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GROUND-WATER STUDIES
in
UMATILLA AND MORROW COUNTIES

by
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1949



STATE GOVERNING BOARD

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FOREWORD

The Department undertook this investigation requested by the Umatilla County Court after determining that the agencies officially concerned with ground-water supplies in the State - the Ground-Water Division of the U.S. Geological Survey and the State Engineer - could not take on a project of this kind in the near future.

The study as set forth in the text is only a beginning of the work that should be done in a survey of ground-water resources of the two counties, and it is a truism to state that ground-water surveys are greatly needed in this and many other places in the State particularly in eastern Oregon.

The importance of water to our civilization may not be overstressed. It is well known that many things at one time considered luxuries, by increasing use and expanding application, become necessities. Water is an outstanding example, especially in the per capita amount now consumed in cities, in industries, and on farms. Consumption of water is a measure of our so-called progress; abundance of water supplies may be used as a measure of potential growth in all human activities.

In the United States we have been prodigal with our natural resources and some of them are only ghosts of their original abundance. In some arid sections of the country, ground water has been exploited with little or no regard for the principles governing supply. An example that has assumed serious proportions is set forth in a paper titled Water as an Industrial Mineral, by Julian Hinds, General Manager and Chief Engineer, Metropolitan Water District, Los Angeles.* The story of the early depletion of ground-water supplies is related by Mr. Hinds as follows:

* * * * *

"Many water supply systems have grown more or less piecemeal, starting with a few families and expanding by various expedients with the growing population. In fact, most systems started that way, systematic planning being introduced at some later date to avoid an impending disaster. In this way the great modern water developments of the world have grown.

"A most interesting example is found in the development of water in Southern California. The white man found this an arid region, an excellent place for a few people to live, but subject to severe and prolonged droughts. During wet periods there were lush pastures, springs, and flowing streams, encouraging increased development, expansion of herds, and the introduction of irrigation. Then came the drought. Irrigation ditches ran dry, cattle died, and people moved away. But in spite of these periods of discouragement, there was some permanent development. The climate was good, soil fertile, and all kinds of fruits and crops flourished wherever and whenever there was water.

*Presented at a meeting of the Industrial Minerals Division of the American Institute of Mining and Metallurgical Engineers at Los Angeles in 1947.

"Ground water as a source of irrigation supply was not at first taken seriously, but wells were of course resorted to for domestic supplies, and at times of drought for watering livestock and perhaps for home gardens. The early dug wells merely tapped shallow surface sources, but finally, with the introduction of the drilled well, someone pierced the clay cap and struck a gusher - a bountiful artesian flow. The boom was on! Here were vast expanses of wonderfully fertile lands, with a bountiful water supply just a few hundred dollars beneath the surface. Development went forward at a stupendous rate. Nobody asked where the water came from, how much there was, or how long it would last. There was no organization to ask such questions and the individual farmer was too busy to ask anything. The supply was looked upon as inexhaustible, and wells multiplied.

"Soon outflow began to exceed replenishment. Pressures dropped and wells ceased to flow. But the farmers, now grown wealthy, were loath to walk off and leave their homesteads. Furthermore, they could now afford to pay for water - they could afford to pump it. And so pumps went down as fast as artesian flows stopped. And more pumping wells were drilled, still with the feeling that there were great underground oceans of fresh water, to all intents and purposes inexhaustible. And thus began one of the most stupendous mining operations of all time.

"As geologists later explained, there actually was a vast though not inexhaustible - underground storehouse of water. Practically the entire coastal basin is deeply underlain with porous detrital fills, covered with a blanket of top soil and clay of varying thickness. Each year a small portion of the sparse rainfall and meager mountain runoff around the upper perimeter of the basin sinks into the ground. During prehistoric ages these small percolations completely filled the underlying strata and welled up against the clay cap covering the lower portions, creating an artesian pressure. It was thus revealed that the early settler's herds had died of thirst on the roof of an enormous lake of good water.

"But it was only a lake and not an inexhaustible sea of fresh water, as many wishfully believed. With increased pumping, water levels sank and many wells went dry or lowered levels permitted sea water to flow landward, contaminating the source of supply. Ultimate exhaustion became obvious, but abandonment was by now out of the question. Experts were employed and the problem was studied from all its angles. Steps were taken looking toward complete conservation of all flood waters formerly wasting into the ocean. Spreading works were constructed to encourage percolation into the underground basin, and surface storage was created where possible.

"But these measures were inadequate. An annual rainfall of 15 inches cannot support a semitropical civilization, no matter how thoroughly it is conserved. Importation of water was obviously essential. There is no long river bringing water in naturally from distant sources, and nearby surrounding territory is true desert, producing no worth-while runoff.

"Early in the present century it became evident that an artificial waterway to some distant point must be constructed."

* * * * *

The paper goes on to describe the steps taken by the authorities to bring in outside water, but the quotation serves to illustrate what will happen to vital ground-water supplies if they are used in ignorance of the essential facts relating to source, possible extent, and economical production rate. Geological and engineering surveys are essential if knowledge is to be gained of how ground-water supplies may be used beneficially and not "mined." Mr. Hinds goes on to state:

* * * * *

"The production of water by mining operations is of course not limited to Southern California. Well waters are used throughout the world for individual supplies, municipal supplies, and irrigation. In many cases production is deliberately undertaken on a pure mining basis - with no hope or expectation of replenishment. Many examples of this have occurred during the past few years. Desert lands underlain by nonreplenishing water bodies have been hurriedly put into cotton or other temporarily high-priced crops, with the hope of a quick return, and with the expectations of abandonment after a few years. Such operations are likely to be detrimental to adjacent lands depending on a perennial underground water crop."

* * * * *

Most people are conservation minded and will practice conservation if they realize the need and have the "know how." Conservation of ground-water resources can be practiced intelligently only after information is gained from geological and engineering surveys.

F. W. Libbey
Director

December 15, 1948

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GROUND-WATER STUDIES IN UMATILLA AND MORROW COUNTIES

Introduction

This report is the result of a request by the Umatilla County Court that the Department make a preliminary geologic survey in Umatilla County to determine the possibilities of developing ground water in areas of marginal but potentially valuable, agricultural land. The first studies showed a lack of available technologic data in the areas in question, thus necessitating examination of adjacent areas. The field work at the outset included both making geological observations and collecting log and yield records of water wells. The last phase of the work required conferences with many people including drillers, public officials, and scores of land owners. A widespread and active interest in the subject of ground-water development was found to exist. Reports of occurrences of wells, requests for information, and suggestions in connection with individual water problems obtained from these contacts led to an expansion of the field work. There was a great diversity of information thus obtained. On the one hand the increased importance of ground-water resources and ground-water development to the area was indicated; on the other hand, a lack of understanding of the prevailing conditions from a geological standpoint and a lack of orderly practice of ground-water development were indicated. As the picture took shape, it became clear that the original plan was of far greater scope than could be satisfactorily handled with the time and personnel available. In the absence of geologic mapping, only generalized conclusions could be drawn, usually by way of reports of examination of isolated local areas. Accordingly, all idea of first-hand geologic mapping was given up. Instead, efforts were concentrated solely on what appeared to be the greater problem; that is, the assembling of data from which an overall appraisal could be drawn of ground-water resources and problems in the subject counties. This report presents the assembled data together with such comments and interpretations as seem pertinent. The area covered was expanded to include Morrow County because both Morrow and Umatilla counties lie within the bounds of the same geologic province. In its final form, therefore, this report is offered not as a presentation of geological conclusions, but rather, as an appraisal of the ground-water problems encountered.

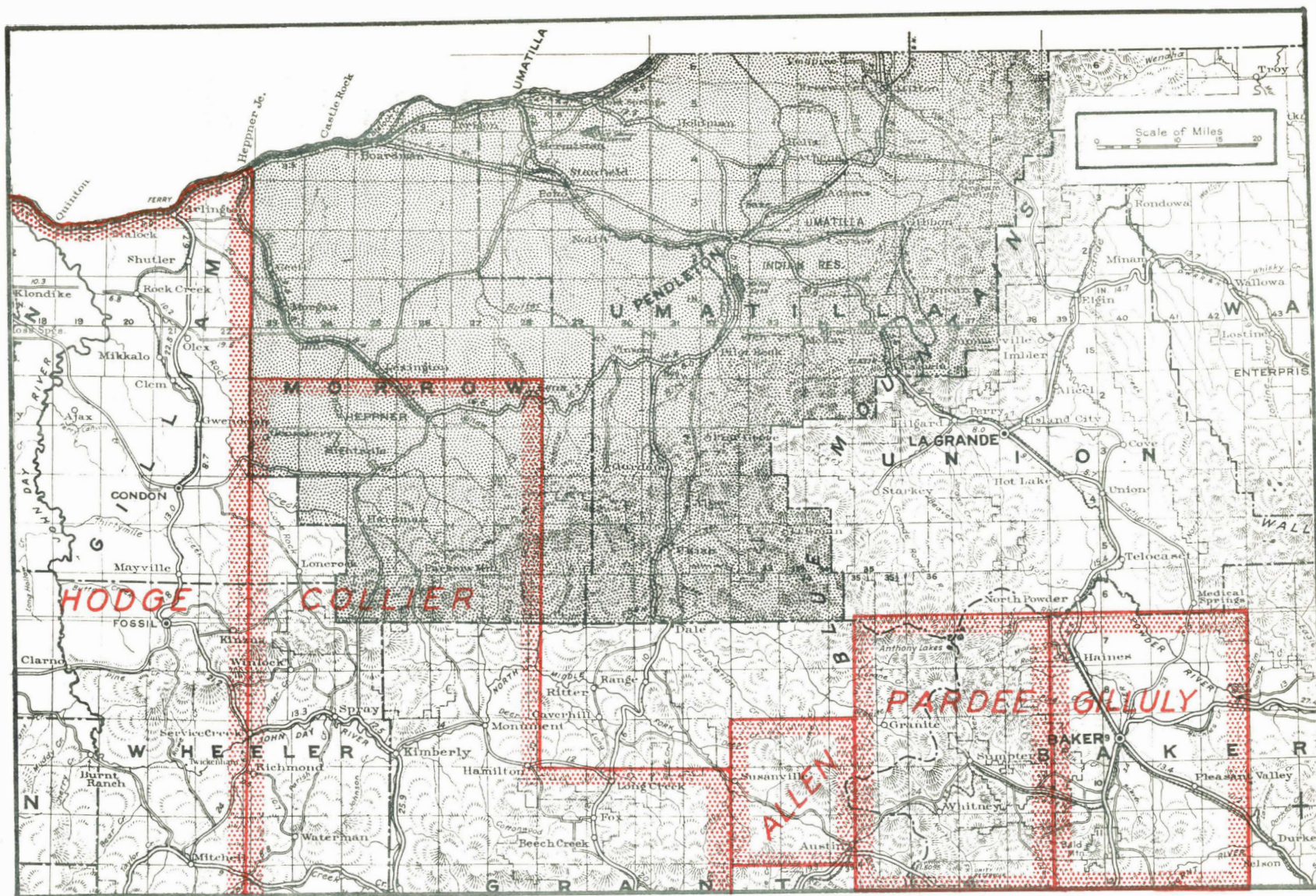


Fig. 1 Index map showing published geologic maps of the Morrow-Umatilla county area of north central Oregon.
(See bibliography at end of bulletin.)

Geology of the Area

Introduction

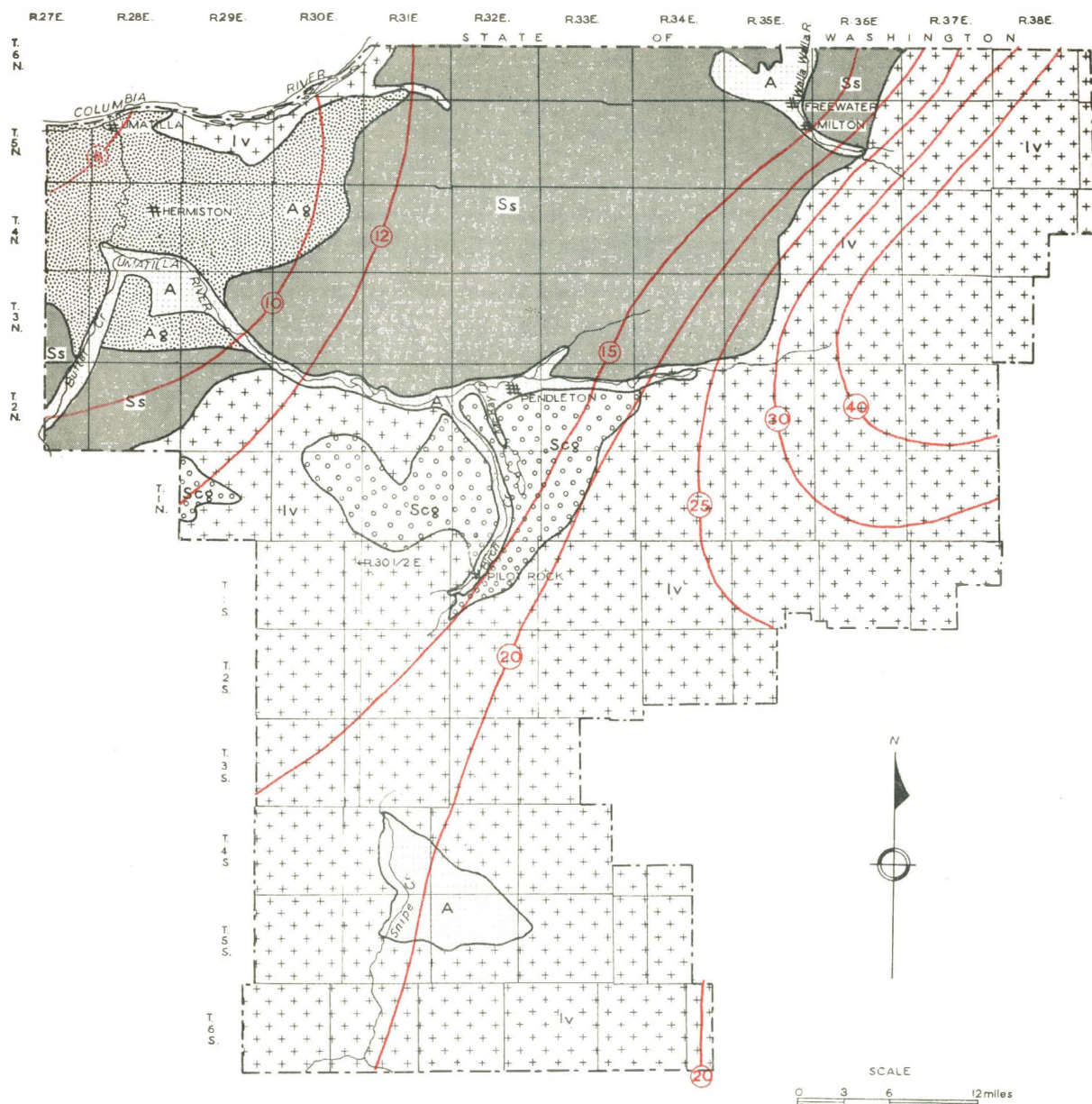
A sequence of volcanic lava flows with sedimentary interbeds covers most of Umatilla and Morrow counties. Although the older sedimentary and intrusive formations which are found in the Blue Mountains occur along the southern boundary of Morrow County and the southern and eastern boundaries of Umatilla County, it is the lava plateau that characterizes the area generally.

Available reports and maps

Of significance in terms of ground-water geology, bearing on prediction and orderly development, are such details as knowledge of identity and underground extent of porous interbeds; the ability to recognize individual beds, whether aquifers or solid lava flows, for correlation purposes in geologic mapping; and an understanding of the attitude of these beds from the standpoint of geologic structure. Only incomplete knowledge of these factors is at present available.

No single, comprehensive geological report has ever been published covering the whole of the area under discussion here. The geological reports that have been published for this part of north central Oregon are shown on figure 1 on the opposite page. References to these publications may be found in the bibliography. As may be seen from figure 1, mapping done by Collier (1914) includes a portion of Morrow County. Unfortunately, this report has but little direct bearing on the problem at hand in that it is of reconnaissance nature and deals primarily with some of the mineral resources of the Blue Mountains. Allen (1948), Gilluly (1937), Pardee (1914, 1941), and Thayer (1940) deal with geologic problems entirely foreign to those prevailing in the lava plateau area of Umatilla and Morrow counties. Hodge (1942) describes an area which borders Morrow County on the west and deals with the geology of the lava series as it occurs in that area.

The U.S. Geological Survey Water-Supply Paper series entitled "Water Levels and Artesian Pressure in Observation Wells in the United States" record periodic measurements of water levels, artesian pressure, and other statistical data. Such records are of the utmost importance in the final interpretation of ground-water geology problems, and are fundamental to a sound water-development program from an engineering standpoint. The value of this type of data, however, is usually limited in range, by geologic factors, to a small area surrounding the region in which the observation wells are located. The observation wells referred to in the above papers pertinent to this report are all situated within a small area around Milton-Freewater, which is geologically part of the Walla Walla Basin. Thus, while the data obtained from these wells are of importance to that special area, they are of little importance in terms of the ground-water problems to be faced elsewhere in the wide expanses of Umatilla and Morrow counties.



LEGEND

A	ALLUVIUM. RECENT GRAVELS, SANDS AND SILTS.
Ag	PLEISTOCENE TERRACE SANDS AND GRAVELS. GENERALLY UNCONSOLIDATED.
Ss	POORLY CONSOLIDATED SEDIMENTS UNDIFFERENTIATED LOESSIAL AND GLACIAL. 50'± THICK.
Scg	MODERATELY WELL CEMENTED GRAVELS OVERLYING LAVA.
Iv+	UNDIFFERENTIATED COLUMBIA RIVER LAVAS AND CONSOLIDATED TUFFS. INCLUDES SMALL EXPOSURES OF GRANITIC AND SEDIMENTARY ROCKS.

8 AVERAGE ANNUAL PRECIPITATION IN INCHES.

GEOLOGIC MAP and PRECIPITATION BELTS UMATILLA COUNTY, OREGON

INFORMATION SECURED FROM
LAND-WATER INVENTORY OF
UMATILLA COUNTY BY THE U.S.
SOIL CONSERVATION SERVICE.

FIG 2

Unpublished reports are known to exist. Some of these have to do with specific problems of a very localized nature such as the geologic factors bearing on dam sites investigated by the U.S. Bureau of Reclamation. Other reports of a more generalized nature have been made by the U.S. Corps of Engineers in connection with studies of the McNary dam site. However, these reports are not available for general distribution.

Figure 2, on the opposite page, is a hitherto unpublished geologic map of Umatilla County prepared by geologists of the U.S. Soil Conservation Service. As this map was made primarily for the use of that bureau's staff in studies of their own special problems, it features only geologic data bearing directly on those problems. In other words, in so far as a relation exists between soils which are in place and the underlying rock formation from which they have been derived, this map portrays the surface distribution of distinctive bedrock formations.

A report containing information on water resources, both surface and subsurface, was prepared by A. M. Piper of the U.S. Geological Survey in connection with a suit on water rights between the states of Washington and Oregon. This report was published only in the form of a court record. It is entitled: Transcript of Record, Supreme Court of the United States, October Term, 1935; The State of Washington, Complainant, vs The State of Oregon; Stipulations and Exhibits; Filed October 14, 1935. The bulk of the area covered by this report is situated in the State of Washington. The part of Oregon to which attention is given consists of a narrow strip paralleling the state line in the vicinity of Milton-Freewater, Milton being the southernmost point.

Allen (1939, unpublished report) describes the geology and ground-water conditions of the Pendleton area, and is referred to later in this paper.

Currently in preparation by the U.S. Geological Survey, Ground-Water Division, is a ground-water survey of the Walla Walla Basin. Although most of the area being mapped lies in the State of Washington, the natural bounds of the Walla Walla Basin extend into Oregon. As in the case of the Piper report, the area covered in Oregon parallels the state line in the vicinity of Milton. This project has been in progress several years. It represents the type of investigation needed in the area under discussion in order to appraise properly the prevailing ground-water resources.

From the foregoing, it is apparent that a major project of field investigation will be necessary before any comprehensive geologic description can be made. It is thought, however, that the following is warranted from the information that is available.

Geological formations

The lava flows in the two counties are but a small part of the lava area in Washington, Oregon, and Idaho. The flows began to pour out in early to middle Tertiary time and continued throughout the later Tertiary.

Columbia River lava was the name given to these flows by the earlier geologists. Some workers since have used this term loosely, applying the name to any and all lava flows of the region; consequently, a certain amount of confusion has arisen from this designation. Increased knowledge of the regional geology has shown that there are individual flows or assemblages of flows that are distinct; this is especially true of lavas of the late Tertiary (Pliocene time).

Hodge (1942), in reporting his investigation of the area of north central Oregon bordering on Morrow County to the west, employed the name "Coriba" (derived from the words Columbia River basalt) for the principle basalt group there. The name as so employed refers to the extensive and massive portion of the basalt flood which poured out in Miocene time. Coriba constitutes the largest single formation shown in the entire area mapped by Hodge; it is widespread in the northern half of his area, and this portion of his map lies west of Morrow County as shown on fig. 1 opposite p. 3.

Coriba is known to extend eastward into Morrow and Umatilla counties. It outcrops over large areas and is believed to form the bedrock underlying the whole of the northern portions of these counties. It is not a single lava flow but is a succession of several individual flows of generally dense basalt. Sedimentary interbeds are few and are believed to be of restricted lenticular extent. The sedimentary interbeds, together with porous or fractured horizons in the lavas, are the principal potential aquifers in the formation.

Concurrent with the decrease in magnitude of the basalt outpourings during later Tertiary time there was an increase of sedimentary deposits. Sands, gravels, and clays, together with volcanic ash and other clastic volcanic material, and occasional diatomic and lignitic beds combine to make up these formations. As with the lavas, an overall similarity exists between these sedimentary assemblages. Characteristic and distinctive differences, however, do exist between the sediments accumulated at different places. Thus such names as Shutler, The Dalles, Ellensburg, Payette, Mascall, and Rattlesnake have been given to individual beds or to assemblages of beds. Some of these formations are undoubtedly equivalent in geologic age but geologically distinctive because of the limit and locale of the geologic mapping, distribution, or because of their lithologic make-up.

Hodge (1942) maps the formations overlying the Coriba in the following chronological order: the Mascall, Rattlesnake, Shutler, Ochoco, Cascade, and the Intracanyon lavas. Noted also with the Pleistocene to Recent alluvial material are areas of ice-rafted debris. Of these formations, what Hodge maps as the Shutler is the most widespread of the overlying

formations in that portion of the area bordering on Morrow County. As this formation is known to extend eastward into Morrow and Umatilla counties, Hodge's description of the formation is summarized here. It is characterized by a basal conglomerate consisting of lime caliche-coated water-rounded pebbles. Overlying this basal conglomerate are bedded sands, silts, and diatomaceous-ash members. The conglomerate is of variable thickness, increasing from essentially nothing on the west side of the area to thicknesses of between 10 and 50 feet in the vicinity of Willow Creek. The overlying series of sands and silts show a maximum thickness of 100 feet.

Beyond the fact that the Shutler formation extends eastward into Morrow and Umatilla counties, little else is known about it. The map of Umatilla County by the U.S. Soil Conservation Service represents the first known attempt to indicate the identity and distribution of this or of any other formations in the area. No such map is known to have been made for Morrow County. That the Shutler occupies large areas in Morrow County is certain, but to obtain information on the nature of the Shutler section would require detailed study. The description by Hodge (1942) shows that the basal conglomerate increases in thickness as the formation progresses to the eastward. Some well logs (the Ordnance Housing Depot well, index and map no. 90-U, for an example) show a surprising thickness of clays and gravels. This indicates either that the entire formation undergoes substantial changes in thickness, or that other similar sedimentary formations may be present.

The ice-rafted debris described by Hodge (1942) was noted by the writer at several places in Morrow County. The characteristic granite boulders are especially conspicuous at several places in the irrigation district southwest of Boardman. Of interest in this connection is the log of the Wilkinson well, index and map no. 158-M. The driller reported encountering a 6½-foot "granite" boulder underlying weathered basalt at a depth of 37½ feet, and another 5-foot "granite" boulder at a depth of 68 feet. He described the cuttings from these boulders as white. He further reports that the boulders were exceptionally hard and that it was necessary to re-sharpen the bit after every 6 inches of drilling. It is to be regretted that cuttings of these boulders were not available for laboratory examination, for if these boulders are granite, comparable to the erratics typical of the ice-rafted debris, the fact would be of great interest.

Geological structures

On the subject of geologic structure it is again necessary to draw from knowledge of regional scope. From the mapping done of Tertiary to Recent formations in Oregon and elsewhere in the Northwest, it is known that faulting is common and is often expressed as regional or block tilting. Folding is perhaps less conspicuously developed, but is nonetheless important. The general pattern of these structural features, found elsewhere in the region, prevails also in Morrow and Umatilla counties.

The information now available allows the following comments on structural conditions prevailing in the lava-field portions of Morrow and Umatilla counties. There is a regional dip to the north and away from the Blue Mountains. Locally, this dip varies in both direction and magnitude. The formations are cut by a series of faults, some of which parallel the trend of the Blue Mountain foothills. Folding is present. From their work in the vicinity of the McNary dam site, geologists of the Corps of Engineers* have recognized a broad northeast-southwest-trending trough as the major feature relating to artesian water found in the area. The center of this basin cuts diagonally across the Columbia River in the vicinity of Irrigon. A narrow, shallow, secondary downwarping occurs near the eastern margin of the major basin. Allen (1939) maps another downwarp or syncline between Pendleton and the Blue Mountains to the east. He named this the Agency syncline as the Umatilla Indian Agency is located approximately on the axis. This fold trends north-northeast from a point about midway between Pilot Rock and the McKay reservoir, through the Indian Agency, and across the Umatilla River nearly to Wildhorse Creek.

Ground-water geology

It is apparent from well-production records (see well logs) that some apparently large, strong aquifers (ground-water horizons) exist in the area under discussion. Also, it is apparent that many seemingly less-important aquifers occur, as would be expected when aquifer existence is dependent upon sedimentary interbeds of restricted extent and upon fractured and permeable horizons in otherwise massive lavas. However, what may seem to be a large-capacity aquifer at first, because a high permeability allows delivery of a large yield, may in reality be of small capacity or may possess a low replenishment rate, so that it can not support additional large-capacity wells. Conversely, what may seem now to be a less important aquifer, due to a relatively low rate of yield, may have sufficient capacity and replenishment to support many moderate-yield wells for years. Until production records can be correlated with such other data as aquifer capacity and permeability, water replenishment and loss (both natural and artificial), water-table and artesian static water levels, chemical analyses and temperatures, etc., no definite appraisal of the aquifers can be made in the absence of both detailed geologic mapping and comprehensive, systematically taken hydrologic information.

The effect on groundwater of the earthquake of July 15, 1936, is of general interest. Damage was most serious around Freewater and Umapine. Springs and deep wells were affected. One deep well which had quit flowing several years before the earthquake was reported by Brown (1937) to have regained a strong flow. The Pendleton airport well (index no. 58-U) quit flowing after the earthquake although previously it had been a small, but consistent producer. This well was originally in excess of 700 feet deep and it was necessary to deepen

* Unpublished report, Corps of Engineers, Portland District, Department of the Army, 1948.

it by 250 feet before water was again obtained. However, the water then obtained was reportedly contaminated and the well was abandoned. Reports of springs drying up or being rejuvenated are common in the vicinity of Milton-Freewater and east of Athena. The flow of one spring was reported* as affected at Ukiah in sec. 14, T. 5 S., R. 31 E., a distance of 45 miles from the place of greatest intensity. Here a terrace containing many seepages, some of which had flowed consistently for many years, experienced the usual pattern of change, that is, the flow of some seepages decreased while that of others increased.

Discussion of Well Records

The study of 209 wells forms the basis of this report. A summarized statement of the information obtained for each of these wells is included in the appendix. These well summaries are segregated into groups by county with an individual index number by the well name for each county. Preceding the county groups there is a master index in which all wells are listed by well name regardless of county, and also by the index numbers employed to designate the wells on the map. Following the county groups of well summaries, there are various statistical tabulations.

The information comprising these well summaries was secured from many sources. Oftentimes the data for one well came from three or four different informants - present owners, former owners, drillers, State and Federal agencies, with perhaps the formation log being derived from one, recent production records from another, original test data from another. Principal informants are named on the summary sheets.

Included in this well coverage is the bulk of the municipal and industrial wells in the area. The total for these classes is 58 including 8 wells in Union County. Of these 58 listings 28 are municipal and 30 are industrial wells. Lists of these are included in the appendix. Except for a few wells, whose status is not designated, the remaining wells are domestic or irrigation wells. Domestic wells as classified here are for the most part wells serving ranch dwellings; included also in this category are wells drilled primarily for stock-watering purposes. Fourteen are classed as irrigation wells. It is possible that a few irrigation wells are included in the group classified as domestic.

Evaluation of the well summaries may best be made by first setting forth some statistics. A formation log or production statement was obtained for 174 of the 209 wells. Drillers' logs, or statements pertaining to the formations encountered, were secured for only 128 of the 209. Production records, including in some instances comprehensive test data, were secured for 46 wells for which no formation logs could be obtained. Several important, recently drilled wells are in the group for which the formation logs are lacking. For 35 wells no pertinent information may be offered other than their location and sometimes their depth.

*Personal communication, R. A. Fletcher.

Although additional data are known to exist for some of the wells listed here and for many not listed, the present assemblage probably represents the bulk of the information available for wells in the area.

A large number of existing domestic wells is not included in this coverage because logs or production records could not be obtained. Many of the domestic wells are quite old and in some instances ownership has changed several times since the well was drilled. Almost never does the present owner have a copy of a driller's log. Occasionally present owners do not even know with certainty the depth of the well or identity of the driller. Some of the earlier drillers are deceased, and but few of them ever made or kept logs on the wells they drilled - a practice regrettably followed by some drillers even today. Some drillers maintain a file of their drilling records, but for reasons of their own, refrain from giving the logs to the well owners, and likewise refused to make them available for this investigation. The fact that logs were secured for as many wells as there were is to be credited to the cooperation of other drillers who keep systematic progress records for the wells they drill.

Drillers and geologists each value well logs for different reasons. To the driller (and also the well owner) a well log is primarily of value in connection with casing and pump installation, and future cleaning, reaming, and servicing problems. For these problems, knowledge concerning the number and location of hole reductions, of water horizons, of zones of loosely indurated formation or blocky fractured rock, is important. Furthermore, knowledge of the drilling properties of formations penetrated in a given vicinity may assist a driller in estimating his costs for drilling a new well. A detailed geological classification of the formations penetrated has, generally speaking, little of immediate practical value to him. To the geologist, however, recognition of the formations penetrated by a well is of prime importance in the working out of ground-water problems of regional scope. The formation logs assembled here all rate as drillers' logs. That is, they were made by the driller with the formation classifications based on the driller's experience and judgment. Many of the logs are quite descriptive and comprehensive. Some are vague and generalized. The former record invaluable material of a sort especially helpful to the driller. From a geological standpoint however, these logs have little significance.

Accurate logging of a well is never a simple matter if it is to be of value for subsurface geological correlation. A reasonably good and reliable log featuring formation classification can be made without laboratory study only when the formations are truly distinctive and a substantial backlog of control data from previous studies exists. Even if the geology of the area under discussion has been studied intensively in the past and the results of the investigations are available, the lack of distinctiveness between

individual flows of the Coriba, for example, and between the less abundant interbeds, sometimes renders logs made without laboratory study of the cuttings of little value for geological correlation.

The production data phase of the well summary records includes the results of a few first-class engineering tests such as were made for some of the more important municipal and industrial wells. Otherwise the records usually reflect bail tests or incomplete pump tests. This is understandable when it is considered that many owners, especially those who have wells drilled for domestic or stock-watering use, demand but a small yield. As long as the well produces sufficiently to meet this demand, they are satisfied. The driller has only to demonstrate to the owner's satisfaction that the well delivers the desired production. Thus it is that many wells have never been tested to ascertain their potential yield. It is regrettable that incomplete and slipshod tests are sometimes given to expensive and important municipal and industrial wells, and that filing systems of well records are often maintained with carelessness and indifference. Sometimes no attempt is made to follow a well's progress by maintaining a file of daily operational statistics. For ranch wells this is not surprising or necessarily of great importance, but in the case of municipal and industrial wells where a steady large-volume output is critical, such records are important to future production.

The six dry and six abandoned wells listed here probably represent a disproportionately low percentage of such wells. Owners, when questioned about their wells, naturally think primarily in terms of active producers, and drillers are sometimes reticent about discussing dry holes they may have drilled. The six wells listed as dry holes were definitely dry. Some of those listed as abandoned may have been abandoned because they were dry or because an insufficient amount of water was developed for the owner's requirements. Actually several of them were known producers. At one a pump was lost in the hole under conditions which did not warrant attempting to retrieve it. Reportedly, the Union Pacific Munley no. 1 well was abandoned after years of service because the company's Munley no. 2 well yielded a sufficient amount of water for all the company's requirements. The Elgin City no. 1 well might be properly classed as abandoned. It was a substantial producer in its day, but it is now capped because it is drained to the point of drying by the normal pumping operations of the nearby no. 2 well. When no. 2 well is not pumped, both reportedly recover and the no. 1 well when not capped will resume flowing as usual. A crooked or otherwise unsatisfactory hole, and not the lack of water, is reported as the direct cause of abandonment of another well.

The subject of dry holes is further complicated by the fact that some of the technically satisfactory, producing wells might, for all practical purposes, be rated as dry holes.

Reference has already been made to the fact that some potentially large producers may exist in the ranks of the untested domestic wells. The reverse is also true. It is known that some of the "satisfactory" producers are incapable of yielding more than the necessary gallon or two a minute needed to rate them as satisfactory producers for stock-watering purposes. Had such wells been drilled for municipal, industrial, or irrigation purposes they would rate as "dry holes" in the eyes of the owners and drillers. It is worthy of note that many wells drilled expressly for domestic or stock-watering purposes have been sunk to depths of several hundreds of feet, representing a major drilling operation comparable, except for the smaller diameter of the holes, to those conducted on some of the municipal and industrial wells.

Of the 209 wells covered during this investigation, there are 53 which flow, or which did flow at one time. A list of these wells giving their depths and a brief descriptive statement of their flow characteristics has been prepared and is included in the appendix. Eight of these wells are situated in Union County. They are included in the list for the sake of completeness, but the ensuing comments are based ^{only} on the 45 wells which occur in Umatilla and Morrow counties.

The well belonging to the city of Pilot Rock yields the largest natural flow. This well was sunk to the comparatively shallow depth of 309 feet. When completed in February 1946 the flow was measured at 1420 gallons per minute. The next-largest flowing well is the Rugg no. 1 well. This well is only 161 feet deep. Flow is reported at 465 gallons per minute. The remaining wells all yield much smaller flows including several that have a very low gallon-per-minute rate. Some of the wells placed in the latter category are claimed to have had larger flows originally. The Rice well (sec. 29, T. 1 N., R. 26 E.) is reported to have had an initial flow of around 600 gallons per minute before the well was lost in an attempt to ream the hole. Flow of unmeasured but reportedly similar proportions is claimed to have been re-established by a new well drilled 5 feet from the original. The latter well was drilled about 1915 and it is understood that this well still flows but at an estimated rate of 40 gallons per minute. The city of Heppner's no. 1 well for many years had a low static water level and a progressively decreasing yield on pumping so that recently it was necessary to drill a second well. No records of measured flow exists on the no. 1 well, but from pictures taken shortly after the completion of drilling, and from various reports, it is apparent that the original flow of this well would rank it between the Rugg and Pilot Rock wells.

Plate 1 on which well locations are spotted shows that a large number of these flowing wells are concentrated in a small area southwest of Boardman. The area is an irrigation district with a family on practically every 40-acre plot in the central portion of the district. Here there are 23 flowing wells of the 32 that were recorded. This does not

include the Boardman city well which lies just outside of the district. Many of these flowing wells are 20 or more years old. All of these wells produce from shallow holes of around 80 to 95 feet in depth. All give low but reportedly dependable year-round yields sufficient for domestic and stock-watering purposes.

Information that was gathered concerning these wells required many days of intensive work. Many owners could give no more than generalized information on a well's production characteristics such as: the natural flow was ample to service a domestic water system without mechanical assistance, or that assistance was needed. Some owners did not even know the name of the original owner of the tract at the time the well was drilled because some of these tracts have changed hands so many times. The few remaining original settlers in this district often supplied information for their neighbor's well and also the identity of the driller. As the development of these flowing wells was a subject of keen local interest in the pioneer days, many of the early settlers were able to give a substantial amount of information which proved helpful in locating original owners, drillers, and others who knew something about the wells. These older people were also able to provide facts on the flow and depth of neighbors' wells. It is from questioning and cross-questioning these informants and from interviewing or corresponding with some of the drillers that the information for the wells in this district was assembled in its present form.

Some formation logs were obtained direct from the drillers. These can be accepted as reliable. By checking against these drillers' logs it can be seen that the comments on formations encountered in other wells, as supplied by various residents, appear to be reliable within reasonable limits. The over-all yield characteristics obtained from all sources are to be taken as generally reliable if the wells have records of fairly consistent flow.

A casing record has no direct bearing on the interpretation of the geological aspects of a ground-water problem. But casing records are important to both drillers and owners. Some of the otherwise complete logs from which some of the well summaries offered here were taken, contained either no casing statements or incomplete ones. Suggestions as to what should be included in an ideal log will be made later in this report.

Another set of tabulations that was drawn from the well summaries has to do with the range of depths of wells drilled. For the convenience of those who may be interested, a table is included in the appendix listing by depth all wells with depths in excess of 300 feet. The 209 wells fall into depth groups as follows:

Less than 100 feet	38 wells
101 to 500 feet inclusive	104
501 to 1000 feet inclusive	37
Over 1000 feet	12
No data	18
	<u>209</u>

The deepest well recorded is the Milton Nursery well which is 2000 feet in depth.

Far too much diversification exists in the nature of the production data gathered to permit the compilation of wells on a production basis. The reader is referred directly to the well summaries for such records. About all that can be said here in describing the production range is that very few wells are pumped in practice at a rate in excess of 1000 gallons per minute, and that the test data assembled indicates that very few wells have capacities of such proportions. Pumping rates for all classes of wells other than domestic appear to range most commonly from about 200 to about 600 gallons per minute.

The subject of well locations merits some comment. Generally, information regarding well location was secured from well owners, usually through personal communication, but sometimes by correspondence. Many locations were obtained from survey records; others represent merely the owner's guess. In the absence of survey records, locations were often taken from tax receipts, or established by the owner spotting the well on a county map. The locations thus secured are sufficiently accurate for the purpose of plotting well distribution on a base map of small scale such as that which accompanies this report. Otherwise accuracy cannot be guaranteed in any legal sense of the word, particularly for wells in the domestic classification and some municipal wells. The location of most industrial and city wells, however, is based on survey records.

Discussion of Spring Data Obtained

Judging from the dry appearance of much of the country during the summer months, a surprisingly large number of springs is to be found in both Morrow and Umatilla counties. Some of these springs have a large flow, although most have a low yield. While many are dry during the peak of summer, many others are known for their reliable year-round yield. Both thermal and cold water springs occur.

Because so great a need for geologic mapping and basic study of other fundamental phases of ground-water geology was seen to exist during the early stages of this investigation, it was soon apparent that the gathering of information on springs would prove of little immediate significance. This conclusion was strengthened by the fact that at best only hearsay was to be secured on the yield characteristics of the springs visited. All attempts to make first-hand examinations of springs, or to gather data thereon, was abandoned in favor of seeking records of ground-water development.

Spring development for stock-water purposes is sponsored by the U.S. Production and Marketing Administration, and reference is made to figure 4 (opposite p. 19) which shows the location of springs developed under its direction in Umatilla County. Similar data are available for Morrow County in the files of this agency in Heppner, but no map has as yet been prepared. Information is not available concerning the yield characteristics of any of these springs. The Umatilla County map is included for the purpose of recording the

location of the springs developed by the U.S. Production and Marketing Administration and the U.S. Forest Service. As natural springs and artificial ones developed by private individuals are not shown, the map probably covers only a small portion of the springs that exist in the county.

Analysis of Data Gathered

The purpose of this section is to present an analysis of the geological and ground-water information which was gathered in the investigation. Deficiencies will be pointed out, and constructive suggestions will be made. It is hoped that the recommendations made here will form a basis for future ground-water studies of the area.

Geologic records

Good base maps are fundamental to geologic mapping, and topographic maps are highly desirable if not essential to the construction of a satisfactory geologic map. Topographic maps greatly reduce the problems and costs of geologic mapping. A topographic base map is required in mapping of structure which calls for a high degree of precision.

Although topographic coverage exists for approximately half of Umatilla County and a somewhat lesser amount of Morrow County (fig. 3, opposite p. 17), it is in the unmapped area that contour coverage would be of the most assistance. This unmapped area includes most of the foothill country where precipitation is the heaviest (fig. 2, opposite p. 5) and where the major zones of intake for confined waters probably occur. While the Coriba is known to dip away (in general northerly) from the Blue Mountains, complex structures, especially faults paralleling the mountains, probably exist in this area. Accurate mapping of such faults may be of critical importance in determining the continuity of such aquifers as occur in the Coriba flows of the northern plateau area.

If any project of geologic mapping should be undertaken for the area where topographic control is lacking, attempts should be made to secure large scale composites of aerial photographs. Even though these photographs lack topographic control, such photographic base maps have distinctive attributes and show topographic details which sometimes render them superior to topographic maps in geologic mapping.

The most important wells in the area produce water originating from aquifers within the Coriba. It is from this source that the development of large-yield producers is to be anticipated in the future. It might be added that most of the large, producing wells situated out of the area also produce from Coriba sources, especially in Washington where many large-yield, irrigation wells have been developed within a few miles of the Oregon boundary. This illustrates the importance of knowledge of the Coriba, its possible aquifers, and its geologic structure.

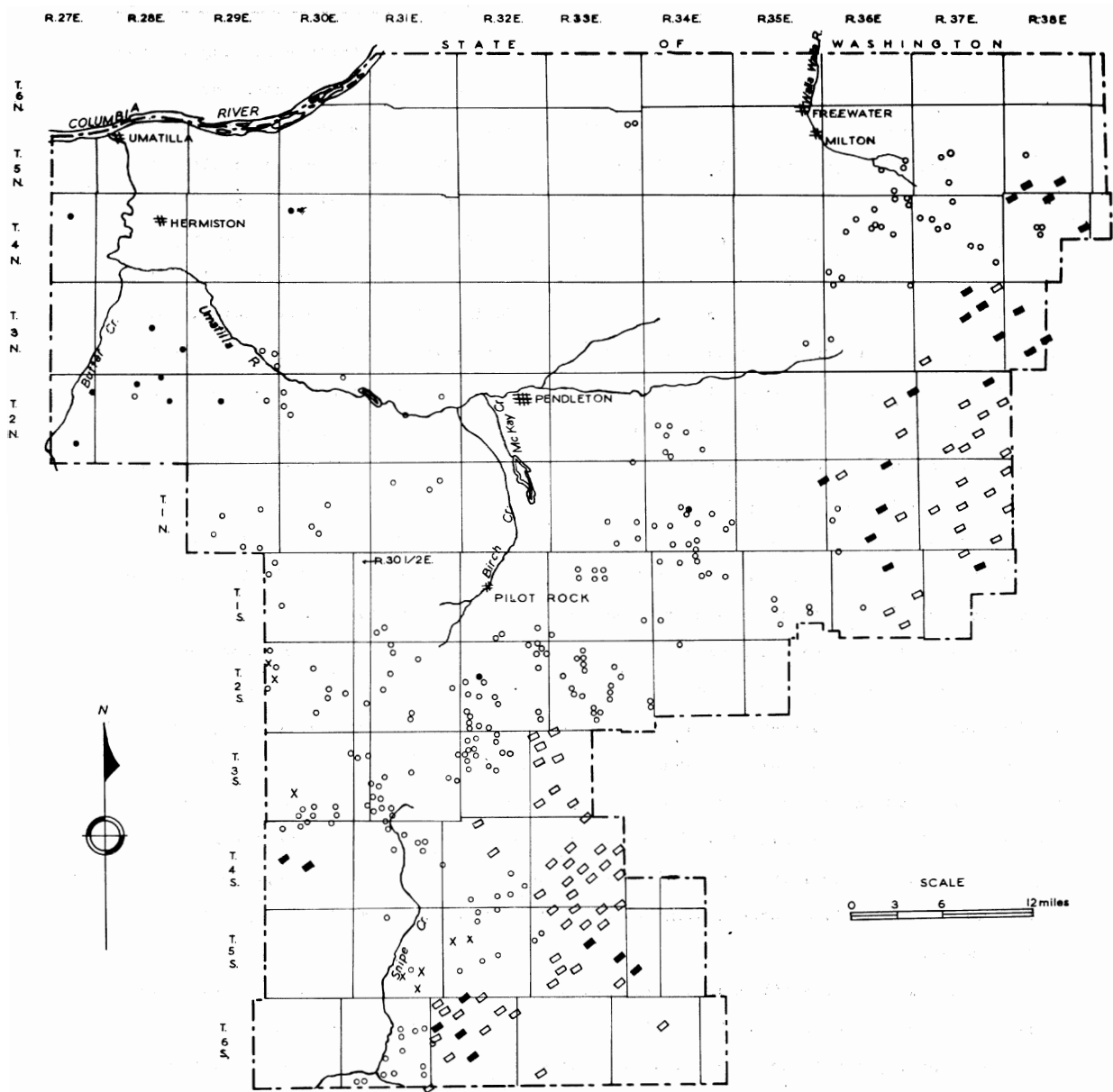
From studies of the Coriba elsewhere, and from what little is known regarding it from reconnaissance study and drill records from within the area, sedimentary interbeds (and hence sedimentary aquifers) appear to be lacking except for small lenses of local extent. Because of this, porous zones between flows and fractured flows probably constitute the chief channels of migration and mediums of storage for water. Many different aquifers, involving both the restricted, sedimentary type and the fractured and porous lava types, are probably represented by the wells in the area. Evidence of this is shown by the difference often noted among the logs of closely spaced wells. That the porous lava types are undoubtedly of restricted extent also, will be shown later. While they may support notably substantial wells, some of these aquifers may be of relatively limited capacity. Recognition of the identity, capacity, and other hydrologic characteristics of these individual aquifers, and of the sources of their water, is the major objective in any project of geologic ground-water mapping in the area.

Of practical value to the gathering of well-log data for mapping purposes would be the setting up of a service through which drillers could obtain semi-technically prepared formation logs by submitting cutting samples from their wells to an established agency. The samples could be taken at arbitrarily fixed intervals, or whenever the formation changed. Service like this has been conducted by other states in order to promote the development of their ground-water resources. Self-addressed sample bags would be furnished the drillers and samples would be submitted to the agency by the driller together with appropriate notations as to the depths from which the samples were obtained. These samples are then studied with the aid of a microscope by a qualified technician and a formation log is furnished the driller upon completion of the hole. Such a system could be expected to standardize formational descriptions even if it only reduced them to a comparative basis locally.

Although a lack of visible distinction between flows of the Coriba limits the degree of refinement and precision attainable in the geologic mapping of Morrow and Umatilla counties, many important structural and correlative data can, nevertheless, be gathered. Such work must be done before any practical understanding of the ground-water resources in the area can be realized.

Hydrologic records

Hydrologic records gathered in connection with the well logs are very incomplete. For instance, water-level figures were given on only 138 of the 209 wells for which logs were obtained. In none of these 138 wells is a water-level reference point given. Presumably, the top of the casing is the reference point, but such is not specified. In relatively few cases is the water level specified as "static" and there is reason to suspect that some of the unspecified water levels are, in reality, operational levels and not true



LEGEND

- X STOCK WATER RESERVOIR CONSTRUCTED UNDER U.S. P & M.A. PROGRAM.
- STOCK WATER WELL DEVELOPED UNDER U.S. P & M.A. PROGRAM.
- DEVELOPED SPRING, PRIVATE LAND, DEVELOPED UNDER U.S. P & M.A. PROGRAM.
- DEVELOPED SPRING, BY U.S. FOREST SERVICE.
- PROPOSED SPRING DEVELOPMENT BY U.S. FOREST SERVICE.

STOCK WATER DEVELOPMENT

UMATILLA COUNTY, OREGON

INFORMATION SECURED FROM
LAND-WATER INVENTORY OF
UMATILLA COUNTY BY THE U.S.
SOIL CONSERVATION SERVICE.

FIG 4

static levels as they supposedly represent. Furthermore, the water levels reported usually represent the level at the time the driller completed the well. Therefore the levels given may reflect the natural and normal high or low water levels prevailing during the year at the time the well was completed, or abnormal levels due to periodic cycles of excessive precipitation or drought. The log records cover a span of over 25 years. In only two wells (the Pendleton city well and the McNary damsite well) were elevations of the collar reported. For the preparation of water-table maps, whether of free or confined waters, the elevations of the well collars must be known so that the water-level measurements may be referred to a common datum. Water levels must be read simultaneously (that is, within seasonal bounds) to eliminate discrepancies due to natural fluctuations. Records needed for preparation of water-level maps, especially the location of wells by township, range, section, and quarter section, can be best obtained by the driller directly from the well owner at the time the well is being drilled rather than by some field man at a later date after the property may have changed ownership.

Only a few of the logs of flowing wells record measurements of pressure and volume of flow; these measurements are required in order to make hydrologic calculations. Such information must not only be obtained for individual wells before specific conclusions can be drawn concerning them, but before more generalized conclusions regarding aquifers and capacities can be drawn on an area-wide scale. The lack of knowledge as to what the pressure readings may have been for any unreported flowing well at the time it was first drilled, and at progressive intervals thereafter, constitutes a permanent loss of very important data. It should be made mandatory for the best interest of the public at large that all flowing wells be at least capped and their production thus controlled.

Test data of one sort or another are given on 85 of the logs listed here (total 209). This figure is somewhat arbitrary and the only wells counted, in arriving at this figure, were those for which some test was mentioned or indicated by the records. Entries of the gallons-per-minute production and drawdown were not counted as test data unless so specified by the informant, as in the other instances the gallons-per-minute production commonly refers to the normal operational rate at which the well is pumped in practice rather than to an official test figure. Likewise none of the flowing wells in the Boardman irrigation district were considered by the author to have data of test status. The figure does include bail tests or incomplete pump tests which merely indicate that the well produces sufficient water for the owner's requirements instead of the optimum production.

Results from the few wells given more thorough tests, as summarized in the logs, are often so abbreviated that critical data are omitted. For example, logs of several wells known to have been given careful, engineering tests record drawdowns at different pumping rates but fail to give the static water level. Most major pump-test reports do not lend

themselves readily to summary on prepared log forms like those used in this report. Pump-test reports may be many pages in length, and their data shown graphically on charts and tables. Every effort should be made, however, to prepare some kind of an accurate summary for purposes of general recording.

Experience has shown that invaluable test records of far too many of the important municipal and industrial wells have been mislaid or lost. Information of this type commonly changes hands many times between consulting engineers, water superintendents, and equipment-company technicians and thus is often lost.

Development

Several conclusions can be drawn regarding the presence of aquifers in the Coriba. Available geologic evidence points to the fact that no single widespread sedimentary interbed, or even a series of moderately extensive ones, exists within the Coriba in the area considered. It is also probable that no extensive porous or fractured lava horizon exists. Faulting and folding are known to be present even though the geologic structure has not been mapped or studied in detail. On the basis of general geologic knowledge, a vertical succession of porous horizons of restricted lateral extent is to be expected in a thick accumulation of lava flows like the Coriba. The log records gathered substantiate this in showing aquifers in vertical succession. They exhibit sometimes a wide variation in depth and hydrologic characteristics from well to well. Thus, the available geologic information indicates that subsurface fracture zones constitute the access channels and storage reservoirs for most of the confined waters and that the pattern (distribution, depth, and hydrologic characteristics) of migration and storage zones is governed largely by structure and by the size of the porous interbed horizons.

Structural attitudes of the Coriba (and hence of the permeable horizons within it) must be studied and mapped before conclusions may be drawn concerning the development potentialities of local areas, but the information available allows the generalization that undeveloped water resources of substantial proportions may exist in Morrow and Umatilla counties.

The well-location map (pl. 1, last page) shows that drilling has been concentrated in and around richer agricultural portions of the counties. It is in these areas that many of the larger industrial and municipal wells are situated and the greatest concentrations of population are contained. It should be remembered that the wells shown on the map fall far short of representing the complete coverage. No attempt was made to gather information on shallow domestic wells in urban areas such as Milton-Freewater, and a considerable amount of shallow-well data for this area was disregarded because of the abundance of deep-well records available. The concentration of wells in this area is therefore much greater than is indicated on the map.

Sparsely populated land predominates in both counties. For the most part this land occupies the higher elevations, is short of surface water, and rates as dry agricultural or grazing land. Improvement of such land that is suitable for irrigation or can be rendered suitable by leveling is the concern of those in authority and prompted this investigation. Ground-water possibilities of land of this type have received very little attention except for the drilling of domestic and stock wells. These wells are for the most part widely separated and usually of small diameter. In only a few places have attempts been made to develop large-yield wells. The Cutsforth no. 1 and the Tucker wells, both in Morrow County, were each drilled for irrigation purposes, and are fairly successful. Unexpectedly large-yield wells have been developed occasionally as exemplified by the Rugg no. 1 well which yields an artesian flow of an estimated 465 gallons per minute. The city of Pendleton well and the Smith Canning Company well, also in Pendleton, and various other selected industrial and municipal wells situated at various points in the more central portions of the counties (Umatilla County mostly), are examples of substantial producers drilled to appreciable depths in the Coriba for public or industrial purposes. As these wells demonstrate that substantial, and sometimes artesian production has been developed in the Coriba, similar yields in the relatively untested portions of the area may be considered as possible. The conclusion is warranted that the ground-water resources of Morrow and Umatilla counties are only partially developed.

The available geologic information does not permit detailed classification of the areas which are either potentially possible or probably unlikely for the development of large volumes of ground water. In general, conditions can be considered as favorable in an east-west belt extending through the central portions of the counties. This conclusion is based upon the supposed prevalence of a regional structural dip from the Blue Mountains and is subject to locally adverse conditions caused by faulting, folding, and other unmapped structural conditions. Whether or not large capacity aquifers exist in the Coriba in this area is unknown at the present time. Until their presence is established and structural conditions are worked out in as much detail as is possible, no predictions can be made as to the depths at which the occurrence of ground water may be anticipated. The available log data show large-capacity wells at shallow depth and low-yield wells at great depth occurring at random throughout both counties.

Another subject which merits discussion is the danger of over-production from already developed aquifers. Hodge (1942) in his report on the area comments on the Coriba as follows:

"The flows comprising the formation appear as of such indefinite length that the entire mass has frequently been called a 'basalt flood.' Actually the individual flows are only a few miles long, less wide, and from 10 to 200 feet thick. If these flows came from fissures, there must have been thousands of slits that changed their position rapidly from one place to another."

This description shows the limitations in size of aquifers to be expected. Add faulting to the picture and the result is a small areal extent for potential aquifers of sedimentary, or of the porous or fractured interflow, types. From a production standpoint this situation is doubtless relieved by vertical fracturing which may permit replenishment of a given interbed aquifer from both lateral and deeper sources.

Evidence of well interference (adverse effects upon other wells) is to be noted in the logs here assembled. Also, the history of progressively decreasing water level in some of the former flowing wells is suggestive of overproduction. It is possible that overdevelopment may already exist in some of the areas where wells occur in great numbers.

Overdevelopment means extraction at a rate faster than replenishment. Whether the lack of replenishment is due to the inability of replenishment water to migrate through feeder channels to the storage aquifer at a rate commensurate with extraction, or whether the lack of replenishment is due to a lack of reserves of water for replenishment purposes, are questions to be faced in the study of ground-water problems anywhere. The area under discussion is by no means an exception.

There can be no doubt that water precipitated in the Blue Mountains gains access to subterranean levels and works its way northward through fractured zones in very considerable quantities. Nor can there be any doubt that much ground-water replenishment originates from absorption from the plateau surface itself. Here again the factors controlling the extent and disposition of aquifers must be reckoned with. Faults may assist flow of water by shattering or they may create dams and barriers. Considering these facts and the limited size of the Coriba flows (and hence limited original size of porous interbed aquifers) individual aquifers may exist completely independent of, or only partially connected with, feeder channels draining from the mountains. This condition could be expected in the central to northern portions of Morrow and Umatilla counties.

The significance of such a condition is that a well producing from an aquifer supplied and replenished almost wholly by water from the plateau is producing from a source dependent upon a low yearly precipitation for replenishment (fig. 2, opposite p. 5). Such a well may be a large-yield producer, but if it is producing at a rate faster than replenishment, it is producing water which represents the accumulation of centuries. The development of one good well cannot be taken as evidence that the development of other successful wells - at least long-lived ones - can be expected close to the first one.

Conclusion

To those engaged in farming, or to those acquainted with civic or industrial water problems, the value of water to Morrow or Umatilla counties is well known. To those not acquainted with the counties, it can be said that the potential value of water is tremendous. Evidence of this is to be found in the increased amount of deep drilling done in recent years, not only by municipalities and industries, but also by farm owners. Many substantial, large-yield wells have been developed. These demonstrate that the Coriba may be regarded as a real, although a somewhat unpredictable source of confined ground water. This considered, together with the fact that very large areas of the counties remain relatively untested by exploratory drilling, suggests that the counties' ground-water resources remain largely undeveloped.

Just where, or to what depths, future drilling might be done successfully is a question which cannot be answered because of the lack of basic geologic information. About all that can be said now is that in general the development of large-capacity wells should not be anticipated at shallow depths. How great the undeveloped reserves may be is a question that does not warrant a guess. Both basic geologic information plus specialized ground-water data will need to be gathered before even an approximation can be made on an area-wide basis.

Certain limiting observations, however, can be drawn from existing geologic knowledge and the case histories of some wells. The short lateral extent of individual interbed aquifers plus the dependency upon fractures for interconnection with other aquifers and feeder channels is the reason for occasional, individual aquifers replenished largely by absorption from the plateau surface. Safe rate of production from such aquifers is limited and is probably more critical compared to that from aquifers replenished from the mountain sources where precipitation is greater. Even in the case of mountain-fed aquifers, marked variations in capacity among individual aquifers probably prevail. Conservation practice therefore dictates that care should be taken to guard against overdevelopment by either the development of an excessive number of wells or overproduction from one well. Therefore, well-test and production records are the most diagnostic and the most readily available data to be obtained.

All considerations point to the desirability and the practicability of expending effort and funds for a thorough, scientific investigation of the ground-water resources in the counties. The scope of such an undertaking, however, would be beyond the means of the counties to finance, or of the State Department of Geology and Mineral Industries to conduct under the present set-up. Therefore, if the counties wish to promote the development of their ground-water resources, Federal assistance should be sought.

At the present time the most important step that Morrow and Umatilla counties could take would be to build up a file of well data in anticipation of eventual ground-water investigation. A backlog of such data, if of sound technical quality, would be of material assistance in any eventual ground-water investigation, and would doubtless prove of assistance to the many local problems bound to arise during the time preceding the start of a mapping project. Standards should be set up for the preparation of well logs and of well-test and production summaries, and steps should be taken to provide for the recording of such data by both drillers and well owners.

Acknowledgements

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Water-well Logs

The following pages contain 209 driller's logs of water wells drilled in Umatilla and Morrow counties. Abbreviations used in the logs include:

G.P.M. - gallons per minute
SWL - static water level
F. - Fahrenheit
temp. - temperature
O.D. - outside diameter
I.D. - inside diameter

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

Dot in section grid shows well location. If no dot is used, exact location is not known.

Index number -- 35-U
Adams City File number 35-242-4-0
Well name (Code: Tp., R., Sec., & Sec.)

LOCATION:
Deatilla County
Fondleton Quadrangle
4E 24E 4 SW 1/4 of NE 1/4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* industrial abandoned
Driven above irrigation dry hole
Final depth 163' below municipal X producer X
*includes stock wells

City of Adams Wm. Ruther
Owners name Original drillers name
Address Address Walla Walla, Washington
Date of drilling about 1938

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller and City Water Master

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil and sand -- about	35	35	16" hole to bottom 35' of
Black hard basalt -- about	58	93	16" casing to bedrock
Soft porous water horizon	40	133	
Black hard basalt -- about	30	163	
			Bottom of hole.
			Well began flowing at 93'.
			Still flows in winter when demand is not great. During the season when demand is great, this well is pumped at the rate of 100 g.p.m. for periods of 12 to 15 hours per day. The water level then drops to 40 to 45.

Index number -- 150-M
Address File number 43-242-7
Well name (Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blalock Island Quadrangle
4E 25E 7 SW 1/4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* industrial abandoned
Driven above irrigation dry hole
Final depth 81' below municipal X producer X
*includes stock wells

C. A. Andress Griffin
Owners name Original drillers name
Address Boardman, Oregon Address Hermiston, Oregon
Date of drilling 1944

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		81	
Owner reports soil and clay (about)	30	30	
Solid bedrock	51	81	SWL was 16' when drilling was completed. SWL, however, rose slowly and consistently and is now at 21'.

Index number -- 159-M
Aiton File number 48-242-23-0
Well name (Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blalock Island Quadrangle
4E 24E 23 NE 1/4 of SW 1/4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* industrial abandoned
Driven above irrigation dry hole
Final depth 86' below municipal X producer X
*includes stock wells

Arthur Aiton Bladlow & Tite Drilling Company
Owners name Original drillers name
Address c/o Hugh Brown Address Portland, Oregon
Boardman, Oregon Date of drilling Spring, 1947

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Hugh Brown, Boardman.

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		86	6" hole cased 40'. First water encountered 36'. Second water near bottom of well. SWL 12.

Index number -- 27-U
Athens City #1 File number 48-352-19-K
Well name (Code: Tp., R., Sec., & Sec.)

LOCATION:
Deatilla County
Unmapped Quadrangle
4E 25E 19 NW 1/4 of SE 1/4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* industrial abandoned
Driven above irrigation dry hole
Final depth 680' below municipal X producer X
*includes stock wells

City of Athens A. A. Durand & Son
Owners name Original drillers name
Address Address Walla Walla, Washington
Date of drilling 1935

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller and City Water Master

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	25	25	Casing
Broken rock	57	82	82' of 12" pipe
Gray basalt	62	144	
Brown basalt	51	195	Flowed 15 g.p.m.
Gray basalt	55	250	Pumped 250 g.p.m.
Conglomerate	100	350	
Gray basalt	45	395	Stopped flowing according
Black basalt	35	430	to city water supt., after
Basalt	69	499	pumping operations were
Black basalt	21	520	commenced on the #2 well.
Gray basalt	60	580	
Broken rock	70	650	In practice has been pumped
Gray basalt	30	680	75 g.p.m. 24 hours per day
			with a drawdown to 65-70' during winter. Used only in winter.

[illegible][illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil and hardpan (estimate)	40	40	Flow - estimated at 20 G.P.M.
Hard basalt (estimate)	40	80	
Porons basalt (estimate)	6	86	
			Bottom of hole
			Well flows, but requires mechanical pressure to service domestic hot water system according to owners. Temperature reported to be 420°.

[illegible]

Barnett
Well name
Index number -- 42-U
34-35E-19-X
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Twp. Range Section Fractional section
Unstilla County
Unstilla Quadrangle
34 35E 19 NW1 of SE1
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 968' _____ municipal _____ producer ☒
*includes stock wells

Harold Barnett A. A. Durand & Son
Owners name Original drillers name
Address 103 N. E. Ellis Address Walla Walla, Washington
Pendleton, Oregon Date of drilling 1946

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
U. S. G. S. Ground-Water Division cleaned _____ by _____

Date compiled December 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	7	7	Casing 10-inch set to 22 ft.
Boulders	21	28	depth. 8-inch set to 22 ft.
Boulders, basalt, gray	12	40	depth.
Basalt, gray, hard	7	47	
Basalt, porous	26	73	
Basalt, gray	8	81	
Basalt, black, porous	24	105	
Basalt, black	14	119	
Basalt, gray	88	202	
Bailer test 45 g.p.m. for 7 minutes drawn from 16 ft. (static) to 80 ft.			
Recovered in 3 hours			
Basalt, gray, hard	16	218	
Basalt, black creviced and			
porous with soapstone	94	312	
Basalt, black	87	425	
Rock, soft, red	20	445	
Basalt, black	48	493	
Basalt and clay	14	507	
Rock, decomposed, hard, caving	11	518	
Basalt, and clay	20	538	
Basalt, gray, hard	18	556	
Basalt and clay	6	562	
Basalt, gray, hard	9	573	
Basalt and some clay	28	601	
Basalt, hard	24	625	
Basalt, decomposed	15	640	
(WATER STATIC LEVEL Not reported (dropped from 16 to 200 ft.)	13	653	
Basalt	9	662	
(SWL dropped Basalt, decomposed (to 272')	10	672	
Basalt, hard	6	678	
Basalt, gray	24	702	
Basalt and red clay	28	730	
Basalt, black	14	744	
Basalt, broken	39	783	
Basalt, black, hard	58	841	
Basalt, soft, brown	5	846	
Basalt, porous	33	879	
Basalt, black with soap stone	21	900	
Basalt, black, hard		968	

Hartley
Well name
Index number -- 75-U
28-30E-17
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Twp. Range Section Fractional section
Unstilla County
Unstilla Quadrangle
28 30E 17 center
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 158' _____ municipal _____ producer ☒
*includes stock wells

Cunningham Sheep Company
Owners name Original drillers name
Address Pendleton, Oregon Address
Date of drilling

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Company officials cleaned _____ by _____

Date compiled July 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		158	Pumped for stock use only

Beckner
Well name
Index number -- 70-U
28-30E-32
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Twp. Range Section Fractional section
Unstilla County
Unstilla Quadrangle
28 30E 32
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 175' _____ municipal _____ producer ☒
*includes stock wells

Cunningham Sheep Company
Owners name Original drillers name
Address Pendleton, Oregon Address
Date of drilling

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Company officials cleaned _____ by _____

Date compiled July 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		175	Pumped for stock use only

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel	0	3	Casing
Wigger heads, gravel and sand	3	22	10" cemented in rock at #1
Running sand	22	24	10" hole to bottom
Wigger heads and sand	24	30	
Wigger heads and running sand	30	40	Well flows 115 g.p.m.
Solid rock	40	68	
Hard black basalt	68	71	
Gray basalt (hard)	71	104	Crevices at 100 to 104
Hard black basalt	104	106	
Honeycomb basalt	106	110	
Blue clay	110	164	
Honeycomb basalt	164	175	Water - basalt broken badly
Shale	175	178	Water
		—	Bottom of hole

[illegible]

[illegible][illegible][illegible][illegible]

[illegible][illegible][illegible]

Date compiled	March 1948		Date	
Material	Thickness (feet)	Depth (feet)	Remarks	
Soil, clay and gravel	26	26		
Broken rock	10	36		
Solid basalt	31	67		
Clay	18	85		
			Well flows about 1 g.p.m.	
			Water encountered between 67 and 70 feet.	

Material	Thickness (feet)	Depth (feet)	Remarks
Soil and yellow clay	11	11	
Cement gravel	26	37	
Brown basalt	11	48	
Gravel	3	51	
Clay and gravel	7	58	
Cement gravel	17	75	
Brown basalt (crevice in bottom 4')	31	106	
Honeycomb basalt	2	108	
Hard brown basalt	12	120	
Gray cement gravel	5	125	
Blue clay and pea gravel	15	140	
Brown basalt	20	160	
Gray basalt - hard	8	168	
Gray basalt	10	178	
Gray basalt - soft	22	200	
Broken brown basalt	20	220	
Blue basalt	35	255	
Brown honeycomb	5	260	
Blue basalt	10	270	
Gray basalt	10	280	
Honeycomb basalt	24	304	
Blue basalt	50	354	
Black basalt	17	371	
Blue basalt	7	378	
Black basalt	10	388	
Blue basalt	6	394	
Basalt	39	440	
Sandy basalt	3	443	
Basalt	132	575	
Brown shale	5	580	
Basalt	56	636	Drilling still in progress.
Well flowing:			Temp. 68°F. Hole 14".
<u>Driller's flow record as encountered</u>			
At 31'	SWL	15'	
" 140'	SWL	11'	
" 302'			Pump test here gave 17 1/2' drawdown at 576 g.p.m.
" 394'	SWL	0'	
" 403'			Flowing - no rates given
" 490'			Flow rate noted at 150 g.p.m.
" 480'			Flow increase noted - 165 g.p.m.

[illegible][illegible]

Corrigan
Well name
Index number -- 94-M
28-27E-6
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Norrow County

Unsettled Quadrangle

28 27E 6
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 447' _____ municipal _____ producer ☒
*includes stock wells

Corrigan Ranch A. M. Edwards
Owners name Original drillers name
Address Address Lexington, Oregon
Date of drilling 1938

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled October 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil and sandy soil	40	40	
Cement gravel	60	100	
Clay - yellow	20	120	
Cement gravel	80	200	
Clay - red	10	210	
Blue - clay	7	217	
Cement gravel	67	284	
Broken and seamy brown rock	4	288	
Solid brown rock	62	350	
Blue basalt rock	42	392	
Gray basalt rock	21	413	
Black basalt rock	14	427	Water course
Hard basalt rock - grey	20	447	
Well cased - 300 Ft. Water very warm. Water level - 280 Ft. Bailor test, 40 g.p.m.			

Cox
Well name
Index number -- 66-U
1E-30E-11-E
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Unsettled County

Unsettled Quadrangle

1E 30E 11 SE corner of SE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 300' _____ municipal _____ producer ☒
*includes stock wells

Cunningham Sheep Company
Owners name Original drillers name
Address Pendleton, Oregon Address
Date of drilling

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Company officials _____

Date compiled July 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		300	Pumped for stock use only

Cotter
Well name
Index number -- 120-M
3S-27E-14-E
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Norrow County

Unsettled Quadrangle

3S 27E 14 SE 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 690' _____ municipal _____ producer ☒
*includes stock wells

Clarence Warren M. E. Cotter
Owners name Original drillers name
Address Ione, Oregon Address Ione, Oregon
Date of drilling Started Aug. 28, 1915
Finished Oct. 7, 1920

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Mr. Cotter, original owner and driller _____

Date compiled November 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
This well was first drilled to a depth of 456' and then deepened at a later date. The composite log follows:			
Soil	12	12	6" hole
Blue basalt	73	85	
Honeycomb with some shale rock	60	145	
Blue basalt	80	225	A little water at 225'
Gray basalt	56	281	
Rock with yellow and white shale	39	320	
Hard blue and gray rock	70	390	
Cracked rock and caving	66	456	
Hard blue and gray basalt	222	678	
Cracked and seamy rock		690 1/2	Bottom of hole
			Plenty of water at 690 1/2'.
			180' of water in hole.

Crow
Well name
Index number -- 53-U
2E-30E-32-E
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Unsettled County

Pendleton Quadrangle

2E 30E 32 SE 1/4 of SE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 240' _____ municipal _____ producer ☒
*includes stock wells

John Crow C. E. Lewis
Owners name Original drillers name
Address Route 1 Address Pendleton, Oregon
Date of drilling

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Mr. J. E. Hanna, Pendleton, Oregon _____

Date compiled January 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		240	6" hole. SW 1/4 pumped for domestic use only

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Soil mantle		150 ft. with entry below	Hole, 10"
Hard rock basalt	258	268	SWL 200'
Basalt and green clay	8	276	265 g.p.m. yield stabilized
Fee gravel and some clay	3	279	on test pump.
Yellow clay	8	287	
Basalt	1	288	
			Owner reports subsequent sustained pump run of 26 hrs. per day for 5 days at 405 g.p.m.

[illegible][illegible]

[illegible]

Date completed		November 1947		Date	
Material	Thickness (feet)	Depth (feet)	Remarks		
Soil and hardpan	8	8			
Seamy rock - soft	12	20			
Blue basalt, some black streaks	16	36			
Gray basalt, very hard	54	90			
Clay	30	120			

			Water encountered at 90' at bottom of gray basalt. Pumping necessary but SW almost at surface.		

Date completed		December 1947		Date
Material	Thickness (Feet)	Depth (Feet)	Remarks	
Soil	10	10	Railed 2 hr. and lowered	
"Boulders and hardpan"	11	21	water 5' SWL 15' March 1944	
Basalt, gray SWL 20'	41	62	6 5/8" casing seated at 25' - open bottom	
Basalt, soft SWL 15'	10	72		
Basalt, hard SWL 25'	15	87		
Basalt, soft, SWL 30'	33	120		
Basalt, hard	28	148		
Basalt	12	160		

Date completed	March 1948	Date		
Material	Thickness (feet)	Depth (feet)	Remarks	
Soil	2 1/2	2 1/2		
Hardpan	4 1/2	7		
Hard solid basal: with occasional soft streaks	93	100		
			first water at 15' (surface water). This sealed off by casing to about 60'. Next water encountered at about 85'. Flowed over casing. Pressure tested 10 lbs. in practice simultaneous servicing of domestic water system and lawn sprinkling is had without mechanical pressure boosting.	

[illegible][illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	8	8	
Sandy clay	55	63	
Gravel and sand	11	74	
Cemented gravel	6	80	
Hard brown sand	10	90	
Cemented gravel	14	104	
Hard brown sand and rock	7	111	
Hard basalt	99	210	
Soft basalt	10	220	
Blue clay	5	225	
Brown clay	10	235	
Gravel	2	237	
Gray shale	23	260	SWL 200'
			Balls 20 g.p.w., but also
			balls dry.

Material	Thickness (feet)	Depth (feet)	Remarks
Hole practically all basalt		200	Dry

Index number -- 144-G
Done _____ File number 48-228-16-M
Well name _____ (Code: Tp., R., Sec., & Sec.)

LOCATION:
Gilliam _____ County
Arlington _____ Quadrangle
48 228 16 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled x _____ domestic* x _____ Well status-
Driven _____ above _____ abandoned _____
Final depth 263' below _____ irrigation _____ dry hole _____
municipal _____ producer x _____
*includes stock wells

J. W. Krebs _____ Fred M. Muller _____
Owners name _____ Original drillers name _____
Address Cecil, Oregon _____ Address Ontario, Oregon _____
Date of drilling 1941

This record compiled by H.S.W. from _____
data secured from the following sources: _____
re-cased _____
cleaned _____ by _____

Log recorded by Virgil Starr and furnished
by R. S. Bennett, U. S. Bureau of Land
Management, Baker, Oregon
Date compiled November 1947 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	2	2	Casing 6" to -16'
Moderately hard, black porous basalt	16	18	
Hard blue basalt	14	32	
Moderately hard, black porous basalt	8	40	
Soft gray shale and clay	64	104	
Moderately hard, black basalt	10	114	
VARIOUSLY HARD, dark conglomerate	20	134	
Hard black basalt	6	140	Water, 50 gal. 1 day
Unusually hard, gray basalt	61	201	
Moderately hard, brown porous basalt	7	208	
Soft, gray shale and clay	20	228	
Soft brown lava and sand	6	234	Water, 17 g.p.m.
Soft brown clay	11	245	
Very soft, darker gray soapstone and clay	18	263	

Index number 171-M
Fly _____ File number 48-258-18-M
Well name _____ (Code: Tp., R., Sec., & Sec.)

LOCATION:
Marion _____ County
Blalock Island _____ Quadrangle
48 258 18 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled x _____ domestic* x _____ Well status-
Driven _____ above _____ abandoned _____
Final depth 90' below _____ irrigation _____ dry hole _____
municipal _____ producer x _____
*includes stock wells

Elvin L. Fly _____
Owners name _____ Original drillers name _____
Address Boardman, Oregon _____ Address _____
Date of drilling 1924

This record compiled by H.S.W. from _____
data secured from the following sources: _____
re-cased _____
cleaned _____ by _____

Date compiled March 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		90	Well flows very lightly, originally flowed strong enough to service domestic water system without mechanical boost. Pump necessary now. Kaser well believed to have affected pressure. With a deep well pump this well can be pumped dry in about 20 minutes at the rate of about 15 g.p.m.

Index number -- 169-M
Eades (C. D.) _____ File number 48-248-13-L
Well name _____ (Code: Tp., R., Sec., & Sec.)

LOCATION:
Marion _____ County
Blalock Island _____ Quadrangle
48 248 13 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled x _____ domestic* x _____ Well status-
Driven _____ above _____ abandoned _____
Final depth 72' below _____ irrigation _____ dry hole _____
municipal _____ producer x _____
*includes stock wells

C. D. Eades _____ A. M. Edwards _____
Owners name _____ Original drillers name _____
Address Boardman, Oregon _____ Address Lexington, Oregon _____
Date of drilling 1940

This record compiled by H.S.W. from _____
data secured from the following sources: _____
re-cased _____
cleaned _____ by _____

Verbal log report by the driller with
production comments by R. A. Eades

Date compiled March 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Soil and hardpan	10	10	Well flows.
Blue basalt (streaks of black)	13	23	Strong pressure -- no volume data.
Gray basalt	32	65	
Black bone comb basalt	7	72	
			Pressure sufficient to operate domestic water and garden sprinkling system simultaneously without mechanical boosting.

Index number -- 170-M
Eades (R. A.) _____ File number 48-248-13-M
Well name _____ (Code: Tp., R., Sec., & Sec.)

LOCATION:
Marion _____ County
Blalock Island _____ Quadrangle
48 248 13 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled x _____ domestic* x _____ Well status-
Driven _____ above _____ abandoned _____
Final depth 93' below _____ irrigation _____ dry hole _____
municipal _____ producer x _____
*includes stock wells

R. A. Eades _____ Abe Hansen _____
Owners name _____ Original drillers name _____
Address Boardman, Oregon _____ Address Goldendale, Washington _____
Date of drilling 1928

This record compiled by H.S.W. from _____
data secured from the following sources: _____
re-cased _____
cleaned _____ by _____

Date compiled March 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		93	6" hole - cased to bottom. Whether this well flowed and was cased out is not known by Eades. Pumped for domestic use. SWL 7'.

Eastern Oregon Food Co-op #1
Well name
Index number -- 23-U
48-358-15-P
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Uastilla County
Unmapped Quadrangle
48 358 15 SW 1/4 of SW 1/4
Tp. Range Section Fractional section
D C B A
E F G H
M L K J
N P Q R

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* abandoned
Driven above industrial irrigation dry hole
Final depth 737' below municipal producer X
*includes stock wells

Eastern Oregon Food Co-op A. A. Durand & Son
Owners name Original drillers name
Address Weston, Oregon Address Walla Walla, Washington
Date of drilling finished Spring 1946

This record compiled by H.S.W. from
data secured from the following sources:
U. S. G. S. Ground-Water Division and
company officials
Date compiled Jan. and Feb. 1948

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	8	8	
Gravel	4	12	
Gravel and clay	4	16	
Basalt, hard gray	10	26	
Basalt, medium hard	52	78	
Basalt, hard	55	133	
Basalt, hard gray	3	136	
Basalt, medium hard	48	184	
Basalt, hard	32	216	
Basalt, gray, hard	20	236	
Basalt, medium	49	285	
Basalt, hard gray	26	310	
Basalt, hard	70	380	
Clay, brown sticky	5	385	
Basalt, medium hard	56	441	
Basalt, hard	44	485	
Basalt, dark	22	507	
Basalt, soft	11	518	
Basalt, dark	22	540	
Basalt, gray	28	568	
Basalt, dark, black	72	640	
Basalt, gray and hard	5	645	
Basalt, dark	18	663	
Basalt, gray	20	683	
Basalt, dark	25	708	
Basalt, brown, medium hard	13	721	
Basalt, gray	6	727	Bottom of hole

Casing 20" set to 20'; 16" set to 54'; 12" hole from 471 to 737'.

Pumped 1574 g.p.m. with 161' drawdown after 42 hours - May 5, 1946.

Water Temp. 60°F.

Company officials report SWL at 30' and a 168' drawdown in a 48 hour test at 1000 g.p.m. In usage, this well is pumped around 850 g.p.m. This well was adversely affected by a pump test of the #2 well when it was tested at a depth of about 720'.

Elgin City #1
Well name
Index number -- 191-Ua
18-392-15-J
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Union County
Unmapped Quadrangle
18 392 15 NW 1/4 of SW 1/4
Tp. Range Section Fractional section
D C B A
E F G H
M L K J
N P Q R

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* abandoned
Driven above industrial irrigation dry hole
Final depth 290' below municipal producer X
*includes stock wells

City of Elgin A. A. Durand & Son
Owners name Original drillers name
Address Address Walla Walla, Washington
Date of drilling May to July 1940

This record compiled by H.S.W. from
data secured from the following sources:
Driller and city officials
Date compiled January 1948

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	0	6	8" hole
Gravel and boulders	6	12	Well flows 125 g.p.m.
Gravel and clay	12	16	Temp. 52°F.
Gravel and sand	16	18	
Boulders and clay	18	20	Pump installed delivers
Blue clay	20	23	400 g.p.m. - drawdown 106'
Clay	23	70	
Sandy, gray shale	70	75	According to City officials
Gray shale	75	109	this well is capped, the
Shale	109	118	pumping of the No. 2 Elgin
Sand and gravel	118	123	well drains this well to
Blue shale	123	127	the point of drying it.
Clay	127	133	Both this and the No. 2
Gray shale	133	170	well will flow, however,
Blue clay	170	197	given a sufficient period
Coarse sand	197	201	of recovery.
Water sand	201	212	
Black sand and clay	212	232	
Gray shale	232	275	
Black basalt	275	283	
Hard, black basalt	283	290	Bottom of hole

(continued)

[illegible]

Well City _____ Index number -- 77-J
Well name _____ File number 77-278-16-E
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Well City _____ County _____
Well name _____ Quadrangle _____
Tp. 278 Range 16 Sec. 16 of NE4
Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
Drilled x face) ft. domestic* _____ abandoned
Driven _____ above _____ industrial _____
Final depth 520' below _____ irrigation _____ dry hole
_____ municipal _____ producer x
*includes stock wells

City of Echo _____ A. M. Edwards
Owner's name _____ Original drillers name _____
Address _____ Address _____ Lexington, Oregon
Date of drilling Oct. 1945 to Sept. 1947

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Driller _____ cleaned _____ by _____

Date compiled October 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	4	4	Casing log and pump test
Gravel and hardpan	26	30	data entered on last log
Dirt	5	35	sheet.
Loose sand and gravel	2	37	
Red clay	7	44	
Loose gravel	2	46	
Hardpan	6	52	
Rock	4	56	
Red clay	6	62	
Soft red rock	10	72	70 - some water
Soft red rock	5	77	at 75 - lost most water
Fine gravel	1 1/2	78 1/2	
Red clay	5	83 1/2	
Yellow rock with boulders	1 1/2	88	
Blue rock, broken and mud	12	100	Some water
Blue rock	5	105	
Hard rock, mud and blue clay			
between layers of boulders	10	125	
Solid rock	8	133	
Broken "cube" basalt	9	142	Very slow drilling
Blue gray basalt	10	152	
Broken "cube" basalt + 8" followed by very hard basalt	14	166	
pink and gray basalt, 0" seam of brown shale followed by	18	184	
Blue and gray basalt	30	214	
Shale and rock in 6" ave. layers	18	232	
Hard, solid clay	7	239	
Green shale	2	241	
Green shale, hard	16	257	Water at 257
Basalt	6	263	
Basalt - extremely hard	11	274	
Blue basalt - alternate soft and hard layers	4	278	
Brown rock	8	286	
Hard basalt	4	290	
Alternate hard rock and clay in 6" to 8" layers	6	296	
Crevices	4	300	Water dropped 28'
Blue rock and some clay layers	28	328	
Hard basalt	62	390	
Extremely hard basalt	16	406	
Seams and crevices in basalt	4	410	Water dropped 50'
Very hard basalt	1	411	
Shale	1	412	
Blue rock with crevices	8	420	
Very hard gray basalt	5	425	

(continued)

Medium soft blue rock	12	437	
Black basalt	5	442	Water at 442
Boulder and crevice	1	443	Water and some sand. Drilled 5 hours with no penetration.
Black basalt (and water course)	17	460	Water dropped to 220' level
Hard boulders and soft spots	30	490	
Green clay seams 1/4 to 1/2 inches thick between basalt layers	8	498	
Hard basalt	22	520	Bottom of hole
Casing log:			
12 1/2" hole to 169'			
10 1/2" hole to 169' to 336'			
8 1/2" hole 336' to 520'.			
Cased 169' with 10" casing.			
Pump test with 6" deep well pump at capacity output gave yield of 200 g.p.m.			
Drawdown with above equipment was 60' at 100 g.p.m. - No difference noted with greater yield.			
Temp. E-0 is 69°F.			

Well City _____ Index number -- 119-M
Well name _____ File number 28-278-32
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Well City _____ County _____
Well name _____ Quadrangle _____
Tp. 278 Range 32 Sec. NE4
Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
Drilled x face) ft. domestic* x _____ abandoned
Driven _____ above _____ industrial _____
Final depth 276' below _____ irrigation _____ dry hole
_____ municipal _____ producer x
*includes stock wells

Gabert Holmes _____ Fred Nicholson
Owner's name _____ Original drillers name _____
Address _____ Portland, Oregon _____ Ione, Oregon
Date of drilling Summer, 1947

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Driller and Morrow County Recorder cleaned _____ by _____

Date compiled October 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	2 1/2	2 1/2	5 5/8" hole.
Shelly boulder formation	24 1/2	27	
Soft formation with little clay	8	35	
Blue basalt	3 1/2	69	Trace water at 50 feet.
Hard gray basalt	13	82	
Brown porous rock	7	89	
Hard blue rock	7	96	
Black to brown porous rock	14	110	
Moderately hard blue rock	26	136	
Very hard gray rock	19	155	
Hard blue porous basalt	5	160	
Hard solid blue basalt	6	166	
Brown porous rock	6	172	
Moderately hard black rock	8	180	
Gray rock	4	184	
Brown porous rock	10	194	

According to City officials, this well can be pumped dry during the Summer by a 6 to 8 day pumping period. During the winter and spring, however, yield is strong. This well is situated within 50' of No. 1 and the pumping of this well drains the No. 1 well. Both this and the No. 1 well have however given a sufficient long period for recovery.

Material	Thickness (Feet)	Depth (Feet)	Remarks
Gravel and boulders	0	38	Casing:
Blue clay and gravel	38	65	Bottom of 20' at 61' 10"
Gravel	65	70	Bottom of 16' at 42' 0"
Clay and gravel	70	115	Bottom of 12' at 620' 0"
Brown clay and gravel	115	145	
Yellow clay, some gravel	145	148	Well flowing 350 g.p.m.
Yellow sticky clay	148	201	Temp. 53°F.
Blue clay	201	298	Drawdown 27' at 552 g.p.m.
Shell rock	298	306	Draw down 87' at 1095 g.p.m.
Blue clay	306	335	
Yellow and green clay	335	364	City Officials report that excepting for a couple days shutdown for pump repairs, this well has been pumped for 24 hours per day ever since its completion. No change in field has been observed.
Greenish blue clay	364	390	
Mica, silt and sandy silt	390	394	
Sticky blue clay	394	410	Excess water pumped is discharged into the river.
White clay	410	417	
Blue clay	417	428	
Sandy blue clay	428	480	
Sticky blue clay	480	560	
Basalt rock	560	568	
Blue clay	568	618	
Basalt (flowing water)	618	643	
Cinder rock (flowing water)	643	651	
Hard basalt	651	655	Bottom of hole

[illegible][illegible][illegible]

French #2
Well name
Index number — 64-M
28-318-31
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Pendleton Quadrangle
28 318 31 NW 1
Tp. Range Section Fractional section

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

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Drilled x above industrial abandoned
Driven below irrigation dry hole
Final depth 624' municipal producer x
*includes stock wells

Ernest T. French
Owners name Original drillers name
Address Pendleton, Oregon Address
Date of drilling

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

Date compiled July 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		624	SWL 50'
			Normal pumping practice
			6 g.p.m.

Greener
Well name
Index number — 118-M
28-268-34
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Harrow County
Unmapped Quadrangle
28 268 34 within city limits of Heppner
Tp. Range Section Fractional section

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

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Drilled x above industrial abandoned
Driven below irrigation dry hole
Final depth 133' municipal producer x
*includes stock wells

Wm. Greener
Owners name A. A. Durand & Son
Address Box 233 Address Walla Walla, Washington
Heppner, Oregon Date of drilling Started December 1946
Finished February 1947

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	9	9	Casing 6" to 111'
Gravel and boulders	5	14	
Broken basalt	17	31	
Hard blue basalt	50	81	
Hard broken basalt	5	86	
Hard blue basalt	37	123	
Hard gray basalt	10	133	SWL 48'
			2 hour ball test indicated
			28 g.p.m. with 13' drawdown
			and recovery in 11 minutes.

Gillanders
Well name
Index number — 47-U
18-358-3
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
18 358 3 NE 3
Tp. Range Section Fractional section

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

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Drilled x above industrial abandoned
Driven below irrigation dry hole
Final depth 383' municipal producer x
*includes stock wells

Earl Gillanders
Owners name A. A. Durand & Son
Address c/o Gillanders & Barronches Address Walla Walla, Washington
401 S. Main St., Pendleton Date of drilling 1945

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

U. S. G. S. Ground-Water Division

Date compiled December 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	3	3	Casing, 6-inch set to
Clay and shale	13	16	65 feet. Pumped 17 g.p.m.
Cobbles and clay	4	20	with drawdown from 26' to
Clay-blue and pea gravel	12	32	135'. Static level 26 ft.
Basalt, brown and blue, de- composed	48	80	Jan. 29, 1945.
Basalt, brown and gray	194	274	
Basalt, red	32	306	
Basalt, gray	25	331	
Basalt, red and brown	29	360	
Basalt, gray	23	383	

Hadley
Well name
Index number — none -M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Harrow County
Unmapped Quadrangle
Tp. Range Section Fractional section

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

STATISTICS:
Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Drilled x above industrial abandoned
Driven below irrigation dry hole
Final depth 196' municipal producer x
*includes stock wells

Glen Hadley
Owners name A. M. Edwards
Address Address Lexington, Oregon
Date of drilling 1927

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

Verbal report by the driller

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil, sand and gravel	40	40	
Sand and gravel	25	65	Water bearing to 65' with
Blue basalt - solid	75	140	surface water.
Gray basalt - hard	22	162	
Broken sandy basalt	12	174	Water here.
Thin blue basalt layer alter- nating with blue & green clay	20	194	
Gray basalt	2	196	
			Bottom of hole.
			SWL about 40'. Bailing at
			rate of 50 g.p.m. did not
			affect SWL.

Halvorsen #1
Well name _____
Index number -- 117-M
18-248-28
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow _____ County

Unmapped _____ Quadrangle

18 248 28 On top of Jordan Butte about 2 miles
Tp. Range Section Fractional section south of Ione

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ x _____
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 1040' _____ municipal _____ producer _____
*includes stock wells

Delbert Ernest _____ Fred Nicholas _____
Owners name _____ Original drillers name _____
Address Ione, Oregon _____ Address Ione, Oregon _____
Date of drilling to 740' in 1913

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by Fred Nicholas _____
Verbal log report by the driller _____ Ione, Oregon _____

Date compiled November 1947 _____ Date 1917

Material	Thickness (feet)	Depth (feet)	Remarks
Crushed brown "dice" rock - soft	150	150	Dry hole
Hard blue rock, crevices	15	165	
Crushed brown "dice" rock - soft - much caving	535	700	Water at -700' about 1 g.p.m.
Hard gray basalt	290	990	
Brown porous basalt	80	1070	
Hard gray basalt	20	1090	- Bottom of hole -
			hole size:
			5 5/8" to -740'
			4 1/4" to -1040'

Haynes
Well name _____
Index number -- 51-U
18-248-1-D
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County

Pendleton _____ Quadrangle

18 328 1 NW 1/4 of NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ x _____
Drilled _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 27' _____ municipal _____ producer _____
*includes stock wells

Mr. J. R. Hanna _____
Owners name _____ Original drillers name _____
Address Route 1 _____ Address _____
Pendleton, Oregon _____ Date of drilling _____

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Owner _____

Date compiled January 1948 _____ Date

Material	Thickness (feet)	Depth (feet)	Remarks
Sandy loam	6	6	SWL 19'.
Black basaltic sand	2	8	Yield sustained flow of 20 g.p.m. At 3 1/2 g.p.m. well pumps dry in 6 hr. period. Recovery time 3 hrs.
Hard gravel - free clay	19	27	
			A fossil animal skull was found at a depth of 25'. When found the skull was essentially complete but the fragments remaining at present are insufficient for identification purposes.

Halvorsen #2
Well name _____
Index number -- 116-M
18-248-28 #2
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow _____ County

Unmapped _____ Quadrangle

18 248 31-1 On the south slope of Jordan Butte one
Tp. Range Section Fractional section mile south of well #1

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ x _____
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 946' _____ municipal _____ producer _____
*includes stock wells

Delbert Ernest _____ G. P. Ritchie _____
Owners name _____ Original drillers name _____
Address Ione, Oregon _____ Address Ione, Oregon _____
Date of drilling about 1922

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by Fred Nicholas _____
Verbal report by driller Fred Nicholas _____ Ione, Oregon _____

Date compiled November 1947 _____ Date about 1922

Material	Thickness (feet)	Depth (feet)	Remarks
This well had already been sunk to a depth of -516' when Nicholson took over the contract. According to the original driller the hole had been in a "soft formation" at all times. Nicholson reports that from -516' to the bottom, -946', the hole was caved for the most part in hard gray rock with crevices common.			
First water light at -650'. Heavy flow at -745'. Water stood at -650'.			
This well is out of commission as a pump was dropped in it 15 years or so ago.			

Haynes
Well name _____
Index number -- 38-U
31-248-20-B
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County

Pendleton _____ Quadrangle

18 328 20 SW 1/4 of NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ x _____
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 155' _____ municipal _____ producer _____
*includes stock wells

Bert G. Haynes _____ A. A. Durand & Son _____
Owners name _____ Original drillers name _____
Address 516 W. W. Garden Street _____ Address Walla Walla, Washington _____
Pendleton, Oregon _____ Date of drilling Nov. and Dec. 1947

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948 _____ Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	4	4	Casing: 8" to 7'3"
Soft brown basalt	3	7	
Hard blue basalt	4	11	
Brown basalt	14	25	
Medium blue basalt	20	45	
Brown basalt and clay	21	66	
Hard blue basalt	65	131	
Medium brown basalt	13	144	Water here
Hard blue basalt	11	155	
Static water level 13'			15 minute bail test at 30 g.p.m. gave a 1 foot drawdown

[illegible][illegible][illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	16	16	
Broken rock	5	21	
Solid blue rock	80	101	
Crushed and sloping rock and fissures	8	109	
Blue basalt	90	199	
Black basalt	12	211	Some water
Hard gray basalt	6	217	
Water bearing rock	22	239	Bottom of hole
12" hole 37'. 84 hole from 37' to bottom			Casing set at 37'. 300 g.p.m.

[illegible]

Material	Thickness (feet)	Depth (Feet)	Remarks
Sand and gravel - about	60	60	
Blue clay - about	30	90	
Basalt - about	70	160	
			Bottom of hole. Pumped
			275 g.p.m. originally but
			has decreased.

Material	Thickness (feet)	Depth (feet)	Remarks
This well was drilled by a stock company prospecting for oil. The original log made for the oil company has been lost but Mr. F. A. Hodge, President, one of the principals in the company, supplied the following information from recollection. In this respect, Hodge is quite positive that the thickness intervals given are correct because the repetition of 80' intervals made the figures easy to remember.			
Sand and gravel	20	20	
Basalt	20	40	
Alluvial material	80	120	
Basalt	80	200	
Alluvial material	80	280	
Basalt	220	500'	Flow of 125 g.p.m. encountered at 375'. This flow was rendered nil by a 6" stand pipe. Temp. 76.9°. Light gas odor.
The following production data was supplied by Mr. Recorder: Present flow is less than original and long at the rate of 275 g.p.m. Water and sewage are required for the water to resume flowing after the cessation of pumping. As reported to the State Engineer for the Year 1947 the maximum 2 g.p.m. pumped for that year was 405 g.p.m. At this rate the drawdown was reported as 182 feet.			Charles Taylor, City

[illegible]

Date compiled <u>February 1948</u>		Date _____	
Material	Thickness (feet)	Depth (feet)	Remarks
Dug well	37	37	Hole 8"
Cement gravel	84	121	
		-----	Bottom of hole.
			SWL when completed was 22'6"
			Yield stabilized after 4 hr
			runp test at 285 g.p.m.

[illegible][illegible]

[illegible][illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	11	11	3" hole
Loose gravel and sand	15	26	SWL 41'.
Boulders and gravel	10	36	Maximum rate pumped in
Cement gravel	16	52	1947 was 165 g.p.m.
Open gravel	1	53	
Cement gravel	31	84	
Open gravel	3	87	
Cement gravel	34	121	
Open gravel	5	126	
Cement gravel	18	144	
Open gravel	3	147	
Cement gravel	6	153	
Open gravel	2	155	
Cement gravel	6	161	
Open gravel	2	163	
Cement gravel	3	166	
Open gravel	2	168	
Cement gravel	1	169	
Open gravel	2	171	Bottom of hole

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		200	Pruned for stock use only

[illegible][illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
All hard rock to a total depth			6" hole - Artesian flow.
depth of either -		140	encountered but said flow is periodic. Well is normally
	or	170	pumped with a large centrifugal pump.

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil and hardpan	20	20	6" hole
Cracked sandy rock	95	115	
Gray basalt	30	145	
Cracked rock with shale	35	180	
Hard, solid gray and blue basalt	193	373	
Red rock with seams	67	440	
Blue basalt	40	480	
Cracked rock - no water	15	495	
Hard gray and blue rock	55	550	
Cracked rock with light colored seams	12	562	
Mixed colored rock	68	630	
Hard blue basalt	25	655	
Cracked sandy rock - with water		685	Bottom of hole
			No pump test, but the log
			carries the notation "Plenty
			of water"

King
Well name _____
Index number -- 61-U
4N-32E-3
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County

Umatilla _____ Quadrangle

4N 32E 3 SE4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ ft. industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 168' _____ municipal _____ producer ☒
*includes stock wells

Owner King _____ A. A. Durand & Son
Original drillers name
Address Helix, Oregon _____ Address Walla Walla, Washington _____
Date of drilling Oct. 1947 to May, 1947

This record compiled by J.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1947 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	10	10	SWL 32'
Hardpan and brown clay	12	22	SWL test at 32 g.p.m. for
Brown basalt	6	28	30 minutes. Gave an initial
Hard blue basalt	4	32	drawdown to 58'. This came
Brown basalt	11	43	back to 44' and stayed constant.
Hard blue basalt	40	83	Recovered to 32' static level
Soft brown basalt	16	99	in 10 minutes.
Blue basalt	1	100	
Brown basalt	19	119	Casing, 8" to 46
Blue basalt	8	127	
Brown basalt	5	132	
Blue basalt	10	142	
Medium brown basalt	3	145	
Very hard brown basalt	19	164	
Hard blue basalt, broken	4	168	

Kirk
Well name _____
Index number -- 71-U
2N-30E-28
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County

Umatilla _____ Quadrangle

2N 30E 28 NW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ ft. industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 114' _____ municipal _____ producer ☒
*includes stock wells

Cunningham Sheep Company
Owner name _____ Original drillers name _____
Address Pendleton, Oregon _____ Address _____
Date of drilling _____

This record compiled by J.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Company officials _____

Date compiled July 1947 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		114	Pumped for stock use only

Krebs #2
Well name _____
Index number -- 145-G
3N-22E-20
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Gilliam _____ County

Arlington _____ Quadrangle

3N 22E 20
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ ft. industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 609' _____ municipal _____ producer ☒
*includes stock wells

Krebs Bros. _____ Moore and Anderson
Original drillers name
Address Cecil, Oregon _____ Address Walla Walla, Washington _____
Date of drilling finished Dec. 1947

This record compiled by J.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil and clay	20	20	
Green rock	36	126	
Clay and rock	74	200	
Gray rock, hard	65	265	
Brown clay	55	320	
Blue clay	141	461	at 390' water horizon
Brown clay	22	483	yielding about 2 g.p.m.
Green clay	53	536	
Clay and rock	58	594	
Black rock, water bearing	15	609	Water here, apparently strong

This well was drilled 8" to 95 ft. into bedrock thereafter 6" to 265 ft. where the first cavity clay was encountered causing us to run a 4" string of casing and landing this casing at the 500 ft. level where a rock formation was again encountered. The first water struck was at the 390 ft. level in the amount of 2 g.p.m. This water is not used out as an apparently strong flow was struck in the last fifteen feet drilled.

Krebs #1
Well name _____
Index number -- 103-M
3N-24E-12-B
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow _____ County

Blacklock Island _____ Quadrangle

3N 24E 12 NW4 of NW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ ft. industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 304' _____ municipal _____ producer ☒
*includes stock wells

U. S. War Department _____ Fred M. Muller
Owner name _____ Original drillers name _____
Address _____ Address Ontario, Oregon _____
Date of drilling _____

This record compiled by J.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Log recorded by Virgil Starr and furnished by R. S. Bennett, U. S. Bureau of Land Management, Baker, Oregon

Date compiled November 1947 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Soft brown sand	10	10	
Soft light gray shale	20	100	
Very hard blue basalt	73	173	
Soft red lava	22	195	Water encountered at -150', 50 g.p. hour.
Soft blue shale	35	230	
Soft red lava	10	240	
Very hard blue basalt	64	304	400 g.p. hour at 304'

6" casing set 5' in bedrock at -105'. Device at -250' and at -300'.

LaGrande #1
Well name
Index number -- 151-Da
38-38E-6-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Union _____ County _____
Unmapped _____ Quadrangle _____
38 38E 6 SE 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ industrial _____ dry hole _____
Driven _____ below _____ irrigation _____ producer ☒
Final depth 1093' _____ municipal ☒ _____
*includes stock wells

LaGrande City _____ A. A. Durand & Son _____
Owners name _____ Original drillers name _____
Address _____ Address Walla Walla, Washington _____
Date of drilling _____ about 1925 _____

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
R. L. Stockman Sr., and City Water Master

March 1946
Date compiled November 1944 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		1093	
Flow - reportedly 500 g.p.m. when well was first drilled. Rate measured at 300 g.p.m. in 1947. This well is capped when not in use. Strong pressure builds up resulting in stronger than average flow for periods of several hours after well is opened. Marked seasonal variation.			
Bores with low strongest in the Spring and tapering to Fall. The 1947 measurement of 300 g.p.m. was made in the Fall. This well and the #2 well are situated about 75' apart.			

LaGrande City #2
Well name
Index number -- 152-Da
38-38E-6-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Union _____ County _____
Unmapped _____ Quadrangle _____
38 38E 6 SE 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ industrial _____ dry hole _____
Driven _____ below _____ irrigation _____ producer ☒
Final depth 1370' _____ municipal ☒ _____
*includes stock wells

City of LaGrande _____ A. A. Durand & Son _____
Owners name _____ Original drillers name _____
Address _____ Address Walla Walla, Washington _____
Date of drilling _____ about 1926 _____

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
R. L. Stockman Sr., and City Water Master

March 1946
Date compiled November 1944 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		1370	
Flow - reportedly 1500 g.p.m. when well was first drilled. Rate measured at 600 g.p.m. in 1947. Water temperature 81°F. Pressure measured at 51 lbs. Refer to well #1 for additional comments on pressure and seasonal variations of flow.			

Lexington City
Well name
Index number -- 111-M
18-25E-23-L
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Marrow _____ County _____
Unmapped _____ Quadrangle _____
18 25E 23 NW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ industrial _____ dry hole _____
Driven _____ below _____ irrigation _____ producer ☒
Final depth 420' _____ municipal ☒ _____
*includes stock wells

Lexington City _____ A. A. Durand & Son _____
Owners name _____ Original drillers name _____
Address _____ Address Walla Walla, Washington _____
Date of drilling _____ Spring 1932 _____

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
State Department of Health and driller, also City Recorder

January 1946
Date compiled _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	10	10	Casing 10" to 87' 11"
Soil and cement gravel	13	23	
Black rock	13	36	
Boulders, caving	11	47	
Cement gravel	16	63	
Gray rock	2	65	SWL - 60'
Clay and rock	5	70	Stabilized water level
Cavey rock	5	75	183' at yield of 90 g.p.m.
Blue limestone	10	85	
Blue lime, black rock	10	95	Temperature 54°
Black shale rock, caving	15	110	
Blue and black rock	15	125	
Black and gray rock	10	135	
Black rock	75	210	
Volcanic rock	15	225	
Volcanic rock mixed with lime and gray rock	10	235	
Volcanic ash rock and clay	30	265	
Volcanic and seams of harder rocks	50	315	
Black rock	20	335	
Gray basalt	18	353	
Gray basalt and iron ore	7	360	Cuttings so heavy they pack in hole.
Gray basalt	24	384	
Gray basalt and iron ore	4	388	
Gray basalt	27	415	Heavy from 400 to 410'
Gray basalt with soft and hard streaks	5	420	
			Bottom of hole

Index number -- none - M
Marple #1
Well name _____
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow _____ County
_____ Quadrangle

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

Tp. Range Section Fractional section

STATISTICS:

Well type-Dug _____ Elevation (land sur-
face) _____ ft. Use status-
domestic* _____ Well status-
Drilled _____ above _____ abandoned
Driven _____ below _____ industrial _____ dry hole
Final depth 71' _____ irrigation _____ producer _____
*includes stock wells

Jack Marple _____ A. A. Durand & Son
Owner name _____ Original drillers name
Address _____ Ione, Oregon _____ Walla Walla, Washington
Date of drilling Aug. to Sept. 1946

This record compiled by _____ W.S.W. from _____ Deepened _____
data secured from the following sources: _____ re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948

Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Dug pit	9	9	Casing 6" set to 32'.
Silt	5	14	
Gray basalt	36	52	
Gray basalt and red rock	18	70	Some water here.
Gray basalt	1	71	
			SWL 13' 3". 25 min. bail test at 21.4 g.p.m. gave an initial drawdown to 26'. This recovered to 20' in 3 min. and to 15' in 1 hour. No check for full recovery.

Index number -- 32-U
McIntyre _____
Well name _____
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County
Pendleton _____ Quadrangle

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

4N 34E 25 SW4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug _____ Elevation (land sur-
face) _____ ft. Use status-
domestic* _____ Well status-
Drilled _____ above _____ abandoned
Driven _____ below _____ industrial _____ dry hole
Final depth 200' _____ irrigation _____ producer _____
*includes stock wells

McIntyre Well _____ A. A. Durand & Son
Owner name _____ Original drillers name
Address _____ Athena, Oregon _____ Walla Walla, Washington
Date of drilling October 1945

This record compiled by _____ H. S. W. from _____ Deepened _____
data secured from the following sources: _____ re-cased _____
cleaned _____ by _____
U. S. G. S. Ground-Water Division

Date compiled December 1947

Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Dug pit	34	34	SWL 34' - 16 Oct. 1945
Old hole	31	65	4" liner (open bottom) to 136' - 3'
Shale, brown SWL 30'	12	77	
Shale, blue	10	87	
Basalt	23	110	
Clay	18	128	
Basalt	7	135	
Basalt, with blue clay (clay probably caving from above)	31	166	
Basalt	18	184	
Basalt, soft SWL 34'	16	200	

Index number -- 5-U
McBride _____
Well name _____
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla _____ County
Unmapped _____ Quadrangle

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

6E 33E 20 NW4 of SW4
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug _____ Elevation (land sur-
face) _____ ft. Use status-
domestic* _____ Well status-
Drilled _____ above _____ abandoned
Driven _____ below _____ industrial _____ dry hole
Final depth 376' _____ irrigation _____ producer _____
*includes stock wells

McBride Brothers _____ A. A. Durand & Son
Owner name _____ Original drillers name
Address _____ Freewater, Oregon _____ Walla Walla, Washington
Date of drilling Feb. 1946 to Mar. 1946

This record compiled by _____ H.S.W. from _____ Deepened _____
data secured from the following sources: _____ re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948

Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Pit		26	Casing 12" to 105'
Cement gravel	17	43	12" hole to 285'
Gravel and clay mixed	16	59	10" hole 285' to bottom
Loose gravel	11	70	
Clay and gravel	68	138	
Brown clay	5	143	
Gravel	2	145	
Clay and gravel	150	295	
Brown clay	40	335	
Clean gravel	5	340	
Clay	5	345	
Gravel	31	376	
			SWL 45'. Pumps around
			350 g.p.m.

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Dirt and soil	4	4	
Besalt, medium	100	104	
Hard blue basalt:	8	112	1st water at 50'.
Blue sticky clay	15	127	1st artesian flow at 75'. The above water cased out with 6" casing to SO. 2nd water at 112. SWL 4'. Soft water - as compared to that of most other wells in the vicinity. Temperature reported at 45°F.

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		110	Well flows. Low G.P.W. and low pressure.
Owner reports:			
Soil and unconsolidated material	28	28	
Solid rock	28	100	
Clay	100	110	Hole 6" to 80' 5" from 80' to bottom.

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	2	2	
Brown clay	9	11	
Gravel	46	57	
Cement gravel	195	252	
Coarse gravel	18	270	
Cement gravel	60	330	
Gravel	15	345	
			Bottom of hole
Water temp. - 57°F. - Pumped at 295 g.p.m. a 60' drawdown in 5 minutes. Casing: 14" to depth of 57'.			drawdown was 90'. Well recovered

[illegible]

Date compiled	January 1948	Date	
Material	Thickness (feet)	Depth (feet)	Remarks
Surface gravel, loose	28	28	Casing 20" OD to 40' -10" " 16" OD to 39'
Cement gravel	35	63	Hole 16" to bottom
Brown honeycomb	19	82	Static water level 1024'
Black basalt	28	110	
Brown basalt	4	114	
Black basalt	35	149	
Brown basalt	27	176	
Brown and red rock	9	185	1095 g.p.w. yield with
Black basalt	10	195	stabilized pumping level
Gray basalt	9	204	at 237'.
Brown honeycomb	5	209	
Black basalt	7	216	
Brown rock	14	230	
Black and brown basalt	25	255	
Black basalt	63	318	
Brown honeycomb	7	325	
Brown and black basalt	12	337	
Black basalt	12	349	
Brown basalt	4	353	
Black basalt	49	402	
Blue clay	1	403	
Black basalt	56	459	
Brown honeycomb	7	466	
Brown rock	13	479	
Black honeycomb	6	485	
Black basalt	41	526	
Black and brown rock	2	528	
Black basalt	33	561	
Gray basalt	22	583	
Black honeycomb	12	595	
Black basalt	26	621	
Gray basalt	33	654	
Black honeycomb	24	678	
Black basalt	19	697	
Black, brown and some honeycomb	6	703	
Black basalt	5	708	
Black and gray basalt	13	721	
Brown and black basalt	27	748	
Gray basalt	13	761	
Red and gray basalt	32	793	
Gray basalt	6	799	
Gray basalt with white streaks	3	802	
Gray basalt	3	805	

[illegible]

Index number -- 177-M
42-258-18

Moore _____
Well name _____

File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

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

McRae _____ County
Black Island _____ Quadrangle

NE 25th 18 Sec. of NWth
Tp. Range Section Fractional section

STATISTICS:

Well type-Dug _____ Elevation (land sur- _____ Use status- _____ Well status-
Drilled x face) _____ ft. domestic* x _____
Driven _____ above _____ industrial _____ abandoned
_____ below _____ irrigation _____ dry hole _____
Final depth 116' _____ municipal _____ producer x _____
*includes stock wells

Mr. Moore _____ A. M. Edwards _____
Owner's name _____ Original drillers name _____
Address Boardman, Oregon _____ Address Lexington, Oregon _____

Date of drilling 1939

This record compiled by E. S. W. _____ from _____ Deepened _____
date received from the following sources: re-cased _____
_____ cleaned _____ by _____
Driller _____

Date compiled March 1948 _____ Date _____

[illegible]

Index number -- 41-U
Morton
Well name
File number 38-35M-17
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Vanilla County
Unmapped Quadrange
38 35E 17 SW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land surface) ft. Use status-domestic* x Well status-domestic* x
Drilled x above ft. industrial abandoned
Driven below irrigation dry hole
Final depth 146' municipal producer x
*includes stock wells

Morton Estate A. A. Durand & Son
Owners name Original drillers name
Address Address Walla Walla, Washington
Date of drilling about 1938

This record compiled by H.S.W. from data secured from the following sources: Deepened re-cased cleaned by Messrs. Williams, Foster and Barnett.

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Not available		146	Flow - low g.p.s. when originally drilled.
			Pumps only now, but yield under pumping for domestic and stock use strong and consistent.

Index number -- 157-M
Morgan and Joy
Well name
File number 28-26M-21-Q
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Unmapped Quadrange
28 26M 21 SW4 of SE4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land surface) ft. Use status-domestic* x Well status-domestic* x
Drilled x above ft. industrial abandoned
Driven below irrigation dry hole
Final depth 55' municipal producer x
*includes stock wells

Morgan and Joy A. M. Edwards
Owners name Original drillers name
Address Address Portland and Chicago Lexington, Oregon
Date of drilling August 1947

This record compiled by H.S.W. from data secured from the following sources: Deepened re-cased cleaned by Tom Wilson

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil and clay and gravel	18	18	
Solid basalt	30	48	
Black sand	4	52	Water here
Solid basalt	3	55	
			SWL 20'. Drill test 15 g.p.s.

Index number -- 59-B
Humm
Well name
File number 38-32E-14-BF
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Vanilla County
Pendleton Quadrange
38 32E 14 S4 of NW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land surface) ft. Use status-domestic* x Well status-domestic* x
Drilled x above ft. industrial abandoned
Driven below irrigation dry hole
Final depth 844' municipal producer x
*includes stock wells

John Humm
Owners name Original drillers name
Address Address
Date of drilling

This record compiled by H.S.W. from data secured from the following sources: Deepened re-cased cleaned by C. E. Lewis
Verbal report by the driller Pendleton, Oregon

Date compiled July 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Well was about 200' deep when Lewis started drilling. From this point on it was sunk to a depth of about		844	
Material penetrated was rock for the most part with 2' of clay horizons near the bottom.			

Index number -- 4-U
Myers
Well name
File number 38-32E-19
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Vanilla County
Unmapped Quadrange
38 32E 19 1360' west from east & corner
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land surface) ft. Use status-domestic* x Well status-domestic* x
Drilled x above ft. industrial abandoned
Driven below irrigation x dry hole
Final depth 137' municipal producer x
*includes stock wells

J. E. Myers
Owners name Original drillers name
Address Address Route 2
Freewater, Oregon Date of drilling Spring 1946

This record compiled by H.S.W. from data secured from the following sources: Deepened re-cased cleaned by State Engineer

Date compiled February 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Dirt	14	14	6" hole
Loose gravel	21	35	
Cement gravel	19	54	
Deepened - Fall 1947 a distance of	83	137	SWL 12' (1946) Pumped at 200 g.p.s. Draw-down was 20' in 24 hours. SWL reportedly drops 20' during June, July & August.

-60-

Olden
Well name
Index number -- 113-M
28-248-36
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Narrow County
Unmapped Quadrangle
28 248 36
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Drilled ☒ Elevation (land surface) ☒ ft. Use status-domestic* ☒ Well status-domestic* ☒
Driven ☒ above ☒ industrial ☒ abandoned ☒
Final depth 327' below ☒ irrigation ☒ dry hole ☒
municipal ☒ producer ☒
*includes stock wells

Grant Olden N. E. Cotter
Owners name Original driller's name
Address Ione, Oregon Address Ione, Oregon

Date of drilling

This record compiled by U.S.W. from Deepened ☐
data secured from the following sources: re-cased ☐ by ☐
Driller

Date compiled November 1947

Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	16	16	6" hole
Cracked rock	94	110	
Blue basalt	25	135	
Blue and gray basalt	67	202	
Rock full of seams	68	270	
Gray and blue basalt	78	348	
Brown rock with seams	49	397	Bottom of hole.
			Water encountered at 327'. Stood 34' in hole. No flow.

Olsen
Well name
Index number -- 10-U
68-352-21-B
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
68 352 21 NW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Drilled ☒ Elevation (land surface) ☒ ft. Use status-domestic* ☒ Well status-domestic* ☒
Driven ☒ above ☒ industrial ☒ abandoned ☒
Final depth 102' below ☒ irrigation ☒ dry hole ☒
municipal ☒ producer ☒
*includes stock wells

Albert Olsen Harding Brothers
Owners name Original driller's name
Address Rt. #2 Address 211 Williard, Villa Walla, Wash.

Date of drilling

This record compiled by U.S.W. from Deepened ☐
data secured from the following sources: re-cased ☐ by ☐
State Engineer

Date compiled February 1948

Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	4	4	Casing: Dug well 32'. 10" casing to 50'.
Loose gravel	8	12	
Cement gravel	20	32	
Loose gravel (some surface water)	13	45	
Cement gravel	50	95	
Washed gravel (water 300 g.p.m.)	7	102	
			SWL 25' before pumping. SWL 50' at end of pumping season of 3 months during which well was pumped at the rate of about 100 g.p.m.

Ordinance Housing Project
Well name
Index number -- 90-U
48-278-57
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
48 278 27 SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Drilled ☒ Elevation (land surface) ☒ ft. Use status-domestic* ☒ Well status-domestic* ☒
Driven ☒ above ☒ industrial ☒ abandoned ☒
Final depth 543' below ☒ irrigation ☒ dry hole ☒
municipal ☒ producer ☒
*includes stock wells

Ordinance Housing Project
Owners name Original driller's name
Address D. W. Bliss, Mgr. Address

Date of drilling

This record compiled by U.S.W. from Deepened ☐
data secured from the following sources: re-cased ☐ by ☐
D. W. Bliss, Ordinance, Mgr. and
Hal L. Morin, Architect, Portland

Date compiled February 1948

Date

Material	Thickness (feet)	Depth (feet)	Remarks
Sand	4	4	Casing: 15' to 145.5' 12' to 346' 10' to 530'
Loose gravel	127	131	
Gravel and clay	4	135	
Small gravel	5	140	First water - SWL 100' sealed off.
Loose gravel	6	146	
Boulders	24	170	
Brown clay	32	202	
Soapstone	6	208	
Black basalt	97	305	
Sticky clay	7	312	
Black honeycomb with clay	18	330	Second water sealed off. - SWL 99'
Black basalt	27	357	
Gray basalt	4	361	
Black basalt	14	375	
Soft black basalt	10	385	
Clay	6	391	
Honeycomb with blue clay	21	412	Third water sealed off. - SWL 98'
Black basalt	20	432	
Brown rock	2	434	
Gray basalt	57	491	
Shale and red rock	23	514	
Gray rock	2	516	
Brown rock	12	528	
Brown rock	10	538	
Red porous rock	5	543	Fourth water. SWL 121'. 180# pressure
			Bottom of hole
Pump test at the rate of 1200 g.p.m. for an 8 hour period lowered the SWL 10'. Water temp. standing: 53°. After considerable pumping temp. rises to 58.			
The pump installed has a rated capacity of 1000 g.p.m. at the well head. At the tank inlet (plus 120') pump capacity is approximately 20 g.p.m. During the three dry months of summer around 500,000 gallons of water per day (24 hours) is used. This train on supply does not lower water in the well to any great extent.			
The following is a report of the water analysis as of September 19, 1944.			
		Untreated Supply	
Solids in Solution:		Grains per gallon lbs. per 1000 gals.	
Silica		3.74	.534
Oxides of Iron and Aluminum		0.23	.033
Calcium Carbonate		4.55	.650
Magnesium Carbonate		2.62	.367
Incrustating Solids		10.74	1.534
Alkali Carbonates		1.31	.187
Alkali Sulphates		1.78	.249
Alkali Chlorides		1.36	.193
Alkali Nitrates		0.58	.080
Non-incrustating solids		5.00	.714
Total solids		5.74	2.248

[illegible][illegible][illegible]

Index number -- 123-M
43-242-A-F

Palmer
Well name

File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow _____ County _____
Unmapped _____ Quadrangle _____
43 242 4 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

STATISTICS:
Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole ☒
Final depth 500' _____ municipal _____ producer _____
*includes stock wells

Lawrence Palmer A. M. Edwards
Owners name Original drillers name
Address Willow Creek -- west of Address Lexington, Oregon
Lexington Date of drilling 1945

This record compiled by E.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Driller cleaned _____ by _____

Date compiled October 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Basalt with crevices common to abundant all the way.		500	Dry hole.

Index number -- 58-U
34-32E-32

Fendleton Airport
Well name

File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Unatilla _____ County _____
Fendleton _____ Quadrangle _____
34 32E 32 E 1/2 of SW 1/4
Tp. Range Section Fractional section

STATISTICS:
Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 625' _____ municipal _____ producer _____
*includes stock wells

City of Fendleton Wm. E. Ruther
Owners name Original drillers name
Address _____ Address Roosevelt St., Walla Walla, Wash.
Date of drilling Fall 1933 to Spring 1934

This record compiled by E.S.W. from _____ Deepened ☒
data secured from the following sources: re-cased _____
United Airlines and also a Verbal log report by driller cleaned _____ by W. E. Ruther

Date compiled March 1948 Date about 1937

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil, clay, gravel and boulders	80	80	
Gray basalt - medium hard	185	265	
Honeycomb basalt	20	285	Some water here.
Gray basalt - medium hard	226	511	At 511' lost all water.
Red honeycomb - with crevices	62	573	Well "blew and sucked" air here. At 573' picked up water which stood 52' in hole.
			Bottom of original well.
Well bailed 12 g.p.m. with no drawdown. Well accepted and pumped about 8 g.p.m. in practice. Casing 42" to bottom. Earthquake of about 1936 dried well up. Deepened by Ruther as follows: Hard blue basalt: 190 feet - thickness, depth - 703 feet; Honeycomb blue basalt: 60 feet - thickness, depth - 825 feet.			
SWL - 573'. Ball test 12 g.p.m. without lowering SWL. Well subsequently abandoned reportedly because of contaminated water.			

Index number -- 179-M
43-242-24-F

Partlow (John)
Well name

File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow _____ County _____
Blalock Island _____ Quadrangle _____
43 242 24 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

STATISTICS:
Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 138' _____ municipal _____ producer ☒
*includes stock wells

John Partlow Bladon and Hile Drilling Company
Owners name Original drillers name
Address Boardman, Oregon Address Portland, Oregon
Date of drilling Spring 1947

This record compiled by E.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Owner cleaned _____ by _____

Date compiled March 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Following log made from owner's notation of progress and formations as told to him verbally by the driller during the course of drilling.			
Sand	3	3	First water at 27'. SWL 11'.
Alkali rock	2	5	Second water at 49'. SWL with the above cased off was 100'. Third water at 72'.
Dark solid basalt, medium	27	32	SWL with all above water cased off was 22'. SWL unaffected by ball test.
Very hard basalt	3	35	
Dark solid basalt, medium	19	54	
Brown clay, sticky	7	61	
Basalt, broken	11	72	
Blue clay	66	138	
			Bottom of hole.

Index number -- 180-M
43-242-24-C

Partlow (Paul)
Well name

File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow _____ County _____
Blalock Island _____ Quadrangle _____
43 242 24 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

STATISTICS:
Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* ☒ Well status-domestic* ☒
Drilled ☒ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 97 1/2' _____ municipal _____ producer ☒
*includes stock wells

Paul Partlow C. E. Lewis
Owners name Original drillers name
Address Boardman, Oregon Address Fendleton, Oregon
Date of drilling 1940

This record compiled by E.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
Owner cleaned _____ by _____

Date compiled March 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		97 1/2	SWL 5. Couldn't lower by bailing.
Formation similar to the John Partlow section with the blue clay below a hard rock layer according to Mr. Paul Partlow			
			Reportedly lost water at 72'.
			Main water originates lower cased only 35'.

Pendleton City
Well name
Index number -- 57-U
28-32E-2
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Pendleton Quadrangle
28 32E 2 (lot 13, block 152, Myers Addition)
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) 1093.14 ft.
Drilled ☒ above _____ domestic* _____
Driven _____ below _____ industrial _____ abandoned _____
Final depth 934' _____ irrigation _____ dry hole _____
_____ municipal ☒ producer ☒
*includes stock wells

City of Pendleton
Owners name A. A. Durand & Son
Address _____
Date of drilling 1944 to 1946

This record compiled by H.S.W. from _____
data secured from the following sources: _____
Driller and Umatilla County and Pendleton
City Engineers.

Date compiled July 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel	14	14	
Soft black basalt	11	25	
Hard black basalt	48	73	
Soft basalt and soapstone	12	85	
Hard black basalt	24	109	
Soft and medium basalt	32	141	End 20" hole at 113' End 16" casing at 124'
Hard basalt	18	159	
Soft black basalt	32	191	
Soft red rock	7	217	
Medium black rock	10	227	
Red and black soft rock	38	265	
Hard gray basalt	62	327	
Medium black basalt	6	334	
Gray basalt	12	346	Static water level went to 70'. Then to 135' and re- mained there.
Soft brown and red rock	30	370	
Hard gray basalt	51	426	Evidence of water
Soft black basalt	24	451	
Hard black basalt	3	453	
Soft black basalt	11	462	
Hard gray basalt	8	472	
Medium black basalt	54	527	
Hard black basalt	154	680	Some evidence of more water.
Medium black basalt	43	722	
Hard gray basalt	4	727	
Black basalt	24	750	
Gray basalt - hard	22	772	Some evidence of water
Brown-red-gray - soft	11	783	
Hard gray basalt	17	800	
Brown basalt	5	805	
Black basalt	15	820	
Hard gray basalt	20	840	
Black basalt	39	874	
Gray basalt	4	884	
Black basalt	12	895	Probably water bearing.
Porone black rock	16	912	
Black basalt	23	934	Bottom of hole.
			Note: This well caved and was cleaned out to a depth of 720'.
Compilers note: Addition in above figures is quite inconsistent.			

Pilot Rock City
Well name
Index number -- 49-U
18-32E-17-0K
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
18 32E 17 Center
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled ☒ above _____ domestic* _____
Driven _____ below _____ industrial _____ abandoned _____
Final depth 309' _____ irrigation _____ dry hole _____
_____ municipal ☒ producer ☒
*includes stock wells

City of Pilot Rock
Owners name A. M. Edwards
Address _____
Date of drilling completed February 1946

This record compiled by H.S.W. from _____
data secured from the following sources: _____
Charles Bracher, City Clerk

Date compiled July 1947 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Artesian flow measured at between 1,100 and 1,420 g.p.m. @ 65'.			
Analysis by Northwest Filter Company, Seattle			
ph	7.7		
very clear	80	cc	
alk me	135	ppm	
TEMP HARDNESS	113	ppm	
Fe (iron)	0.2		
Ca (lime)	8.0		
Cr (Chrom)	14.8		
Analysis by Perolin Company of New York, N.Y. Chemists			
temporary hardness	8.1		
permanent hardness	0.3		
total hardness	8.4		
ph Hydrogen ion	7.7		

Pinkerton
Well name
Index number -- none-U
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft.
Drilled ☒ above _____ domestic* ☒
Driven _____ below _____ industrial _____ abandoned _____
Final depth 133' _____ irrigation _____ dry hole _____
_____ municipal _____ producer ☒
*includes stock wells

Lawrence Pinkerton
Owners name _____
Address Athens, Oregon
Original drillers name _____
Address _____
Date of drilling _____

This record compiled by H.S.W. from _____
data secured from the following sources: _____
Durand _____
Walla Walla, Washington

Date compiled January 1946 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Old well		102	
Black basalt, very hard	28	130	
Gray basalt	3	133	
			SWL 51'. Bailed about 15 g.p.m. and lowered water 5 feet.

Index number -- none-0
 File number
 (Code: Tp., R., Sec., & Sec.)

Well name
 Gilliam County
 Blalock Island
 Quadrange

AS 25E 18 SW 1/4 of SW 1/4
 Tp. Range Section Fractional section

STATISTICS:
 Well type-Dug _____ Elevation (land sur- Use status-domestic* _____ Well status-domestic* _____
 Drilled x _____ face) _____ ft. _____
 Driven _____ above _____ industrial _____ abandoned _____
 Final depth 194' _____ below _____ irrigation _____ dry hole _____
 _____ municipal _____ producer x _____
 *includes stock wells

D. M. and R. E. Potter
 Owners name _____ Original drillers name _____
 Address _____ Mikalio, Oregon _____
 _____ Date of drilling _____

This record compiled by H.S.W. from _____ Deepened _____
 data secured from the following sources: re-cased _____
 _____ cleaned _____ by A. A. Durand & Son
 Durand _____
 _____ Walla Walla, Washington

Date compiled January 1948 Date March 1947

Material	Thickness (feet)	Depth (feet)	Remarks
Old well		165	
Broken basalt	15	180	
First black basalt	14	194	
			SWL 80'. Couldn't lower by drilling.

Index number -- 181-M
 42-25-18-2
 File number
 (Code: Tp., R., Sec., & Sec.)

Well name
 Morrow County
 Blalock Island
 Quadrange

AS 25E 18 SW 1/4 of SW 1/4
 Tp. Range Section Fractional section

STATISTICS:
 Well type-Dug _____ Elevation (land sur- Use status-domestic* _____ Well status-domestic* _____
 Drilled x _____ face) _____ ft. _____
 Driven _____ above _____ industrial _____ abandoned _____
 Final depth 96' _____ below _____ irrigation _____ dry hole _____
 _____ municipal _____ producer x _____
 *includes stock wells

Mr. Pool
 Owners name _____ Original drillers name _____
 Address _____ Boardman, Oregon _____
 _____ Date of drilling _____

This record compiled by H.S.W. from _____ Deepened _____
 data secured from the following sources: re-cased _____
 _____ cleaned _____ by _____
 Messrs. Vassner and Mulligan, Boardman.

Date compiled March 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available -- about		96	Well flows
			Natural pressure sufficient to service domestic water system. This well was affected by the Wassner well. Refer to log Wassner well.

Index number -- 183-M
 43-25E-20-M
 File number
 (Code: Tp., R., Sec., & Sec.)

Well name
 Morrow County
 Blalock Island
 Quadrange

AS 25E 20 SW 1/4 of SW 1/4
 Tp. Range Section Fractional section

STATISTICS:
 Well type-Dug _____ Elevation (land sur- Use status-domestic* _____ Well status-domestic* _____
 Drilled x _____ face) _____ ft. _____
 Driven _____ above _____ industrial _____ abandoned _____
 Final depth 75' _____ below _____ irrigation _____ dry hole _____
 _____ municipal _____ producer x _____
 *includes stock wells

Mrs. Nora Ransier
 Owners name _____ Original drillers name _____
 Address _____ Boardman, Oregon _____
 _____ Date of drilling _____ about 1928

This record compiled by H.S.W. from _____ Deepened _____
 data secured from the following sources: re-cased _____
 _____ cleaned _____ by _____
 Owner _____

Date compiled March 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		75	Present SWL is about 10'. When first drilled SWL was about 3'. No pump test data available. Well supplies three domestic water systems and is used also for lawn and stock watering.

Index number -- 182-M
 43-25E-17-M
 File number
 (Code: Tp., R., Sec., & Sec.)

Well name
 Morrow County
 Blalock Island
 Quadrange

AS 25E 17 SW 1/4 of SW 1/4
 Tp. Range Section Fractional section

STATISTICS:
 Well type-Dug _____ Elevation (land sur- Use status-domestic* _____ Well status-domestic* _____
 Drilled x _____ face) _____ ft. _____
 Driven _____ above _____ industrial _____ abandoned _____
 Final depth 93' _____ below _____ irrigation _____ dry hole _____
 _____ municipal _____ producer x _____
 *includes stock wells

C. L. Potts
 Owners name _____ Original drillers name _____
 Address _____ Boardman, Oregon _____
 _____ Date of drilling _____ June 1947

This record compiled by H.S.W. from _____ Deepened _____
 data secured from the following sources: re-cased _____
 _____ cleaned _____ by _____
 Owner _____

Date compiled March 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log made		93	Well flows.
Owner reports:			
Sand and unconsolidated material	22	22	First water encountered at 27'. Second water encountered at 31' with a light flow over casing. Main flow found at 31'.
Solid rock	71	93	No pump or pressure test made but pressure sufficient to service domestic water system and sprinkler without mechanical boost.

Material	Thickness (feet)	Depth (feet)	Remarks
Old well		37	Casing: 8" to 87'
Cement gravel	14	51	Casing: 6" to bottom
Broken basalt	5	56	SWL 37'. Water level held on 5/7 with balling. The dug well went dry in Nov. 1945.
Sandy gravel and clay	11	67	
Cement gravel	69	136	
Sand and small gravel	2	138	
Cement gravel	35	173	
Yellow clay and rock, sticky	2	175	
Cement gravel	25	200	
Cement gravel and clay	25	225	

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Soft rock	150	150	6" hole
Harder rock	150	300	
Very sticky gumbo	20	320	Casing had to be driven here 5" hole from - 320' on.
Hard rock	20	340	
Softer rock and water	10	350	Bottom of hole.

Material	Thickness (feet)	Depth (feet)	Remarks
This well was 302' to begin with and was deepened by Nicholson as follows:			
		5 5/8'	hole
----- ?		302	Pumps about 2 1/2 g.p.m.
Dark gray basalt	35	337	
Black porous basalt	5	342	
Hard black basalt	22	364	
Black porous basalt	49	413	
Harder and turning gray	14	427	

Rietman (Victor)
Well name
Index number -- 105-M
1E-24B-16-R
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blalock Island Quadrangle
1E 24B 16 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Driven above industrial abandoned
below irrigation dry hole
Final depth 550' municipal producer x
*includes stock wells

Victor Rietman not known
Owners name Original drillers name
Address Ione, Oregon Address
Date of drilling

This record compiled by N.S.W. from Deepened x
data secured from the following sources: re-cased
cleaned by Fred Nicholson
Driller Ione, Oregon

Date compiled October 1947 Date April 1943

Material	Thickness (feet)	Depth (feet)	Remarks
This well was 455' deep to begin with and was deepened by Nicholson as follows:			
Hard blue basalt with occasional soft streaks	65	455	5 5/8" hole
Gray basalt	9	529	
Black porous basalt	3	532	
Gray basalt	8	540	
Crevise with green soapstone	1	541	Water here
Gray basalt	9	550	- Bottom of hole -
			Pump steady 3 g.p.w.

Rogers
Well name
Index number -- 185-M
4E-24B-13-R
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blalock Island Quadrangle
4E 24B 13 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Driven above industrial abandoned
below irrigation dry hole
Final depth 87' municipal producer x
*includes stock wells

Emmet Rogers Beck
Owners name Original drillers name
Address Boardman, Oregon Address
Date of drilling about 1936

This record compiled by N.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Messrs. Wilson, Crowder and Waagbo
(Waagbo was a former owner)

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log available --	about	87	Well flows periodically. Former owner, Waagbo reports well will just flow during winter for about a month - but SWL would drop to 5' during summer and well could be pumped dry with a hand pump with plunger at 87'. Recovery slow.

Roberts
Well name
Index number -- 112-M
2S-24B-5
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Unmapped Quadrangle
2N 24B 5 SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic* x
Driven above industrial abandoned
below irrigation dry hole
Final depth 529' municipal producer x
*includes stock wells

Mrs. J. D. Roberts Fred Nicholson
Owners name Original drillers name
Address Portland, Oregon Address Ione, Oregon
Date of drilling Started Oct. 1946 Finished June 1947

This record compiled by N.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller

Date compiled October 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	9	9	6" hole - casing set at -28'
Shelly black basalt	9	18	
Solid black basalt	27	45	
Solid blue basalt	10	55	
Very hard gray basalt	64	119	
Blue soapstone	4	123	
Very hard gray basalt	33	156	
Moderate brown basalt	9	165	
Blue basalt	23	188	
Unusually hard gray basalt	76	264	
Solid brown basalt	16	280	
Black basalt	10	290	
Gray basalt	27	317	
Black porous basalt	8	325	
Brown porous basalt	6	331	
Blue basalt	25	356	
Gray bouldery basalt	7	363	
Blue bouldery basalt	36	399	
Gray bouldery basalt	13	412	
Blue basalt with seams, crevices			
boulders and clay-like mud	79	491	
Dark colored lava rock shot with yellow soapstone and a trace of brown clay-like mud	19	510	
Dark porous basalt	19	529	Bottom of hole
Soapstone at -119' -123' is cemented out. The first seep of water was at -102'. The next water, about 1 g.p.w. was between -254' and -280'. All formations from -331' -491' were hard to drill and keep straight. Next water comes in at -510' to -515', over 5 g.p.w. 1100 gallons were removed in 3 hours before time to lower water to 40' from bottom at which level it would lower no more. This water will raise again to -116' deep in well. The pump is set about 4 inches off bottom with the intake about 20 ft. from bottom.			

[illegible][illegible]

Rogers Canning Company, Athens #3
Well name

Index number -- 31-4
48-343-24-J
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Pendleton Quadrangle
48 343 24 NE 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic _____
Drilled ☒ _____ above _____ industrial ☒ abandoned
Driven _____ below _____ irrigation _____ dry hole
Final depth 1148' _____ municipal _____ producer ☒
*includes stock wells

Rogers Canning Company A. A. Durand & Son
Owners name Original drillers name
Address Milton, Oregon Address Walla Walla, Washington
Date of drilling Jan. to May 1946

This record compiled by U.S.W. from Deepened _____
data secured from the following sources: re-cased _____
Driller and company officials cleaned _____ by _____

Date compiled January 1948

Date

Material	Thickness (feet)	Depth (feet)	Remarks
Yellow silt	0	7	24" casing at 22'
Gravel	15	22	20" " to 102' 0" 10" " to 230' 4"
Gray basalt.	9	31	Hole reduced to 12 1/2" at 550'
Broken basalt	7	38	
Brown shale	3	41	Well flows est. 40 g.p.w. Pumps 1515 g.p.w. with stabilized production level at 175'
Gray basalt	19	60	
Brown and gray shale	15	75	
Hard gray basalt	50	125	
Broken basalt and shale	60	185	According to company officials the pumping water level at 550 g.p.w. stabilized at about 190' in June 1947 for a period of about 5 weeks and then dropped to 245' in July 1947. This level remained constant throughout the pumping season and the well recovered and flowed 15 days after being shut down.
Black basalt, soft	8	193	
Gray basalt	19	212	
Dark broken basalt	18	230	
Gray and dark basalt layers	106	336	
Broken basalt	6	342	
Gray and dark basalt layers	28	370	
Blue shale	10	380	
Black basalt	10	390	
Dark broken basalt	34	424	
Brown basalt	17	441	
Gray basalt	47	488	
Brown shale	12	500	
Dark basalt	41	541	
Gray basalt	29	570	Reduced hole to 12 1/2" at 550'
Broken dark basalt	38	608	
Solid dark basalt	64	672	
Sticky blue shale	6	678	
Gray and dark basalt	103	781	
Broken dark basalt	15	796	
Dark basalt	14	810	
Broken basalt	15	825	
Gray basalt	100	925	
Gray sticky mud	5	940	
Gray basalt	6	946	
Brown basalt	14	960	
Broken reddish brown basalt	15	975	
Red rock	10	985	
Brown basalt	22	1007	
Broken dark basalt	10	1017	
Dark basalt	14	1031	
Gray basalt	3	1034	
Black basalt	8	1042	
Gray and dark basalt	11	1053	
Black basalt	5	1058	

(continued)

Gray and dark basalt	74	1132	
Broken brown basalt	7	1139	
Black basalt	5	1144	
Gray basalt	4	1148	
			Bottom of hole
Water courses:			
Water between 185' and 193'. More water from 70' and 71' well flowed for 3 hours between 730' and 736' SWL 1'. Flowing constant at 759'. More water between 796' and 810'. More water between 1144' and 1148'.			

Rogers Canning Company, Milton #1
Well name

Index number -- 19-6
58-358-12-6
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Unmapped Quadrangle
58 358 12 SW 1/4 of NE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic _____
Drilled ☒ _____ above _____ industrial ☒ abandoned
Driven _____ below _____ irrigation _____ dry hole
Final depth 702 1/2' _____ municipal _____ producer ☒
*includes stock wells

Rogers Canning Company A. A. Durand & Son
Owners name Original drillers name
Address Milton, Oregon Address Walla Walla, Washington
Date of drilling Feb. to May 1944

This record compiled by U.S.W. from Deepened _____
data secured from the following sources: re-cased _____
Driller and company officials cleaned _____ by _____

Date compiled January 1948 and May, 1944

Date

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel	21	21	According to company officials in Jan. 1948 the SWL is 119'. This well is pumped at the rate of 1200 g.p.w. 24 hours a day during the height of the season. Produced under such conditions is 23'.
Cemented gravel	26	47	
Rock	3	50	
Black basalt	7	57	
Gray basalt	8	65	
Black basalt	67	132	According to the driller the SWL was 16' in this well to a depth of 102'. At 102' the SWL rose to 13'. At 100' the SWL dropped to 120' where it remained to the completion of the hole.
Brown basalt	35	167	
Black basalt	15	182	
Brown and black honeycomb basalt	3	185	
Black basalt	18	203	Water temp. is 58°.
Brown and black basalt	52	255	
Black basalt	140	395	
Gray basalt	6	401	
Black basalt	107	508	
Gray basalt	13	521	
Black basalt	15	536	
Gray basalt	33	569	
Black honeycombed	15	584	
Black basalt	38	622	
Gray basalt	17	639	
Black basalt	63 1/2	702 1/2	Bottom

[illegible]

Material	Thickness [feet]	Depth [feet]	Remarks
Hole drilled thru hard rock all the way with cuttings black like coal at the water horizon		161	5" hole - Artesian flow reported at 405 g.p.m.
This well was visited by the compiler who observed -- the "dark rock" reported wholly basalt. The well is still active strongly as ever.			contributes the following water in without soundly flowing and apparently as

[illegible][illegible]

Schomp
Well name
Index number -- - G.
58-202-23-J
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Gilliam County
Condon Quadrangle
SS 20E 23 N1/4 of SW1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Driven _____ above _____ industrial _____ dry hole _____
below _____ irrigation _____ municipal _____ producer _____
Final depth 398' _____ *includes stock wells

E. R. Schomp A. A. Durand & Son
Owners name Original drillers name
Address Mayville, Oregon Address Walla Walla, Washington
Box 53 Date of drilling May to August 1947

This record compiled by H.S.W. from Deepened _____
date secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	2	2	Casing 8" to 23" SWL 277'
Rock and yellow clay	6	8	
Yellow green sandy shale	7	15	
Rock and clay	15	30	
Hard gray rock	19	49	Lost water here
Broken black rock	1	50	
Gray rock	10	60	
Broken brown rock	1	61	Lost water here
Hard gray rock	10	71	
Gray rock	8	80	
Broken brown rock	1	81	Lost water here
Gray rock	7	88	
Broken brown rock	1	89	Lost water here
Gray rock	22	111	
Brown rock	2	113	
Gray rock	12	125	
Hard white rock	3	128	
Hard blue rock	20	148	
Broken brown rock	2	150	Lost water here
Brown rock (solid)	4	154	
Broken brown rock	2	156	Lost water here
Brown rock (solid)	7	163	
Broken brown rock	4	167	Lost water here
Brown rock	5	172	
Broken brown rock	2	174	Lost water here
Brown sticky shale (caving)	36	210	
Hard gray rock	4	214	
Gray and brown rock	26	240	
Black basalt	2	242	
Gray basalt	7	249	
Black basalt	7	256	
Gray basalt	4	260	
Black basalt	20	280	
Black broken basalt	1	281	Some water, enough to drill with
Alternate black and gray basalt	75	356	
Black basalt	31	387	
Hard gray basalt	3	390	
Black basalt	8	398	Hole measured out 390'

Scott
Well name
Index number -- none-U
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Condon Quadrangle
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Driven _____ above _____ industrial _____ dry hole _____
below _____ irrigation _____ municipal _____ producer _____
Final depth 205' _____ *includes stock wells

Katella A. Scott A. A. Durand & Son
Owners name Original drillers name
Address Athena, Oregon Address Walla Walla, Washington
Date of drilling Fall 1946

This record compiled by H.S.W. from Deepened _____
date secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	15	15	
Cemented gravel	10	25	
Hard basalt	25	50	
Hard blue basalt	13	63	
Black basalt	82	145	
Gray basalt	4	149	
Dark basalt	11	160	
Brown basalt	7	167	
Black basalt	3	170	
Brown basalt	10	180	
Black basalt	25	205	
			SWL 30'
			Bailed hole down 125' in 30 minutes. Yield 7 g.p.w.

Sheard
Well name
Index number -- 88-D
48-34E-25
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Pendleton Quadrangle
48 34E 25
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____ abandoned _____
Driven _____ above _____ industrial _____ dry hole _____
below _____ irrigation _____ municipal _____ producer _____
Final depth 65' _____ *includes stock wells

M. F. Sheard A. A. Durand & Son
Owners name Original drillers name
Address Athena, Oregon Address Walla Walla, Washington
Date of drilling 1945

This record compiled by H.S.W. from Deepened _____
date secured from the following sources: re-cased _____
cleaned _____ by _____
U. S. G. S. Ground-Water Division

Date compiled December 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	13	13	Casing, 8-inch, set to 35 feet, open end.
Gravel with boulders	5	18	Bailed 40 g.p.w. with 20 ft. drawdown after 1 hr.
Boulders	7	25	Static level 15 feet, Oct. 24, 1945
Gravel and clay	5	30	
Basalt	30	60	
Basalt, soft and sand	5	65	

Seibold
Well name _____
Index number -- none-J
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Quadrangle _____

Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ domestic* _____
Drilled ☒ _____ ft. _____
Driven _____ above _____ industrial _____ abandoned _____
Final depth 667' below _____ irrigation _____ dry hole _____
municipal _____ producer ☒
*includes stock wells

One Seibold A. A. Durand & Son
Owners name _____ Original drillers name _____
Address _____ Freewater, Oregon _____ Walla Walla, Washington _____
Date of drilling _____ Spring 1945 _____

This record compiled by N.S.W. from _____ Deepened ☒
data secured from the following sources: re-cased _____
cleaned _____ by A. A. Durand & Son _____

Driller _____ Walla Walla, Wash.

Date compiled _____ January 1948 _____ Date _____ Spring 1946 _____

Material	Thickness (feet)	Depth (feet)	Remarks
Old well		28	
Coarse gravel	67	95	
Black basalt	10	105	
Porons brown basalt	42	147	
Brown rock	3	150	
Black basalt	68	218	Crevise at 218
			Bottom original hole
			SWL 17'
Log of deepened well:			
Hard black basalt	35	253	
Porons basalt	39	292	
Solid basalt	12	304	At 304 water level dropped to 22'
Black basalt	4	308	
Red basalt	23	331	At 307 struck water, SWL dropped to 40'. At 315' again dropped to 54'
Hard black basalt	13	344	
			Final SWL 53'

Smith (Frank)
Well name _____
Index number -- 149-G
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Gilliam County
Arlington Quadrangle _____

2E 22E 36 NW 1/4 of NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ domestic* _____
Drilled ☒ _____ ft. _____
Driven _____ above _____ industrial _____ abandoned _____
Final depth 667' below _____ irrigation _____ dry hole ☒
municipal _____ producer _____
*includes stock wells

Frank Smith
Owners name _____ Original drillers name _____
Address _____ Cecil, Oregon _____ _____
Date of drilling _____

This record compiled by N.S.W. from _____ Deepened ☒
data secured from the following sources: re-cased _____
cleaned _____ by A. A. Durand & Son _____

Durand _____ Walla Walla, Washington

Date compiled _____ January 1948 _____ Date _____ March 1947 _____

Material	Thickness (feet)	Depth (feet)	Remarks
Old well		645	
Rust and some sand	16	661	
Black basalt and sand	6	667	Bottom of hole, SWL 504'. Pumped dry in 3 minutes.

Skenebo
Well name _____
Index number -- 186-M
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Marrow County
Blacklock Island Quadrangle _____

4W 25E 18 NE 1/4 of NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ domestic* _____
Drilled ☒ _____ ft. _____
Driven _____ above _____ industrial _____ abandoned _____
Final depth 102' below _____ irrigation _____ dry hole _____
municipal _____ producer ☒
*includes stock wells

I. Skenebo Beck
Owners name _____ Original drillers name _____
Address _____ Boardman, Oregon _____ _____
Date of drilling _____ about 1922 _____

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Owner _____

Date compiled _____ March 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		102	
Owner reports:			
Started in solid basalt	100	100	
Blue clay	2	102	
			First water encountered at 72'. SWL was 4'. This was cased off. Second water encountered at 102'. Final SWL 12 to 14'.

Seyth
Well name _____
Index number -- 146-G
File number _____
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Gilliam County
Arlington Quadrangle _____

2E 21E 26 SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ domestic* _____
Drilled ☒ _____ ft. _____
Driven _____ above _____ industrial _____ abandoned ☒
Final depth 895' below _____ irrigation _____ dry hole _____
municipal _____ producer _____
*includes stock wells

John Krebs E. E. Wilburn
Owners name _____ Original drillers name _____
Address _____ Umatilla, Oregon _____ 812 E. 7th, The Dalles, Oregon _____
Date of drilling _____

This record compiled by Dole from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Letter from the driller, Jan. 19, 1948

Date compiled _____ January 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Conglomerate	450	450	
Basalt	445	895	Bottom of hole
			Small flow of water between 450 and 500'. None below, mineralized and unfit for human use. (This well is locally reported to be 1115' deep).

[illegible][illegible][illegible]

[illegible]

Date compiled	January 1948	Date	
Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	5	5	Based 10" to 16" 10"
Sand and gravel	5	10	
Gravel and boulders	10	20	
Broken up basalt boulders	10	30	
Broken honeycomb rock, green	10	40	
Green honeycomb rock	20	60	
Gray basalt	43	103	
			WL 5'

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	12	12	
Very hard rock	188	200	
Honeycomb rock	25	225	
Very hard rock	155	380	
Perous rock	4	384	
Solid rock	4	388	
			well reported by Highway officials as tested good for 20 g.p.m. with stabilize level at 60'.

Material	Thickness (feet)	Depth (feet)	Remarks
Dirt	42	42	Hole 6" to start 4 1/2" to bottom
Clay and boulders	183	225	
Clay	268	493	
Sand and gravel	57	550	
Blue clay and basalt	137	687	
Basalt rock	270	957	Flow at 735
Blue clay	50	1007	
			Bottom of hole
Flow - 6 1/2 g.p.m. At 150 g.p.m., drawdown is to temp. 69° . Well reported as still flowing in 1947. Flow noted as stronger			

Material	Thickness (feet)	Depth (feet)	Remarks
Loose gray sand	45	45	8" casing to -60'
Soft yellow hardpan	15	60	6" casing to -185'
Moderately hard brown basalt	14	74	
Hard blue basalt	13	87	
Very hard gray basalt	26	113	
Very hard light gray basalt	9	122	
Moderately hard, brown, porous basalt	5	127	
Soft, blue clay	44	171	
Moderately hard black porous basalt	10	181	1 g.p.m. water
Very hard gray basalt	111	292	
Moderately hard, blue porous basalt	10	302	14 g.p.m., plus
Soft, green, similar to shale	19	321	

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Old dug well		64	
Gravel	95	159	Bottom of old well.
Blue clay	86	245	Old well bailed 20 g.p.m.
Gravel and sandy clay	45	290	with a drawdown from a static water level of 55' to 100'. Penetrated well (final depth) pumped 45 minutes at 107 g.p.m. SWL 80'. Water warm and sulphurous. Progressing.
Sandy blue clay	55	345	with hole at 230', bailed 20 g.p.m. for 15 minutes with drawdown from 70 to 108'. With hole at 360', bailed 20 g.p.m. for 2 minutes with drawdown of 10'. With hole at final depth of 365', pumped 45 minutes at 169 g.p.m.
Basalt	15	360	
Broken honeycomb rock - cavity	15	375	
Black rock - cavity	10	385	

[illegible]

Tucker
Well name
Index number -- 93-M
File number 2N-27E-20-R
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Norrow County

Umatilla Quadrangle

2N 27E 20 S24 of NR4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic*
Drilled x above industrial abandoned
Driven above irrigation dry hole
Final depth 765' below municipal producer x
*includes stock wells

Ed Tucker Moore and Anderson
Owners name Original drillers name
Address Division Street Address Whitman St., Walla Walla, Wash.
Walla Walla, Washington Date of drilling finished Jan. 1948

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller

Date compiled January 1948

Material	Thickness (feet)	Depth (feet)	Remarks
Dirt	10	10	Casing: 10" to 53"
Gravel	12	22	
Scab rock	13	35	
Black rock	20	55	
Brown rock - clay seams	35	90	
Black rock	14	104	
Brown rock, clay in seams	23	127	
Brown rock	7	134	
Black rock	99	233	
Brown rock	4	237	SWL 240'
Black rock	12	249	Pumped 200 g.p.m. for 4
Red rock (seep of water)	4	253	hours - pump at 300'
Gray basalt	45	298	Drawdown to 300'
Brown rock (water bearing)	52	350	Yield held at 200 g.p.m.
Clay	2	352	
Gray basalt	13	365	

Umatilla City #1
Well name
Index number -- 83-U
File number 5N-28E-17-L
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

5N 28E 17 N24 of S24
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic*
Drilled x above industrial abandoned
Driven above irrigation dry hole
Final depth 133' below municipal producer x
*includes stock wells

City of Umatilla
Owners name Original drillers name
Address Address
Date of drilling

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
City officials

Date compiled December 1947

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		133	Pumping well -- reportedly tested 60 g.p.m. in 1935. Now used as an auxiliary only.

Tabbs
Well name
Index number -- none-U
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic*
Drilled x above industrial abandoned
Driven above irrigation dry hole
Final depth 193' below municipal producer x
*includes stock wells

Clarence Tabbs A. A. Durand & Son
Owners name Original drillers name
Address Adams, Oregon Address Walla Walla, Washington
Date of drilling January 1944

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
U. S. G. S. Ground-Water Division

Date compiled January 1948

Material	Thickness (feet)	Depth (feet)	Remarks
Old well	89	89	
Basalt, hard	26	115	
Basalt, porous	30	145	
Basalt, hard SWL 35'	48	193	
			SWL 35' - 18 Jan. 1944. 8" casing to 30' - open bottom - perforated 34' - 37' 68' - 74'
			Bailed 24 g.p.m. for 40 min. with 128' drawdown recovered in 1 hour.

Union Pacific, Barnhart #1
Well name
Index number -- 63-U
File number 2N-31E-15-L
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

2N 31E 15 N24 of SW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug Elevation (land sur- Use status- Well status-
face) ft. domestic*
Drilled x above industrial abandoned
Driven above irrigation dry hole
Final depth 161' below municipal producer x
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owners name Original drillers name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling January 1940

This record compiled by U.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller and U. P. Water Service Foreman, Metsker

Date compiled January 1948

Material	Thickness (feet)	Depth (feet)	Remarks
Dirt and gravel	10	10	
Broken basalt rock	18	28	
Hard gray basalt	5	33	
Gray basalt	45	78	
Porous rock and shale	21	99	
Hard gray basalt rock	56	155	
Porous rock and soapstone	6	161	
			SWL 3'. No pump test results available, but is pumped at 40 g.p.m. in practice.

Umatilla City #2
Well name
Index number -- 84-U
54-288-17-J
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

SW 28E 17 NW 1/4 of SE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic _____ Well status-
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 580' _____ municipal ☒ producer ☒
*includes stock wells

City of Umatilla C. E. Lewis
Owners name Original drillers name
Address Address Pendleton, Oregon
Date of drilling 1940

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Verbal log report by the driller and also
data from city officials and State Department
of Health
Date compiled July, Dec. 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil and gravel	18	18	8" hole. Flow of 125 g.p.m. encountered.
Solid rock -- about	580		
			By Lewis
According to Walter Bullard, City Recorder, this well quit flowing in 1944.			
A pump test by W. W. Newton, Bunkin Equipment Company of Tacoma, Washington January 25, 1940, shows a static level to be -32' and the well good for about 300 g.p.m. with a drawdown to -32'.			
Records in the files of the State Dept. of Health carry a notation that this well is 150' deep and that two artesian flows were penetrated. The largest is estimated at 50 g.p.m.			
A letter in the same files by Mr. Cotter, 1940, states flow of about 80 g.p.m. and flows the following log -- 10" hole through 30' loam and clay to bedrock; 10" hole bedrock into bedrock 20' to -40'; 8" hole drilled from -40' bedrock to -535' bedrock. 8" casing from surface to -66'.			

Umatilla City #3
Well name
Index number -- 85-U
54-288-19-A
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

SW 28E 19 NW 1/4 of NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic _____ Well status-
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 785' _____ municipal ☒ producer ☒
*includes stock wells

City of Umatilla A. M. Janssen
Owners name Original drillers name
Address Address 319 Fillock Block, Portland, Ore.
Date of drilling November 12, 1947

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Mayor J. A. Stevens, Umatilla
Date compiled December 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Clay and top soil	17	17	Casing used:
Gravel and boulders	10	27	170' of 16"
Sand	11	38	63' of 10"
Gravel	132	170	174' of 8"
Rock	175	345	
Blue clay	28	373	
Broken rock	42	415	SWL 115'. Drawdown 90'
Rock	50	505	Yield approximately 1000
Clay	30	535	g.p.m. Temp. 71°F.
Rock	215	750	
Sandy formation	5	755	
Rock	30	785	

Union Pacific, Cayuse #1
Well name
Index number -- 84-U
22-343-4-R
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

SW 34E 4 NW 1/4 of SE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic _____ Well status-
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 85' _____ municipal ☒ producer ☒
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owners name Original drillers name
Address Address Omaha, Nebraska
Date of drilling June 1941

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Driller _____
Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel	15	15	8" casing seated at 40'
Hard gray basalt	35	50	
Porous brown basalt	35	85	
			Static water level 1'. Dynamic water level 30'. Tests 30 g.p.m.

Union Pacific, Field Station
Well name
Index number -- 89-U
22-343-4-R
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Umatilla Quadrangle

SW 28E 23 NW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic _____ Well status-
Drilled ☒ _____ above _____ industrial _____ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 275' _____ municipal ☒ producer ☒
*includes stock wells

Union Pacific Railroad
Owners name Original drillers name
Address Address Omaha, Nebraska
Date of drilling _____

This record compiled by H.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____

Mr. Cole, U. P. Geologist
Date compiled October 1944 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Sand	5	5	First water at -70'.
Gravel	65	70	Stood at -57'
Hard yellow clay	70	140	
Hard blue clay	100	240	Solid footing at -205'
Solid rock	35	275	
			Water level changed from -47' to -25' when well was cased to -205'.

Union Pacific, Kansas
Well name
Index number -- 155-Da
15-35E-36-W
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Union County
Unmapped Quadrangle
15 36E 36 SW 1/4 of SW 1/4
Tp. Range Section Fractional section
D C B A
E F G H
M L K J
N P Q R

STATISTICS:
Well type-Dug Elevation (land surface) ft. Use status-domestic* Well status-domestic*
Drilled X above industrial X abandoned X
Driven above irrigation X dry hole X
Final depth 996' below municipal producer X
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owner's name Original driller's name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling July 1944 to Jan. 1946

This record compiled by N.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Brown hardpan clay	49	49	Casing 20" seated at 50' 8"
Black basalt	22	71	Casing 16" seated at 101' 4"
Very hard basalt	2	73	Well abandoned
Black basalt	8	81	At 699-foot depth SW 1/4 was 23' 0". Pump test pumped
Soft black basalt	10	91	well dry in 12 minutes and there was no recovery after a 2 hour rest.
Black basalt with streaks of black shale	10	101	Final SW 1/4 in deepened well was 204.5' and well bails dry
Black basalt	12	113	
Porous brown rock and clay	32	145	
Black basalt	12	157	
Red rock	38	195	
Black basalt	10	205	
Clay and basalt	60	265	
Hard red rock	50	315	
Hard black rock	9	324	
Hard brown rock	15	339	
Hard black rock	15	354	
Broken brown rock	6	360	
Hard brown rock	7	367	
Brown rock with clay seams	16	383	
Red rock with clay seams	10	393	
Brown rock with clay seams	15	408	
Porous brown rock with some clay	23	431	
Porous gray basalt	5	436	
Red rock with some clay	15	451	
Porous clay basalt	65	516	
Hard black rock	3	519	
Hard gray rock	8	527	
Broken black rock	5	532	
Hard gray basalt	26	558	
Gray basalt with some clays	9	567	
Hard blue rock with some clay	9	576	
Hard blue rock	17	593	
Red rock	69	762	
Hard gray rock	6	768	
Hard gray rock with some clay	2	770	
Broken basalt with sticky red clay mixed in	3	773	
Gray basalt mixed with clay	20	793	
Gray basalt mixed with small amount of clay	14	807	
Gray basalt	26	833	
Gray basalt - some clay	6	839	
Porous gray basalt, some red rock and small amount of clay	49	888	
Porous gray basalt, some red rock	13	893	
Red rock	11	904	

(continued)

Brown rock	9	913	
Gray basalt	15	928	
Gray basalt, some clay	68	996	
			Bottom of hole
			Final SWL 204.5'. Well
			abandoned

Union Pacific, Mesquite
Well name
Index number -- 97-M
4W-25E-3-J-F
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morro County
Blacklock Island Quadrangle
4W 25E 3 SW 1/4 of SW 1/4
Tp. Range Section Fractional section
D C B A
E F G H
M L K J
N P Q R

STATISTICS:
Well type-Dug Elevation (land surface) ft. Use status-domestic* Well status-domestic*
Drilled X above industrial X abandoned X
Driven above irrigation X dry hole X
Final depth 162' below municipal producer X
*includes stock wells

Union Pacific Railroad George Scott
Owner's name Original driller's name
Address Omaha City, Nebraska Address Milton, Oregon
Date of drilling 1916

This record compiled by N.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by

Union Pacific Railroad Officials

Date compiled February, 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		162	Casing: 12" to 49' Hole 12" to bottom uncased.

Union Pacific, Gibbon #1
Well name
Index number -- 43-U
3W-36E-31-C
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Unmapped Quadrangle
3W 36E 31 SW 1/4 of SW 1/4
Tp. Range Section Fractional section
D C B A
E F G H
M L K J
N P Q R

STATISTICS:
Well type-Dug Elevation (land surface) ft. Use status-domestic* Well status-domestic*
Drilled X above industrial X abandoned X
Driven above irrigation X dry hole X
Final depth 80' below municipal producer X
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owner's name Original driller's name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling

This record compiled by N.S.W. from Deepened
data secured from the following sources: re-cased
cleaned by
Driller

Date compiled January 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel and boulders	12	12	8" casing to 32'
Cement gravel with bad crevice	12	24	6" " to 56'
Blue basalt boulders	2	26	6" hole to bottom
Caving scale basalt	3	29	
Gray basalt	2	31	SWL 8'
Black basalt, boulders	22	53	
Black basalt, solid, hard	4	57	
Black basalt with bad crevices	9	66	
Hard gray basalt	5	71	
Honeycomb black basalt	9	80	Water bearing. Bottom of hole.

Union Pacific, La Grande #1
Well name
Index number -- 153-Un
35-30E-5-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Union _____ County _____

Unmapped _____ Quadrangle _____

35 30E 5 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* _____ Well status-
Drilled ☒ _____ above _____ industrial ☒ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 1557' _____ municipal _____ producer ☒
*includes stock wells

Union Pacific Railroad _____ Not known _____
Owners name _____ Original drillers name _____
Address Omaha, Nebraska _____ Address _____
Date of drilling Jan. 25, 1928

This record compiled by U.S.W. from _____ Deepened ☒ from _____
data secured from the following sources: _____ re-cased _____
Mr. Cole, U. P. Geologist and other officials _____ by A. A. Durand & Son _____
Walla Walla, Wash.

March 1948 _____ Date _____ 1945
Date compiled November 1944

Material	Thickness (feet)	Depth (feet)	Remarks
Gravel and boulders	200	200	Flows at rate of 75 g.p.m.
Yellow clay	123	323	
Fine wash gravel	14	337	
Yellow clay	273	610	
Blue clay	235	845	
Rock	151	996	Water here
Clay	110	1100	
Rock	224	1324	
Blue clay	15	1339	
Basalt rock	40	1379	Water here
Blue clay	20	1399	
Red rock	155	1554	Water here
Gravel	3	1557	
			Bottom of hole

Union Pacific, Munley #1
Well name
Index number -- 98-M
43-27E-20-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow _____ County _____

Unsettled _____ Quadrangle _____

43 27E 20 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* _____ Well status-
Drilled ☒ _____ above _____ industrial ☒ abandoned ☒
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 165' _____ municipal _____ producer _____
*includes stock wells

Union Pacific Railroad _____ George Scott _____
Owners name _____ Original drillers name _____
Address Omaha, Nebraska _____ Address Milton, Oregon _____
Date of drilling 1915

This record compiled by U.S.W. from _____ Deepened _____
data secured from the following sources: _____ re-cased _____
Union Pacific Railroad Officials _____ by _____

February 1948 _____ Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		165	Well used till 1945 and abandoned because #2 well yielded sufficient gallage for requirements.

Union Pacific, LaGrande #2
Well name
Index number -- 154-Jn
35-30E-5-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Union _____ County _____

Unmapped _____ Quadrangle _____

35 30E 5 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land surface) _____ ft. Use status-domestic* _____ Well status-
Drilled ☒ _____ above _____ industrial ☒ abandoned _____
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 1536' _____ municipal _____ producer ☒
*includes stock wells

Union Pacific Railroad _____ Roscoe Moss _____
Owners name _____ Original drillers name _____
Address Omaha, Nebraska _____ Address Los Angeles, California _____
Date of drilling Aug. 1941 to Feb. 1942

This record compiled by U.S.W. from _____ Deepened ☒ from _____
data secured from the following sources: _____ re-cased _____
Mr. Metsker, U. P. Water Service Foreman _____ by A. A. Durand & Son _____
Walla Walla, Washington

March 1948 _____ Date _____ 1945
Date compiled March 1946

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	6	6	
Gravel and boulders	16	22	
Gravel, boulders and clay	158	180	
Yellow clay	390	570	
Blue clay	370	940	
Basalt boulders in clay	22	962	
Blue clay	28	990	
Basalt and clay	6	996	
Black basalt	174	1170	
Basalt and red clay	28	1198	
Red clay	112	1310	
Red basalt	25	1335	
Black basalt, very hard	74	1409	
Brown basalt	41	1450	
Black basalt	40	1490	Bottom of original well
			We'll deepened by Durand in 1945 as follows:
Black basalt, hard	7	1497	
Black basalt	10	1507	
Brown basalt	15	1524	
Brown basalt (hard)	12	1536	
			Bottom of hole
			Casing record: 18" from 0' to 1016'
			10" from 0' to 1350'
			12" liner to 1545'
			Water temp. 78°F. - Pressure at well has remained constant at 53 lbs. First flow was 4 g.p.m. encountered at 1330'. At 1395' flow had increased to 17 g.p.m. Flow continued increasing to 900 g.p.m. during drilling to the 1490 foot level.
			Flow record: At 1490' - 300 g.p.m. Feb. 20, 1942
			1490' 360 g.p.m. Apr. 12, 1943
			1490' 171 g.p.m. Nov. 1944
			1490' 174 g.p.m. Dec. 22, 1944
			At 1523' 334 g.p.m. Jan. 12, 1945
			1523' 355 g.p.m. Jan. 18, 1945
			1531' 400 g.p.m. Jan. 19, 1945
			1536' 437 g.p.m. Jan. 22, 1945
			1536' 256 g.p.m. Aug. 11, 1945
			1536' 235 g.p.m. Aug. 22, 1945
			1536' 289 g.p.m. Feb. 1948

Union Pacific, Necham
Well name
Index number -- 48-7
18-35E-3-4
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Unmapped Quadrangle

18 35E 3 SW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status-domestic* Well status-
face) ft. _____
Drilled ☒ _____
Driven _____
Final depth 279' _____
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owners name Original drillers name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling Winter 1943-44

This record compiled by H.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Mr. Cole, U. P. Geologist

Date compiled October 1944 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	3	3	Artesian flow 25 g.p.m. Pumps 3 1/4 g.p.m.
Top soil and boulders	10	13	Bottom 20" casing at -11.5'
Black basalt	5	18	
Black basalt with clay seams	10	28	Small state H2O at -28
Black basalt	16	44	
Blue clay	2	46	
Lava sand	14	60	Water raised to top of pipe - 60'
Disintegrated lava and clay	3	63	Flow 22.5 g.p.m. at -63'
Lava sand	12	75	Flow 35 g.p.m. at -68' later decreased to 25 g.p.m.
Black basalt, solid	5	80	
Black basalt, seams	5	85	
Black basalt, solid	10	95	
Black basalt, seams	3	98	
Black basalt, solid	10	108	
Gray basalt, solid	8	116	
Gray basalt mixed with lava			
clinders and blue clay	6	122	
Black basalt mixed with lava			
clinders and blue clay	5	127	Bottom 16" casing at -125.1
Black basalt, some lava clinders			
mixed thru rock	19	146	
Black basalt, very hard	31	177	
Black rock mixed with blue clay	12	189	
Basalt - hit small device			
fitted with blue clay at -219'	88	277	
Shattered basalt and blue clay	2	279	
			Hole started caving at -279'. Final depth hole when cleaned out after pumping test, -279'. Pumps 3 1/4 g.p.m. in practice with pumping head of -24.4'.

Union Pacific, Munley #2
Well name
Index number -- 99-M
48-27E-20-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Morrow County

Umatilla Quadrangle

48 27E 20 NW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status-domestic* Well status-
face) ft. _____
Drilled ☒ _____
Driven _____
Final depth 457' _____
*includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owners name Original drillers name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling Oct. 1944 to June 1945

This record compiled by H.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
State Engineer

Date compiled February 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Black sand	145	145	Hole diameter 12"
Coarse sand and gravel	25	170	
Gray basalt	139	309	
Basalt and clay	61	370	
Gray basalt	13	383	
Dark gray rock	5	388	
Gray basalt	69	457	Bottom of hole. Water first encountered at 50'. SWL when drilling completed was 43'. Drawdown 9' at 500 g.p.m. in 3 hr. and 37 min. No seasonal variation noted.

Union Pacific, Rieth #1
Well name
Index number -- 55-U
2N-32E-7-M
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County

Pendleton Quadrangle

2N 32E 7 NW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status-domestic* Well status-
face) ft. _____
Drilled ☒ _____
Driven _____
Final depth 188' _____
*includes stock wells

Union Pacific Railroad G. S. Scott
Owners name Original drillers name
Address Omaha, Nebraska Address Main St., Milton, Oregon
Date of drilling 1914

This record compiled by H.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
State Engineer and U. P. Officials

Date compiled February 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No formation log available		188	Hole diameter 12". SWL 65'. 75" drawdown when tested at 500 g.p.m. Pumped in practice about 12 hours per day at the rate of 500 g.p.m.

Union Pacific, Blith #2
Well name
Index number -- 54-U
28-328-7-W
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Pendleton Quadrangle
SW 32E 7 S4 of SW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ irrigation _____ dry hole _____
Driven _____ below _____ municipal _____ producer ☒
Final depth 287' _____ *includes stock wells

Union Pacific Railroad A. A. Durand & Son
Owners name Original drillers name
Address Omaha, Nebraska Address Walla Walla, Washington
Date of drilling Oct. 1941 to July 1942

This record compiled by W.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1946 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Cinders	7	7	
Gravel	7	14	
Basalt rock containing old iron	4	18	
Black basalt	3	21	
Black basalt	8	29	
Hard gray basalt	14	43	
Broken basalt	3	46	Small quantity of water easily bailed out.
Hard gray basalt	14	60	
Black basalt with alternate seams of clay	15	75	
Hard gray basalt	10	85	
Caving red rock	16	101	
Hard brown basalt	2	103	
Black and gray basalt, broken	24	127	Caving
Broken basalt	11	138	More water
Hard basalt rock	43	181	
Alternate hard and broken basalt	7	188	
Broken basalt	15	203	
Very hard gray basalt	7	210	
Hard fractured gray basalt	7	217	Water bearing
Fractured brown basalt	11	228	
Hard brown basalt	7	235	
Fractured basalt	26	261	
Fractured gray basalt	19	280	
Fractured basalt	7	287	Water bearing
			Bottom of hole
			SW 65'. Tested 638 g.p.m. with 17" drawdown. Casing 12" seated at 20' 10" and 10" seated at 54' 10".

Union Pacific, Umatilla
Well name
Index number -- 62-U
SW-328-18-W
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Umatilla Quadrangle
SW 32E 18 S4 of SW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ irrigation _____ dry hole _____
Driven _____ below _____ municipal _____ producer ☒
Final depth 192' _____ *includes stock wells

Union Pacific Railroad George Scott
Owners name Original drillers name
Address Omaha, Nebraska Address Main St., Milton, Oregon
Date of drilling June to August 1915

This record compiled by W.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Union Pacific Railroad Officials _____

Date compiled February 1948 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
		40	Surface water at 40'
		55	Light flow in bedrock at 55'
		77	Very hard
		80	35" water in well - very weak flow
		116	Hard rock
		120	Solid rock
		137	Solid rock
		150	Solid rock
		152	Soft porous rock
		170	Loose basalt
Disintegrated water bearing rock			
	22	192	Bottom of hole

U. S. Forest Service, Ukiah
Well name
Index number -- 129-U
SW-318-14-W
File number
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Umatilla County
Unmapped Quadrangle
SW 31E 14 S4 of SW4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) ft. domestic* _____ abandoned _____
Drilled ☒ _____ above _____ irrigation _____ dry hole _____
Driven _____ below _____ municipal _____ producer ☒
Final depth 400' _____ *includes stock wells

U. S. Forest Service A. A. Durand & Son
Owners name Original drillers name
Address _____ Address Walla Walla, Washington
Date of drilling _____

This record compiled by W.S.W. from Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
U. S. Forest Service Officials _____

Date compiled March 1946 Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available			
Forest Service notes on file			
SECTION TOP OF HOLE		400	
Cased to 350'. Notes indicate that formations apparently are clay and sand with sand in bottom. Pumps 16 g.p.m.			

[illegible][illegible][illegible]

Wagbo
Well name
Index number -- 187-M
File number 38-258-7-2
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blacklock Island Quadrangle
4N 25E 7 SE 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug ☒ Elevation (land sur- Use status- Well status-
Drilled ☒ face) ft. domestic* ☒ abandoned ☒
Driven ☒ above ☒ industrial ☒ irrigation ☒ dry hole ☒
Final depth 83' below ☒ municipal ☒ producer ☒
*includes stock wells

V. Wagbo William Mlle
Owners name Original drillers name
Address Boardman, Oregon Address Portland, Oregon
Date of drilling Spring 1947

This record compiled by H.S.W. from Deepened re-cased
data secured from the following sources: cleaned by
Owner

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Soil and clay	13	13	Casing: 6" to 18"
Solid rock with hard and soft streaks	57	70	
Soft green rock	13	83	
			Bottom of hole
			Well began flowing at about 75' - increasing to 80. No rate of flow or pressure measurements made, but pressure insufficient to reverse domestic water system without mechanical boost.

Ward
Well name
Index number -- 86-U
File number 38-258-8-2
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Umatilla Quadrangle
3N 28E 8 S 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug ☒ Elevation (land sur- Use status- Well status-
Drilled ☒ face) ft. domestic* ☒ abandoned ☒
Driven ☒ above ☒ industrial ☒ irrigation ☒ dry hole ☒
Final depth 1000' below ☒ municipal ☒ producer ☒
*includes stock wells

C. E. Ward
Owners name Original drillers name
Address Address
Date of drilling 1905 to 1910

This record compiled by H.S.W. from Deepened re-cased
data secured from the following sources: cleaned by
Mr. Malcolm, Echo, Oregon, and several other local citizens

Date compiled July 1947 Date

Material	Thickness (feet)	Depth (feet)	Remarks
This well was drilled in about 1905 to 1910 under the direction of Mr. C. E. Ward. Funds for the drilling were donated by various ranchers in the district at large. The whole undertaking being a pioneering venture. The well was lost and has presumably been long since cultivated over. It is generally reported, however, that an abundant flow of artesian water was encountered before the well was lost. The writer has discussed the history of this well with many of the older residents of Umatilla County, including a Mr. Malcolm who worked on the well crew at the time the artesian water was encountered. According to Mr. Malcolm the artesian water was encountered at a depth of 800'. Continued drilling resulted in a sudden loss of all water. It is presumed that a crevice was encountered as the water could be heard roaring below. All told, the well was carried to a depth of 1000'. Many wagon loads of rock were dumped in the hole in a unsuccessful effort to plug the crevice. The well was eventually plugged near the surface and abandoned. Several layers of gravel and clay, including beds of "white alkali" were encountered (presumably interbedded with basalts) to the 800 foot level, below which was a hard "blue rock formation" to the bottom of the hole.			

Wagner
Well name
Index number -- 188-M
File number 42-258-18-K
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Morrow County
Blacklock Island Quadrangle
4N 25E 18 NW 1/4 of SE 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug ☒ Elevation (land sur- Use status- Well status-
Drilled ☒ face) ft. domestic* ☒ abandoned ☒
Driven ☒ above ☒ industrial ☒ irrigation ☒ dry hole ☒
Final depth 76' below ☒ municipal ☒ producer ☒
*includes stock wells

D. E. Wagner
Owners name Original drillers name
Address Boardman, Oregon Address 1925
Date of drilling

This record compiled by H.S.W. from Deepened re-cased
data secured from the following sources: cleaned by
Mr. Wagner, Boardman, Oregon

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		76	Well flows. Flow consistent and strong.

Warren
Well name
Index number -- 143-U
File number 18-318-8
(Code: Tp., R., Sec., & Sec.)

LOCATION:
Umatilla County
Pendleton Quadrangle
1N 31E 8 S 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug ☒ Elevation (land sur- Use status- Well status-
Drilled ☒ face) ft. domestic* ☒ abandoned ☒
Driven ☒ above ☒ industrial ☒ irrigation ☒ dry hole ☒
Final depth 12' below ☒ municipal ☒ producer ☒
*includes stock wells

Walker C. Warren
Owners name Original drillers name
Address Address
Date of drilling 1947

This record compiled by H.S.W. from Deepened re-cased
data secured from the following sources: cleaned by
U. S. Production and Marketing Administration

Date compiled March 1948 Date

Material	Thickness (feet)	Depth (feet)	Remarks
Dug well		12	

[illegible][illegible][illegible][illegible]

[illegible]

Date compiled <u>February 1948</u>		Date _____	
Material	Thickness (feet)	Depth (feet)	Remarks
Dirt	20	20	Hole diameter: 8"
Quick sand	10	30	
Coarse gravel	10	40	
Loose gravel	15	55	
Cement gravel	21	76	
Loose gravel	4	80	
Clay	80	160	
Gravel	11	171	Bottom of hole

Water first encountered at a depth of 76'. SWL at completion of drilling was 20'. SWL at beginning of 1947 season reported at 40'. A seasonal variation in the water level reported with level lower during winter months. Maxima reached in 1947 was 180 ft. 0.

[illegible]

Material	Thickness (feet)	Depth (feet)	Remarks
Soil	6	6	
Boulders	14	20	
Basalt honeycomb	10	30	
Basalt honeycomb with clay seams	4	34	
Black basalt	18	52	
Gray basalt	6	58	
Gray basalt with clay seams	11	69	
Gray basalt	38	107	
Gray basalt with blue clay seams	8	115	
Gray basalt	10	125	
Basalt honeycomb with clay	35	160	
Gray basalt	6	166	
Gray basalt changing to black	9	175	
Black basalt	10	185	
Blue clay	5	190	
Gray basalt, hard	30	220	
Black basalt - with water	10	230	
Black basalt changing to gray	45	275	
Gray basalt	5	280	
Gray basalt with black streaks	20	300	
Black basalt, medium hard	30	330	
Black basalt with some clay	10	340	
Black basalt, medium hard	100	440	
Black basalt with clay pockets	20	460	
Gray basalt, very hard	26	486	
Gray basalt - some water	22	508	
Gray basalt with strong water (washed cuttings away)	26	534	Bottom of hole
			S.W. about 100' Pumps 247 g.p.m. with 80½' drawdown
			Casing 10" to 40'.
The city watermaster reports that this well is pumped at the rate of 500 g.p.m. for about 15 hour periods during the driest part of the summer. Otherwise the city water supply is derived from springs situated about 4 miles up Pine Creek to the southeast of the town. No data is available as to the flow of these springs other than the observation that they fill a 12" pipe line to capacity during the winter, but taper off to very little during the summer.			
According to the County Sanitarian the city well quit producing when the Eastern Oregon Canning Co. Well #2 was pumped at a depth of about 720'.			

Material	Thickness (feet)	Depth (Feet)	Remarks
Loose gravel	24	24	
Cement gravel	13	37	
Open gravel with light flow	2	39	
Cement gravel	27	66	
Open gravel - water	5	71	
Cement gravel	54	125	
Open gravel and water	3	128	
Cement gravel	22	150	
Hole diameter: 10" SWL 35'. Maximum rate of yield during 1947 season reported at 300 c.p.m.			

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	10	10	
Cemented gravel	4	14	
Basalt, hard	1	15	
Black basalt	83	98	
Gray basalt	2	100	
Black basalt	34	134	Water flowing over casing at 134' very slow
Black basalt, hard	42	176	
			Well did not hold up on baller test on 80' level.
			Held fairly steady at the rate of 10 gallons every 2 minutes at 100' level.

[illegible][illegible]

(continued)

[illegible]

Wright _____ Index number -- 124-M
Well name _____ File number 28-258-34-A
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Map _____ County _____

Unmapped _____ Quadrangle _____

18 258 34 NW 1/4 of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____
Drilled x _____ above _____ industrial _____ abandoned
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 192' _____ municipal _____ producer x
*includes stock wells

Harold A. Wright _____ A. A. Durand & Son _____
Owners name _____ Original drillers name _____
Address Hoppner, Oregon _____ Address Walla Walla, Washington _____

Date of drilling Spring 1947

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Driller _____

Date compiled January 1948

Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
Top soil	5	5	6" hole
Broken black basalt	16	21	
Basalt - hard	23	44	
Gray basalt - hard	24	68	
Gray basalt	21	89	
Broken basalt, clay & soapstone	34	123	
Black basalt	27	150	
Broken black basalt	33	183	
Basalt and some gravel	9	192	
Static water level 60'. Bails dry but recovers rapidly.			

Vyrrick _____ Index number -- 65-J
Well name _____ File number 28-308-25
(Code: Tp., R., Sec., & Sec.)

LOCATION:

Unatilla _____ County _____

Unatilla _____ Quadrangle _____

28 308 25 Center of SW 1/4
Tp. Range Section Fractional section

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

STATISTICS:

Well type-Dug _____ Elevation (land sur- Use status- Well status-
face) _____ ft. domestic* _____
Drilled x _____ above _____ industrial _____ abandoned
Driven _____ below _____ irrigation _____ dry hole _____
Final depth 150' _____ municipal _____ producer x
*includes stock wells

Cunningham Sheep Company _____
Owners name _____ Original drillers name _____
Address Pendleton, Oregon _____ Address _____

Date of drilling _____

This record compiled by N.S.W. from _____ Deepened _____
data secured from the following sources: re-cased _____
cleaned _____ by _____
Company officials _____

Date compiled July 1947

Date _____

Material	Thickness (feet)	Depth (feet)	Remarks
No log available		150	Pumped for stock use only

Key to Well Index System

All logs have been given a number for index purposes in this report. This number appears on the upper right hand corner of each log. The number for any given well corresponds to that used to spot the location of that well on the base map showing well distribution. Letters following the number refer to the county in which the well is situated, as follows:

G . . . Gilliam
M . . . Morrow
U . . . Umatilla
Un . . Union

In the index below, well logs are listed alphabetically; following this index, the logs are listed in numerical order.

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Appendix

List of Flowing Wells

<u>Name</u>	<u>Index no.</u>	<u>Depth</u>	<u>Flow Characteristics</u>
Umatilla County			
Adam City	35-U	163	Brought-in in 1938; still flows; no measured rate.
Athena City no.1	27-U	680	Original flow of 15 g.p.m. ceased when pumping operations were commenced on city's no. 2 well.
Athena City no.2	28-U	1206	Flow of estimated 40 to 50 g.p.m. ceased after pumping began; SWL now 15 feet.
Cockburn	3-U	636	(Still drilling.) Estimated at 165 g.p.m.
Hermiston City no.2	87-U	500	Original flow estimated at 125 g.p.m. Less now but still flows when not pumped.
Kilkinney	92-U	140 125 170	Flows periodically at low g.p.m. rate.
Morton	41-U	146	Flowed originally; must be pumped now.
Nolin	74-U	233	Estimated at 100 g.p.m.
Pilot Rock City	49-U	309	Measured at 1420 g.p.m.
Rogers Canning Co. Athena no.3	31-U	1148	Estimated at 40 g.p.m.
Stevens	8-U	1007	Measured 61½ g.p.m. in 1939. Well still flows; stronger in spring than summer.

<u>Name</u>	<u>Index no.</u>	<u>Depth</u>	<u>Flow Characteristics</u>
Umatilla City no.2	84-U	580	Original flow in 1940 was an estimated 125 g.p.m. Ceased flowing in 1944. SWL now -32 feet.
Union Pacific, Meacham . . .	48-U	279	Reported as 25 g.p.m.
Ward	86-U	1000	Large flow reportedly encountered before well was lost and abandoned.
Wattenburgher	156-U	72	Estimated at 15 g.p.m.
Weber	67-U	not known	Flowed originally; believed caved now.

Morrow County

Baker no.1	161-M	98	Flow pressure unmeasured, but sufficient to service domestic water system without mechanical boost; flow persisted for 20 yrs.
Baker no.2	162-M	86	Estimated at 20 g.p.m., but mechanical pressure boost needed to service domestic system.
Ball	163-M	70	Unmeasured but at low g.p.m. rate and persistent for 28 yrs.
Boardman City	96-M	178	Reported at 115 g.p.m.
Briggs	164-M	96	Flow and pressure unmeasured but sufficient to service domestic water system without mechanical boost.
Cassidy	165-M	85	Estimated at about 1 g.p.m.
Crowder	166-M	85	Flow reportedly good and consistent, but mechanical pressure boost needed to service domestic water system.
Cutsforth no.2	109-M	46	Unmeasured but low g.p.m. rate.
Dillon	168-M	100	Flow and pressure unmeasured but sufficient to service domestic water system without mechanical boost.
Doherty no.2	101-M	125	Unmeasured, but reportedly strong and persistent for about 30 years.
Eades (C. D.)	169-M	72	Flow and pressure unmeasured but sufficient to service domestic water system without mechanical boost.
Ely	171-M	90	Very light now, but flow and pressure were originally strong enough to service domestic water system without mechanical boost (1924).
Fortner	172-M	85	Unmeasured, but supplies domestic water system by natural pressure.
Heppner City no.1	125-M	211	Very strong for 3 years. SWL now deep.
Hodson	108-M	not known	Unmeasured, but low g.p.m. rate.
McEntire	173-M	127	Flow reportedly encountered but cased out.
McFarlane no.1	174-M	94	Measured at 54 g.p.m.

List of Flowing Wells (cont.)

<u>Name</u>	<u>Index no.</u>	<u>Depth</u>	<u>Flow Characteristics</u>
McFarlane no.2	175-M	115	Estimated at 5 to 6 g.p.m.
Messenger	176-M	110	Unmeasured but low g.p.m. yield.
Moore	177-M	116	Very light but persistent year round.
Nickerson	178-M	86	Unmeasured, but of domestic water system proportions.
Pool	181-M	96	Unmeasured, but supplies domestic water system by natural pressure.
Potts	182-M	93	Unmeasured, but supplies domestic water system by natural pressure.
Rasmussen (R. E.)	184-M	80	Reportedly flowed originally, but flow cased out later due to contaminated surface water.
Rice	107-M	350	Original flow reported as 600 g.p.m. (1915). Well still flows an estimated 40-60 g.p.m.
Rogers	185-M	87	Light periodic flow.
Rugg no.1	69-M	161	Reported at 465 g.p.m.
Waagbo	187-M	83	Unmeasured. Mechanical boost needed to service domestic water system.
Wagner	188-M	76	Unmeasured. Reportedly consistent; ample for domestic water system.
Wasmer	189-M	74	Unmeasured. Reportedly consistent; ample for domestic water system.
Wells Springs	102-M	425	Flow over casing measured at 25 g.p.m., but well was drilled in center of a strong natural spring which still flows.

Union County

Elgin City no.1	191-Un	290	Original flow reported as 125 g.p.m.; adversely affected by city's no.2 well; flow resumes when no.2 is not pumped.
Elgin City no.2	192-Un	350	Original flow reported as 85 g.p.m.; flows when not pumped.
Elgin City no.3	193-Un	655	Reported as 350 g.p.m.
LaGrande City no.1	151-Un	1093	Original flow reported as 500 g.p.m.; 300 g.p.m. in 1947.
LaGrande City no.2	152-Un	1370	Original flow reported as 1500 g.p.m.; 600 g.p.m. in 1947.
Union Pacific, LaGrande no.1	153-Un	1557	Measured at 75 g.p.m. in 1947.
Union Pacific, LaGrande no.2	154-Un	1536	Measured at 289 g.p.m. in 1948.

Tabulation of Wells Having a Depth of 300 Feet or More

<u>Name</u>	<u>Index no.</u>	<u>Depth (ft.)</u>	<u>Name</u>	<u>Index no.</u>	<u>Depth (ft.)</u>
Dallas	68-U	300	Milton City no.3	18-U	550
Krebs no.1	103-M	304	Rietman (Victor)	105-M	550
Pilot Rock City	49-U	309	Lundell	121-M	574
Mann	39-U	315	Umatilla City no.2	84-U	580
Heppner Lumber Company no.1	127-M	319	Krebs no.2	145-G	609
Taylor	104-M	321	French no.2	64-U	624
Ordinance Depot no.1	194-U	327	McClintock	122-M	630
Siebold	-U	344	Cockburn	3-U	636*
Miller	9-U	345	Milton City no.1	21-U	651
Elgin City no.2	192-Un	350	Elgin City no.3	193-Un	655
Rice	107-M	350	Smith Canning Co.	56-U	665
Heppner City no.2	126-M	352	Weatherford	150-G	666
Woods	148-G	354	Smith (Frank)	149-G	667
Ordinance Depot no.2	195-U	360	Athena City no.1	27-U	680
Tucker	93-M	365	Kincaid	115-M	685
Freewater City no.1	17-U	375	Cotter	120-M	690
McBride	5-U	376	Rogers Canning Co., Milton no.1	19-U	702½
Gillanders	47-U	383	Eastern Oregon Food Co-op no.1	23-U	737
Till	-U	385	Umatilla City no.3	85-U	785
State Highway, Meacham	46-U	388	Pendleton Airport	58-U	825
Olden	113-M	397	Mumm	59-U	844
Schomp	-G	398	Smyth	146-G	895
U.S. Forest Service, Ukiah	129-U	400	Milton City no.2	20-U	902
Vais no.1	-U	400	Pendleton City	57-U	934
French no. 1	62-U	416	Halvorsen no.2	116-M	946
Lexington City	111-M	420	Barnett	42-U	968
Wells Springs	102-M	423	Woodward	33-U	979
Rietman (David)	106-M	427	Union Pacific, Kamela	155-Un	996
Corrigal	94-M	447	Ward	86-U	1000
Ordinance Depot no.3	196-M	453	Stevens	8-U	1007
Union Pacific, Munley no.2	99-M	457	Halvorsen no.1	117-M	1040
Hermiston City no.2	87-U	500	Rogers Canning Co., Athena no.1	29-U	1069
Palmer	123-M	500	La Grande City no.1	151-Un	1093
Freewater City no.2	16-U	502	Rogers Canning Co., Athena no.3	31-U	1148
Birchman	79-U	505	Rogers Canning Co., Athena no.2	30-U	1156
Echo City	77-U	520	Athena City no.2	28-U	1206
Utah Canning Co.	14-U	528	Eastern Oregon Food Co-op no.2	24-U	1218
Roberts	112-M	529	La Grande City no.2	152-Un	1370
Nolan	114-M	533	Union Pacific, La Grande no.2	154-Un	1536
Weston City	25-U	534	Union Pacific, La Grande no.1	153-Un	1557
Ordinance Housing Project	90-U	543	Milton Nursery	15-U	2000

* Still drilling, March 1948.

Municipal Wells

Name	Umatilla County	Index no.	Depth (ft.)
Adam City		35-U	163
Athena City no.1		27-U	680
Athena City no.2		28-U	1206
Echo City		77-U	520
Freewater City no.1		17-U	375
Freewater City no.2		16-U	502
Hermiston City no.1		91-U	160
Hermiston City no.2		87-U	500
Milton City no.1		21-U	651
Milton City no.2		20-U	902
Milton City no.3		18-U	550
Ordinance Housing Project		90-U	543
Pendleton City		57-U	934
Pilot Rock City		49-U	309
Stanfield City		78-U	187
Umatilla City no.1		83-U	133
Umatilla City no.2		84-U	580
Umatilla City no.3		85-U	785
Weston City no.1		25-U	534
<u>Morrow County</u>			
Boardman City		96-M	178
Heppner City no.1		125-M	211
Heppner City no.2		126-M	325
Lexington City		111-M	420
<u>Union County</u>			
Elgin City no.1		191-Un	290
Elgin City no.2		192-Un	350
Elgin City no.3		193-Un	655
La Grande City no.1		151-Un	1093
La Grande City no.2		152-Un	1370

Abandoned Wells

Halvorsen no.2	116-M	946
Pendleton Airport	58-U	825
Rogers Canning Co., Athena no.2	30-U	1156
Union Pacific, Munley no.1	98-M	165
Ward	86-U	1000
Weber	67-U	

Industrial Wells

<u>Name</u>	<u>Umatilla County</u>	<u>Index no.</u>	<u>Depth (ft.)</u>
Eastern Oregon Food Co-op no.1		23-U	737
Eastern Oregon Food Co-op no.2		24-U	1218
Jones & Scott		95-U	
Kik		81-U	160
Milton Nursery		15-U	2000
Ordinance Depot no.1		194-U	327
Ordinance Depot no.2		195-U	360
Pendleton Airport		58-U	825
Rogers Canning Co., Athena no.1		29-U	1069
Rogers Canning Co., Athena no.2		30-U	1156
Rogers Canning Co., Athena no.3		31-U	1148
Rogers Canning Co., Milton no.1		19-U	703
Smith Canning Co.,		56-U	665
Union Pacific, Barnhart no.1		63-U	161
Union Pacific, Cayuse		44-U	85
Union Pacific, Field Station		89-U	275
Union Pacific, Gibbon		43-U	80
Union Pacific, Meacham		48-U	279
Union Pacific, Rieth no.1 . . .		55-U	188
Union Pacific, Rieth no.2 . . .		54-U	287
Union Pacific, Umatilla		82-U	192
Utah Canning Company		14-U	528
 <u>Morrow County</u>			
Heppner Lumber Co. no.1		127-M	319
Heppner Lumber Co. no.2		128-M	229
Union Pacific, Messner ,		97-M	162
Union Pacific, Munley no.1 . . .		98-M	165
Union Pacific, Munley no.2 . . .		99-M	457
 <u>Union County</u>			
Union Pacific, Kamela		155-Un	996
Union Pacific, LaGrande no.1		153-Un	1557
Union Pacific, LaGrande no.2		154-Un	1536

Dry Wells

Halvorsen no.1	117-M	1040
Hulden	147-G	200
Palmer	123-M	500
Smith (Frank)	149-G	667
Smyth	146-G	895
Union Pacific, Kamela	155-Un	996

Well Logs That Give Temperature Data

<u>Name</u>	<u>Index no.</u>	<u>Temp. (F.)</u>	<u>Name</u>	<u>Index no.</u>	<u>Temp. (F.)</u>
Baker no.2	162-M	42°	Eastern Oregon Food Co-op no.1	23-U	60°
McEntire	173-M	45°	Birchman	79-U	63°
Smith Canning Co.	56-U	51½°	Pilot Rock City	49-U	65°
Elgin City no.1	191-Un	52°	Echo City	77-U	67°
Elgin City no.3	193-Un	53°	Heppner City no.2	126-M	68°
Ordinance Housing Project . .	90-U	53°*	Stevens	8-U	69°
Lexington City	111-M	54°	Eastern Oregon Food Co-op no.2	24-U	70°
Nolin	74-U	55°	Umatilla City no.3	85-U	71°
Miller	9-U	57°	Hermiston City no.2	87-U	76°
Cockburn	3-U	58°	Union Pacific, LaGrande no.2	154-Un	78°
Rogers Canning Co., Milton no.1	19-U	58°	Wells Springs	102-M	80°
Pendleton City	57-U	59°	LaGrande City no.2	152-Un	81°

 *Standing. After considerable pumping, temperature rises to 58°.

Suggestions Regarding Preparation of Well Logs

Well logs are rendered more valuable if certain important data are recorded accurately, concisely, and completely. In such form they will prove more readily usable to both the driller, the engineer, or the geologist. The job of recording a log in such fashion is not difficult if proper log forms are used. The log forms used in this report are not necessarily recommended except as a general pattern. Instead of submitting a finished model of a well log blank, some of the items that should be included on such a form are discussed below as a guide to anyone desiring to prepare a suitable blank.

1. A name should be given to all wells for future reference purposes. The owner's name is usually most appropriate, but the well should be further designated by an appropriate well number, and also by the ranch name if the owner has one or more ranches.

Example: Jones, Wilmot G., no. 3, Dry Creek.

2. Location should include description by county, township, range, section, and quarter section.

3. The driller should not only identify himself with his name and address, but where the job involves work on an old well, the original driller's name and the original date of drilling should be given also.

4. The nature of the new work on an old well should be set forth in the log; that is, the reconditioning, deepening, pump testing, and servicing.

5. The recording of drilling results should state why, if the hole was abandoned, and whether it was dry or a producer.

6. Depth of the hole; hole diameter at top and at bottom; final standing water level or rate of flow. Date on which drilling was commenced and finished should be recorded.

7. Records should list the number of feet of each size of casing used, the depths between which each size was set, together with comments on perforations, lining, and any other information considered pertinent. Casing diameters should be specified as OD (outside diameter) or ID (inside diameter) when listed.

8. In describing formations the driller should endeavor to be consistent in his descriptions of color. This is particularly important when two drillers are working in shifts, lest they each describe the same formation by different colors. Drillers should record regularly the color, drilling characteristics, and evidence of porosity or fracture for each formation penetrated. Although the original driller's log should show each change in the formation encountered, a condensed log can often be substituted later in cases where variations in the formation have been repeated.

Example: Black, massive basalt formation from 4 to 6 feet thick alternating with gray soft basalt from 5 to 10 feet in thickness. Total thickness 97 feet.

9. All changes in hole diameter should be indicated together with the depth at which the change was made.

10. All changes in standing water level and the depth at which the change occurred should be noted.

11. Tests should be described and their results should be summarized as comprehensively as possible. Reference is made to the discussion of this subject in the text. For bail tests, drillers should take pains to state bailer capacity and the number of bail loads when practicable.

PUBLICATIONS
Oregon Department of Geology and Mineral Industries
702 Woodlark Building, Portland 5, Oregon

<u>Bulletins</u>	<u>Price postpaid</u>
1. Mining laws of Oregon, 1948, 2d rev., contains Federal placer mining regulations	\$ 0.25
2. Progress report on Coos Bay coal field, 1938: F. W. Libbey	0.10
3. Geology of part of the Wallowa Mountains, 1938: C. P. Ross	0.50
4. Quicksilver in Oregon, 1938: C. N. Schuette	0.50
5. Geological report on part of the Clarno Basin, 1938: Donald K. MacKay	(out of print)
6. Preliminary report on some of the refractory clays of Western Oregon, 1938: Wilson & Treasher	(out of print)
7. The gem minerals of Oregon, 1938: H. C. Dake	(out of print)
8. Feasibility of steel plant in lower Columbia area, rev. ed., 1940: R. M. Miller	0.40
9. Chromite deposits in Oregon, 1938: J. E. Allen	(out of print)
10. Placer mining on Rogue River in relation to fish and fishing, 1938: H. B. Ward	(out of print)
11. Geology and mineral resources of Lane County, Oregon, 1938: W. D. Smith	0.50
12. Geology and physiography of northern Wallowa Mountains, 1941: W. D. Smith, J. E. Allen, et al	(out of print)
13. First biennial report of the Department, 1937-38	(out of print)
14. Oregon metal mines handbook: by the staff A. Baker, Union, and Wallowa counties, 1939	(out of print)
B. Grant, Morrow, and Umatilla counties, 1941	(out of print)
C. Vol. I, Coos, Curry, and Douglas counties, 1941	(out of print)
Vol. II, Section 1, Josephine County, 1942	(out of print)
Section 2, Jackson County, 1943	0.75
15. Geology of Salem Hills and North Santiam River basin, Oregon, 1939: T. P. Thayer (map only)	(out of print)
16. Field identification of minerals for Oregon prospectors and collectors, 2d ed., 1941: compiled by Ray C. Treasher	0.50
17. Manganese in Oregon, 1942: by the staff	0.45
18. First aid to fossils, or what to do before the paleontologist comes, 1939: J. E. Allen	0.20
19. Dredging of farmland in Oregon, 1939: F. W. Libbey	(out of print)
20. Analyses and other properties of Oregon coals, 1940: H. F. Yancey & M. R. Geer	(out of print)
21. Second biennial report of the Department, 1939-40	Free
23. Investigation of reported occurrence of tin at Juniper Ridge, Oregon, 1942: H. C. Harrison & J. E. Allen	0.40
24. Origin of the black sands of the coast of southwestern Oregon, 1943: W. H. Twenhofel	0.30
25. Third biennial report of the Department, 1941-42	(out of print)
26. Soil: Its origin, destruction, and preservation, 1944: W. H. Twenhofel	0.45
27. Geology & coal resources of Coos Bay quad., 1944: J. E. Allen & E. M. Baldwin . .	1.00
28. Fourth biennial report of the Department, 1943-44	Free
29. Ferruginous bauxite deposits in northwestern Oregon, 1945: F. W. Libbey, W. D. Lowry, & R. S. Mason	1.00
30. Mineralogical and physical composition of the sands of the Oregon coast from Coos Bay to the mouth of the Columbia River, 1945: W. H. Twenhofel . .	0.35
31. Geology of the St. Helens quadrangle, 1946: Wilkinson, Lowry, & Baldwin	0.45
32. Fifth biennial report of the Department, 1945-46	Free
33. Bibliography (supplement) of the geology and mineral resources of Oregon, 1947: J. E. Allen	1.00
34. Mines and prospects of the Mt. Reuben mining district, Josephine County, Oregon, 1947: E. A. Youngberg	0.50
35. Geology of the Dallas and Valsetz quadrangles, Oregon, 1947: E. M. Baldwin . . .	0.75
36. Five papers on foraminifera from the Tertiary of Western Oregon, 1947: J. A. Cushman, R. E. Stewart, & K. C. Stewart	1.00
38. Sixth biennial report of the Department, 1947-48	Free
39. Geology and mineralization of the Morning Mine and adjacent region, Grant County, Oregon, 1948: Rhessa M. Allen, Jr.	0.50

PUBLICATIONS

(Cont.)

G.M.I. SHORT PAPERS

	<u>Price postpaid</u>
1. Preliminary report upon Oregon saline lakes, 1939: O. F. Stafford	(out of print)
2. Industrial aluminum - a brief survey, 1940: Leslie L. Motz	\$ 0.10
3. Advance report on some quicksilver prospects in Butte Falls quadrangle, Oregon, 1940: W. D. Wilkinson	(out of print)
4. Flotation of Oregon limestone, 1940: J. B. Clemmer & B. H. Clemmons	0.10
5. Survey of nonmetallic mineral production of Oregon for 1940-41: C. P. Holdredge	0.10
6. Pumice and pumicite, 1941: James A. Adams	(out of print)
7. Geologic history of the Portland area, 1942: Ray C. Treasher	(out of print)
8. Strategic and critical minerals, a guide for Oregon prospectors, 1942: Lloyd W. Staples	(out of print)
9. Some manganese deposits in the southern Oregon coastal region, 1942: Ranbrell E. Brown	0.10
10. Investigation of Tyrrell manganese and other nearby deposits, 1943: W.D.Lowry	(out of print)
11. Mineral deposits in region of Imnaha and Snake rivers, Oregon, 1943: F.W.Libbey	(out of print)
12. Preliminary report on high-alumina iron ores in Washington County, Oregon, 1944: F. W. Libbey, W. D. Lowry, & R. S. Mason	(out of print)
13. Antimony in Oregon, 1944: Norman S. Wagner	0.15
14. Notes on building-block materials of eastern Oregon, 1946: Norman S. Wagner .	0.10
15. Reconnaissance geology of limestone deposits in the Willamette Valley, Oregon, 1946: J. E. Allen	0.15
16. Perlite deposits near the Deschutes River, southern Wasco County, Oregon, 1946: J. E. Allen	0.15
17. Sodium salts of Lake County, Oregon, 1947: Ira S. Allison & Ralph S. Mason .	0.15

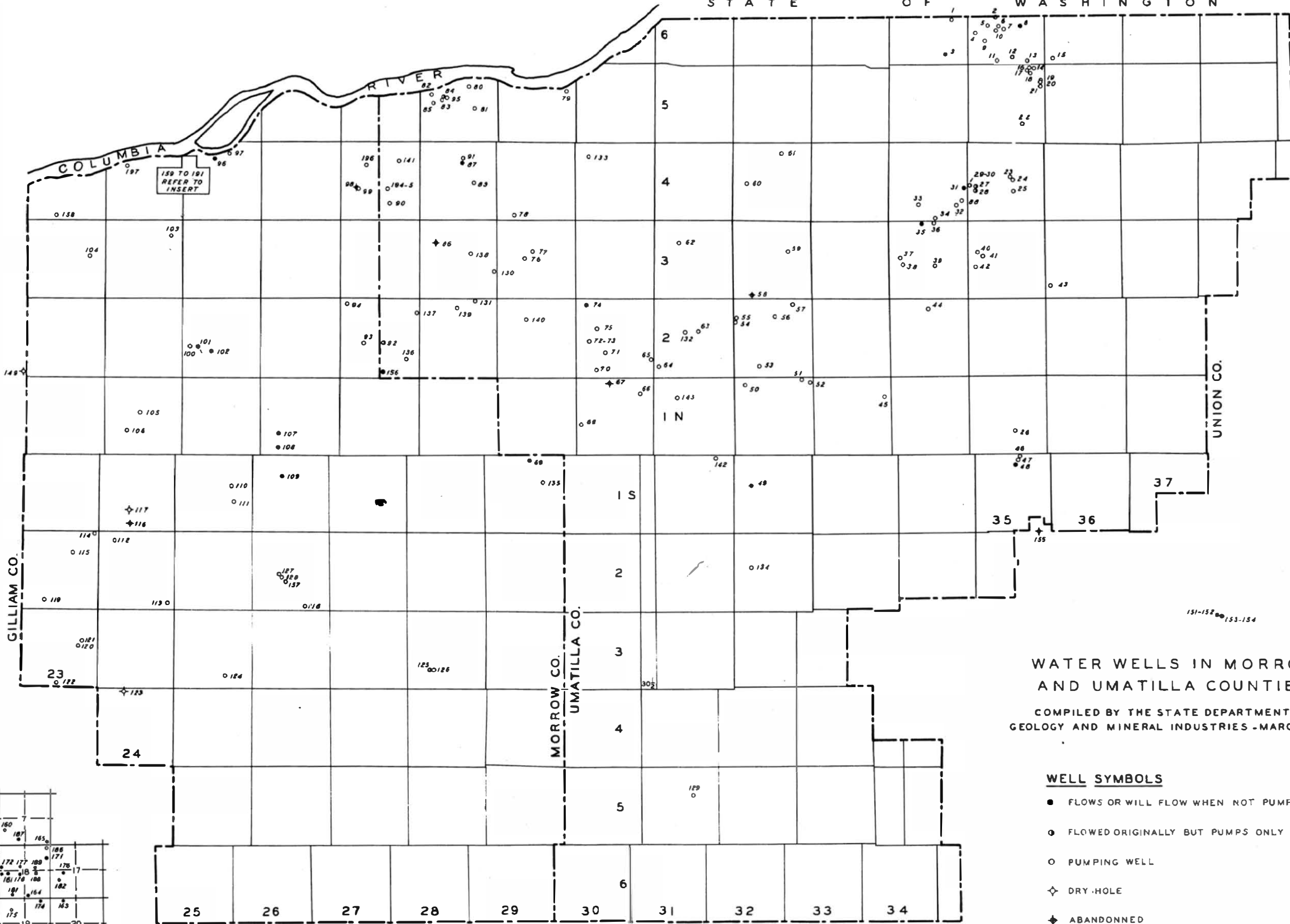
GEOLOGIC MAPS

Geologic map of the Wallowa Lake quadrangle, 1938: W. D. Smith & others (also in Bull. 12)	0.45
Geologic map of the Medford quadrangle, 1939: F. G. Wells & others	0.40
Geologic map and geology of the Round Mountain quadrangle, 1940: W. D. Wilkinson & others	0.25
Geologic map of the Butte Falls quadrangle, 1941: W. D. Wilkinson & others .	0.45
Geologic map and geology of the Grants Pass quadrangle, 1940: F. G. Wells & others	0.30
Preliminary geologic map of the Sumpter quadrangle, 1941: J. T. Pardee & others	0.40
Geologic map of the Portland area, 1942: Ray C. Treasher	0.25
Geologic map of the Coos Bay quadrangle, 1944: J. E. Allen & E. M. Baldwin (sold with Bull. 27)	----
Geologic map of the St. Helens quadrangle, 1945: W. D. Wilkinson, W. D. Lowry & E. M. Baldwin (also in Bull 31)	0.35
Geologic maps of the Dallas and Valsetz quadrangles, Oregon, 1947: E. M. Baldwin (also in Bull. 35)	0.25 ea.

MISCELLANEOUS PUBLICATIONS

THE ORE.-BIN: issued monthly by the staff as medium for news about the Department, mines, and minerals. Subscription price per year	0.25
Oregon mineral localities map (22 x 34 inches) 1946	0.10
Oregon quicksilver localities map (22 x 34 inches) 1946	0.25
Landforms of Oregon: a physiographic sketch (17 x 22 inches) 1941	0.10
Index to topographic mapping in Oregon, 1948	Free
Index to published geologic mapping in Oregon, 1948	Free
List of active mining operations in Oregon	Free
List of sand and gravel producers in Oregon	Free
List of brick and tile manufacturers in Oregon	Free

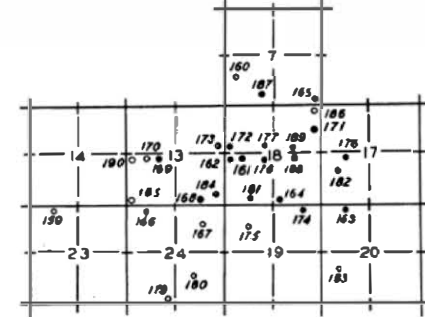
STATE OF WASHINGTON



WATER WELLS IN MORROW AND UMATILLA COUNTIES
COMPILED BY THE STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES - MARCH 1948

WELL SYMBOLS

- FLOWS OR WILL FLOW WHEN NOT PUMPED
- FLOWED ORIGINALLY BUT PUMPS ONLY NOW
- PUMPING WELL
- ◇ DRY HOLE
- ✦ ABANDONED
- ✦ FLOWED ORIGINALLY BUT NOW CAVED AND ABANDONED



ENLARGEMENT OF A PART OF
T. 4 S., R. 24 & 25 E.

