard	2	124
Basalt, soft, water-bearing	11	135
Basalt, hard, water-bearing	3	138
20/39-28F1. Spokane, Portland & Seattle Ry. Co. Altitude about 1,960 ft. Drilled by A. A. Durand & Son, 1938.		
Basalt, hard, gray	31	31
Basalt, honeycombed, gray	8	39
"Rock" [basalt], brown	8	47
Basalt, hard, gray	53	100
Basalt, broken, black	54	154
Basalt, gray	5	159
Basalt, black	41	200
Basalt, hard, gray	22	222
Basalt, black	7	229
Basalt, hard, gray	50	279
Basalt, soft, gray	26	305
Basalt, hard, gray	32	337
Basalt, soft, gray	19	356

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
20/39-28F1 - Continued		
Basalt, hard, gray	21	377
Basalt, very hard, gray	38	415
Basalt, brown	57	472
Basalt, broken, gray	5	477
Basalt, hard, gray	125	602
Basalt, medium-hard, black	35	637
Basalt, very hard, gray	31	668
Basalt, black	32	700
20/39-28F2. Spokane, Portland & Seattle Ry. Co. Altitude about 1,960 ft. Drilled by N. C. Jannsen, 1918		
"Rock" [basalt], blue	23	23
"Rock" [basalt], soft	80	103
"Rock" [basalt], hard, blue	11	114
Sand	2	116
"Rock" [basalt]	16	132
20/39-28G1. Town of Lamont. Altitude about 1,950 ft. Drilled by John Davisson. Cased to 64 ft.		
Topsoil	5	5
Clay	59	64
Basalt, medium-hard, dark	11	75
Basalt, soft, gray	55	130
Basalt, soft, dark	20	150
Basalt, hard, black	12	162
Basalt, soft, gray	36	198
Basalt, hard, black	4	202
20/39-32G1. C. W. Shields. Altitude about 1,955 ft. Drilled by A. A. Durand & Son, 1953. Cased to 186 ft.		
Topsoil	2	2
"Hardpan"	1	3
Boulders, basalt	12	15
Basalt, broken	23	38
Basalt, hard, gray	24	62
Basalt, dark	21	83
Basalt, hard, gray	2	85
Basalt, broken	10	95
Basalt, medium-hard, dark	10	105
Basalt, medium-soft, dark	38	143
Basalt, medium-hard, gray	12	155
Basalt, medium-soft, dark	31	186
Basalt, medium-hard, dark	42	228
Basalt, hard, gray	18	246
Basalt, medium-soft, dark	4	250

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
20/40-35F1. Elmer Smith. Altitude about 2,010 ft. Drilled by John Davisson, 1954. Cased to 45 ft.		
"Earth" [soil]	8	8
Gravel	11	19
Sand, water-bearing	10	29
Clay	19	48
Clay, sandy, water-bearing	41	89
"Rock" [basalt], porous	5	94
"Rock" [basalt], hard, gray	48	142
"Rock" [basalt], broken	26	168
"Rock," hard, gray	23	191
Clay, sandy, water-bearing at 240 ft.	77	268
20/41-4J1. Osborne Belsby. Altitude about 2,170 ft. Drilled by Victor Trodel, 1951. Cased to 51 ft.		
Topsoil	3	3
Gravel	42	45
"Rock" [basalt], soft, brown, water-bearing	19	64
"Rock" [basalt], hard, green	10	74
"Rock" [basalt], soft, brown, water-bearing	20	94
Basalt, hard, blue	4	98
Basalt, hard, gray	71	169
Basalt, black	23	192
Basalt, porous, black, water-bearing	28	220
Shale, blue	70	290
Basalt, porous, gray, water-bearing	145	435
20/42-13M1. Town of Malden. Altitude about 2,100 ft. Cased to 42 ft.		
Gravel and clay	68	68
Clay	3	71
Gravel	8	79
Clay	4	83
"Bedrock"	--	--
20/42-19J1. Isaac Tye. Altitude about 2,030 ft. Drilled by John Davisson, 1956.		
Soil	4	4
Basalt, "shelly"	14	18
Basalt, hard	12	30
Basalt, soft	12	42
Basalt, hard	34	76
Basalt, soft	44	120
Basalt, hard	30	150
Basalt, soft	26	176

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
20/42-19J1 - Continued		
Basalt, hard	22	198
Basalt, soft	40	238
Basalt, hard	3	241
20/42-27N1. Pine City Cemetery Assoc. Altitude about 2,210 ft. Drilled by John Davisson, 1957. Cased to 40 ft.		
Pit	15	15
Clay	15	30
"Rock" [basalt], soft; clay, water-bearing	4	34
"Rock" [basalt]	5	39
"Rock" [basalt], soft	58	97
"Rock" [basalt], hard	52	149
"Rock" [basalt], soft	2	151
"Rock" [basalt], hard	29	180
"Rock" [basalt], soft, water-bearing	20	200
"Rock" [basalt], hard	4	204
20/42-28L1. R. Johnson. Altitude about 2,020 ft. Drilled by John Davisson, 1960.		
Soil	2	2
Gravel	8	10
Clay and gravel	29	39
Basalt, soft, water-bearing	26	65
Basalt, hard	9	74
"Break," sand	2	76
Basalt, hard, gray	7	83
Basalt, soft	3	86
Basalt, hard	19	105
Basalt, soft, water-bearing	5	110
Basalt, hard	30	140
20/43-10R1. Town of Rosalia. Altitude about 2,220 ft. Drilled by Oliver Zinkgraf, 1952.		
Clay, yellow, some water	20	20
Clay, sandy, yellow	6	26
Clay	3	29
Basalt, black	11	40
"Rock" [basalt], hard, brown, water-bearing	13	53
Basalt, black, water-bearing	5	58
"Rock" [basalt], black	7	65
Basalt, black	15	80
Basalt, blue	36	116
"Rock" [basalt], soft, broken	3	119

Table 4 - Drillers' logs of representative wells, Whitman County - Continued

Materials	Thickness (feet)	Depth (feet)
20/43-10R1 - Continued		
Basalt, hard, gray	8	127
Basalt, gray	1	128
Basalt, hard, gray	2	130
Basalt, soft, brown, water-bearing	5	135
Basalt, hard, gray	115	250
Basalt, hard	48	298
Basalt, soft	9	307
Unknown	1	308
20/45-16D2. Kenneth Sievke. Altitude about 2,590 ft. Drilled by --Ray, 1957.		
Soil	1	1
Shale (clay) brown	39	40
Shale, rocky	10	50
Basalt, hard, blue	33	83
Clay, gravel, and fine sand, water-bearing (10 gpm)	40	123
Basalt, coarse, silty	18	141
Basalt, coarse, broken	19	160
Basalt, broken, creviced	20	180
Basalt, green "soapstone"	28	208
Basalt, hard, "drifting"	24	232
Basalt, broken	65	297
Shale, caving, green	7	304
Basalt, coarse, honeycombed	25	329
Basalt, hard	36	365
Basalt	17	382
Basalt, hard, "drifting"	56	438
Basalt, hard, honeycombed	3	441
Basalt, coarse, black	31	472
Crevice and "seams," water-bearing (20 gpm)	1	473
Basalt, black; silt	3	476

Table 5 - Chemical analyses of ground water

Analyst: UEC, United Engineering Co.; USGS, U.S. Geological Survey;

Iron: Total iron concentrations ("T") represent iron in solution, suspension, in solution at the time of collection.

Dissolved solids: Dissolved-solids contents preceded by a "D" are determined analyti-

Well number	Well depth (feet)	Water-bearing material	Date of collection	Analyst	Temperature (°F)	Milligrams per liter			
						Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)
12/46- 7G1	227	Basalt[1/]	7-23-64	WSDH	45	34	T 0.06	61	19
- 7G1, 7G2	227,120	--do--	1-21-64	WSDH	52	53	T .08	38	9.4
13/45-34A2	136	Basalt	1-21-64	WSDH	54	62	T .02	28	12
14/45- 5D1	164	--do--	8-16-46	WSDH	--	58	T .5	22	14
			12- 4-63	WSDH	50	56	T .32	45	26
- 5D3	167	--do--	3-30-55	USGS	--	--	T .19	24	13
			11-17-59	USGS	--	69	.39	22	15
			12- 9-63	WSDH	52	58	T .58	24	16
- 5D4	166	--do--	3-30-55	USGS	--	--	.02	22	14
- 5E1	95	Granitic sand[1/]	3-30-55	USGS	--	--	.22	22	13
- 5F2	237	Basalt[1/]	12- 2-38	USGS	--	65	T .24	22	16
- 5F3	223	--do--	3-28-55	USGS	--	--	.03	25	15
- 5G1	213	--do--	11- 4-52	UEC	--	55	--	19	11
			3-28-55	USGS	--	--	.21	21	15
15/39- 2K1, 2K2	273,261	Basalt	1-16-64	WSDH	48	43	T .08	40	15
15/44-15A2	78	Granite	3-28-58	USGS	50	50	.09	42	13
			11-17-59	USGS	--	46	.81	42	15
			5-16-60	USGS	50	--	--	--	--
-15A3,15A4	150, --		1-31-64	WSDH	48	53	T .16	43	11
15/45-26K1	302	Basalt	3-30-55	USGS	--	--	T .67	24	9.4
			5- 1-61	USGS	50	26	T .08	32	17
-32N1	231	Basalt	3-30-55	USGS	--	--	.32	21	14
			12- 9-63	WSDH	55	58	T .24	21	14
15/45-32N2	110-234	Basalt	1956	WSU	58	--	T 0.01	--	--

[1/] Includes sediments and weathered zones between basalt flows.

WSDH, Washington State Department of Health; WSU, Washington State University.

and sediment at the time of sample collection. All other values indicate only the iron actually

cally; all others are calculated values, which include bicarbonate recomputed as carbonate.

Milligrams per liter											Specific conductance (micromhos at 25°C)	pH	Remarks
Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Orthophosphate (PO_4)	Dissolved solids	Hardness as $CaCO_3$			
16	4.7	--	--	33	13	0.4	31	0.40	D 269	233	496	7.0	
11	1.8	--	--	6.1	6.9	.3	21	.52	D 167	134	320	7.1	Composite sample.
5.8	2.0	--	--	3.0	1.5	.2	1.8	.72	D 153	120	239	7.1	
28	2.4	--	--	1.8	2.0	.4	--	--	--	114	--	--	
15	.5	--	--	34	38	.2	10	.36	D 311	228	560	7.2	
--	--	190	4	3.7	4.0	--	--	--	--	113	304	8.4	
22	4.2	196	0	3.1	4.2	.5	.2	.22	238	118	346	7.7	
11	3.5	--	--	4.1	4.9	.3	.2	.20	D 203	126	304	7.5	
--	--	185	0	12	5	--	--	--	--	112	305	8.2	
--	--	198	0	2.1	3	--	--	--	--	108	299	8.2	
22	4.2	203	0	1.8	3.3	.2	.2	--	224	121	--	--	
--	--	216	0	2.9	4.0	--	--	--	--	124	323	7.8	
--	--	199	0	--	3	--	--	--	--	94	--	7.5	
--	--	203	0	2.9	3	--	--	--	--	114	305	8.3	
7	1.7	--	--	11	11	.2	26	.18	D 175	162	346	7.5	Do.
17	2.4	171	0	22	13	.2	22	.30	243	158	404	6.8	
18	1.7	192	0	18	12	.5	23	.00	278	166	406	7.0	
--	--	174	0	--	--	--	--	--	--	164	411	6.9	
11	1.7	--	--	20	24	.4	21	.46	D 169	155	404	6.8	Do.
--	--	154	0	23	3	--	--	--	--	99	287	8.3	
32	5.6	170	4	72	2.2	.6	.7	.03	276	150	421	8.4	
--	--	184	6	.8	4	--	--	--	--	110	291	8.5	
11	3.7	--	--	.3	1.7	.3	--	.62	D 169	109	277	7.6	
--	--	194	0	--	40	0.2	0.1	--	--	125	--	7.6	Collected during drilling.

Table 5 - Chemical analyses of ground water - Continued

Well number	Well depth (feet)	Water-bearing material	Date of collection	Analyst	Temperature (°F)	Milligrams per liter			
						Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)
15/45-32N2 - Cont.									
	245-395		1956	WSU	58	--	T .9	--	--
	403-954		1956	WSU	58	--	T .2	--	--
	954		3-28-58	USGS	58	67	.50	22	15
			11- -59	USGS	--	60	.36	24	13
			12- 9-63	WSDH	58	57	T .54	22	14
15/46-20P1	250	Granitic sand	3-29-55	USGS	--	--	.25	58	24
16/43-14N2	750	Basalt	11- -59	USGS	--	63	.09	21	11
			5-16-60	USGS	64	--	--	--	--
16/46- 6D1	284	--do--	1-27-64	WSDH	52	58	T 1.0	21	11
- 6D1, 6D2,6D3	284,170,115	--do--	8-16-46	WSDH	--	46	T 1.8	27	11
17/41-30R1,31G1	175,314	--do--	1-16-64	WSDH	53	56	T .01	53	15
18/41- 1A1	150	--do--	8-16-46	WSDH	--	45	--	38	12
18/45-33P1	325	--do--	8-16-46	WSDH	--	56	T .03	22	11
18/45-33P1 and 17/45-4C1	325,380	--do--	1-27-64	WSDH	51	62	T .22	24	3.6
18/46- 6G1	225	--do--	1-27-64	WSDH	51	56	T .50	26	14
19/41-36R1	256	--do--	1-20-64	WSDH	54	55	T .03	39	18
19/44-22K1	481	Basalt	1-29-64	WSDH	51	52	T 0.00	36	12
20/42-13L1	375	--do--	1-20-64	WSDH	50	51	T .02	21	9.6
20/43-10R1	308	--do--	5- 1-62	USGS	52	46	.05	34	16
			1-20-64	WSDH	50	60	T .12	23	10
20/45-13Q1	170	--do--	1-29-64	WSDH	50	30	T .04	21	11

Milligrams per liter											Specific conductance (micromhos at 25°C)	pH	Remarks
Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Orthophosphate (PO_4)	Dissolved solids	Hardness as $CaCO_3$			
--	--	148	14	--	1.3	.1	--	--	--	107	--	--	Collected during drilling.
--	--	153	0	--	2.5	.1	--	--	--	134	--	7.6	Do.
25	4.4	207	0	4.9	2.0	.4	.1	0.05	236	117	319	7.7	
22	4.1	194	0	.7	3.2	--	.1	.24	224	114	307	7.8	
11	3.6	--	--	.6	2.0	.4	.1	.24	D 194	112	277	7.5	
--	--	168	0	21	29	--	--	--	--	243	597	7.4	
24	3.5	173	0	7.7	2.2	.5	.2	.05	217	98	285	7.9	
--	--	172	0	--	--	--	--	--	--	100	290	8.0	
16	4.4	--	--	.6	2.7	.5	.3	.24	D 212	99	251	7.6	
18	5.4	--	--	2.8	2.0	.0	.3	--	--	114	--	--	Composite sample
13	2.4	--	--	8.1	6.7	.2	5.8	.58	D 222	196	397	7.3	Do.
18	2.6	--	--	6.4	5.0	.2	11	--	--	148	--	7.2	
24	4.0	--	--	.8	6.0	.2	.1	--	--	102	--	7.4	
10	3.1	--	--	2.3	2.4	.6	.0	.24	D 142	75	257	7.3	Do.
7.1	2.9	--	--	9.3	3.0	.5	.2	.22	D 155	122	242	7.4	
11	2.5	--	--	6.0	3.5	.3	17	.52	D 216	169	347	6.9	
10	2.6	--	--	13	6.0	0.4	6.5	0.30	D 196	146	316	7.0	
7.3	2.2	--	--	6.8	1.2	.3	.0	.36	D 135	92	--	7.1	
25	2.2	196	0	15	8.5	.5	15	.19	259	150	392	7.3	
10	1.7	--	--	4.1	3.1	.3	.6	.34	D 159	99	269	7.5	
7.8	2.7	--	--	6.0	1.5	.3	.2	.16	D 148	97	231	7.7	