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DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

GEOLOGICAL SURVEY

For Release JANUARY 17, 1950.

GROUND WATER IN MEDICINE LAKE-GRENORA AREA, DESCRIBED

Secretary of the Interior Oscar L. Chapman today released a progress report on the ground-water hydrology of the Medicine Lake-Grenora area in northeastern Montana and northwestern North Dakota.

Ground water is obtained in the area from alluvium and terrace deposits along present streams, from water-bearing zones in glacial deposits, and from the sandstones in the underlying Fort Union formation. The aquifers in the glacial drift and the Fort Union are the source of ground-water supplies in much of the area; however, potentially the most productive ground-water reservoirs are the three glacial out-wash channels known as the Dagmar, Stady, and Grenora channels. Water in the alluvium and glacial-drift aquifers is hard but has a relatively low mineral content. Water in the Fort Union formation, especially from depths greater than 100 feet, is generally soft but is moderately to highly mineralized.

The characteristic fluctuations of the water level in wells tapping the several aquifers are described and their significance indicated, and water-level measurements are tabulated. Also included in the report are chemical analyses of 65 representative ground and surface waters and tabulated records of approximately 1,100 wells.

The investigation on which the report is based is one of several being made by the Geological Survey under the direction of Dr. William E. Wrather, as part of the program of the Department of the Interior for the development of the Missouri River Basin. The report was prepared by Robert C. Vorhis from data collected in 1946, 1947, and 1948 in an area of about 1,440 square miles in Roosevelt and Sheridan Counties, Mont., and Williams and Divide Counties, N. Dak. Mimeographed copies of the report may be consulted at the U. S. Geological Survey, 2209 General Services Building, Washington, D. C., 510 Rudge-Guenzel Building, Lincoln, Nebr.; Eltinge Building, Bismarck, N. Dak., and 318 Post Office Building, Billings, Mont.; and at the U. S. Bureau of Reclamation, Minot, N. Dak., Bismarck, N. Dak., and Billings, Mont.

x x x

P.N. 68155

UNITED STATES DEPARTMENT OF THE INTERIOR

Water Resources Division

510 Rudge and Guenzel Bldg.
Lincoln 8, Nebraska

October 4, 1949

To: See Distribution
From: Geo. H. Taylor, Lincoln, Nebraska (GW)
Subject: Progress report on the ground-water hydrology of the Medicine Lake-Grenora area, Missouri-Souris irrigation project, Montana and North Dakota, by Robert C. Vorhis--September 1949

Enclosed for your information and file, as shown under distribution below, are copies of subject report.

Your attention is directed to the fact that this report is subject to revision and is strictly for administrative use, only. Permission is being requested from the Director of the Geological Survey to release this report for public inspection.

Geo. H. Taylor
Regional Engineer (GW)

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Water Resources Division
Ground Water Branch

510 Rudge & Guenzel Building
Lincoln 8, Nebraska

January 4, 1950

Memo to: (See distribution)
From : Geo. H. Taylor, Lincoln, Nebraska (GW)
Subject: Replacement sheets for report on ground-water hydrology of Medicine Lake-Grenora area, Mont. and N. Dak.

Enclosed are replacement sheets for CONTENTS and pages 1, 32, 33, 34, 35, 36, and 37 of the mimeographed report entitled:

PROGRESS REPORT ON THE
GROUND-WATER HYDROLOGY OF THE
MEDICINE LAKE-GRENORA AREA
MISSOURI-SOURIS IRRIGATION PROJECT
MONTANA AND NORTH DAKOTA
By
Robert C. Vorhis

Please insert these new pages and return to the address above all those pages which are replaced.

With the insertion of these corrected pages, this report has the approval of the Director of the Geological Survey for release for public inspection.

Geo. H. Taylor

Geo. H. Taylor, Regional Engineer (GW)

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50-23

U. S. DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

WATER RESOURCES BRANCH

PROGRESS REPORT ON THE GROUND-WATER HYDROLOGY OF THE MEDICINE LAKE-GRENORA AREA, MISSOURI-SOURIS IRRIGATION PROJECT MONTANA AND NORTH DAKOTA

By

Robert C. Vorhis

Compiled as part of program of Interior Department for development of Missouri River Basin

50-23

Preliminary draft
of proposed report
For official review only
Subject to revision

September 1949

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PROGRESS REPORT ON THE GROUND-WATER HYDROLOGY OF THE MEDICINE LAKE-GRENORA AREA, MISSOURI-SOURIS IRRIGATION PROJECT, MONTANA AND NORTH DAKOTA

By Robert C. Vorhis

ABSTRACT

The Medicine Lake-Grenora area covers about 1,600 square miles in northeastern Montana and northwestern North Dakota and is a part of the proposed Missouri-Souris Irrigation Project, an important unit in plans for development of the water resources of the Missouri River Basin. Water will be diverted from the Missouri River below the mouth of the Milk River and will be conducted through canals, siphons, and pumping stations to the various irrigation units.

In the Medicine Lake-Grenora area water is obtained from aquifers in the glacial deposits and in the underlying Fort Union formation. Wells in the glacial drift produce from shallow and medium-depth permeable zones and from a permeable zone occurring at or near the base of the drift. Other wells produce from outwash channel deposits and from kames, kame terraces and eskers. The principal outwash channels are the largest ground-water reservoirs in the area; stream terraces and valley alluvium are also important ground-water reservoirs. Much ground water is produced from the Fort Union formation.

In general, water in the drift and in the alluvium is hard but has a relatively low content of dissolved solids. Water in the Fort Union formation, especially from depths greater than 100 feet, is generally soft but is moderately to highly mineralized.

The annual range of fluctuation of the water table and of the piezometric surface of the several aquifers in which water is confined under artesian pressure differ considerably and the maximum and minimum levels of each are reached at different times of the year.

Studies planned for the near future include collection of water samples from approximately 500 wells and interpretation of the partial or complete chemical analyses made of them; permeability tests along the axis of the proposed East Bay dam site; compilation of logs of test-holes and wells; procurement of additional detail for the contour map of the integrated water table and piezometric-surface; and preliminary delineation of areas in which detrimental seepage is likely to occur as a result of irrigation practices.

INTRODUCTION

Location and Extent of Area

Missouri-Souris is the name used by the U. S. Bureau of Reclamation for a group of irrigation projects in northeastern Montana and North Dakota. The part of the Missouri-Souris project covered by this progress report is located in Roosevelt and Sheridan Counties, Mont., and Williams and Divide Counties, N. Dak. In general, the western boundary lies a few miles to the west of Big Muddy Valley and extends from the center of T. 28 N. northeastward to Plentywood, Mont. The Montana part of the area surrounds the "Y"-shaped trough formed by the junction of Big Muddy Valley and the large southwestward-trending valley of Medicine Lake and tributary streams. The North Dakota part of the area is a band roughly eight miles in width extending from the Montana-North Dakota State line west of Grenora, N. Dak., east-northeastward past the site of the proposed Crosby reservoir. The area of this report as well as the area of the adjacent

Missouri-Souris units on the east as described in a report by Waring and LaRocque (1949)[1] is shown in plate 1.

Scope of Investigation

The investigation on which this report is based is one of many now being made in connection with conservation, control, and use of the water resources of the Missouri River Basin. The immediate objective has been to obtain a comprehensive understanding of the occurrence, movement, recharge, discharge, quantity, and quality of the ground water so that the effects of ground water on the various irrigation phases of the Missouri-Souris project may be anticipated and evaluated. It is necessary, for example, to record present ground-water levels if changes in levels due to irrigation are to be ascertained. In addition, the present quality of water must be determined before the quality of return flows can be predicted. The gently undulating topography of this area may greatly aggravate the drainage problems so often encountered in irrigation projects. For this reason the determination of the present direction and rate of ground-water movement will be of considerable value in delineating potential seepage areas and in determining the methods of drainage which may be utilized to forestall their occurrence. This information is especially valuable in an area such as this where the glacial geology is so intricate that points of ground-water return flows may not be as might normally be expected.

1 See list of references at end of report.

The investigation was started in 1946 and to date has furnished many basic data relating to the occurrence of ground water in a large part of the area. The general investigation was not completed in the more remote areas because of the lack of facilities and time. The investigation to date has consisted of the following:

1. Establishment and maintenance of 8 observation wells in Sheridan County, Mont., and 10 observation wells in the part of Roosevelt County, Mont., covered by this report.

2. Drilling of 10 test holes in the Medicine Lake area during the summer of 1947.

3. Inventory of approximately 1,100 wells during the period of 1946-48.

4. Electrical resistivity tests at 53 locations in the Medicine Lake area during the 1948 field season in cooperation with the Geologic Division of the Federal Survey. These were made in an attempt to ascertain the depth of valley fill in the Dagmar channel and to determine the direction and gradient of the buried valley.

5. Assembly of chemical analyses pertaining to the ground waters of the area and to the waters of several lakes.

Projected for completion as soon as feasible are the following: extension of the general investigation to the more remote parts of the area; collection of water samples for complete or partial chemical analysis from approximately 500 wells in the area; interpretations of the chemical analyses; permeability tests along the axis of the proposed East Bay dam site; compilation of test-hole logs and well logs; addition of further detail to the water-table and piezometric surface contour maps; preparation of maps showing the chemical

characteristics of the ground water; and preliminary delineation of areas in and around proposed irrigation areas in which detrimental seepage is likely to occur.

Acknowledgments

The investigations in the Upper Missouri-Souris area were begun under the general supervision of O. E. Meinzer, Geologist in charge of the Ground Water Branch, and after his retirement on December 1, 1946, were continued under the general supervision of his successor, A. N. Sayre. The investigations are under the direct supervision of George H. Taylor, regional engineer in charge of Missouri River Basin ground-water investigations, and are under the immediate supervision of George A. LaRocque, Jr., district engineer in charge of Missouri River Basin ground-water studies in North and South Dakota.

The Montana State Board of Health made available 88 complete chemical analyses and 11 partial analyses. Of these, 35 complete and three partial analyses are included in this report.

The U. S. Bureau of Reclamation made available logs of test holes drilled at the sites of the East Bay dam (to impound water in Medicine Lake reservoir), the Grenora pumping plant, and the Crosby power drop. Many of the measurements of the water-level in observation wells were made by William Walker, W. E. Monroe, and R. D. McAnally of the Bureau of Reclamation.

Several of the personnel of the U. S. Geological Survey have

been engaged at one time or another in this or allied investigations. Since 1946, geologic mapping in the area has been done by a number of geologists of the Areal Geologic Branch. These include Garland B. Gott, Irving J. Witkind, Roger Colton, Robert M. Lindvall, and Wallace R. Hansen. Although their work has not yet been published, their manuscript maps have been used in the present study and oral and written communications received from Irving J. Witkind have been helpful. George H. Edwards, under the direction of H. Cecil Spicer, conducted the electrical resistivity tests. Earlier work by the Ground Water Branch include establishment and maintenance of an observation well program by Frank A. Swenson; supervision of the drilling of test holes during the summer of 1947 by Howard Haworth; partial inventory of wells in the southwest corner of the area and measurement of observation wells by D. E. Tejcka. Eldon A. Busch inventoried the majority of the wells shown in the table of well records. The quality of water studies, to be discussed in a later revision of this report, are under the general supervision of S. K. Love, Chief, Quality of Water Branch, and under the immediate supervision of Paul C. Benedict, district engineer, Lincoln, Nebraska. The chemical analyses of 22 water samples from the area were made by R. P. Orth, F. H. Rainwater and L. L. Thatcher. The Grand Forks, N. Dak., office of the Ground Water Branch made available unpublished water-level records for two wells in Williams County, N. Dak. The Topographic Division offices of Rolla, Mo., and Denver, Colo., furnished preliminary maps of the area with such promptness that the progress of the field and office work was greatly expedited.

Well-numbering System

The well numbers used in this report are based on the location of the wells according to the General Land Office survey of the area. Each well number is composed of numerals which indicate respectively, the township, range, and section, and of lower-case letters which indicate the 160-acre tract and 40-acre tract in which the well is located. An additional numeral is appended to the well number to distinguish a given well from others inventoried within the same 40-acre tract. The 160-acre and 40-acre tracts are designated a, b, c, and d in a counterclockwise direction beginning with a in the northeast quadrant. (See fig. 1.)

GEOGRAPHY

Land Forms

The area covered by this report is located in the Missouri Plateau province of the northern Great Plains. It lies almost entirely within the drainage basin of the Missouri River. The tributary streams include Big Muddy Creek, Lake Creek, Cottonwood Creek, and Scorio Creek. Undulating deposits of glacial drift mantle the greater part of the area.

In the North Dakota portion of the area, the gently undulating plains are pock-marked with many glacial kettles and kettle lakes. These range in shape from circular through horse-shoe to highly irregular outlines. All are quite shallow, usually ranging from 5 to 10 feet in depth. The topography has 100 feet of relief along the valley of Scorio Creek.

In the Montana portion of the area, the large wide valleys of

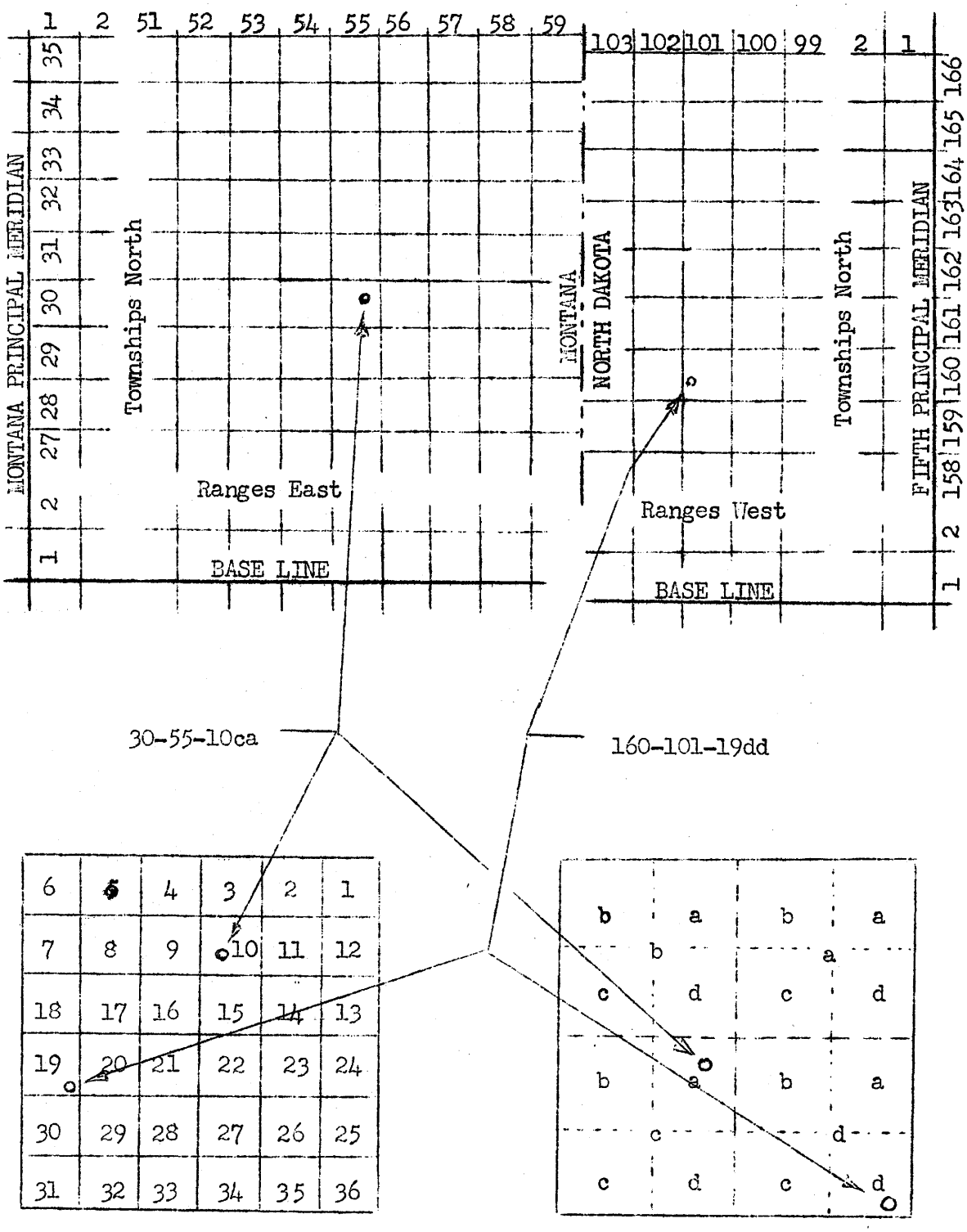

Figure 1.--Sketch illustrating well-numbering system.

Big Muddy Creek and Medicine Lake form a gigantic "Y"-shaped trough entrenched in the till-covered plains to a depth of about 100 feet. The bottom of this trough is very marshy in many places and Medicine Lake occupies a large area in this trough. The upland area in Montana is very similar to that in North Dakota. However, it is much more dissected, being crossed by a number of irregular-trending glacial outwash channels, and glacial kettles and kettle lakes are much less common.

The altitude of the land surface ranges from 1910 feet above sea level, where Big Muddy Creek leaves the southern boundary of the area, to approximately 2,300 feet above sea level in some of the higher drift-plain areas.

Development and Industry

The area is served by two branch lines of the Great Northern Railway and a branch line of the Minneapolis, St. Paul and Sault Ste. Marie Railroad. The latter runs in an east-west direction several miles to the north of the area. One branch of the Great Northern Railway leaves the main line at Bainville, Mont. and goes generally northward through the towns of Froid, Homestead, Medicine Lake, Reserve, Antelope, Plentywood, and then west to Opheim. The North Dakota towns in the report area are served by another branch of the Great Northern Railway which leaves the main line at Stanley, N. Dak., and has its terminus at Grenora. Without exception, all the towns of any size in the area are located along the railroads.

The only state highways in the area are Montana State Highway 16 from Plentywood south through Culbertson and North Dakota State Highway 50 from Grenora east. However, motor travel is generally not difficult because dirt and gravel roads are located along most section lines. Many of the dirt roads become temporarily impassible when wet.

Much of the area is devoted to the dry farming of wheat. Summer fallowing is a widespread practice. Stock raising is the only other major land use.

The sole industrial activity in the area is the mining of lignite. As the lignite generally will not stand long exposure to the air, it is not stock-piled or shipped long distances; the little that is produced is all locally used. Small mines are operated south of Antelope and at Coalridge in Montana, and in the vicinity of Hanks, N. Dak.

GEOLOGY

Previous and Contemporaneous Studies

Previous geologic work in the area has been concerned chiefly with study of the lignite resources (Bauer, 1914; Beekly, 1912) and with deciphering the physiography (Todd, 1914; Bauer, 1915; Todd, 1923; Alden, 1932).

Geologic mapping of a number of quadrangles has been carried on in the Missouri-Souris project areas since 1945. The maps and reports in preparation include the following quadrangles in the report area: Brockton Northeast, Fort Kipp, Smoke Creek, Homestead,

Bainville No. 2, Dagmar No. 3, Dagmar No. 4, Zahl No. 3, and Zahl No. 4.

The geology and ground-water hydrology to the south of the Montana portion of the area have been described by Swenson (1949). Inasmuch as his complete resume of previous geologic work applies also to the area of this report, only the above brief statement of previous work is included.

Stratigraphy

Glacial till, glacial outwash materials, or alluvium mantle the bedrock in almost the entire area covered by this report. Much detailed work has been done in recent years on interpreting and mapping these mantling deposits. Forthcoming reports of the Geologic Division of the Federal Survey will describe in detail these deposits and their origin. For this reason only sufficient information is contained in this report to explain ground-water occurrence in the area.

The glacial till is a heterogeneous material which generally contains at least three permeable zones. The aquifers apparently are continuous over wide areas, but the permeability, altitude and thickness of a given aquifer may vary markedly from place to place. The field work indicates that generally one zone is found at shallow depths in the till, another zone is found at medium depths, and the third zone is found either at or near the base of the till.

Two hypotheses are presented here to explain the origin of the three permeable zones: (1) The permeable zones may be proglacial deposits, that is, deposits of coarse materials laid down in front of an advancing ice sheet and subsequently buried by the continued advance of the ice (Flint, 1947, p. 133). By this hypothesis, the ice is assumed to have advanced over the area three separate times; however, the advances may have been of less than stage or sub-stage importance. (2) According to the other hypothesis the ice likewise is assumed to have advanced over the area three times, but the advances are either of sub-stage or stage importance. Thus the basal zone may represent either a pro-glacial deposit or coarse surficial materials buried by the initial advance of the ice and the medium-depth and shallow-depth zones may represent surficial sand deposits formed during interglacial stages or sub-stages.

The Tongue River member of the Fort Union formation is the only bedrock unit exposed in the area. The formation is of Paleocene age and consists of poorly-cemented sandstones, shales, clays, and lignites. The sandstones are very fine-grained and are composed chiefly of quartz and feldspar fragments. None of the beds is well cemented or indurated and consequently the rock strata are weak and readily eroded. Most of the exposures are found in the valley walls of Big Muddy Creek and its tributaries. Other exposures are found along Scorio Creek in the vicinity of Hanks, N. Dak. In general the measured thickness of lignite in the Fort Union ranges from 1.8% (computed from thicknesses given by Bauer, 1914, pp. 299-300) to 4.6% (computed from thicknesses given by Beekly, 1912, p. 331) of the exposed thickness.

Structure

The bedrock has a slight southeastward dip. Bauer (1914, p. 302) reports a southeastward dip of 16 feet to the mile for the vicinity of Antelope, Mont. (T. 34 N., R. 55 E.), and Beekly (1912, p. 330) reports a general easterly dip of 20 feet to the mile for the Culbertson lignite field. A structure contour map by Dove (Leonard, A. G. and others, 1925, pl. XV) indicates that the dip in the Hanks area, N. Dak., is generally the same in direction and amount as reported for the two localities in Montana. In addition to the regional dip, local variations in dip are common and indicate that the beds are gently undulating.

GEOLOGIC UNITS AND GROUND-WATER CONDITIONS

Water in this area is produced by wells from a number of water-bearing zones. Wells in the glacial drift produce from permeable zones at shallow depths, medium depths, and deep depths usually at or near the base of the drift. Other wells produce from fluvio-glacial deposits in outwash channels and from glacial constructional features such as kames, kame terraces, eskers, and perhaps crevasse fillings. Stream terraces and valley alluvium are also important ground-water reservoirs. Much ground water is produced from the Fort Union formation.

The aquifers in the drift are generally the source of ground-water supplies in the drift-plain areas. The permeability and altitude of each of these aquifers may vary markedly from place to place. Although the three aquifers are generally found throughout

the area, they may be missing locally or may be unproductive due to low permeability, insufficient thickness, or to being dry. The water in each of the three aquifers is generally quite hard but has a relatively low content of dissolved solids. In places where the shallow zone underlies a topographic sag, the water of the shallow zone has a sulfate content which is as high as 4,000 parts per million and more. No such highly mineralized waters have been found in the other aquifers. However, the sulphate concentrations of the waters of Clear Lake and Brush Lake may be almost as great. (See table 2, pp. 34 to 37.)

The largest ground-water reservoirs in the area are the principal glacial-outwash channels. One of these is the Dagmar Channel, which extends northeastward through Medicine Lake and crosses the Montana-North Dakota State line in T. 35 N. Another is the Stady Channel which extends northeastward in a fairly straight line from its confluence with the Dagmar Channel near Brush Lake. A third is the Grenora Channel, which contains Horseshoe Lake and Twin Lakes and joins the Dagmar Channel a short distance south of Brush Lake. The quality of the water in these deposits is unknown.

The major outwash channels have a number of tributary channels which contain water that is generally very hard but with only a moderate content of dissolved solids. The yield from the tributary channels is likely to be undependable. Some of the tributary or ice-marginal channels have been buried by till deposited during a readvance or continued advance of the glacier; this type of deposit is generally found in topographic sags.

Glacial constructional features such as kames, kame terraces, eskers, and perhaps crevasse fillings are a source of ground-water supplies in some places. Some of the kames are thought to be inter-connected with the permeable zones in the drift because they have yielded much more water than the apparent possible recharge from precipitation. The kame terraces are known to yield supplies suitable for domestic use but the supply is very limited during extended periods of low precipitation. The deposits consist of materials ranging from silt-size to a diameter of 1½ inches and which are poorly sorted in some places but have good bedding in others. The long sinuous courses of the eskers may intersect or be interconnected with drift aquifers and are often good sources of ground water. No wells are known to produce water from crevasse fillings but locally the crevasse fillings may be a source of small supplies. As these deposits generally lie at or above the general land surface, any water they might have contained has drained out. The deposits have no apparent bedding and their heterogeneous texture probably results in low permeability both horizontally and vertically.

Stream and outwash terraces are also sources of ground water in some places. Many wells in Plentywood produce water from the terrace on which the town is located. Witkind (personal communication) has found evidence of a number of terraces in the area. These include pre-till terraces, outwash terraces, and three post-till terraces. The pre-till terraces are composed of well-rounded pebbles which have an average diameter of ½ to 3/4 inches and range up to 1½ inches. These deposits, however, usually occur above the

water table and thus are of no importance as aquifers under present conditions of recharge. The post-till terraces are found at lower altitudes and frequently are very good sources of ground water. In general, the water is suitable for all forms of domestic use.

The alluvium of Big Muddy Valley contains a large quantity of ground water; however, the development of satisfactory wells is either difficult or impossible because the alluvium contains so much fine sand. The fine sand probably was derived from the Fort Union formation. The water in the alluvium is generally hard but the dissolved solids content is comparatively low. Water is usually found in alluvial deposits of the other valleys in the region but the supplies are smaller.

Small supplies of water may be developed from the sands and silts of glacial kettles containing perennial or intermittent lakes. Small supplies may also be developed from the glacial till where it is more sandy than usual.

The Fort Union formation is the only bedrock source of ground water which is utilized at the present time. The aquifers in this formation are beds of poorly cemented sandstone (locally known as quicksand) and lignite. Wells producing from the sandstone are frequently plugged by the flow of the sand, and the water produced from lignite beds is reported in many places to be unfit for domestic use. The lignite beds are numerous but generally are lenticular and not very widespread. Most of the springs in the area issue from lignite beds exposed along the valley walls (Bauer, 1914, p. 296; Beekly, 1910, p. 324; Simpson, 1929, p. 266). Water from the Fort Union formation, especially from depths greater than

100 feet, is generally soft but is moderately to highly mineralized and is suitable only for stock consumption and domestic uses other than cooking. The preponderant chemical constituents are sodium, bicarbonates, and sulfates.

FLUCTUATIONS OF THE WATER LEVEL

Weekly measurement of the depth to water in two observation wells south of Gronora, N. Dak., was begun in May 1938 and has continued to the present. Periodic measurement of the depth to water in 11 wells in the Montana part of the area was begun in 1946 and in the following year 7 additional wells were incorporated in the network of observation wells. Of the total of 18 wells, 11 are privately owned but are located in most cases on abandoned homesites; 4 were drilled by the U. S. Bureau of Reclamation, 2 by the U. S. Geological Survey and 1 by the U. S. Fish and Wildlife Service. The water-level measurements made in these wells are given in table 1 (pp. 18 to 29) and hydrographs for several of these wells are shown in plates 2 and 3.

The range of fluctuations of the water table and of the several piezometric surfaces differ considerably and the maximum and minimum levels are reached at different times of the year. For this reason the water levels in two or more wells tapping different aquifers in the same locality may show different patterns of characteristic fluctuations. The water levels in shallow wells in drift or outwash deposits generally rise rapidly during the period

Table 1.--Measurements of water level in observation wells
(Water level in feet below land-surface datum unless otherwise specified)

Roosevelt County, Montana

28-53-30dd.

Date	Water level	Date	Water level	Date	Water level
Apr. 26, 1946	30.24	Oct. 7, 1947	25.81	June 14, 1948	26.60
July 10	30.61	26	25.80	July 7	26.61
Oct. 7	28.38	Jan. 7, 1948	25.85	Aug. 4	24.90
May 1, 1947	26.49	Feb. 4	26.88	Sept. 7	25.13
June 2	26.24	Mar. 4	27.25	Oct. 5	24.73
July 11	26.93	Apr. 9	26.47	Nov. 2	25.05
Aug. 4	26.67	May 11	25.70	Dec. 3	26.02
Sept. 5	26.09				

29-51-36aa.

May 28, 1947	4.10	Feb. 4, 1948	a2.16	Aug. 4, 1948	1.24
Oct. 27	2.16	May 12	.30	Sept. 7	2.90
Dec. 3	2.23	June 15	1.77	Oct. 5	2.88
Jan. 7, 1948	1.24	July 7	2.98	Dec. 3	1.76

29-51-36bb.

Oct. 27, 1947	8.33	June 15, 1948	7.36	Sept. 7, 1948	8.84
Dec. 3	Dry	July 7	8.15	Oct. 5	9.92
Jan. 7, 1948	a8.30	Aug. 4	8.59	Dec. 3	8.89
Apr. 12	5.22				

29-52-26bc.

Apr. 29, 1946	6.82	July 11, 1947	6.25	Oct. 7, 1947	6.85
July 10	7.22	Aug. 4	6.84	26	6.75
June 2, 1947	6.37	Sept. 5	6.66		

29-52-30ac.

June 18, 1947	6.50	May 12, 1948	4.10	Sept. 7, 1948	4.55
Oct. 27	4.61	June 15	4.23	Oct. 5	4.70
Dec. 3	4.70	July 7	4.43	Dec. 3	4.88
Jan. 7, 1948	a5.00	Aug. 4	4.25		

a Frozen.

Table 1.--Measurements of water level in observation wells--Continued.

Roosevelt County, Montana--Continued.

29-52-31cc.

Water level in feet below measuring point

Date	Water level	Date	Water level	Date	Water level
Dec. 3, 1947	8.80	May 12, 1948	8.10	Sept. 7, 1948	8.26
Jan. 7, 1948	8.55	June 15	7.95	Oct. 5	8.08
Feb. 4	8.52	July 7	8.09	Dec. 3	Dry
Apr. 9	8.23	Aug. 4	8.09		

30-53-29dd.

Water level in feet below land surface datum

Apr. 29, 1946	57.56	Oct. 26, 1947	57.40	July 7, 1948	57.25
June 2, 1947	57.47	Jan. 7, 1948	57.25	Aug. 4	57.30
July 11	57.42	Feb. 4	57.23	Sept. 7	57.24
Aug. 4	57.54	Mar. 4	57.31	Oct. 5	57.02
Sept. 5	57.44	May 12	57.31	Dec. 3	57.12
Oct. 7	57.50				

30-55-1aa.

June 3, 1947	29.11	Jan. 7, 1948	29.93	July 7, 1948	29.18
July 11	29.26	Feb. 5	29.40	Aug. 4	29.28
Aug. 4	29.27	Mar. 4	29.33	Sept. 7	29.30
Sept. 5	29.35	Apr. 8	28.13	Oct. 5	29.16
Oct. 7	29.49	May 11	29.19	Nov. 2	29.24
26	29.32	June 14	29.16	Dec. 3	29.13

30-55-36ad.

Apr. 25, 1946	11.65	Feb. 4, 1948	10.32	June 14, 1948	11.34
July 10	16.75	Mar. 4	10.81	Sept. 7	18.15
Oct. 7, 1947	22.14	Apr. 8	8.85	Oct. 5	23.88
Jan. 7, 1948	10.01	May 11	7.61	Dec. 3	10.26

Table 1.--Measurements of water level in observation wells--Continued.

Roosevelt County, Montana--Continued.

30-56-7cc.

Date	Water level	Date	Water level	Date	Water level
July 10, 1946	60.52	Oct. 26, 1947	60.45	July 7, 1948	60.41
Oct. 7	59.91	Jan. 7, 1948	60.60	Aug. 4	60.43
May 1, 1947	60.19	Mar. 4	60.50	Sept. 7	60.41
June 2	60.25	Apr. 8	60.48	Oct. 5	60.25
July 11	60.43	May 11	60.39	Nov. 2	60.22
Sept. 5	60.48	June 14	60.30	Dec. 3	60.24
Oct. 7	60.55				

Sheridan County, Montana

31-55-24aal.

June 2, 1947	92.40	Oct. 26, 1947	92.42	Apr. 8, 1948	92.38
July 11	92.39	Jan. 7, 1948	92.25	May 11	92.24
Aug. 4	92.44	Feb. 5	92.38	June 14	92.15
Sept. 5	92.42	Mar. 4	92.11	July 7	92.40
Oct. 7	92.42				

31-55-27bc.

Apr. 25, 1946	4.47	Oct. 7, 1947	5.65	June 14, 1948	4.43
July 10	5.29	26	5.70	July 7	4.85
Oct. 7	5.41	Jan. 7, 1948	6.05	Aug. 4	5.07
May 1, 1947	3.48	Feb. 5	6.00	Sept. 7	5.62
June 2	3.45	Mar. 4	6.06	Oct. 5	6.12
July 11	4.38	Apr. 8	4.55	Nov. 2	5.40
Aug. 4	4.91	May 11	3.91	Dec. 3	5.53
Sept. 5	5.44				

31-56-30bb.

June 12, 1947	55.22	Jan. 7, 1948	55.10	July 7, 1948	55.11
July 8	55.16	Feb. 5	54.23	Aug. 4	55.36
Aug. 4	55.24	Mar. 4	55.15	Sept. 7	55.16
Sept. 5	55.19	Apr. 8	55.15	Oct. 5	55.03
Oct. 7	55.24	May 11	55.14	Nov. 2	55.07
26	55.14	June 14	55.36	Dec. 3	55.04

Table 1.--Measurements of water level in observation wells--Continued.

Sheridan County, Montana--Continued

31-56-31bb.

Date	Water level	Date	Water level	Date	Water level
Apr. 25, 1946	24.17	Oct. 7, 1947	23.97	June 14, 1948	23.13
July 10	24.08	26	23.96	July 7	23.92
Oct. 7	24.10	Jan. 7, 1948	23.95	Aug. 4	23.96
May 1, 1947	24.05	Feb. 5	23.95	Sept. 7	24.01
June 2	23.94	Mar. 4	23.13	Oct. 5	23.99
July 11	23.90	Apr. 8	23.92	Nov. 2	24.01
Aug. 4	23.98	May 11	23.78	Dec. 3	23.94
Sept. 5	23.93				

32-56-31bb2.

June 12, 1947	33.08	Feb. 5, 1948	33.48	Aug. 4, 1948	33.07
July 8	33.96	Mar. 4	33.72	Sept. 7	33.32
Aug. 4	33.30	Apr. 8	33.14	30	33.38
Sept. 5	33.39	May 11	32.52	Oct. 5	33.30
Oct. 7	33.53	June 14	32.46	Nov. 2	33.41
26	33.46	July 7	32.87	Dec. 3	33.38

33-56-31bb.

Apr. 25, 1946	36.62	Sept. 5, 1947	36.48	July 7, 1948	36.15
July 10	37.47	Jan. 7, 1948	36.13	Aug. 4	36.09
Oct. 7	36.65	Feb. 5	36.46	Sept. 7	36.12
May 1, 1947	36.60	Mar. 4	36.55	Oct. 5	36.05
June 2	36.60	Apr. 8	36.51	Nov. 2	36.08
July 11	36.45	May 11	36.47	Dec. 3	36.10
Aug. 4	36.48	June 14	36.21		

33-57-33dd.

July 11, 1946	69.33	Oct. 26, 1947	69.19	June 22, 1948	69.08
Oct. 7	69.43	Jan. 7, 1948	68.75	July 7	69.12
June 3, 1947	69.08	Feb. 5	69.22	Aug. 4	70.46
July 11	69.16	Mar. 4	69.41	Sept. 7	69.90
Aug. 4	69.23	Apr. 8	69.44	Oct. 5	68.90
Sept. 5	69.19	May 11	69.84	Nov. 2	68.80
Oct. 7	69.39	June 14	69.10	Dec. 3	68.93

Table 1.--Measurements of water level in observation wells--Continued.

Sheridan County, Montana--Continued.

33-57-34bb.

Date	Water level	Date	Water level	Date	Water level
July 11, 1946	81.45	Oct. 7, 1947	81.33	June 14, 1948	80.12
Aug. 7	81.43	26	81.00	July 7	80.97
May 1, 1947	81.45	Jan. 7, 1948	79.85	Aug. 4	81.25
June 2	81.10	Feb. 5	80.83	Sept. 7	81.14
July 11	80.98	Mar. 4	80.58	Oct. 5	79.94
Aug. 4	81.04	Apr. 8	81.31	Nov. 2	79.95
Sept. 5	81.45	May 11	81.27	Dec. 3	80.81

Williams County, North Dakota

159-103-24dal. Williams Co., 77, W.S.P. 886, p. 554; W.S.P. 908, p. 275; W.S.P. 938, p. 223; W.S.P. 946, p. 262; W.S.P. 988, p. 334; W.S.P. 1018, p. 255.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1938		1938 (cont.)		1939 (cont.)		1939 (cont.)	
May 5	21.85	Oct. 29	28.51	Apr. 15	24.55	Oct. 21	31.32
7	21.30	Nov. 5	28.17	22	24.07	28	31.19
14	20.17	12	27.81	29	23.51	Nov. 4	30.67
21	19.28	19	27.90	May 6	23.63	11	30.85
28	19.53	26	28.21	13	24.34	18	31.76
June 4	19.15	Dec. 3	27.90	20	24.15	25	37.92
11	18.97	10	28.03	27	24.86	Dec. 2	34.54
18	20.38	17	28.51	June 3	25.05	9	33.63
25	21.26	24	29.86	10	25.71	16	32.74
July 2	21.92	31	28.84	17	25.67	23	32.44
9	22.07			24	22.09	30	32.54
16	23.01	1939		July 1	26.89		
23	23.44	Jan. 7	28.86	15	28.19	1940	
30	23.88	14	28.71	22	28.03	Jan. 6	32.67
Aug. 6	24.30	21	29.17	29	28.21	13	33.09
13	24.86	28	30.03	Aug. 5	28.09	20	33.51
20	25.13	Feb. 4	29.10	12	28.36	27	33.51
27	25.57	11	29.10	19	28.40	Feb. 3	34.42
Sept. 3	26.19	18	29.61	26	30.01	10	34.92
10	26.26	25	30.67	Sept. 2	32.69	17	34.82
17	26.81	Mar. 4	30.38	9	30.62	24	34.71
24	27.24	11	30.33	16	31.16	Mar. 2	35.01
Oct. 1	27.32	18	30.91	23	32.21	9	35.46
8	27.57	25	28.87	30	30.09	16	33.22
15	27.30	Apr. 1	27.38	Oct. 7	30.01	23	36.29
22	27.09	8	25.42	14	30.00	30	38.34

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24dal--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1940 (cont.)		1941		1941 (cont.)		1942 (cont.)	
Apr. 6	38.40	Jan. 4	39.01	Oct. 11	29.23	June 20	27.58
13	39.09	11	38.61	19	29.33	27	27.78
20	37.32	18	39.26	25	29.43	July 4	28.07
27	32.30	25	39.34	Nov. 1	29.50	11	28.21
May 4	28.87	Feb. 1	39.97	8	29.55	18	28.60
11	27.37	8	39.34	15	29.58	25	28.67
18	26.63	15	39.30	22	29.61	Aug. 1	28.80
24	27.08	22	39.59	29	29.65	8	28.96
25	26.71	Mar. 1	39.42	Dec. 6	29.67	15	29.07
June 1	27.34	8	39.07	13	29.75	22	29.19
15	27.85	15	39.66	20	29.77	29	29.23
22	27.92	22	39.21	27	29.81	Sept. 5	29.38
29	28.40	29	33.51			12	29.44
July 6	28.55	Apr. 20	23.88	1942		19	29.51
13	30.09	26	23.34	Jan. 3	29.90	26	29.59
20	32.47	May 3	22.91	10	29.99	Oct. 3	29.62
27	38.20	10	22.39	17	29.97	10	29.69
Aug. 3	40.90	17	23.30	24	30.05	17	29.80
10	38.40	24	23.77	31	30.11	24	29.78
17	37.48	31	24.17	Feb. 7	30.14	31	29.87
24	39.05	June 7	24.66	14	30.19	Nov. 7	29.92
31	38.09	14	25.19	21	30.23	14	29.96
Sept. 7	38.47	21	25.65	28	30.29	21	30.01
14	38.15	28	26.02	Mar. 7	30.30	28	30.02
21	38.66	July 5	26.49	14	30.29	Dec. 5	30.07
28	38.09	12	26.93	21	30.32	12	30.11
Oct. 5	38.80	19	27.19	28	30.34	19	30.15
12	39.05	26	27.43	Apr. 4	30.00	26	30.18
26	35.17	Aug. 2	27.80	11	28.23		
Nov. 2	37.71	9	28.10	18	27.26	1943	
9	38.30	17	28.18	25	26.74	Jan. 2	30.23
16	38.75	23	28.40	May 2	26.61	9	30.20
23	38.79	30	28.54	9	26.65	16	30.25
30	39.16	Sept. 6	28.65	16	26.70	23	30.28
Dec. 7	39.12	13	28.69	23	26.86	30	30.32
14	39.03	20	28.88	30	27.05	Feb. 6	30.40
21	38.21	27	29.05	June 6	27.25	13	30.45
28	39.32	Oct. 4	28.99	13	27.42	20	30.47

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24dal--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1943 (cont.)		1943 (cont.)		1944 (cont.)		1945 (cont.)	
Feb. 27	30.52	Dec. 13	24.18	Oct. 1	28.74	July 8	29.17
Mar. 6	30.56	19	24.49	9	28.81	15	29.29
14	30.60	25	24.62	16	28.86	22	29.36
20	30.65			22	28.93	29	29.43
27	30.73	1944		31	28.99	Aug. 5	29.44
Apr. 4	15.91	Jan. 2	24.82	Nov. 7	29.02	19	29.55
10	12.34	9	25.19	12	28.92	26	30.13
18	12.99	16	25.40	19	29.02	Sept. 2	30.13
24	14.45	22	25.61	26	29.07	9	29.97
May 1	13.34	30	25.84	Dec. 3	29.08	23	30.01
8	13.38	Feb. 5	25.88	11	29.10	30	30.03
16	13.06	12	26.03	17	29.16	Oct. 7	29.98
22	12.45	20	26.24	26	29.22	14	29.98
29	12.82	27	26.35			21	30.22
June 5	12.65	Mar. 5	26.55	1945		28	30.07
12	12.21	12	26.73	Jan. 7	29.25	Nov. 4	30.05
20	10.85	18	26.86	14	29.25	11	30.05
27	10.72	27	27.07	22	29.32	18	30.06
July 4	10.91	Apr. 2	27.19	28	29.35	25	30.07
11	11.40	9	27.26	Feb. 4	29.37	Dec. 2	30.08
18	12.37	16	27.33	11	29.40	9	30.09
25	13.34	23	27.51	18	29.44	16	30.11
Aug. 1	14.13	30	27.58	25	29.49	30	30.17
8	15.12	May 6	27.67	Mar. 4	29.45		
15	16.12	15	27.73	11	29.51	1946	
21	16.92	21	27.72	18	29.48	Jan. 6	30.19
29	17.83	28	27.86	25	29.42	13	30.02
Sept. 5	18.38	June 4	27.81	Apr. 1	29.41	20	30.24
12	19.36	11	27.80	8	28.97	27	30.26
19	19.75	July 8	28.09	15	28.65	Feb. 3	30.29
26	20.26	23	28.18	22	28.24	17	30.35
Oct. 3	20.54	30	28.17	29	28.26	24	30.37
9	21.22	Aug. 6	28.28	May 6	28.19	Mar. 3	30.36
17	21.55	13	28.32	13	28.23	10	30.28
24	22.07	21	28.41	20	28.38	17	29.75
31	21.61	28	28.48	27	28.51	24	23.00
Nov. 6	22.85	Sept. 4	28.54	June 3	28.65	31	19.69
14	23.17	10	28.57	10	28.58	Apr. 7	18.09
20	23.40	17	28.56	17	28.88	14	18.91
Dec. 4	23.87	24	28.72	July 1	29.02	21	19.09

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24dal--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1946 (cont.)		1946 (cont.)		1947 (cont.)		1948 (cont.)	
Apr. 28	19.30	Dec. 29	26.93	Aug. 23	19.88	Apr. 25	18.55
May 5	19.76			31	20.40	May 2	12.80
7	20.02	1947		Sept. 6	20.80	9	12.89
12	20.05	Jan. 5	27.12	13	21.01	16	12.26
19	20.78	19	27.18	21	21.71	23	12.95
26	21.08	26	27.39	27	22.05	30	12.99
June 2	21.88	Feb. 2	27.54	Oct. 5	22.53	June 6	13.63
8	19.09	9	27.40	20	22.73	13	14.28
16	13.92	16	27.54	27	23.48	20	15.30
23	13.06	23	27.72	Nov. 2	23.66	27	16.30
29	14.59	Mar. 2	27.96	10	23.82	July 4	16.84
July 7	15.98	9	29.09	16	24.11	11	17.68
14	17.59	16	29.32	23	24.32	18	18.38
21	16.65	23	29.48	30	24.53	25	18.71
28	16.40	29	25.58	Dec. 6	24.70	Aug. 1	19.13
Aug. 4	17.92	Apr. 6	24.24	12	24.88	8	19.52
11	19.21	12	9.13	21	25.12	15	20.12
18	20.34	19	8.74	27	25.38	22	20.49
25	20.94	26	9.63			29	20.78
Sept. 1	21.71	May 4	10.63	1948		Sept. 5	21.00
7	22.26	10	11.18	Jan. 3	25.12	12	21.38
15	22.72	17	11.77	11	25.89	19	21.69
22	22.84	24	12.51	18	26.08	26	22.06
29	23.76	31	12.97	25	26.33	Oct. 3	22.46
Oct. 6	24.10	June 7	13.67	Feb. 1	26.59	10	22.72
13	24.84	15	14.71	8	26.73	17	22.95
20	24.67	23	14.81	15	26.88	24	23.26
27	24.96	29	14.56	22	27.04	31	23.33
Nov. 3	25.79	July 5	14.48	27	27.15	Nov. 7	23.55
10	25.51	12	15.43	Mar. 7	27.22	14	23.82
16	25.77	23	16.70	21	27.40	21	23.93
24	25.96	26	17.33	28	27.50	28	24.06
Dec. 1	26.24	Aug. 2	17.97	Apr. 4	27.62	Dec. 5	24.18
9	26.35	10	18.66	11	27.65	12	24.30
15	26.49	16	19.19	18	23.21	19	24.46
22	26.76						

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24da2. Williams Co., 78, W.S.P. 845, p. 368; W.S.P. 886, p. 555; W.S.P. 908, p. 275; W.S.P. 938, p. 223; W.S.P. 946, p. 262; W.S.P. 988, p. 334; W.S.P. 1018, p. 255.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1938		1939		1939 (cont.)		1940 (cont.)	
May 5	10.87	Jan. 7	25.35	Sept.30	24.41	May 25	19.35
7	10.62	14	25.51	Oct. 7	24.24	June 1	22.24
14	10.18	21	24.77	14	25.37	15	22.98
21	10.09	28	25.32	21	25.92	22	24.66
28	9.54	Feb. 4	27.12	28	25.93	29	26.04
June 4	10.41	11	26.12	Nov. 4	26.31	July 6	28.75
11	10.87	18	27.54	11	27.11	13	29.41
18	11.16	25	26.76	18	28.28	20	30.13
25	11.54	Mar. 4	26.79	25	26.66	27	28.56
July 2	11.08	11	27.33	Dec. 2	27.24	Aug. 3	30.04
9	11.08	18	27.66	9	27.45	10	30.95
16	10.41	25	24.37	16	26.48	17	32.16
23	10.85	Apr. 1	23.12	23	27.88	24	33.62
29	11.52	8	21.99	30	27.45	31	32.64
30	11.50	15	22.14			Sept. 7	32.89
Aug. 6	11.98	22	21.36	1940		14	33.16
13	12.54	29	21.52	Jan. 6	21.22	21	33.41
20	12.89	May 6	20.27	13	22.83	28	32.73
27	13.41	13	20.58	20	22.04	Oct. 5	31.87
Sept. 3	13.87	20	20.79	27	22.33	12	33.75
10	14.25	27	20.83	Feb. 3	23.83	26	30.98
17	16.35	June 3	20.79	10	24.52	Nov. 2	30.23
24	19.27	10	18.66	17	24.91	9	32.90
Oct. 1	18.62	17	18.21	24	28.09	16	32.55
8	20.37	24	18.83	Mar. 2	28.24	23	32.74
15	20.85	July 1	18.91	9	28.45	30	35.30
22	19.66	15	19.77	16	28.56	Dec. 7	35.35
29	20.56	22	20.04	23	28.50	14	36.08
Nov. 5	20.39	29	20.75	30	28.03	21	35.79
12	20.25	Aug. 5	21.62	Apr. 6	27.64	28	39.01
19	20.41	12	20.33	13	27.41		
26	20.37	19	21.57	20	24.04	1941	
Dec. 3	22.48	26	22.06	27	22.04	Jan. 4	38.65
10	23.54	Sept. 2	22.32	May 4	20.21	11	35.91
17	22.75	9	23.50	11	21.45	18	35.68
24	22.97	16	24.14	18	19.76	25	36.04
31	24.52	23	24.45	24	20.71	Feb. 1	34.85

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24da2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1941 (cont.)		1941 (cont.)		1942 (cont.)		1943 (cont.)	
Feb. 8	33.66	Nov. 29	25.05	Aug. 29	22.31	May 22	6.86
15	33.33	Dec. 6	25.09	Sept. 5	22.58	29	7.39
22	33.52	13	25.26	12	22.78	June 5	6.58
Mar. 1	33.21	20	25.23	19	22.93	12	6.77
8	31.92	27	25.42	26	23.22	20	5.65
15	33.59			Oct. 3	23.28	27	5.92
22	33.23	1942		10	23.50	July 4	6.48
29	a31.38	Jan. 3	25.12	17	23.68	11	7.04
Apr. 20	20.59	10	25.60	24	23.85	18	7.61
26	20.07	17	25.63	31	23.87	25	8.27
May 3	18.60	24	25.73	Nov. 7	24.12	Aug. 1	8.98
10	18.87	31	25.84	14	24.11	8	9.68
17	18.90	Feb. 7	25.98	21	24.46	15	10.48
24	19.37	14	26.04	28	24.44	21	11.02
31	19.74	21	26.06	Dec. 5	24.57	29	11.78
June 7	20.27	28	26.09	12	24.73	Sept. 5	12.16
14	20.74	Mar. 7	26.14	19	24.74	12	13.81
21	21.08	14	26.13	26	24.77	19	14.30
28	21.31	21	24.31			26	14.66
July 5	21.73	28	20.42	1943		Oct. 3	14.97
12	22.08	Apr. 4	18.23	Jan. 2	24.82	9	15.43
19	22.29	11	17.24	9	25.09	17	15.83
26	22.47	18	16.82	16	25.15	24	15.31
Aug. 2	22.67	25	16.60	23	25.19	31	15.80
9	22.93	May 9	17.26	30	25.24	Nov. 6	15.89
17	23.19	16	17.64	Feb. 6	25.43	14	16.58
23	23.30	23	17.98	13	25.65	20	16.32
30	23.47	30	18.41	20	25.71	28	16.64
Sept. 6	23.59	June 6	18.83	27	25.74	Dec. 4	16.80
13	23.67	13	19.23	Mar. 6	25.77	13	17.06
20	23.87	20	19.44	14	25.81	19	17.33
27	24.13	27	19.74	20	25.94	25	17.48
Oct. 4	24.12	July 4	20.12	27	26.06		
11	24.32	11	20.37	Apr. 4	10.29	1944	
19	24.50	18	20.78	10	6.60	Jan. 2	17.62
25	24.58	25	21.07	18	7.55	9	17.98
Nov. 1	24.62	Aug. 1	21.29	24	7.96	16	18.22
8	24.86	8	21.63	May 1	6.72	22	18.47
15	24.82	15	21.86	8	7.04	30	18.64
22	24.94	22	22.15	16	6.89	Feb. 5	18.70

a Well not used after March.

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued.

159-103-24da2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1944 (cont.)		1945		1945 (cont.)		1946 (cont.)	
Feb. 12	18.83	Jan. 7	23.25	Nov. 18	25.62	Sept. 1	16.15
20	19.15	14	23.30	25	25.61	7	16.23
27	19.35	22	23.48	Dec. 2	25.72	15	16.76
Mar. 5	19.53	28	23.58	9	25.73	22	16.92
12	18.70	Feb. 4	23.61	16	25.83	29	17.50
18	19.86	11	23.67	30	25.75	Oct. 6	17.70
26	20.06	18	23.71			13	18.02
Apr. 2	20.12	25	24.01	1946		20	18.27
9	20.27	Mar. 4	23.99	Jan. 6	25.77	27	18.56
16	20.37	11	24.09	13	25.91	Nov. 3	18.09
23	20.56	18	24.10	20	25.99	10	19.06
30	20.60	25	24.05	27	25.96	16	19.42
May 6	20.74	Apr. 1	24.08	Feb. 3	25.99	24	19.44
15	20.89	8	23.79	17	26.14	Dec. 1	19.72
21	20.88	15	23.76	24	26.16	9	19.90
28	21.00	22	23.74	Mar. 3	26.31	15	20.02
June 4	21.02	29	24.05	10	25.93	22	20.42
11	21.06	May 6	24.08	17	21.87	29	20.77
July 8	20.41	13	24.12	24	17.24		
23	20.73	20	24.21	31	15.90	1947	
30	20.89	27	24.32	Apr. 7	15.16	Jan. 5	20.56
Aug. 6	21.11	June 3	24.36	14	14.71	19	20.53
13	21.25	10	24.26	21	14.45	26	20.69
21	21.64	17	24.52	28	14.32	Feb. 2	21.75
28	21.61	July 1	24.62	May 5	14.29	9	21.04
Sept. 4	21.71	8	24.76	7	14.43	16	28.09
10	21.85	15	24.76	12	14.29	23	19.98
17	21.84	22	24.82	19	14.71	Mar. 2	20.06
24	22.04	29	24.91	26	14.85	9	20.23
Oct. 1	22.18	Aug. 5	25.04	June 2	15.30	16	20.35
9	22.29	19	25.13	8	14.24	23	20.55
16	22.36	26	25.14	16	9.91	29	19.70
22	22.41	Sept. 2	25.27	23	10.98	Apr. 6	18.05
31	22.45	9	25.29	29	11.31	12	8.46
Nov. 7	22.47	23	25.19	July 7	11.82	19	6.07
12	22.56	30	25.48	14	12.66	26	7.00
19	22.67	Oct. 7	25.46	21	13.04	May 4	7.64
26	22.70	14	25.54	28	13.57	10	8.16
Dec. 3	22.46	21	25.50	Aug. 4	14.08	17	8.57
11	22.56	28	25.53	11	14.65	24	9.05
17	22.71	Nov. 4	25.54	18	15.11	31	9.33
26	23.09	11	25.54	25	15.66	June 7	9.65

Table 1.--Measurements of water level in observation wells--Continued.

Williams County, North Dakota--Continued

159-103-24da2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1947 (cont.)		1947 (cont.)		1948 (cont.)		1948 (cont.)	
June 15	10.06	Nov. 10	16.85	Mar. 21	20.30	Aug. 8	14.31
23	9.54	16	17.07	28	20.37	15	13.58
29	9.40	23	17.23	Apr. 4	20.42	22	14.97
July 5	9.67	30	17.45	11	20.56	29	15.18
12	10.12	Dec. 6	17.63	18	15.87	Sept. 5	15.48
23	10.73	12	17.81	25	12.45	12	15.77
26	11.37	21	18.05	May 2	7.25	19	15.74
Aug. 2	11.88	27	18.32	9	7.37	26	16.38
10	12.47			16	7.45	Oct. 3	16.62
16	13.00	1948		23	7.65	10	16.73
23	13.45	Jan. 3	18.56	30	8.65	17	17.81
31	14.02	11	18.76	June 6	9.26	24	17.10
Sept. 6	14.33	18	18.93	13	9.82	31	17.26
13	14.63	25	19.09	20	10.50	Nov. 7	17.47
21	15.22	Feb. 1	19.20	27	11.29	13	17.52
27	15.41	8	19.33	July 4	11.69	21	17.68
Oct. 5	15.81	15	19.75	11	12.37	28	17.80
20	16.25	22	19.97	18	12.97	Dec. 5	17.97
27	16.56	29	20.12	25	13.36	12	18.09
Nov. 2	16.65	Mar. 7	20.23	Aug. 1	13.95	19	18.33

of the spring thaw and then decline gradually during the remainder of the year except during periods of unusually heavy summer or fall rains. Thus, in most years recharge to the shallow drift aquifer occurs only during the spring thaw. Similarly, the medium-depth drift aquifer probably receives considerable recharge from the spring thaw, but the highest water levels generally are not attained until the fall. Water levels in deep-drift wells show only slight annual fluctuations. The only significant rise in water-level occurs in the late summer and it is considered quite likely that this rise is due to the spring thaw of the preceding year. If this assumption is correct, then the lag in water-level rise due to recharge from the spring thaw amounts to approximately 16 months. Water levels in the Fort Union formation fluctuate only slightly. Sufficient data are not yet available to allow an interpretation of the fluctuation pattern, if any such pattern exists.

Graphs of the water-level fluctuations in two wells south of Grenora, N. Dak., for the period 1938-1948 inclusive are shown in plate 2. Well 159-103-24da2 is believed to tap only the shallow drift aquifer, but well 159-103-24da1 is deeper and probably taps both the shallow and medium-depth drift aquifers. The two hydrographs show that most of the recharge to the shallow drift aquifer occurs during the spring thaw and that very little additional recharge occurs during the remainder of the year. During the period 1938 to 1940 the wells were pumped, but since March 1941 the wells have not been used. The years of 1944 and 1945 were unusual in that practically no recharge occurred, either during the spring

thaw or from spring rains. The precipitation during June 1944 was the greatest for any month during the period of record yet a rise in water level was appreciable in only well 159-103-24da2. This precipitation may have been a local storm in the vicinity of the Grenora rain gauge with little or no rainfall extending southward to the recharge area of these two wells. With exception of 1938, the maximum monthly precipitation for the period 1938-1948 has occurred during the month of June. However, the hydrographs show that the rise of water level resulting from a period of maximum precipitation is generally insignificant in comparison to the marked rise resulting from the spring thaws.

The hydrograph for well 31-55-27bc (pl. 3), located a short distance from Homestead, Mont., is also typical of the fluctuations of the water level in the shallow, permeable zone in the glacial drift. The hydrograph for well 30-55-36ad, (pl. 3) located southwest of Froid is similar to well 31-55-27bc, in that the maximum elevation of the water table comes in the spring. However, the greater range in the fluctuation of the water level is due to pumping of the well. This well penetrates permeable sands and gravels of a glacial outwash channel, but it is quite likely that much of the water in these deposits is derived from the uppermost permeable zone of the glacial drift.

The hydrograph of well 28-53-30dd, (pl. 3) located near Brockton, Mont., is believed to represent an aquifer at medium depth in the glacial drift. This hydrograph shows that considerable recharge has occurred during the late summer and early fall as well as during the

period of the spring thaw. The rise of the water level in the spring is probably due to some direct percolation of meltwater, whereas the rise in later summer and early fall is probably due to recharge lag; that is, the spring meltwater first entered a higher aquifer and then gradually percolated horizontally and downward into this lower aquifer.

The fluctuations of the water level in well 33-56-31bb (pl. 3), south of Reserve, Mont., are characteristic of an aquifer at or near the base of the glacial drift. During the course of a year, the piezometric surface at this well fluctuates only slightly, but the highest levels are reached during the period from fall through early winter. It is believed that this rise is caused by the melting of the snow in the spring of the preceding year, after a lag of about 16 months.

Water levels in wells tapping aquifers in the Fort Union formation have a small range of fluctuation. Sufficient data are not yet available to describe the characteristic fluctuations of the water level in this aquifer. Measurements of the water level in a well penetrating Fort Union sediments are shown for well 30-56-7cc in plate 3.

CONFIGURATION OF THE WATER TABLE AND PIEZOMETRIC SURFACE

The configuration of the water table and piezometric surface for part of the area is shown on plate 4. Sufficient data were not available for mapping the water table and the several piezometric surfaces separately; the map is based on all available measurements, on the assumption that at any given place there are only slight differences among the positions of the water table and piezometric surfaces. In northeastern Montana the direction of ground-water flow is generally toward either the valley of

Big Muddy Creek or the large glacial or preglacial valley in which lie Medicine Lake, Brush Lake, and Clear Lake. No generalizations can yet be made for the report area in North Dakota.

QUALITY OF THE WATER

Chemical analyses of 65 representative ground and surface waters in Roosevelt and Sheridan Counties, Mont., are given in table 2 (pp.34 to 37). Most of these analyses, particularly those for the period prior to 1948, have been made available through the courtesy of the Montana State Board of Health and private industries. A discussion of the quality of the water will be included in a later revised draft of this report.

Table 2.--Complete chemical analyses of representative waters

Location number	Date of collection	Depth of well (feet)	Temperature (°F.)	pH	Specific conductance Kx10⁵ at 25° C.	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$		Percent sodium	Source of analysis[1]
																			Total	Noncarbonate		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
									Roosevelt County, Montana													
29-55- 5bb	8-26-36	Spring	-	-	-	-	0.0	-	-	-		354	159	50	-	-	-	-	215	-	-	M
11ba	7-27-46	-	-	-	-	19	-	303	153	34		558	879	54	-	-	-	2,080	1,380	-	-	M
21bb	2-24-42	45	-	-	-	14	2.0	45	33	281		622	322	9.0	-	-	-	1,040	250	-	-	M
29-56- 9cb	4-22-30	-	-	-	-	-	5.0	208	150	96		814	626	11	-	-	-	1,630	1,140	-	-	M
30-55-13cd	10- 2-45	-	-	-	-	8.0	1.0	52	10	73		190	152	9.7	-	-	-	415	171	-	-	M
	10-24-45	-	-	-	-	6.4	.6	53	38	10		179	141	10	-	-	-	425	283	-	-	M
14cd	11-18-46	-	-	-	-	6.0	-	176	78	129		400	656	16	-	-	-	1,400	760	-	-	M
30-56-10cd	11- 3-43	200	-	-	-	.0	2.5	50	45	588		976	750	12	-	-	-	1,840	307	-	-	M
	8-24-47	-	-	-	-	6.0	-	54	30	34		323	53	8.0	-	-	-	350	258	-	-	M
	10- 8-48	25	-	-	-	2.0	.4	99	26	42		348	86	8.0	-	53	-	445	354	-	-	M
18bc3	8-20-48	24	47	7.7	1,040	28	.1	113	58	11	2.8	475	74	34	0	16	0	644	520	130	4.4	-
19acl	3-30-37	84	-	-	-	-	-	136	74	-	-	842	872	14	-	-	-	2,060	645	-	-	M
	7-30-37	250	-	-	-	568	1.5	65	33	917		1,330	1,080	275	-	-	-	3,600	298	-	-	M
	1-30-45	250	-	-	-	5.2	.8	17	13	1,010		1,420	1,040	25	-	-	-	2,840	96	-	-	M
19ca2	3-21-27	-	-	-	-	-	-	302	134	347		976	1,200	10	-	-	-	2,530	1,310	-	-	M
19ca3	6-13-46	16	-	-	-	36	1.5	465	809	15		512	3,642	210	-	-	-	7,760	1,580	-	-	M
19cb1	10- 1-45	11.4	-	-	-	90	2.0	137	40	73		522	199	11	-	-	-	860	644	-	-	M

See footnote at end of table.

Replacement sheet, December 1949

Table 2. Complete chemical analyses of representative waters--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
								Roosevelt County, Montana--Continued														
30-56-19cb3	7-18-47	-	-	-	-	12	-	286	130	154		323	1,210	35	-		-	2,300	1,250	-	-	M
19cc2	1948	174	-	-	-	28	0.4	92	96	568		952	979	14	-	-	-	2,290	624	-	-	M
19cc3	8-14-46	-	-	-	-	6.0	-	241	118	326		302	415	348	-	-	-	1,640	1,090	-	-	M
19cd1	6-31-37	27	-	-	-	99	-	408	64	1,960		738	4,470	164	-	-	-	1,130	1,280	-	-	M
19cd2	7-22-29	150	-	-	-	-	-	42	-	979		1,250	1,120	19	-	-		2,780	104	-	-	M
	3-30-37	150	-	-	-	-	12	-	-	-	-	1,240	822	14	-	-	-	2,670	115	-	-	M
19cd3	11-25-40	16	-	-	-	-	.9	-	-	-	-	726	839	12	-	-	-	1,870	340	-	-	M
								Sheridan County, Montana														
31-55-12da1	8-20-48	120	-	6.9	3,910	34	0	578	325	101	4.0	702	2,010	72	0.2	228	0.56	3,680	2,780	2,200	7.3	-
13ad	8-20-48	176	50	7.6	2,270	18	1.2	256	176	115	7.6	847	880	7.5	0	0	.15	1,850	1,360	665	15	-
23cc	8-20-48	120	52	8.2	1,840	21	.02	59	33	380	8.4	1,100	188	12	1.0	4.4	.09	1,250	283	0	74	-
24aa1	8-20-48	104	48	7.9	1,510	26	.05	110	58	196	4.8	760	269	4.0	.4	6.0	.22	1,080	513	0	45	-
31-56-18bc	8-20-48	149	52	7.6	2,030	14	.16	102	82	324	1.6	980	476	4.0	.0	4.0	.28	1,500	592	0	54	-
30bb	6- 6-47	203	52	8.0	1,250	15	3.3	75	46	149	10	572	219	4.0	.0	12	.40	836	376	.0	45	-
32-55-25bd	2-26-18	-	-	-	-	-	-	49	18	47		259	75	5.8	-	-	-	292	198	-	-	M
	3-21-30	-	-	-	-	8.8	.0	54	23	73		323	107	7.0	-	-	-	412	229	-	-	M
	10-10-38	-	-	-	-	24	.2	64	29	129		402	197	16	-	-	-	695	279	-	-	M
	6- 7-46	-	-	-	-	19	-	181	89	70		512	498	18	-	-	-	1,190	785	-	-	M
36dd	8-22-48	Medicine Lake	-	8.8	2,430	17	0	43	55	476	2.0	769	684	24	.2	1.0	.88	1,750	333	0	75	-
32-56- 4cb	8-22-48	100	47	7.1	1,510	46	.16	86	60	217	5.2	1,000	111	4.0	.6	.9	0	1,090	461	0	50	-
5da	8-21-48	10.4	47	7.3	438	51	0	56	22	10	.8	229	44	3.6	0	14	.02	326	230	43	8.6	-
18dd	8-22-48	200	56	7.8	1,960	24	.6	28	18	481	1.6	1,240	6.4	97	2.8	1.4	0	1,310	144	0	88	-
20cc2	8-22-48	23.5	46	7.1	1,370	51	0	188	55	23	3.6	448	135	86	0	160	.02	1,080	695	328	6.7	-

See footnote at end of table.

Replacement sheet, December 1949

Table 2.--Complete chemical analysis of representative waters--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
										Sheridan County, Montana--Continued												
32-56-22dc1	8-22-48	12.8	52	7.3	562	41	0	87	23	5.9	2.0	360	5.6	0	0	18	0.16	364	312	17	3.9	-
22dc3	8-22-48	99	47	6.8	2,970	28	0	250	185	260	8.0	1,030	1,140	7.4	0.4	0	.09	2,530	1,380	535	29	-
31bb2	6- 8-47	225	58	7.7	1,980	12	2.4	90	53	316	16	814	416	30	1.0	5.5	.33	1,340	422	.0	60	-
33-57-25cb	8-21-48	77.5	47	7.5	1,340	29	.20	168	79	60	6.0	688	304	4.0	.0	1.1	.17	1,000	74	180	15	-
36ac	8-21-48	32	-	7.7	898	28	.10	114	40	18	1.6	448	36	27	.1	69	.01	630	449	82	8.0	-
36bd	8-21-48	75	50	7.0	1,990	35	.16	372	82	67	12	568	888	8.0	.2	14	.21	1,820	1,270	804	10	-
33-58- 5ab	8-21-48	Clear Lake	-	9.2	6,950	7.7	.14	5.0	22	1,980		2,080	2,480	77	.2	0	2.07	6,170	103	0	98	-
10bc	8-21-48	32	45	7.6	1,060	28	.24	111	42	90	2.8	468	230	7.0	.2	2.2	.11	748	450	74	30	-
22	11-13-33	Brush Lake	-	-	-	9.0	-	11	318	1,390		1,560	2,840	71	-	-		6,150	1,330	-	-	M
34-57-31bc	8-21-48	278	46	7.8	1,300	19	.10	170	81	39	3.2	692	248	5.0	.2	.0	.17	924	757	190	10	-
32bc	8-21-48	75	46	7.8	1,620	20	.10	258	79	15	3.2	208	648	8.1	.2	68	.00	1,440	969	799	3.2	-
34-58-32 or 33	11- 3-33	Clear Lake	-	-	-	5.0	-	12	296	1,240		1,560	2,450	76	-	-	-	6,050	1,240	-	-	M
35-55-19ad1	1- 9-37	230	-	-	-	68	.8	3.9	9.7	602		1,040	328	112	-	-	-	1,610	50	-	-	M
	2- 1-39	230	-	-	-	56	1.2	20	4.3	755		1,131	222	385	-	-	-	1,940	67	-	-	M
	10-19-45	230	-	-	-	42	2.0	11	4.0	699		970	263	298	-	-	-	1,870	44	-	-	M
19ad2	6- 3-36	230	-	-	-	45	1.0	8.0	4.0	632		975	439	92	-	-	-	1,670	36	-	-	M
19ad3	4- 4-45	55	-	-	-	12	.0	62	74	305		325	594	66	-	-	-	1,300	463	-	-	M
19da1	1-17-30	-	-	-	-	-	.1	4.0	9.0	637		997	544	23	-	-	-	1,780	47	-	-	M
	6-12-37	-	-	-	-	57	.6	17	4.8	646		939	411	150	-	-	-	1,770	62	-	-	M
19da2	1- 2-42	138	-	-	-	66	.0	23	6.6	624		942	590	25	-	-	-	1,850	64	-	-	M
20ba2	-	47	-	7.3	-	-	.5	334	378	-	-	-	415	17	-	-	-	-	712	-	-	P
20ba3	2-16-40	31	-	-	-	18	-	100	119	116		246	538	15	0.4	-	-	992	-	-	-	W
	12- -45	31	-	-	-	15	0	161	169	100		-	787	21	-	-	-	1,810	-	-	-	W
	3- -47	31	-	-	-	15	0.5	315	60	140		-	831	22	-	-	-	1,339	-	-	-	W
20bb	4- 6-46	55	-	-	-	5.0	.2	114	108	256		620	689	34	-	-	-	1,540	-	-	-	M

1 M, Montana State Board of Health; P, Permutit Co.; W, Western Filter Co. All other analyses made by U. S. Geological Survey.

Replacement sheet, December 1949

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Records of more than 1,100 wells have been obtained to date in the Medicine Lake-Grenora area. The locations of the wells are shown on plate 4 and the data are presented in table 3.

Table 3 . --Records of wells

Well number 1/	Owner or tenant	Type of well 2/	Depth of well (feet) 3/	Diameter of well (inches)	Type of casing 4/	Character of water-bearing material 5/	Method of lift 6/	Use of water 7/	Measuring point: Description 18/	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea-level (feet)	Depth to water level below measuring point (feet) 23/	Date of measurement	Chemical analysis 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						Roosevelt County, Montana								
28-51- 5ca	-	Dn	-	1¼	P	-	-	N	Tca	5.6	-	13.1	5-19-47	-
5cd	James O'Conner	Dn	18	1¼	P	-	P,H	D	-	-	-	-	-	-
8ab	Frank Abbott	Dn	-	1¼	P	-	Cy,H	N	-	-	-	-	-	-
8ac1	Chris O'Conner	Dr	21.2	6	P	-	Cy,W	S	Tca	.6	1980.6	1.51	7-29-48	U
8ac2	-	Dn	6	1¼	P	-	P,H	D	-	-	-	-	-	-
8da	Austin Buckles	Dn	18	1¼	P	-	Cy,H	D,S	L	-	1995	9	-	-
13cc1	-	B	35.7	12	W	-	Cy,W	N	Tco	1.4	2193.4	33.57	7-27-48	-
13cc2	-	Dr	71.6	6	P	-	Cy,G	N	-	-	21 92	61.82	7-27-48	-
13cc3	John O'Conner	Du	25	36	W	-	Cy,W	D,S	-	-	-	-	-	-
17aa	-	Dr	27.4	6	P	-	Cy,H	D,S	Tca	.7	2000.7	13.37	7-29-48	-
17cc	Charles Roller	Dn	17	1¼	P	-	P,H	D	L	-	-	15	-	-
19ab	Walter Bridges	Dn	20	1¼	P	-	Cy,H	D,S	-	-	-	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
28-51-20bd	Vincent Roller	Du,Dn	20	48,1¼	W,P	-	Cy,H	D,S	L	-	-	17	-	-
22cc	Carl Biere	Dr	75	5	P	-	Cy,W,G	D,S	L	-	2100	69	-	-
23dc	do.	Dr	-	5	P	-	Cy,H	D,S	Tca	0.5	-	51.3	5-20-47	-
23dd	-	Dr	99+	5	P	-	-	N	-	-	-	Dry	5-20-47	-
25bb	-	Dr	21.5	5	P	-	-	N	-	-	-	Dry	5-20-47	-
29ba1	-	Dr	-	4	P	-	Cy,G	N	-	-	1978	-	-	-
29ba2	-	Dr	-	5	P	-	Cy,H	D,S	-	-	-	-	-	-
29cc	-	Dn	-	1¼	P	-	Cy,H	D,S	-	-	-	-	-	-
30cd	Atkinson	Dn	15	1¼	P	-	Cy,E	S	-	-	-	-	-	-
31ad	Adolph Hibl	Dr	110	4	P	-	Cy,W	D,S	L	-	2030	90	-	-
31ba1	Clara Benson	Dn	-	1¼	P	-	Cy,H	D,S	-	-	-	-	-	-
31ba2	Louise Summers	B	32	--	-	-	Cy,H	D	-	-	-	-	-	-
32cc		B	71.1	18	W	-	Cy,H	N	Tco	1.1	2026.1	Dry	7-29-48	-
32dc	T. P. Danielson	Dr	106	4¼	P	-	Cy,W	D,S	L	-	2035	76	-	-
33bc	do.	Dr	98.5	4¼	P	-	-	N	-	-	-	Dry	-	-
33cb	Clayton Lester	B	100	-	P	-	-	N	Tca	.8	-	94.98	5-16-47	-
33dd	Clem Lockman	Dr	85	6	P	-	Cy,W	D,S	L	-	-	80		-
36bb	-	Dr	-	5	P	-	Cy,W	D,S	-	-	-	-	-	-
36bc	-	Dr	23.6	6	P	-	Cy,W	N	Tca	.3	2160.3	19.02	7-29-48	-
28-52-13bc	George Shanks	Dr	170	-	-	-	Cy,W	D,S	-	-	-	-	-	-
14ad	-	Dr	91.7	6	P	-	Cy,W	D,S	Tca	.9	2090.9	88.34	7-27-48	-
15dd	Luke Jelden	Dr	108	4	P	-	Cy,W,G	D,S	-	--	2095	-	-	-
28-53-3bb	-	Dr	71.9	4	P	-	-	N	Tca	.5	-	68.7	4-29-46	-
5cc	-	Dr	41.3	6	P	-	-	N	L	-	-	40.3	6-12-47	-
6cb	-	Dr	-	5	P	-	Cy,G,W	S	-	-	-	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
28-54-.1bd	-	B	91.5	18	W	-	Cy,W	N	Tco	0.4	1967.4	63.04	7-26-48	-
2dc	Neville Bemer	B	140	18	W	-	Cy,G	D,S	L	-	2024	110	-	-
3ad	-	Dr	-	3	P	-	Cy,W	N	-	-	2026	-	-	-
16db	Norman Hollow	Dr	135	6	P	-	Cy,G	D,S	-	-	2114	80	-	-
28-55-.1ca	Ralph Rasmussen	Dr	175	6	P	-	Cy,W	D,S	L	-	-	100	-	-
1dd	Gerald Cobban	Dr	207.1	4	P	-	-	N	Tca	.7	-	204.55	7-29-48	-
5ba	Schow	B	136	18	W	-	Cy,G	D,S	L	-	2060	130	-	-
8bb1	P. J. Nacey	Dr	73	6	P	-	Cy,G	D,S	L	-	1938	38	-	-
8bb2	do.	Du	45	36	C	-	Cy,H	N	L	-	1938	34	-	-
17ad	Marvin Olson	Dr	89	6	P	-	Cy,H	D,S	L	-	1947	19	-	-
18cd	-	B	-	8	W	-	-	N	Tcu	.2	1948.2	41.12	7-28-48	-
29-51-.4dc1	David Smith	Dn	-	1¼	P	-	Cy,E	S	-	-	-	-	-	-
4dc2	do.	Dn	-	1¼	P	-	P,H	D,S	-	-	-	-	-	-
9bc	-	Dn	7	1¼	P	-	-	N	-	-	-	-	-	-
10cd	-	Dr	-	5	P	-	Cy,H	D,S	Hp	2.0	-	45.64	5-16-47	-
16dd	Walter Paulson	Du,Dn	18	5	P	-	Cy,H	D	-	-	-	-	-	-
25db	U. S. Bur. Recl.	Dr	19.2	2	P	-	-	Ø	Tca	.3	2069.0	Dry	-	-
27da	do.	Dr	28.5	2	P	-	-	O	Tca	.5	2097.9	27.59	10-27-47	-
36aa	do.	Dr	3.5	2	P	-	-	O	Tca	.5	2051.8	2.66	10-27-47	-
36bb	do.	Dr	13.7	2	P	-	-	Ø	Tca	1.2	2066.0	9.53	10-27-47	-
29-52-.2dd	-	Dr	-	6	P	-	Cy,W	N	-	-	-	-	-	-
3cc	Peter Moe	Dr	100	4	P	-	Cy,E	D,S	-	-	-	85	-	-
13cc	William Krall	Dr	43	6	P	-	Cy,H	D,S	-	-	-	18	-	-
26ba	-	Du	-	48	W	-	F	S	Tca	3.0	-	6.60	5-20-47	-
26bb	August Snider	Du	10	62	W	-	Cy,W	S	L		2022	4	-	U

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
29-52-26bc	McIlwain	Du	10.9	6	W	-	Cy,W,H	D,O	Tcu	1.2	-	6.82	4-29-46	-
27aa	Mrs. J. H. McIlwain	Du	8	1½	P	-	Cy,H	D,S	L	-	-	4-6	-	-
30ac	U. S. Bur. Recl.	Dr	4.0	2	P	-	Cy,H	O,	Tca	-	-	-	-	-
30bc	T. W. Larson	Dr	149.0	6	P	-	Cy,W	D,S	Tca	.9	2065.9	65.13	7-27-48	-
31cc	U. S. Bur. Recl.	Dr	31.5	2	P	-	-	O	Tca	-	2068.3	7.95	6-15-48	-
31dd	-	B	-	12	W	-	-	N	Tca	.5	-	45.1	5-20-47	-
33cd	-	Dr	-	5	P	-	Cy,H	D,S	Tca	.1	-	19.74	5-20-47	-
33dd	-	Dr	-	5	P	-	-	D,S	Tca	1.0	-	14.3	5-20-47	-
35cd	-	Dr	52.8	8	P	-	-	N	Tca	.4	2035.4	37.59	7-28-48	-
29-53- 1ab	-	Dr	+57.5	5	P	-	-	N	Tca	.5	-	Dry	4-29-46	-
1bb	-	B	23.6	14	P	-	-	N	Tca	.1	-	8.88	6-13-47	-
3ab	-	Dr	34.2	6	P	-	Cy,H	N	-	-	-	Dry	6-13-47	-
7aa	-	Du	-	36	W	-	Cy,H	D,S	-	-	-	-	-	-
8cc	-	Du	19.8	48	W	-	-	S	Tcu	.2	-	19.55	6-12-47	-
10db	O. C. Olsen	Du	25	48	W	-	Cy,H	S	Tca	.8	2002.8	19.88	6- 3-47	U
13cc	-	Dr	-	5	P	-	Cy,H	D,S	-	-		-	-	-
28cd1	Loy Jaumotte	Dr	100	4	P	--	Cy,W	S	L	-	2100	70	-	U
28cd2	do.	B	20	12	T	-	Cy,H	D	L	-	2086	12	-	-
29ab	-	Dr	33.1	4	P	-	-	N	Tca	.7	-	10.7	6-12-47	-
29cc1	J. V. Jaumotte	Dr	53	4	P	-	Cy,E	D,S	-	-	2055	26	-	-
29cc2	do.	Dr	84	5	P	-	Cy,G	D,S	L	-	-	25	-	-
32bb	do.	Dr	99	5	P	-	Cy,E	D,S	L	-	2060	39	-	-
36cc	Joanna Bartino	Dr	160	4	P	-	Cy,W	D,S	L	-	2060	100	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
29-54-10ad	Gottlieb Hekkel	Du	20	48	W	-	Cy,W	D,S	L	-	1951	12	-	-
11cc	-	Du	14.2	48	W	-	Cy,G	S	Tco	.7	1958.7	10.52	7-22-48	-
13da1	Gilford Erickson	Dr	103.0	6	P	-	-	N	Tca	1.2	2126.2	100.81	7-23-48	U
13da2	do.	Dr	-	6	P	-	Cy,W	-	-	-	2030	-	-	-
15aa	Martin Damm	Du	18	48	W	-	Cy,W	D,S	L	-	1985	15	-	-
15da1	Alexander Damm	B	95	18	W	-	Cy,W	S	L	-	2054	75	-	U
15da2	do.	Du	25	-	-	-	Cy,H	N	L	-	2030	20	-	U
20aa1	Jacob Wolf	B	50	18	W	-	Cy,E	D,S	L	-	1928	25	-	-
20aa2	do.	B	80	18	W	-	J,E	D	L	-	1936	30	-	-
23bb	Henry Damm	B	80	24	W	-	Cy,W	D,S	L	-	2109	74	-	-
23cb	David Damm	B	120	18	W	-	Cy,W,G	S	L	-	2165	97	-	U
24cd	-	B	162.5	12	W	-	Cy,W	N	Tco	.3	2188.3	141.99	7-23-48	-
25ac1	-	B	71.2	24	W	-	Cy,W	N	Tco	1.4	2206.4	60.25	7-26-48	-
25ac2	-	B	84.6	24	W	-	Cy,W	N	Tco	1.4	2206.4	61.73	7-26-48	-
25bc	-	B	187.3	18	W	-	Cy,W	N	Tco	.7	2175.7	156.72	7-26-48	-
27ab	S. Tietz, Sr.	B	100	18	W	-	Cy,W	S	L	-	2085	70	-	U
30ab	Alford Manning	Du	29.1	36	W	-	Cy,W,G	D,S	Tco	.1	1934.1	8.15	7-26-48	-
31dc	Frank Bertino	Dr	103	4	P	-	Cy,W	D,S	L	-	2030	60	-	-
29-55- 4bb	-	B	73.4	24	W	-	Cy,H	N	Tco	2.2	2057.2	41.01	7-22-48	-
4dc	Henry Wentz	B	51.4	-	-	-	Cy,W	D.S	Tco	1.9	2079.9	39.06	7-23-48	-
5bb	H. O. Peile	-	-	-	-	-	F	-	-	-	-	-	-	P
9ca	-	B	54.6	24	W	-	-	N	Tcu	.2	2105.2	51.77	7-23-48	-
11ab	-	B	10.6	18	W	-	W	N	Tcu	.8	2180	Dry	7-23-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
29-55-11ba	H. Winch	LM	-	-	-	L	Cy,W	D,S	-	-	-	-	-	CC
12da	-	B	71.2	18	W	-	Cy,W,G	S	Tco	0.6	-	65.74	7-22-48	-
12da2	Alex Ostwald	B	69.1	18	W	-	Cy,W	D,S	Tco	.8	-	57.65	7-22-48	-
14dd	Carsten Beck	Dr	-	4	P	-	Cy,G	S	-	-	2230	-	-	U
18dd	Emanuel Damm	B	70	24	W	-	Cy,W	S	L	-	2250	30	-	-
19ab	do.	B	80	18	W	-	Cy,W	D,S	L	-	2220	23	-	-
20cc	Roy Schuetze	B	60.5	24	W	-	Cy,W	D,S	Tco	.6	-	43.53	7-23-48	-
21bb	S. Tietz, Jr.	Dr	45	6,3,2	P	-	Cy,W	D,S	L	-	2180	80	-	C
21cc	David Luft	B	163	18	W	-	Cy,W	S	L	-	-	143	-	U
22dd		Dr		4	P	-	Cy,W	N	-	-	-	-	-	-
24aa	J. C. Knick	B	90	18	W	-	Cy,W	S	L	-	-	85	-	U
24cb	Gottlieb Luft	B	152	18	W	-	Cy,W	S	L	-	2160	130	-	U
26ba	-	B	167.5	12	W	-	Cy,W	N	Tco	.3	-	163.49	7-23-48	-
34bd	Henry Kreuger	B	111.4	24	W	-	Cy,W	D,S	Tco	.2	-	110.13	7-26-48	-
34da1	Otto Waldow	B	130.3	18	W	-	Cy,G	D,S	Tco	.7	-	92.39	7-26-48	-
34da2	do.	Du	19.2	48	W	-	Cy,W	N	Tco	1.2	-	17.02	7-26-48	-
35ba	Lloyd Flischman	B	161.5	24	W	-	Cy,W	N	Tco	.7	-	85.55	7-26-48	U
29-56- 1ab1	-	B	264.3	12	W	-	-	N	Tcu	.4	-	262.58	7-22-48	-
1ab2	-	-	-	-	-	-	Cy,H	N	-	-	-	-	-	-
1cd	-	B	115.6	24	W	-	Cy,W,G	N	Tco	.5	-	103.66	7-22-48	-
2ad	M. L. Ostby	B	155	18	W	-	Cy,E	D,S	L	-	-	135	-	-
3cb	J. C. Peckham	Dr	-	4	P	-	Cy,W	S	-	-	-	-	-	U
3da	-	B	72.6	12	W	-	Cy,H	-	Tcu	1.6	-	50.68	7-19-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
29-56- 4da	-	B	69.6	12	W	-	-	N	Tco	0.1	-	60.27	7-19-48	-
5ad	George Waters	-	-	-	-	-	-	S	Tco	.4	-	Below 100.00	- 7- 2-48	- U
5dc	-	Dr	-	4	P	-	Cy,W,E	N	-	-	-	-	-	-
6ab	Mary Holm	B	39.5	18	W	-	Cy,W	S	Tco	.8	-	30.70	7-19-48	U
7cb	Salome Rasmussen	B	100	18	W	-	Cy,W	D,S	L	-	-	70	-	-
8ba	Alvin Erdahl	Dr	70	6	P	-	Cy,G	S	L	-	-	50	-	U
9cb	McBride	-	-	-	-	-	Cy,W	N	-	-	-	-	-	C
11dd	-	Dr	-	4	P	-	Cy,W	N	-	-	-	-	-	-
12bb	W. S. Blowers	B	99	12	W	-	Cy,G	D,S	L	-	-	20	-	-
13bc	-	Dr	-	3	-	-	Cy,W	N	-	-	-	-	-	
17ab	-	-	-	-	-	-	Cy,H	N	-	-	-	-	-	-
18aa1	-	B	28.0	24	W	-	Cy,W	N	Tco	.6	-	22.10	7-19-48	-
18aa2	-	-	-	-	-	-	Cy,W	N	-	-	-	-	-	-
19ac1	J. C. Knick	B	26	24	W	-	Cy,W	D,S	L	-	-	22	-	-
19ac2	do.	Du	17	36	W	-	Cy,H	D	L	-	-	13	-	-
19ac3	J. C. Knick	B	18	24	W	L	Cy,H	S	L	-	-	12	-	U
19ac4	do.	B	20	8	W	-	Cy,H	D,S	L	-	-	13	-	-
19ad	Edward Sorbel	Dr	30	6	P	-	Cy,W	S	L	-	-	15	-	U
19db	J. C. Knick	B	23.2	18	W	-	Cy,W	N	Tco	.9	-	12.49	7-22-48	-
20ba	-	-	-	-	-	-	Cy,W,E	S	-	-	-	-	-	-
20db	-	Du	58.7	36	-	-	Cy,G	S	Tco	.9	-	43.22	7-20-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
29-56-24bb	-	Dr	-	3	P	-	Cy,W,G	S	-	-	-	-	-	-
30-52-13ab	L. Kuehnle	B	126	18	W	-	Cy,G	D,S	L	-	-	86	-	-
13cc	Henry Solberg	Dr	-	4	P	-	Cy,W	D,S	-	-	-	-	-	-
14cc	-	Dr	-	4	P	-	Cy,H	N	-	-	-	-	-	-
15dd	Allen Hess	Dr	110	4	P	-	Cy,W	D,S	L	-	-	80	-	-
22aa	do.	Dr	108	4	P	-	Cy,G	N	L	-	-	78	-	-
24cc	-	Dr	73.2	6	P	-	Cy,W	N	Hp	0.4	-	67.22	-	-
26dd	-	Dr	-	6	P	-	Cy,W	D,S	-	-	-	-	-	-
30-53- 8dd	Holles Waller	Dr	-	6	P	-	Cy,E	D,S	-	-	-	-	-	-
16bb	Schnitzler Corp.	B	93.3	24	W	-	Cy,W	D,S	Tco	.5	-	52.59	7-27-48	-
26dc	-	B	41.3	12	W	-	Cy,H	N	Tcu	.5	-	21.02	7-27-48	-
28dc	George Boyd	Dr	69.4	6	P	-	Cy,G	D,S	Tco	1.7	-	54.46	6-13-49	-
29dd	-	Dr	87.8	4	P	-	-	O	Tca	1.3	-	58.86	4-29-46	-
32ab	Henry Dethman	B	65	18	W	-	Cy,G	D,S	-	-	-	62	-	-
34cc	-	Dr	37.3	5	P	-	Cy,G,W	D,S	Tca	1.5	-	32.63	6-13-48	-
34cd	-	Dr	39.2	6	P	-	Cy,W	D,S	Tca	1.1	-	32.56	7-27-48	-
35bb	-	Dr	-	4	P	-	Cy,H	N	-	-	-	-	-	-
36cc	-	B	20.2	24	W	-	-	N	Tco	.4	-	4.47	7-27-48	-
30-54- 4cc1	Martin Reynen	Dr	138	6	P	-	Cy,E	D,S	-	-	2085	82	-	-
4cc2	do.	Dr	121	6	P	-	Cy,E	D,S	-	-	2085	82	-	-
6db	Ethyl Olson	Du	27	20	-	-	Cy,W	D,S	-	-	2100	25	-	-
10cd	Martin Reynen	B	158	18	W	-	Cy,W	N	-	-	2024	68	-	-
16aa	A. Ryder	B	101.8	18	W	-	Cy,H	N	Tco	.2	2038.2	77.81	7-21-48	U

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-54-22bc1	Martin Anderson	B	40	18	W	-	Cy,E	D,S	-	-	1963	37	-	-
22bc2	do.	B	40	18	W	-	Cy,E	N	-	-	1965	37	-	-
26dc	T. Thompson	B	35	18	W	-	-	D	Tca	0.8	-	20.0	6-13-47	-
35bb	John Johnson	Dr	75	4	P	-	Cy,H	D	L	-	-	50	-	-
30-55- laa1	-	Dr	-	4	P	-	-	O	Tca	1.6	2001.60	30.71	6- 3-47	-
laa2	U. S. Geol. Survey	R	-	-	-	-	-	N	L	-	1982.65	-	-	-
lac1	August Priebe	B	45	18	W	-	Cy,W	D,S	L	-	1985	16	-	-
lac2	do.	B	20	18	W	-	Cy,H	D	L	-	1977	10	-	-
lac3	do.	B	45	18	-	-	Cy,W	D	L	-	1979	16	-	-
lca	Schulz Bros.	B	-	18	W	-	Cy,W	D,S	-	-	1981	-	-	-
ldd	U. S. Geol. Survey	Dr	190.0	4 3/4	-	-		N	L	-	1988.07	12.35	6- 3-47	-
10ca	Alford Jensen	B	62	18	W	-	Cy,W	D,S	L	-	1955	10	-	-
11bb	Andrew Sulwall	Du	11	36	W	-	Cy,W	D,S	L	-	1955	6	-	-
12dc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2025	-	-	-
13cd	-	GP	-	-	-	-	-	N	-	-	2000	-	-	C
13da	-	B	100.6	18	W	-	Cy,W	N	Tco	.6	2047.6	62.15	7-19-48	-
14cd	Town of Froid	B	20	24	W	-	-	N	L	-	-	4	-	C
15da1	-	B	71.6	24	W	-	-	-	Tco	.7	1984.7	34.23	7-21-48	-
15da2	-	Dr	-	4	P	-	Cy,H	-	-	-	1988	-	-	-
16cc	Stewart Cobban	Du	22	24	W	-	Cy,W	D,S	L	-	1950	17	-	-
21ad1	T. Thompson	Dr	76	6	P	-	Cy,W	S	L	1	1981	46	-	-
21ad2	do.	B	46	24	W	-	Cy,H	D	L	-	1981	42	-	-
21ba	N. O. Mogen	B	620	24	W	-	Cy,H	D,S	Tco	.6	1963.6	35.10	7-21-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-55-23cb1	Clarence Benson	B	53	24	W	-	Cy,W	D,S	L	-	1995	52	-	-
23cb2	do.	B	53	24	W	-	Cy,H	D,S	L	-	1995	52	-	-
23cb3	do.	Dr	118	4	P	S,G	J,E	D,S	Tca	0.9	1995.9	48.18	9- 8-48	-
24bc	Hanson & Rueden	B	55	18	W	-	Cy,W	D,S	L	-	1983	20	-	-
24da	W. G. Ryder	Dr	180	4	P	-	Cy,G	S	L	-	2026	14	-	-
25dd	Adolf Sundvold	B	50	24	W	-	Cy,G	S	L	-	2061	44	-	U
28cd	Robert Purvis	Du	16	48	W	-	Cy,E	D,S	L	-	1990	12	-	-
29dd	E. Johnson	Dr	300.0	6	P		Cy,G	D,S	Hp	1.2	1971.2	39.18	7-21-48	-
31ca	-	Dn	-	2	P	-	Cy,W	-	-	-	1934	-	-	-
36ad	-	Du	47.0	24	C	-	Cy,W	S,O	-	-	2064	13.65	4-25-46	-
36da	-	B	44.6	18	W	-	Cy,W	-	Tco	1.6	2059.6	31.96		-
30-56-1bb	E. T. Strondlund	Dr	144	4,6	P	-	Cy,G	D,S	L	-	2067	60	-	-
2aa1	A. W. Nyquist	Du	24	48	W	-	Cy,H	S	L	-	2065	17	-	U
2aa2	do.	Du	24	48	W	-	Cy,H	S	L	-	2063	14	-	-
2ab1	do.	B	38	24	W	-	Cy,W	N	L	-	2065	36	-	U
2ab2	do.	-	14	-	W	-	P,H	D	L	-	2065	13	-	-
5bc	John D. Miller	B	86.7	18	W	-	Cy,W,G	S	Tcu	1.0	2035.0	63.61	7- 2-48	U
5cc	-	B	95.2	18	W	-	Cy,H	-	Tco	.5	2042.5	64.62	7- 2-48	-
6bc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2000	-	-	-
7ad1	W. M. Base	B	30	18	W	-	Cy,G	S	L	-	-	12	-	-
7ad2	do.	-	27.3	-	-	-	-	-	L	-	-	7.6	7- 2-48	-
7ad3	do.	-	30	-	-	-	Cy,E	D	L	-	-	16	-	-
7ad4	do.	-	28.3	-	-	-	-	D	L	-	-	16.17	7- 2-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-56- 7cc	Christopherson	Dr	87.0	3	P	-	Cy,H,W	D,Ø	Tca	0.4	-	60.92	7-10-46	U
8bb	T. McCabe	B	94.7	18	W	-	Cy,W	D,S	Tco	.8	-	67.83	7- 2-48	-
8cc	Robert Zick	B	87	18	W	-	Cy,H	S	L	-	-	82	-	U
10ad	Marlin Coats	Dr	150	6	P	-	Cy,W	D,S	L	-	-	75	-	-
10cd	George Luebke	Dr	200	2.5	P	-	Cy,W	S	L	-	-	120	-	U,C
11dc	R. I. Nyquist	Dr	86	4	P	-	Cy,W	S	L	-	-	66	-	U
12ad	O. E. Bergland	B	60	-	W	-	Cy,G	S	L	-	-	38	-	U
13aa	-	-	69.7	-	-	-	Cy,W	-	Tco	.8	-	66.31	6-30-48	-
15ad	Irwing Hoye	Dr	120	2.5	P	-	Cy,W	D,S	L	-	-	85	-	-
15cc	Garret Lomar	B	56	18	W	-	Cy,G	D,S	L	-	-	33	-	-
17cc	Einer Johnson	B	92	14	W	-	Cy,G	S	L	-	-	57	-	U
17dc	Herbert Ryder	Dr	6	P	-	-	Cy,W	D,S	-	-	-	-	-	-
18bc1	Martin Scott	Dr	136	4	P	-	Cy,W	N	-	-	-	-	-	-
18bc2	do.	-	75+	-	-	-	-	-	-	-	-	-	Dry	-
18bc3	do.	B	24.0	18	W	-	Cy,H	D,S	Tco	1.2	-	11.09	8-20-48	C
18cd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2065	-	-	-
19bc	Victor Skogen	Du	58.5	36	W	-	Cy,E	S	Tco	.5	-	36.10	7-19-48	U
19ca1	Town of Froid	Dr	248	8	P	-	G	P	Tca	.6	-	55.80	9- 1-48	C
19ca2	Dr. Darland	-	60	-	-	-	-	D	-	-	-	-	-	C
19ca3	Farmers Union Garage	-	-	-	-	-	-	-	-	-	-	-	-	C
19ca4	W. E. Glaze	Du	16	-	-	-	-	N	-	-	-	-	-	C

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-56-19cb1	C. McEown	Du	11.4	48	W	-	Cy,H	D	Tcu	0.5	-	9.14	7-19-48	C
19cb2	Town of Froid	Dr	800	-	-	-	-	N	-	-	-	Dry	-	-
19cb3	Nils Sunwall	-	-	-	-	-	-	-	-	-	-	-	-	C
19cc1	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2040	-	-	-
19cc2	Town of Froid	Dr	174	-	-	-	-	PS?	-	-	-	-	-	C
19cc3	- -	B	80	18	W	-	Cy,H	D	L	-	-	12	-	C
19cc4	Town of Froid	Dr	200	6	P	-	-	N	-	-	-	Dry	-	-
19cd1	Mrs. J. W. Schnitzler	Du	27	-	-	-	-	-	-	-	-	-	-	C
19cd2	C. Christopherson	-	150	-	-	-	-	-	-	-	-	-	-	C,P
19cd3	H. O. Peile	Du	16	48	C	-	-	-	-	-	-	-	-	P
20cc	A. Olson	B	58.7	18	-	-	Cy,G	D,S	Tcu	.6	-	31.34	7- 2-48	-
20dc	Goodwin Berg	B	60	18	W	-	Cy,W	S	L	-	-	40	-	U
21ad1	Edgar Waters	B	80	18	W	-	Cy,W	D,S	L	-	-	65	-	-
21ad2	do.	-	34	-	-	-	Cy,H	D	L	-		24	-	-
21bb	-	B	103.2	18	W	-	Cy,H	-	Tco	.4	-	65.22	7-19-48	-
21cc	-	B	46.31	18	W	-	Cy,W	-	Tco	.8	-	14.48	7- 2-48	-
27ab1	Arthur Swanson	B	80	18	W	-	-	D,S	L	-	-	60	-	-
27ab2	do.	-	85	-	-	-	Cy,G	D	L	-	-	60	-	-
27dc	Holger Jenson	B	48.0	18	W	L	-	S	Tco	.8	-	34.66	7- 2-48	U
28ad	Ewald Christoffersen	B	95	18	W	-	Cy,W,G	S	L	-	-	89	-	U
28bc	E. Cheney	B	56	24	-	-	Cy,W	S	L	-	-	34	-	U
30ad1	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2040	-	-	-
30ad2	Town of Froid	Dr	78.0	-	-	X	-	N	-	-	2040	-	-	-
30cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2075	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-56-31bd	A. L. Sundvold	Du,B	35	24	W	-	Cy,G	S	L	-	-	18	-	U
31cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2065	-	-	-
31dd	Wekander	B	32.2	18	W	-	Cy,H	D,S	Tco	0.4	-	5.53	7-19-48	-
33ad	-	B	-	18	W	-	-	-	Tco	.2	-	100+	7- 2-48	-
34aa	Oscar Jensen	Du	37	36	W	-	Cy,H	D,S	L	-	-	29	-	-
35ac	Alice Insteness	B	90	18	W	-	Cy,W	D,S	L	-	-	87	-	-
35db	B. K. Ostby	B	90	18	W	-	Cy,W,G	D,S	L	-	-	50	-	-
30-57- 3aa1	G. A. Clark	Du	40	48	W	-	Cy,H	D,S	L	-	2216	38	-	-
3aa2	do.	-	190	-	-	-	Cy,W	-	L	-	2213	93	-	U
3bc	Wheeler Farms	Dr	316	4	P	-	Cy,W	D,S	L	-	2240	166	-	-
3cc	do.	B	117	8	P	-	Cy,W	D,S	L	-	2250	107	-	-
5aa	Arthur Krogedal	B	85	20	W	L	Cy,G	D,S	L	-	2147	73	-	-
6cc	-	B	31.7	12	T	-	Cy,H	N	Tco	1.6	2113.6	12.64	6-30-48	-
7cd	Lorence Nyquist	B	112	18	W	-	Cy,W	S	L	-	-	99	-	-
18dd	Alford Gangstad	B	80	18	W	-	Cy,G	S	L	-	-	40	-	U
19dd	-	B	-	18	W	-	Cy,G	N	Tco	1.0	-	100+	6-30-48	-
20ba	Carl Bertelsen	B	60	18	W	-	Cy,W	D,S	L	-	-	20	-	-
21cb	-	-	51.7	-	-	-	Cy,W	N	Tcu	1.0	-	32.32	6-30-48	-
22dd	James Christenson	B	100	24	W	-	Cy,W	D,S	L	-	-	90	-	-
23bc	Norman Sundvold	B	90	24	W	-	Cy,G	D,S	L	-	-	50	-	-
26cb	-	B	80.1	8	W	-	Cy,H	N	Tcu	.5	-	72.89	6-30-48	-
27ab	-	B	-	18	-	-	Cy,W	-	Tco	1.6	-	100+	-	-
27bc	Irvin Odden	B	82.7	18	-	-	Cy,G	D,S	Tcu	.8	-	40.01	6-30-48	-
27dd	Al Boger	Dr	167	5	-	-	Cy,E	D,S	L	-	-	102	-	-
28ba	-	B	39.4	18	W	-	Cy,W	-	Tcu	1.4	-	31.17	6-30-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Roosevelt County, Montana--Continued											
30-57-28da	-	B	96.6	18	W	-	-	N	Tcu	0.6	-	56.26	6-30-48	-
28dc	Willard Becker	Dr	170	4	P	-	Cy,W	D,S	L	-	-	110	-	-
29bb	E. Mogen	B	100	24	W	-	Cy,H	D,S	L	-	-	80	-	-
30aa	Melvin Krohmer	Dr	130	8	-	-	Cy,G	S	L	-	-	125	-	-
33aa	-	B	96.7	18	W	-	Cy,W	-	Tco	2.4	-	42.42	6-30-48	-
31-54- 5ad	-	Dr	80.5	6	P	-	Cy,W,G	-	Tca	1.2	2301.2	75.15	7-20-48	-
6ad	-	Dr	-	4	P	-	Cy,W,E	-	-	-	2365	-	-	-
11aa	-	Dr	63.6	6	P	-	Cy,W	D,S	Tca	1.0	2146.0	40.64	7-20-48	-
11cc	-	B	86.7	18	W	-	Cy,H	-	Tcu	.8	2200.8	74.08	7-20-48	-
15ba	-	Dr	71.5	6	P	-	Cy,W	-	Tca	.7	2200.7	66.33	7-20-48	-
15bc	Martin Larson	Dr	-	6	P	-	Cy,H	-	-	-	2185	-	-	-
16dd	-	B	48	18	W	L	Cy,W,E	D,S	L	-	2165	36	-	-
17ad	Arthur Ryder	B	60.5	18	W	-	Cy,W	N	Tco	.4	2210.4	43.98	7-20-48	-
20bb	Jens Jenson	B	48.6	18	W	-	Cy,E	D,S	Tco	2.3	2190	12.23	7-20-48	-
23dd	-	Dr	-	-	-	-	J,E	D,S	-	-	2110	-	-	-
28dc	Frank Murray	B	50	20,18	W	-	Cy,E	D,S	L	-	2090	30	-	-
29dd	Mrs. A. Zick	Du	18	36	W	-	Cy,W	D,S	L	-	2105	13	-	-
32ac	Micheal Murray	B	34	16	W	L	Cy,W,E	D,S	L	-	2110	23	-	-
33aa1	C. Sikillingberg	B	25.0	24	W	-	-	D,S	Tcu	.8	2080.8	22.59	7-20-48	-
33aa2	do.	B	32.1	24	W	-	Cy,E	D	Tco	.8	2080.8	21.92	7-20-48	-
33bc	Arthur Murray	B	39.2	18	W	-	Cy,E	D,S	Tco	.8	2095.8	30.00	7-20-48	-
			Sheridan County, Montana											
31-55- 1ab	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1940	-	-	-
7ab	George Wessner	Dr	50	4	P	-	Cy,W,E	D,S	L	-	2095	30	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
31-55-12da1	Walter Norbo	Dr	127.8	6	P	-	Cy,W	S	Tca	0.6	2083.6	114.28	8-25-48	U,C
12da2	do.	B	120	-	W	-	Cy,H	N	L	-	2087	116	-	U
13ad	R. G. Tyler	Dr	176	4	P	-	Cy,W	S	L	-	2088	146	-	U,C
13cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2020	-	-	-
13dd1	do.	Dr	195	4 3/4	-	X	-	N	-	-	2039.38	-	-	-
13dd2	do.	R	-	-	-	-	-	N	-	-	2039	-	-	-
18ba	F. Waller	Du	14	8	P	-	Cy,H	D,S	L	-	2040	8	-	-
18db1	Gaylord Tyler	B	29	24	W	-	Cy,G,E	D,S	L	-	2060	23	-	-
18db2	do.	B	34	24	W	-	J,E	D	L	-	2056	29	-	-
20dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1975	-	-	-
22cd	do.	R	-	-	-	-	-	N	-	-	-	-	-	-
22dd1	E. E. Johnson	B	55	18	W	-	Cy,W	S	L	-	1978	49	-	-
22dd2	do.	-	60	-	-	-	Cy,E	N	L	-	1978	49	-	-
23cc	Town of Homestead	Dr	120	4	P	-	Cy,H	D	L	-	1980	100	-	C
23dc	S. Engbertson	Dr	234	6	P	Q	-	N	Tca	.4	1975.4	33.43	7-16-48	-
24aa1	May C. Jacobson	Dr	99.4	4	P	G,S,Q	Cy,W	D,S,O	Tco	1.0	2038.81	93.40	6- 2-47	C
24aa2	U. S. Geol. Survey	Dr	95	4 3/4	-	X	-	N	-	-	2037.68	92	6- -47	-
24cd1	Halve Skillingberg	B	46.2	18	W	-	Cy,W	D,S	Tco	.8	1977.8	32.56	7-16-48	-
24cd2	do.	-	-	-	-	-	Cy,E	D	-	-	1977	-	-	-
24da	-	B	-	18	W	-	Cy,W	N	Tco	.7	2024	100+	-	-
25bb1	C. C. Grunly	B	80	18	W	-	Cy,H	D,S	L	-	1967	60	-	-
25bb2	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1970	-	-	-
25dd1	do.	Dr	295	4 3/4		X	-	N	L	-	1970.29	20.98	6- 7-47	-
26ac	K. Haase	Dr	-	6	P	-	Cy,E	D,S	-	-	1970	-	-	-
26ad	S. Engbertson	B	23.6	12	-	Q	-	N	Tcu	.4	1965	Dry	-	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
31-55-26bb1	Myron Waller	B	53	18	W	-	Cy,E	S	L	-	1976	48	-	U
26bb2	Stanley Urdahl	B	65.15	18	W	-	Cy,G	S	Tco	1.1	1976.1	44.82	7-16-48	U
26bb3	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1976	-	-	-
27bc	U. S. Fish & Wildlife Service	Du	7.4	30	C	-	-	O	Tco	.5	1936.4	4.97	4-25-46	-
29aa	Elmer Stubban	B	30.1	24	W	-	F	D,S	Tcu	2.2	1937.2	.0	7-15-48	-
29bb	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2048	-	-	-
35bc1	Jensven	B	36	24	W	-	Cy,H	S	L	-	1945	21	-	U
35bc2	do.	B	14	24	W	-	Cy,H	D	L	-	1945	14	-	-
35cb	O. Nelson	B	60	24	W	-	Cy,W	S	L	-	-	14	-	U
36aa	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1969.9	-	-	-
36bc	S. Engbertson	Dr	45.5	4	P	-	Cy,H	S	Tca	1.4	1951.4	12.40	7-16-48	-
36dd	U. S. Geol. Survey	Dr	218	4¼	-	X	-	N	L	-	1990.7	17.1	6-12-48	-
31-56- 6bd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2037	-	-	-
7bb	do.	R	-	-	-	-	-	N	-	-	2089	-	-	-
7cd	do.	R	-	-	-	-	-	N	-	-	2073	-	-	-
7da	-	B	132.5	18	W	-	Cy,W	N	Tco	.2	2060.2	116.14	6-28-48	-
8dc	John Miller	Dr	130	4	P	-	Cy,W	S	L	-	2059	126	-	U
9cd	A. Overland	Du	28	24	W	-	Cy,G	D,S	L	-	1974	26	-	-
9dd	M. Barthnes	B	50.1	18	W	-	Cy,H	D,S	Tcu	.4	1975.4	37.53	6-28-48	-
16bc1	-	Du	19.1	36	C	-	-	N	Tco	1.7	2017.7	18.32	6-28-48	-
16bc2	-	B	73.0	18	W	-	J,E	D,S	Tco	.9	2016.9	68.84	6-28-48	-
17da	Palmer Bakken	B	15.6	12,4	W,P	-	Cy,W	S	L	-	2040.0	12.58	6-28-48	U
18bc	Wayne Tyler	Dr	175	4	P	L	Cy,W,E	D,S	L	-	2093	149	-	C
19aa	-	-	-	-	-	-	-	N	-	-	2064	-	-	-
19bb	Palmer Bakken	Dr	96	4	P	--	Cy,W	D,S	L	-	2028	85	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
					Sheridan County, Montana--Continued									
31-56-19cd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2027	-	-	-
20aa	Marvin Bakken	Dr	104.6	6	P	-	Cy,W	S	Tca	1.1	2066.1	60.53	8-21-48	U
20dd	T. Danilson	Dr	170	6	P	-	Cy,W	S	L	-	2090	150	-	-
21ba	Kinley Bolstad	B	135	18,4	W,P	L	Cy,W	D,S	L	-	2070	127	-	-
21cd	Clarence Paulson	Dr	100+	5	P	-	Cy,W	D,S	Tca	1.2	2072.2	100+	-	-
22da	V. Brenden	B	112	18	W	-	Cy,W	D,S	L	-	1998	27	-	-
22dc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2045	-	-	-
23cb	-	-	-	-	-	-	-	N	-	-	1991	-	-	-
23cd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2023	-	-	-
24cc	E. Nelson	B	36.2	18	W		Cy,W	D,S	Tcu	.3	2010.3	31.17	6-28-48	-
25ab	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2028	-	-	-
25dd	Norens Grovun	B	62	18	W	-	Cy,G	D,S	L	-	2050	42	-	-
26bb	-	Du	12.0	48	W	-	H	S	Tcu	3.1	1983.1	9.09	8-20-48	-
26dd	-	Dr	104.6	6	P	-	Cy,H	N	Hp	.6	2052.6	60.81	6-28-48	-
												60.53	8-25-48	
27ab	Martini	Dr	130	6	P	-	Cy,W	D,S	-	-	2045	110	-	-
27dc	Arnold Overland	B	100.0	18	W	-	Cy,W	N	Tcu	1.8	2067.8	83.14	6-28-48	-
28ab	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2050	-	-	-
28ba1	Reinertson	B	76.4	18	W	-	Cy,W	D,S	Tcu	.6	2065.6	57.18	6-28-48	-
28ba2	do.	B	82.1	18	W	-	Cy,E	N	Tcu	.6	2065.6	51.84	6-28-48	-
28cc	U. S. Geol. Survey	Dr	410	-	-	X	-	N	L	-	2102	131	6-12-47	-
29ab	-	R	-	-	-	-	-	-	-	-	2086	-	-	-
30bb	U. S. Geol. Survey	Dr	203	1½	P	G	X	O	Tca	2.1	2009.14	57.32	6-12-47	C
31bb	-	Dr	84.6	2½	P	-	-	O	Tca	.5	1991.5	24.67	4-25-46	-
32ba	-	-	-	-	-	-	-	-	-	-	2056	-	-	-
33bd	John Danilson	Dr	165	6	P	-	Cy,W	D,S	L	-	2098	135	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
					Sheridan County, Montana--Continued									
31-56-34bc	-	Du	20.0	36	W	-	Cy,W	N	Tco	.3	2110.3	Dry	6-29-48	-
35ab1	-	B	55.3	18	W	-	Cy,H	N	Tcu	.6	2055.6	16.38	6-28-48	-
35ab2	-	Du	22.3	48	W	-	-	N	Tco	.0	2055.0	17.48	8-15-48	-
35cb	-	-	-	-	-	-	-	N	-	-	2090	-	-	-
31-57- 1bd	Lawrence Bornfield	B	108	-	-	G	Cy,W	D,S	L	-	2003	41	-	-
5dd	-	R	-	-	-	-	-	N	-	-	1938	-	-	-
9cc	-	R	-	-	-	-	-	N	-	-	1998	-	-	-
17db	U. S. Fish & Wildlife Service	B	95	24	W	S	Cy,W	S	L	-	2020	50	-	-
27bb	Hilyard	Dr	123	6	P	-	Cy,W	D,S	L	-	2121	118	-	-
30bb	-	Du	10.5	72	W	-	Cy,W	N	-	3.13	2025.1	8.39	8-21-48	-
31bc	Carol Krohmer	B	128	18	W	-	Cy,H	S	L	-	2071	126	-	U
31bd	do.	B	36	18	W	-	Cy,G	D,S	L	-	2055	18	-	-
31dd	Bernard Krogedal	B	40	24	W	-	Cy,E	D,S	L	-	2093	25	-	-
33cc	Ensaas	B	100	24	W	-	Cy,W	D,S	L	-	2143	50	-	-
34cd	D. J. Clark	B	92	24,18	W	-	Cy,W	D,S	L	-	2205	88	-	-
35aa	-	B	64.6	24	W	Q	-	N	L		2180.0	60.5	-	-
35bb	D. J. Clark	B	75	24	W	-	Cy,W	D,S	L	-	2158	50	-	-
35cd	A. Granbois	Dr	85	6	P	-	Cy,W	D,S	L	-	2215	65	-	-
31-58- 3bb	Gust E. Dahlstrom	B	-	12	C	-	Cy,H	D	-	-	2052	-	-	-
3cb	do.	Dr	170	4	P	-	Cy,W	S	L	-	2155	90	-	-
4ad	A. Patterson	B	94.2	18	W	-	Cy,W	N	Tcu	1.0	2073.0	69.32	9-28-48	-
4ba	Dowe Marshall	Dr	-	4	-	-	-	-	-	-	-	-	-	-
9cb1	Mrs. John Miller	Dr	-	5	P	-	Cy,W,G	S	L	-	2072	50	-	-
9cb2	do.	B	20	18	W	-	Cy,H	D	Tco	.5	2053.5	10.64	9-27-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
31-58-10bb	-	Dr	-	-	-	-	Cy,W	N	-	-	2176	-	-	-
10da	-	Dr	206	6	P	-	Cy,W	S	-	-	2205	-	-	-
10dd	A. W. Sorenson	Dr	66.6	4	P	Q	-	N	Tca	0.1	2248.1	Dry	9-29-48	-
13bc	-	Dr	-	4	P	-	-	N	-	-	2281	-	-	-
16bb1	Mrs. John Miller	B	13.7	18	W	-	Cy,H	N	Tcu	1.4	2059.4	10.44	9-27-48	-
16bb2	do.	B	53.2	18	W	-	-	N	Tcu	1.8	2056.8	28.26	9-27-48	-
17bd1	Frank X. Azure	Dr	52	4	P	-	-	S	L		2048	26	-	U
17bd2	do.	Du	9	36	W	-	H	D	Tcu	2	2048.0	7.1	9-27-48	-
18dd1	Ostby	B	-	24	P	S,G	Cy,H	D	Tcu	1.2	2062.2	7.85	9-27-48	-
18dd2	do.	B	50	-	W	-	Cy,W,G	S	L	-	2059	20	-	-
18dd3	do.	Dr	50	4	P	-	Cy	N	L	-	2050	12	-	-
20bb	-	B	23.8	24	W	-	Cy	N	Tcu	.4	2051.4	5.03	9-27-48	-
22ab	-	Du	12.0	6	P	-	P,H	N	Tca	1.3	2146.3	10.3	9-29-48	-
25aa	Albert Hendrickson	Dr	222	4	P	Q	Cy,W	D,S	L	-	-	190	-	-
25ca1	William Martinson	B	-	24	W	-	Cy,W	S	-	-	-	-	-	-
25ca2	do.	Dr	83.2	-	-	-	-	N	Tca	1.0	-	Dry	9-29-48	-
29bb	Lewis Granbois	-	-	-	-	-	Cy,W	S	-	-	2125	-	-	-
30cd	J. B. Moran	B	34	24	W	-	Cy,G	S	-	-	2090	-	-	-
31ab1	-	B	41.2	18	W	-	W	S	Tco	1.5	2083.5	13.68	9-28-48	-
31ab2	Andrew Granbois	Dr	68	4	P	-	Cy,H	D,S	L	-	2095	18	-	-
32cb	Mrs. Arnold Johnson	B	15.1	24	W	-	Cy,H	D,S	Tcu	.8	2094.8	9.35	9-28-48	-
36cd	-	Du	12.3	48	W	-	Cy,H	N	Tcu	.3	-	10.56	9-29-48	-
31-59- 4aa	Francis Hoffelt	Du	-	48	C	-	Cy,W	D,S	-	-	-	-	-	-
6ca	E. Rasmussen	Du	30	-	-	-	Cy,W	N	L	-	-	26	-	-
6cc	do.	Dr	204	6	P	Q	Cy,W	S	L	-	-	76	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
~~31-59- 4aa~~	~~Francis Hoffelt~~	~~Du~~		~~48~~	~~C~~		~~Cy,W~~	~~D,S~~						~~-~~
31-59- 6dd	-	Du	-	-	-	-	Cy,W	S	-	-	-	-	-	-
9aa	Mrs. Pierre Miller	Dr	-	4	P	-	Cy,W	S	-	-	-	-	-	-
18aa1	Edmond Hoffelt	Du	19.5	48	C	-	H	N	Tcu	1.0	-	17.39	9-28-48	-
18aa2	do.	-	-	-	-	-	Cy,G,W	S	-	-	-	-	-	-
18bd	Arnold Hendrickson	Dr	250	-	P	Q	Cy,W	D,S	-	-	-	-	-	-
33cc	-	B	33.3	24	P	-	W	S	L	-	-	27	9-29-48	-
32-54-19dd	E. Adrilenas	Dr	-	4	P	-	Cy,W,E	S	-	-	-	-	-	U
28cc	-	Dr	156.4	4	P	-	Cy,W	D,S	Tca	1.3	2361.3	128.51	7-15-48	-
31aa	C. Tax	Dr	180	6	P	-	Cy,W	D,S	L	-	2380	175	-	-
32ab	-	B	257.0	18	-	-	-	N	Tco	.7	2380.7	179.33	7-15-48	-
33bb	E. S. Hendrickson	Dr	148	4	P	L	Cy,E	S	L	-	2365	136	-	U
33dc	-	Dr	-	4	P	-	Cy,W	D,S	-	-	2330	-	-	-
32-55- 5cd	-	Dr	-	6	P	-	Cy,W	D,S	-	-	2131	-	-	-
7ac	J. Michels	Dr	125	6	P	-	Cy,G	S	L	-	2098	97	-	U
25ac	Town of Medicine Lake	Du	43	240	C	Q	-	PS	L	-	1950	14	-	-
25bc	-	Dr	-	6	-	-	Cy,W	D,S	-	-	1943	-	-	-
25bd	do.	Du	12	216, 120	C	-	C,E	D	L	-	1940	5	-	C
26da	Niederhauser	Du	14	48	W	-	Cy,W	D,S	L	-	1951	14	-	-
35ab1	Melvin Granrud	Du	16	48	W	-	Cy,W	D,S	L	-	1946	14	-	-
35ab2	do.	Du	-	-	-	-	Cy,W	D	L	-	1947	14	-	-
32-56- 1bb	- Medicine Lake	Dr	118	6	P	-	Cy,G	D,S	L	-	2137	108	-	C
1dc	-	Dr	106	6	P	-	Cy,E	D,S	L	-	2111	101	-	-
2aa	-	Dr	118	6	P	-	Cy,W	D,S	L	-	2134	108	-	-
3ab	-	Dr	112.0	6	P	-	Cy,H	N	Tco	1.6	2113.6	Dry	6-24-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						Sheridan County, Montana--Continued								
32-56- 3cb	-	Du	14.3	24	W	-	-	N	Tcu	3.6	2068.6	7.89	7- 1-48	-
4cb	Leonard Pederson	Dr	100	4	P	-	Cy,W	D,S	L	-	1930	70	-	C
5da	-	Du	10.4	96	W	-	Cy,H	D	Tco	.9	2027.9	7.81	7- 1-48	C
10cd	-	Dr	104.3	6	P	-	Cy,W	D,S	Tcu	1.2	2100.2	99.21	6-25-48	-
~~10cd~~												100.4	8-25-48	-
12cb	J. P. Johnson	B	106	36	W	G,S	Cy,W	D,S	L	-	2108	100	-	-
12dd	M. C. Shively	B	92	24	W	-	Cy,W	D,S	L	-	2079	87	-	-
13ab	-	B	172.5	24	W	-	-	N	Tco	.8	2090.8	96.64	6-24-48	-
												96.47	8-25-48	
13bb	F. Schellman	B	130	24	W	-	Cy,W	D,S	L	-	2109	125	-	-
14bc	Deva	-	-	-	-	-	Cy,H	N	-	-	2131	-	-	-
14cb	-	Dr	152.1	6	P	-	Cy,W	D,S	Hp	1.6	2126.6	151.04	8-25-48	-
15cc	W. J. Hjort	Dr	90	6	P	-	Cy,W,G	S	L	-	2103	80	-	U
18bc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1940	-	-	-
18dd	Dewey Hjort	Dr	200	6	P	-	Cy,W	S	L	-	1948	18	-	C
19ac1	E. L. Spencer	B	40	18	W	Q	Cy,H	S	L	-	1955	34	-	-
19ac2	do.	B	18	48	W	G	Cy,H	D	L	-	1940	16	-	-
19ac3	do.	Du	20	48	W	G	Cy,H	N	L	-	1940	15	-	-
19cd	-	B	64	24	W	-	Cy,E	S	L	-	1986	42	-	U
19dc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1975	-	-	-
20cc1	Enoch Land	Du	19.9	48	C	-	Cy,W	D,S	Tco	1.7	1980.47	7.69	6-24-48	-
												12.30	9-30-48	
												11.26	11- 2-48	
20cc2	do.	Du	23.5	48	W	-	Cy,H	S	Tco	1.4	1981.99	9.89	8-25-48	C
												10.97	9-30-48	
												10.85	11- 2-48	
21dd	Mrs. Frank Ator	Dr	122	6	P	-	Cy,W	D,S	-	-	2055	100	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
					Sheridan County, Montana--Continued									
32-56-22dc1	B. Benson	Du	12.8	8	P	-	Cy,H	D,S	Tca	2.7	2010.50	4.86	6-25-48	C
22dc2	do.	Du	11.6	36	W	-	-	N	Tco	2.8	2010.8	4.73	6-25-48	-
22dc3	do.	Dr	99	3	P	L	Cy,G	S	L	-	2015	99	-	C
23da	Alford Movin	B	105	24	W	G	Cy,W,G	D,S	L	-	2023	80	-	-
24cc	Oscar Borsness	B	75.8	30	W	G	Cy,H	S	Tco	1.2	2002.94	59.20	8-28-48	-
27cb	Erdahl	Dr	62.6	6	P	-	-	N	Tca	1.0	1995.0	Dry	8-22-48	-
28bc	-	-	-	-	-	-	-	N	-	-	2000	-	-	-
29bb1	Enoch Land	Du	15.7	48	W	-	-	N	Tcu	.7	1980.7	6.51	6-24-48	-
29bb2	do.	B	30.0	20	W	-	-	N	Tcu	.7	1980.7	10.00	8-25-48	-
30ab	G. Parent	Dr	30.7	3	P	-	Cy,G	D,S	Bp	.7	1978.32	8.67	6-14-48	-
												10.38	9-30-48	
30ad	Cemetery	B	57.3	18	P	-	Cy,H	N	Tco	1.4	1983.49	48.68	8-25-48	-
												48.77	9-30-48	
												48.70	11- 2-48	
30bb	-	B	76.4	18	W	-	Cy,H	S	Tco	1.6	1979.61	44.43	7-16-48	-
												45.05	9-30-48	
												44.73	11- 2-48	
30bc1	E. Hjort	Du	40	48	W	-	Cy,W	S	-	-	1965	38	-	U
30bc2	Nels Lodahl	B	35.2	24	W	Q	Cy,G,H	D,S	Tco	1.0	1965.05	29.87	8-25-48	-
												29.98	9-30-48	
												29.96	11- 2-48	
30cb1	John Robson	Dr	256	-	P	-	Cy,G	N	-	-	1964	-	-	-
30cb2	do.	B	45	-	C	-	Cy,G	S	-	-	1964	-	-	-
30db	-	B	43.4	18	W	-	Cy,H	S	Tcu	.5	1973.37	38.41	8-25-48	-
												38.47	9-30-48	
												38.42	11- 2-48	
31ac	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1958	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
32-56-31bb1	U. S. Geol. Survey	Dr	95.0	4 3/4		X	-	N	L	-	1968.00	33.0	6- 7-47	-
31bb2	do.	Dr	225.0	1½	P	X	-	O	Tca	1.3	1969.34	34.38	6-12-47	C
31bb3	do.	R	-	-	-	-	-	N	-	-	1965	-	-	-
31bc	do.	Dr	230.0	4¼	-	X	-	N	L	-	1936.96	2.4	6- 3-47	-
31cc	do.	Dr	210	4¼	-	X	-	N	L	-	1937.54	3.62	6- 3-47	-
33cb1	U. S. Fish & Wildlife Service	Du	28.6	36	-	-	-	N	Tcu	.6	1954.40	19.26	7- 1-48	U
												19.87	9-30-48	
												19.90	11- 2-48	
33cb2	do.	Du	14.4	36	C	-	J,E	D	Tcu	.7	1938.7	2.85	7- 1-48	-
												3.78	9-30-48	
												4.01	11-2-48	
33cb3	do.	Du	14.5	36	C	-	-	N	Tcu	.5	1938.5	2.84	7- 1-48	-
35bb	B. Benson	Du	20	24	P	-	Cy,W	N	Tca	.5	1985.5	19.60	8-22-48	-
32-57- 2cc	Oscar Stromberg	B	86	24	W	-	Cy,W	D,S	-	-	2046	58	-	-
3bb	Olaf Miller	Dr	-	6	P	-	Cy,W	D,S	Tca	.3	2080.3	84.55	6-22-48	-
3dc	-	Dr	53.6	6	P	-	Cy,W	D,S	Tca	.6	2035.6	49.04	6-25-48	-
4ba	Henrick Henricksen	Dr	132	4	P	-	Cy,H	D,S	L	-	2088	120	-	-
4dc	N. M. Sorensen	B	80	24	W	-	Cy,G	D,S	L	-	2060	76	-	-
5bc	-	Dr	102.5	6	P	-	Cy,W,G	D,S	Tco	.7	2106.7	100.20	6-25-48	-
6aa	William Christenson	Dr	117	4	P	-	Cy,W	D,S	L	-	2126	114	-	-
6da	-	B	120.0	24	W	-	-	N	Tco	1.7	2107.7	100.36	8- 6-48	-
												107.1	9-23-48	
7ad	-	-	-	-	-	-	-	-	-	-	2060	-	-	-
8dd	-	-	-	-	-	-	-	N	-	-	2058	-	-	-
9bb	-	Dr	72.5	6	P	-	Cy,W	S	Tco	.8	2071.8	Dry	6-25-48	-
9cd	-	B	107.5	18	W	-	Cy,W	D,S	Tcu	1.8	2067.8	82.74	6-25-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
32-57-14ab	Eric Garndlund	B	80.3	24	W	-	Cy,G	D,S	Tcu	0.7	2015.7	77.54	6-25-48	-
14bb	Orland Stringer	B	100	36	W	-	Cy,W	D,S	L	-	1986	25	-	-
15ab	F. D. Stringer	B	46	36	W	G	Cy,W	D,S	L	-	2005	42	-	-
16bb	-	Dr	69+	6	P	-	Cy,W	S	-	-	2063	Dry	-	-
17aa	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2056	-	-	-
17dd	do.	R	-	-	-	-	-	N	-	-	2010	-	-	-
19bc	Schmitz	B	90	24	W	-	Cy,W	D,S	L	-	2037	50	-	-
20ad	-	Dr	83.4	6	P	-	Cy,H	N	Tco	.8	1997.8	49.19	6-25-48	-
20dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1963	-	-	-
25aa1	Hattie M. Foss	B	53	24	W	Q	Cy,H	D	L	-	1982	40	-	-
25aa2	do.	Du	18	48	W	-	Cy,G	D,S	Tcu	1.0	1966.0	12.47	9-24-48	-
26db	Noel Lavallie	Du	8	24	-	-	H	D,S	Tcu	.5	1953.5	6.66	9-24-48	-
29ba	-	B	58.4	18	W	G	Cy,W	D,S	Tcu	.3	1989.3	52.76	6-25-48	-
												55.73	8-30-48	
30bb	-	B	147.5	18	W	-	Cy,G	D,S	Tco	.8	2025.8	83.41	6-25-48	-
33bb	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1942	-	-	-
33cc	do.	R	-	-	-	-	-	N	-	-	1945	-	-	-
36dc1	B. A. Smith	B	27	24	W	-	Cy,W	D,S	L	-	1982	24	-	-
36dc2	do.	Dr	370	6	P	S,Q	-	N	-	-	1982	-	-	-
32-58- 1cc	Harold Rasmussen	Dr	59.7	6	P	-	Cy,W	D,S	Tca	2.6	1988.6	33.27	6-17-48	-
2cc	Hinlmar Mattson	Dr	55.2	6	P	-	Cy,W	D,S	Tca	.9	1982.9	32.98	6-17-48	-
2dc	Chris Siddaad	Dr	80	4½	P	-	Cy,W	D,S	L	-	1985	50	-	-
4cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1970	-	-	-
5ba	do.	R	-	-	-	-	-	N	-	-	1996	-	-	-
10bb	do.	R	-	-	-	-	-	N	-	-	1965	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						Sheridan County, Montana--Continued								
32-58-10cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2008	-	-	-
10da	J. L. Nielsen	B	100+	12	-	-	Cy,G,W	D,S	Tcu	1.6	2016.6	64.52	6-17-48	-
11bb	S. Sorensen	Dr	52.4	6	P	-	Cy,W	D,S	Tca	.5	1991.5	39.19	6-17-48	-
12aa	P. N. Paulson	Du	36.3	48	W	-	Cy,W	D,S	Tco	1.9	1976.9	24.05	6-17-48	-
12cc	-	B	52.1	18	W	-	Cy,W	D,S	Tcu	.5	1991.5	36.14	6-17-48	-
12dd	-	Dr	-	6	P	-	Cy,W	S	-	-	2004	-	-	-
13cc	-	Du	-	-	-	-	Cy,H	N	-	-	2025	-	-	-
14bc	Jens Brinkman	Dr	163	6	P	L,G	Cy,W	D,S	L	-	1995	83	-	-
14cc	Nels Rasmussen	Dr	140	4	P	-	Cy,W	D,S	L	-	1998	40	-	-
15aa	F. Winther	Dr	100+	6	P	-	Cy,W	D,S	Tca	.3	2004.3	46.89	6-18-48	-
15cc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1970	-	-	-
16ad	Melvin Larsen	Du	15	36	W	-	Cy,H	D,S	L	-	1955	9	-	-
16bd	do.	Du	10	-	-	-	Cy,W	D,S	L	-	1953	3	-	-
20dc1	-	B	31.2	18	W	-	Cy,G	D,S	Tcu	.5	1970.5	75.07	6-18-48	-
20dc2	-	B	24.2	18	W	-	Cy,E	D,S	Tcu	.6	1965.6	17.24	6-18-48	-
21ad	Harris Hendrickson	Du	13.6	24	W	-	Cy,H	D	Tcu	.6	1982.6	13.29	6-18-48	-
21cd	D. C. Marshall	Du	36	24	W	-	Cy,W	D,S	L	-	1983	20	-	-
22aa	Mrs. Ibsen	B	56	18	W	-	Cy,W	D,S	L	-	2005	36	-	-
22bc	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1985	-	-	-
22cb	Harry Crohn	Du	20	36	W	-	Cy,H	D,S	L	-	1990	15	-	-
23bb	Marie Hansen	B	56	18	W	-	Cy,E	D,S	L		2012	36	-	-
26bc	-	B	38.5		W	-	-	N	Tco	1.3	1997.3	16.08	9-24-48	-
27bb1	-	B	45.8	18	W	-	Cy,H	D,S	Tcu	.3	2001.3	25.06	6-18-48	-
27bb2	-	B	75.6	18	W	-	Cy,H	D,S	Tcu	.4	2002.4	28.34	6-18-48	-
27bb3	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1987	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
32-58-27cc	-	Dr	110+	4	P	-	-	N	Tca	1.8	2037.8	69.16	9-27-48	-
28ac	Fred Henke	B	36	24	W	-	Cy,W	D,S	L	-	1997	24	-	-
28dd	Henry Henke	B	127	24	W	Q	Cy,G	D,S	L	-	2036	110	-	-
31aa	May Gleason	Du	12	-	-	-	Cy,H	D	-	-	-	-	-	-
31cc	Edward Smith	B	30	30	W	Q	Cy,G	D,S	Tco	.6	1980.6	28.66	9-27-48	-
33ba	Paul Henke	Dr	128	6	P	Q	Cy,W	D,S	L	-	2042	98	-	-
34bc	Nels Lodahl	B	-	24	W	-	Cy,W	S	-	-	2047	-	-	-
34da	E. Henke	B	46.5	18	P	-	-	D	Tco	.3	2032.3	39.16	9-28-48	-
35bb	L. Williamson	B	40	-	-	-	Cy,W	D,S	Tco	.5	2011.5	17.5	9-28-48	-
35cb	E. Henke	B	56.4	18	W	-	Cy,W	D,S	Tcu	.2	2045.2	27.88	9-28-48	-
32-59- 5ab1	Carl Lundberg	Dr	120	6	P	-	Cy,W	D,S	L	-	1990	60	-	-
5ab2	do.	-	55	-	-	-	-	-	-	-	1990	-	-	-
5ba1	Christine Lundberg	Du	42	24	W	-	Cy,W	D,S	L	-	1978	20	-	-
5ba2	do.	Dr	127	6	P	-	Cy,W	D,S	L	-	1988	38	-	-
7ad	A. Jonasen	Dr	100+	6	P	-	Cy,W	D,S	Tcu	.6	2010.6	52.34	6-17-48	-
7cc	Marius Molgaand	Dr	84	6	P	-	Cy,W	D,S	L	-	2030	64	-	-
8ad	J. R. White	B	98.7	18	W	-	Cy,W	D,S	Tcu	1.2	2026.2	63.07	6-18-48	-
8bc	-	B	55.0	18	W	-	Cy,H	S	Tco	.3	2016	Dry	6-18-48	-
9db	Mrs. Helen Bagaason	Dr	100+	6	P	-	Cy,W	D,S	Tca	.6	2069.6	58.66	6-18-48	-
33-54-24aa	-	Dr	89.5	5	P	-	Cy,H	S	Hp	2.2	2172.2	68.04	7-14-48	-
33-55- 1cd	-	Du	13.4	48	W	-	Cy,H	N	Tco	.7	2013.7	Dry	7- 1-48	-
1da	Murray	Dr	128	4	P	-	Cy,G	D,S	HP	1.5	1992.5	22.09	7- 1-48	-
6bb	-	Dr	-	6	P	-	Cy,W	N	-	-	-	-	-	-
12dc	Carl Holje	Dr	54	4	P	-	Cy,H	S	L	-	1996	50	-	U
13dc	Andrew Groskurth	Dr	-	2	P	-	F	D,S	-	-	1955	-	-	-

See footnotes at end of table

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-55-14cd	O. Watnaas	Dr	207	4	P	-	Cy,G	D,S	L	-	2120	127	-	-
15cd	-	Dr	171.4	5	P	-	-	N	Tca	0.8	2158.8	168.84	7-14-48	-
16cd	H. A. Carpenter	Du	8	48	W	-	Cy,H	D,S	L	-	2142	2	-	-
18bc	Marinus Petersen	Dr	194	4	P	L	Cy,H	S	L	-	2154	144	-	U
18dd	Allyn Eidsness	Dr	65.0	6	P	-	Cy,E	D,S	Hp	2.5	2139.5	49.84	7-14-48	-
24ab1	Town of Reserve	Du	7.4	96	C	-	-	N	Tcu	2.9	1959.9	5.41	7-16-48	U
24ab2	G. N. Lund	Du	10	48	W	-	Cy,H	S	L	-	1957	7	-	U
28dc	Clarence Peterson	Dr	89.5	6	P	-	Cy,W	D,S	Tca	1.2	2068.2	69.24	7-14-48	
30da	Kenneth Everson	Dr	130	4	P	-	Cy,W	D,S	L	-	2117	90		
33aa1	Hans Larson	Dr	-	6	P	-	Cy,W	D,S	-	-	2051	-	-	-
33aa2	do.	Dr	-	6	P	-	Cy,G	S	-	-	2051	-	-	-
33-56- 1cc	N. V. Nelson	Dr	206	4	P	L	Cy,W	D,S	L	-	-	179	-	-
2ac	Henry Grosold	Dr	233	4	P	G	Cy,W	D,S	L	-	-	188	-	-
2bc	-	Dr	88.2	6	P	-	Cy,W	S	Tca	.6	-	63.44	6-23-48	-
3bd	T. R. Espeland	Dr	280	6	P	L	Cy,W	S	L	-	2222	250	-	U
3dd	-	Dr	1.00+	6	P	-	-	N	Tca	.9	-	100+	6-23-48	-
4ad	John Brekke	Dr	240	6	P	L	Cy,W	D,S	L	-	2224	200	-	-
10ca1	Murry Hunter	B	32.7	24	W	-	Cy,H	D,S	Bp	.0	-	24.79	6-23-48	-
10ca2	do.	-	30.10	-	-	-	-	N	Tco	.8	-	25.16	6-23-48	-
11bc	Norman Wibe	Dr	220	6	P	-	Cy,W	S	L	-	-	115	-	-
12cb	Thomas Sundsted	Dr	200+	6	P	-	Cy,W	S	Tca	.5	-	197.43	9-24-48	-
15cc	Carl Williams	Dr	180	6	P	-	Cy,G	S	L	-	2198	160	-	U
17cd1	C. Christenson	Dr	150	4	P	-	Cy,W	S	L	-	2136	115	-	U
17cd2	do.	Dr	100	4	P	L	Cy,G	D	L	-	2138	75	-	U
18dc	O. Olsted	Dr	84	6	P	-	Cy,W	D,S	L	-	2015	69	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-56-21dd	Claus Strand	Dr	180	4	P	L	Cy,W,G	S	L	-	2198	150	-	U
22db	Edward Strand	Dr	200	6	P	-	Cy,W	D,S	L	-	2203	187	-	-
22dd	do.	Du	25.7	48	C	-	Cy,H	D,S	Tco	1.3	2161.3	14.43	6-23-48	-
23cc	S. O. Aasheim	Dr	150	4	P	L	Cy,W	D,S	L	-	2175	130	-	-
24dc	-	B	100+	24	W	-	Cy,W	S	Tco	.3	2175.3	Dry	8-31-48	-
25da	K. Spaabeck	B	165	24	W	-	Cy,W	D,S	L	-	2141	146	-	-
26bb	G. S. Strand	Dr	175	4	P	-	Cy,W	S	L	-	2162	145	-	U
26cc	-	-	-	-	-	-	Cy,W	N	-	-	2150	-	-	-
26dd	-	Dr	-	6	P	-	-	N	Tca	1.8	2139.8	-	-	-
27ac	Iver Brekke	Du	18.1	36	W	-	Cy,H	D,S	Tco	2.1	2150.1	9.59	6-23-48	-
28cb1	Lars Angrick	Dr	153	4	P	-	Cy,W	S	L	-	2170	147	-	U
28cb2	do.	Du	25	36	W	-	Cy,H	D	L	-	2165	23	-	-
31ad	James Handcock	Dr	140	6	P	L	Cy,W	D,S	L	-	2124	80	-	-
31bb	-	Dr	71.1	3	P	-	-	O	Tca	1.6	1984.6	38.22	4-25-46	-
32ab	Lars Angvick	Dr	152	6	P	-	-	N	L	-	2151	146	-	-
32bb	V. Handcock	Dr	140	6	P	-	Cy,G	D,S	L	-	2155	90	-	-
32dd	-	Dr	-	1 3/4	P	-	Cy,H	N	-	-	2150	-	-	-
33ab	-	Du	-	48	C	-	Cy,W	S	-	-	-	-	-	-
33dd	-	Dr	128	6	P	-	Cy,G	D,S	L	-	2138	118	-	-
34cd	Albert Williams	Dr	130	6	P	-	Cy,W	D,S	L	-	2135	110	-	-
35aa1	Olaf Tjonsos	Dr	-	4	P	Q	Cy,W	N	Tca	1.3	2137.3	124.08	8-30-48	-
35aa2	do.	Du	9.9	48	W	-	-	N	L	.0	2136.0	8.40	8- -48	-
36cd	Emil Anderson	Dr	145	5	P	-	Cy,W	D,S	-	-	2110	130	-	-
33-57- 1cb	-	-	-	-	-	-	-	N	-	-	-	-	-	-
1da	Emil Rasmussen	Dr	100	6	P	-	Cy,W	D,S	L	-	-	80?	-	-
2aa	Johanne Peterson	Dr	210	6	P	-	Cy,W	D,S	L	-	-	100	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-57- 2cd	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2da	Ernest Christensen	Dr	130	6	P	-	Cy,G	D,S	L	-	-	110	-	-
3ad	A. Christenson	Dr	100+	-	-	-	Cy,W	D,S	Tca	0.6	-	-	-	-
4ab	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4cb	Ernest Torgerson	Dr	130	6	P	-	Cy,W	D,S	L	-	-	125	-	-
4dd	-	Dr	-	6	P	-	-	N	Tca	.8	-	-	-	-
5ac	Thomas Sundsted	Du	30	36	W	-	Cy,W	D,S	L	-	-	15	-	-
5db	P. R. Paulsen	Du	20	24	W	-	Cy,W	D,S	L	-	-	15	-	-
6cb	Anton Sundsted	Dr	200	6	P	-	Cy,W	D,S	L	-	-	190	-	-
6dd	-	Dr	236	5	P	-	Cy,W	N	Hp	1.5	-	-	-	-
7db	Conrad Conradson	Du	12	36	W	-	Cy,H	D,S	L	-	-	6	-	-
7dd	-	-	-	-	-	-	Cy,W,G	N	-	-	2195	-	-	-
9ad	-	Dr	141.5	6	P	-	Cy,H	N	Tca	.5	-	Dry	9-24-48	-
10ab	-	Dr	-	6	P	-	Cy,H	N	Tca	.9	-	-	-	-
10bb	Hugo Anderson	B	168	24	W	L	Cy,W	D,S	L	-	-	155	-	-
10cc	-	B	-	24	C	-	Cy,W	N	Tco	.7	2125.7	-	-	-
11ad	A. C. Anderson	Dr	125	6	P	-	Cy,W	D,S	L	-	-	100	-	-
12bc	L. Anderson	B	-	24	W	-	Cy,W	D,S	Tcu	1.3	-	-	-	-
12cd	S. Sampson	Dr	108	2	P	G	Cy,W	D,S	L	-	2082	100	-	-
13ad	-	-	-	-	-	-	-	-	-	-	2082	-	-	-
13cc	Jens Olson	Dr	115	4	P	-	Cy,W	D,S	L	-	2081	111	-	-
14ab	M. Sampson	Dr	135	4	P	-	Cy,W	D,S	L	-	2060	75	-	-
16dd	M. P. R. Strandskov	Dr	100	4	P	-	Cy,E	D,S	L	-	2146	91	-	-
17aa	William Johnson	Dr	140	24	W	-	Cy,W	D,S	Tca	1.1	2147.1	-	-	-
17cc	H. J. Madsen	B	70	24	W	G	Cy,W	S	L	-	2171	65	-	U

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						Sheridan County, Montana--Continued								
33-57-18ba	-	-	-	-	-	-	Cy,W	N	-	-	2215	-	-	-
18bb	Axel Johnson	Du	26	48	W	-	Cy,E	D,S	L	-	2204	23	-	-
19cd	-	Dr	-	4	P	-	Cy,W	N	-	-	2150	-	-	-
20ba	Jensen Nielsen	Dr	165	4	P	-	Cy,W	D,S	L	-	2156	140	-	-
20cd	Alve Maxson	Dr	143	4	P	-	Cy,W	D,S	L	-	2130	112	-	-
21ad	-	Dr	-	6	P	-	Cy,W	D,S	Tca	1.4	2095.4	-	-	-
21dd	-	Dr	-	6	P	-	-	N	Tco	1.3	2097.3	-	-	-
22ab	Elmer Peterson	Dr	84	4	P	-	Cy,W	D,S	L	-	2076	80	-	-
22cc	Olaf Miller	Dr	101	6	P	-	Cy,G	D,S	L	-	2093	96	-	-
22cd	Gonius Laursen	Dr	100	6	P	S,G	Cy,W	D,S	L	-	2084	95	-	-
22dc	Carl Laursen	Dr	96	6	P	-	Cy,W	D,S	L	-	2070	91	-	-
23aa	Chris Lodahl	Du	130	4	P	X	Cy,W	D,S	L	-	2110	124	-	-
23cd	Anderson	-	-	-	-	-	Cy,W	N	-	-	2063	-	-	-
24dc	P. G. Thuesen	B	102	24,18	W	-	Cy,W	D,S	L	-	2080	98	-	-
25cb	Nels Lodahl	B	100+	24	W	-	Cy,W	D,S	Tcu	1.2	2058.2	77.60	6-18-48	C
25da	-	B	61.1	24	W	-	H	N	Bp	.5	2025.5	49.1	4-24-46	-
25db1	Town of Dagmar	Dr	61	4	P	-	Cy,H	D	L	-	2035	57	-	-
25db2	Alford Jensen	B	70	20	W	-	Cy,W	D	L	-	2036	67	-	-
26ad	Mrs. Nels Sorenson	B	90	24	W	-	Cy,H	D,S	L	-	2058	86	-	-
26cd	Axel Nielsen	Dr	60	4	P	-	Cy,W	D,S	L	-	2047	52	-	-
26da	-	Dr	80	24	W	-	Cy,W	N	L	-	2044	70	-	-
27bb		Dr	110	6	P	-	Cy,H	D,S	L	-	2087	103	-	-
27dd	Martin Holmgard	Dr	85	6	P	-	Cy,E	D,S	L	-	2066	75	-	-
28ab	Peter Miller	Dr	110	4	P	-	Cy,W	D,S	L	-	2093	108	-	-
28cc	Carl Larsen	Dr	135	6	P	-	Cy,W	D,S	L	-	2109	132	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-57-29cc	Peter Spaabeck	Dr	140	6	P	S	Cy,W	D,S	L	-	2128	132	-	-
29dd	Axel Anderson	Dr	110	6	P	-	Cy,W	D,S	L	-	2100	108	-	-
30ad	Sidurd Rasmussen	Dr	100	6	P	-	Cy,W	D,S	L	-	2136	85	-	-
31bc	Arne Nielsen	Dr	90	4	P	-	Cy,W	D,S	L	-	2121	81	-	-
31cc	Nels Molgaard	B	150	18	W	-	Cy,W	S	L	-	2105	140	-	U
32bb		Dr	160	4	P	-	Cy,W	D,S	L	-	2128	120	-	-
32cb	-	B	-	18	P	-	Cy,W	N	Tca	0.0	2093.0	-	-	-
33ab	Albert Miller	Dr	103	4	P	-	Cy,E	D,S	L	-	2093	97	-	-
33cd	Harry Olson	Dr	95	6	P	-	Cy,W	D,S	L	-	2064	90	-	-
33dd	-	Dr	74.6	6	P	-	Cy,W	D,S,O	Tca	1.0	2063.0	70.33	7-11-46	-
34aa	-	-	-	-	-	-	-	-	-	-	2052	-	-	-
34bb	-	B	86	18	W	-	Cy,H	O	Tco	.5	2079.5	81.95	7-11-46	-
34cc	-	B	-	18	W	-	Cy,W	D,S	Tcu	.2	2045.2	66.39	6-22-48	-
35bb	U. S. Geol. Survey	R	-	-	-	-	-	-	-	-	-	-	-	-
35dc	Jens Nydy	Dr	90	4	P	-	Cy,G	D,S	-	-	2024	-	-	-
36ac	Chester Anderson	B	32	18	W	-	J,E	D	L	-	2015	16	-	C
36bd	do.	Dr	75	4	P	-	Cy,W	S	L	-	2025	65	-	C
33-58- 1ab	Marinus Ibsen	Dr	153	5	P	L?	Cy,W	D,S	Tca	1.5	-	49.0	6- 8-48	-
1cb	Everett Melby	Dr	85	5	P	-	Cy,G	S	L	-	-	70	-	U
4bc	-	B	28.5	24	W	-	-	N	Tco	.3	-	25.93	6-17-48	-
5ab	Clear Lake	-	-	-	-	-	-	-	-	-	-	-	-	C
5ad	Clarence Myers	Du	8.90	24	W	-	Cy,H	D,S	Tco	.6	-	6.40	6-17-48	-
6cb	James Kaae	Dr	130	6	P	-	Cy,W	D,S	L	-	-	100	-	-
7ab	-	-	-	2 1/2	P	-	-	N	-	-	-	-	-	-
7ad	Harold Rasmussen	Dr	88.2	5	P	-	Cy,W	D,S	Bp	.6	-	84.96	6-16-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-58- 7bc	J. C. Anderson	Dr	110	4	P	-	Cy,W	D,S	L	-	-	85	-	-
8cc1	B. Guenther	Dr	103	5	P	Cy,G	D,S	L	-	-	2070	83	-	-
8cc2	do.	-	-	-	-	-	N	-	-	-	2068	-	-	-
8cc3	do.	Dr	107	5	P	L?	J,E	N	L	-	2068	86	-	-
9dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2010	-	-	-
10bc	Peter Lodahl	Du,Dr	32	24.6	W,P	-	Cy,W	D,S	Tcu	0.7	-	22.91	6-16-48	C
12ba	Everett Melby	Dr	61	5	P	Q	Cy,W	D,S	L	-	-	53	-	-
14cd	-	-	-	-	-	-	-	-	-	-	1977	-	-	-
15cb	-	B	35.6	24	W	Q	Cy,W	N	Tco	1.2	2011.2	35.18	6-17-48	-
15dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2019	-	-	-
16bb	do.	R	-	-	-	-	-	N	-	-	1988	-	-	-
17ab	B. Guenther	Du	33	36	W	-	Cy,W	D,S	L	-	2010	27	-	-
18aa	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	2050	-	-	-
18bb											2088			
18cb	V. J. Thuesen	Dr	90	6	P	-	Cy,W	D,S	L	-	2061	75	-	-
19bc	-	B	68.0	24	W	-	-	N	Tco	1.3	2051.3	Dry	6-16-48	-
19cc	J. T. Johnson	B	70	24	W	-	Cy,W	D,S	L	-	2036	69	-	-
22dc	Brush Lake	-	-	-	-	-	-	-	-	-	-	-	-	C
22dd	Harold Jenson	Du	10	48	W	Q	Cy	D,S	L	-	1968	8.5	-	-
23aa	do.	Dr	43	24	W	-	Cy,H	D,S	L	-	2012	41	-	-
23cb	G. Lundberg	Dr	115	4½	P	-	Cy,W	D,S	L	-	2015	45	-	-
23dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1993	-	-	-
25ca	Martin Erickson	B	50	24	W	L	Cy,W	D,S	L	-	1995	40	-	-
26aa	C. Trulson	Dr	55.4	6	P	-	Cy,W	D,S	Bp	.5	2001.5	39.43	6-15-48	-
35aa	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1965	-	-	-

See footnotes at end of table.

Table 3.-Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
33-58-35cc	Thorval Christenson	Dr	100	6	P	-	Cy,W	D,S	L	-	2020	73	-	-
35da	Nels Anderson	Dr	110	6	P	-	Cy,W	D,S	Tco	0.6	1995.6	14.16	6-16-48	-
35dd	U. S. Geol. Survey	R	-	-	-	-	-	N	-	-	1960	-	-	-
36ab	-	B	24.9	18	W	-	Cy,W	N	Tcu	.9	1983.9	18.8	6-16-48	-
36cb	Wallace Christenson	B	43	24	W	-	Cy,W	S	L	-	1966	8	-	-
33-59- 6cb	L. Nelson	B	41.5	18	W	-	Cy,W	D,S	Tcu	1.0	-	33.82	6-15-48	-
7cc	Harvey Thomas	Dr	30	1 3/4	P	-	Cy,G	D,S	-	-	-	-	-	-
19bc	A. Jackson	Dr	60	5	P	S,G	Cy,W	D,S	L	-	2007	40	-	-
31bb		B	11.8	18	W	-	-	N	Tco	1.1	1981.1	8.14	6-16-48	-
31bc1	August Erickson	B	58	24	W	Q	Cy,W	S	L	-	1996	40	-	-
31bc2	do.	-	12	-	-	-	-	N	L	-	-	7	-	-
34-55- 1cd	T. Nelson	Dr	85	6	P	-	Cy,W,G	D,S	L	-	2070	80	-	-
2da	Donald Friedrich	B	37.1	12	W	-	Cy,H	S	Tcu	.4	2020.4	21.29	7-13-48	U
7dd1	H. B. Munson	B	150	24.16	W	L	Cy,G	D,S	L	-	-	140	-	-
7dd2	do.	B	100	24	W	L	Cy,G	D	L	-	-	140	-	-
11da	R. S. Richardson	B	27.5	18	W			D,S	Tcu	2.2	1993.2	13.98	7-15-48	-
12bd	-	Dr	-	4	P	-	Cy,H	N	-	-	2050	-	-	-
13ab	J. Hoven	Dr	101.6	6	P	-	Cy,W,E	D,S	Tca	.8	2055.8	68.15	7- 9-48	-
13dc	C. Foster	B	80	24	W	-	Cy,E	D,S	L	-	2062	70	-	-
16dd	J. Lepene	Du	17	48	W	-	-	S	L	-	-	11	-	U
18cc1	Vincent Cybulski	Du	12	48	W	-	J,E	D,S	L	-	-	7	-	-
18cc2	-	-	-	-	-	-	F	N	-	-	-	-	-	-
18cc3	-	-	-	-	-	-	F	N	-	-	-	-	-	-
21cd	Alice Edges	Dr	56.2	6	P	-	Cy,W	S	Tco	.8	-	29.30	7-15-48	U
22dd	-	Dr	107.5	6	P	-	-	N	Tca	.8	2195.8	100.94	7-15-48	-
23dd	Axel Ramstad	Dr	225	4	P	-	Cy,W	D,S	L	-	2098	107	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
					Sheridan County, Montana--Continued									
34-55-24ac	H. R. Robertson	Dr	109	4	P	-	Cy,E	D,S	L	-	-	50	-	-
24ba	Mrs. F. Blackmore	Dr	80	6	P	-	Cy,W	D,S	L	-	2052	71	-	-
24da1	J. J. Courtney	Dr	47	4	P	G	Cy,E	D,S	L	-	2035	42	-	-
24da2	do.	B	47	18	W	-	-	N	L	-	-	42	-	-
30ba	Leroy Otto	Dr	172.2	6	P	-	Cy,W	D,S	Tca	0.6	-	163.09	7-14-48	-
31ba	John Overby	Dr	135.4	6	P	-	Cy,W	D,S	Tca	1.0	-	88.12	7-14-48	-
31cb	George Overby	Dr	90	6	P	-	Cy,W	D,S	L	-	-	80	-	-
34-56- 2ab	Albert Rasmussen	B	92	24	W	Ss	Cy,W	D,S	L	-	-	74	-	-
2bc	Gunder Hovet	Du	35	48	W	-	Cy,G	D,S	L	-	-	30	-	-
3ad	Knute Hovet	B	72	24	W	-	Cy,G	D,S	L	-	-	57	-	-
3cc	-	-	-	-	-	-	Cy,W	N	-	-	2215	-	-	-
6cb	J. Arnekled	B	89.5	24	W	L	Cy,W	N	-	-	2152	Dry	-	-
8aa	-	Dr	97.1	6	P	-	Cy,W	N	Hp	1.2	2163.2	80.35	7- 9-48	-
8bb	-	Dr	-	6	P	-	Cy,E	N	-	-	2153	-	-	-
9ab	-	Dr	-	6	P	-	Cy,W	N	-	-	2202	-	-	-
11bc	M. Rasmussen	Dr	145	6	P	-	Cy,W	D,S	L	-	-	110	-	-
13bb	Leroy Larsh	Dr	110	5	P	-	Cy,G	D,S	L	-	-	90	-	-
14dc	-	Dr	171.3	4	P	-	-	N	Tp	3.3	-	89.08	-	-
17ab	Paul Parpart	B	51.4	8	C	L	Cy,W	D,S	Tca	.8	2132.8	45.61	7- 9-48	-
18bc	-	B	85.1	24	W	-	Cy,E	N	Tco	1.3	2061.3	57.25	7- 9-48	-
18cd	O. A. Dahl	Du	42	36	W	S	Cy,H	D,S	L	-	2057	38	-	-
19dc	C. A. Olson	B	76	18	W	-	Cy,E	D,S	L	-	2070	56	-	-
21da	-	B	256.5	24	W	-	Cy,W	N	Tco	.8	2162.8	117.46	7- 9-48	-
22ab	-	Dr	-	3	P	-	Cy,G	N	-	-	-	-	-	-
23ba	-	Dr	-	4	P	-	Cy,W	N	-	-	-	-	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
34-56-24ba	E. O. Teigen	Dr	340	4	P	-	Cy,W	D,S	L	-	-	305	-	-
25ba	-	Dr	-	4	P	-	Cy,W	N	-	-	-	-	-	-
26cb	-	Dr	202+	4	P	-	-	-	-	-	-	Dry at 202	-	-
26dd	Marvin Jensen	Dr	235	4	P	-	Cy,W	D,S	L	-	-	190	-	-
27dc	Emil Grinsrud	Dr	260	4	P	-	Cy,W	S	L	-	-	160	-	U
28dd	do.	Du	10	36	W	-	Cy,G	D,S	L	-	-	6	-	-
29bd	C. A. Olson	B	91.8	18	W	-	-	N	Tco	0.8	2118.8	78.46	7- 9-48	-
29cc	G. Grinsrud	Dr	190	4	P	L	Cy,H	D,S	L	-	2130	150	-	-
32aa1	A. M. Grinsrud	Dr	200	4	P	-	Cy,H	S	L	-	2210	170	-	U
32aa2	do.	Dr	280	4,3,2	P	-	Cy,W	D	L	-	2212	195	-	-
32cb	Emil Grinsrud	Du	5	72	W	-	F,Cy,G	D,S	L	-	2056	2	-	-
32da	Brakke	B	36	24	W	-	Cy,G	D,S	L	-	2176	16	-	-
34bb1	Joseph Christensen	B	61	24	W	-	Cy,G	S	L	-	2192	49	-	U
34bb2	do.	Du	14	24	W		Cy,G	D	L	-	2192	11	-	-
35bb	-	Dr	-	4	P	-	-	-	-	-	-	-	-	-
36ab	-	Dr	-	6	P	-	Cy,W	N	-	-	-	-	-	-
36cc	Andrew Jorgensen	Dr	175	4	P	L	Cy,W	D,S	L	-	-	149	-	-
34-57- 7cc	Harold Larsen	Dr	200	4	P	-	Cy,W	S	L	-	-	140	-	U
19cc	-	Dr	300+	6	P	-	Cy,W	N	Tca	1.4	-	300+	7- 8-48	-
31bc	Carl Johansen	Dr	278	4,3	P	-	Cy,W	D,S	L	-	-	274	-	C
31cc	-	Dr	272.2	4	P	-	-	N	Tco	1.5	-	250.41	7- 8-48	-
32bc	Jonas Erickson	Dr	75	4	P	S	Cy,W	D,S	L	-	-	75	-	C
34-58-33bc	Clear Lake	-	-	-	-	-	-	-	-	-	-	-	-	C
35-55- 1cc	James Wagner	Dr	83	4,3	P	L	Cy,W,E	D,S	L	-	-	63	-	-
2cc	-	B	151.0	24	W	-	Cy,H	N	Tco	.6	-	Dry	7-12-48	-
3cd	T. King	Dr	130	6	P	-	Cy,G	D,S	L	-	-	110	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
35-55- 6bc	Lars Johnson	B	120	12	W	-	Cy,W	D,S	L	-	-	100	-	-
10bc	Kristian Nikolaisen	B	165	8	-	-	Cy,W,E	D,S	L	-	-	135	-	-
12aa	D. Mehl	Du	32	30	W	-	Cy,W,G	D,S	L	-	-	30	-	-
13ab	Raymond Otten	B	35	18	W	-	Cy,E	D,S	L	-	-	30	-	-
19ad1	Town of Plentywood	Dr	226	12	P	X	C	P	L	-	-	11	-	C
19ad2	do.	Dr	410	8	P	X	C	P	-	-	-	-	-	C
19ad3	do.	-	55	-	-	X	-	N	L	-	-	22	-	C
19ad4	do.	Dr	54	-	-	X	-	N	L	-	-	22	-	-
19da1	do.	Dr	148	-	P	-	C	P	-	-	-	-	-	C
19da2	do.	Dr	138	8,4½	P	Q	-	N	-	-	-	-	-	C
19da3	do.	Dr	135	-	-	X	-	N	L	-	-	3	-	-
19da4	do.	Dr	-	-	-	X	-	N	L	-	-	23	-	-
20ba1	do.	Dr	474	15	P	X	N	N	-	-	-	-	-	-
20ba2	do.	Du	47	180	C	-	-	N	-	-	-	-	-	C
20ba3	DeSylva	Du	31	72	C	X	-	N	L	-	-	18	-	C
20bb	Town of Plentywood	Dr	57	-	-	-	-	N	-	-	-	-	-	C
20bc	do.	Dr	90	-	-	X	-	N	L	-	-	21	-	-
22cd1	-	B	27.6	18	W	-	Cy,H	N	Tco	0.7	-	24.02	7-15-48	-
22cd2	-	B	28.3	18	W	-	-	N	Tcu	.6	-	23.16	7-15-48	-
23aa	-	Dr	-	4	P	-	Cy,H	N	-	-	-	-	-	-
24bc	-	Du	10.4	48	W	-	-	-	Tco	.5	-	Dry	7-15-48	-
24cc	-	Dr	-	6	-	-	Cy,G	N	-	-	-	-	-	-
29ac	W. R. Collier	Dr	42	5	P	-	Cy,G	D,S	L	-	-	17	-	-
29ad1	Olaf Flasheim	Du	28	48	W	-	J,E	D,S	L	-	-	20	-	-
29ad2	Bruce Hass	B	22	24	W	-	Cy,H	D,S	L	-	-	20	-	-

See footnotes at end of table.

Table 3 .--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
35-55-29ad3	Bruce Hass	Du	9	48	W	-	Cy,H	S	L	-	-	2	-	-
29ba1	Darvis	Du	20	48	W	-	J,E	D,S	L	-	-	2	-	-
29ba2	do.	Dr	60	4	P	-	Cy,H	D	L	-	-	30	-	-
32aa	Carl Gysler	B	10	16	W	-	Cy,H	D,S	L	-	-	3	-	-
34dd	Robert Thompson	B	48	24	W	-	Cy,G	D,S	L	-	1992	38	-	-
35ca	Bernadine Palutzke	B	31.4	12	W	-	Cy,H	D,S	Tco	0.6	2032.6	19.96	7-13-48	-
35-56- 1dd	Harry Heppner	B	60.6	24	W	-	Cy,W	D,S	Tco	1.6	-	42.29	7-12-48	-
5bd	Joseph Marsh	Du	5.9	48	W	L	F	D,S	Tca	3.0	-	**3.51**	7-12-48	-
6aa	-	B	29.7	18	W	-	-	N	Tcu	.7	-	28.32	7-12-48	-
7bb	Gordon Thompson	Du	34	36	W	-	Cy,E	D,S	-	-	-	28	-	-
10ac	-	Dr	217.2	6	P	-	Cy,W	N	Tca	.5	-	204.34	7-12-48	-
11ab	-	Dr	123.3	6	P	-	-	N	Tca	.8	-	Dry	7-12-48	-
16bb	O. E. Wang	Dr	-	4	P	-	Cy,G,W	D,S	-	-	-	-	-	-
18ad	J. Thompson	B	80	18	W	L	Cy,G	D,S	L	-	-	70	-	-
19ba	-	B	150.2	18	W	-	Cy,W	N	Tco	.8	-	109.75	7-15-48	-
20ab	-	B	87.6	24	W	-	Cy,H	N	Tco	.8	-	58.07	7-13-48	-
21bd	-	B	81	24	W	-	Cy,H,G	D,S	L	-	-	71	-	-
21ca	H. M. Herman	Dr	60	6	P	-	Cy,W	D,S	-	-	-	-	-	-
23cd	Knute Bestland	Dr	315	4	P	-	Cy,W	D,S	L	-	-	287	-	-
24ab	Peter Lee	Dr	354	5	P	-	-	D,S	Tca	1.1	-	139.71	7-12-48	-
25bb	Olaf Arneklev	Dr	93.1	6	P	-	Cy,H	N	Tca	1.0	-	88.03	7-12-48	-
26aa	Walford Melquist	Dr	365	4	P	-	Cy,W	D,S	L	-	-	340	-	-
26bc	-	Dr	350	4	P	-	Cy,W	D,S	L	-	-	310	-	-
27aa	G. E. Aakhus	Dr	300	4	P	-	Cy,W	D,S	L	-	-	270	-	-
31ad1	E. G. Bernou	B	118	24	W	-	Cy,W	D,S	L	-	2204	111	-	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Sheridan County, Montana--Continued											
35-56-31ad2	E. G. Bernou	B	130	24	W	-	Cy,G	D	L	-	-	110	-	-
31ca	E. O. Teigen	Dr	190	4	P	L	Cy,W	S	L	-	2184	105	-	U
32ab	-	-	-	-	-	-	Cy,G	N	-	-	-	-	-	-
32cc	Thorson	B	186	16	W	-	Cy,W	D,S	L	-	2250	184	-	-
33aa	-	Dr	-	6	P	-	Cy,G	N	-	-	2310	-	-	-
34cd	Albert Lee	Dr	300	4	P	-	Cy,W	D,S	L	-	2350	150	-	-
35da	-	Dr	175	3	P	-	Cy,W	N	L	-	-	90	-	-
35-57- 6cc	John Heppner	Du	19.6	36	W	-	Cy,G	D,S	Tco	0.6	-	12.47	6-12-48	-
21dd	W. F. Goff	Dr	100	4¼	P	-	Cy,G	S	-	-	-	-	-	-
36-55-34cc	N. Reuter	Dr	38	4	P	-	Cy,E	D,S	L	-	-	22	-	-
36-56-35da	David Nelson	Dr	80	6	P	-	Cy,H	D,S	L	-	-	60	-	-
			Divide County, North Dakota											
160-97- 6cc	-	Dr	-	6	P	-	Cy,W	S	-	-	2250	-	-	-
6dd	L. M. Gudvanden	Du	20	48	W	-	Cy,H	D,S	L	-	2265	10	-	-
7ad1	Selmer Selmerson	Du	20	36	W	-	Cy,H	D,S	L	-	2274	10	-	-
7ad2	do.	Du	21	36	W	-	Cy,H	D,S	L	-	2260	9	-	-
18aa	Olaf Nordness	Du	20	48	W	-	Cy,H	S	L	-	2295	-	-	U
160-98- 4cb	Albert Nystuen	Dr	344	6	P	Q	Cy,W	S	L	-	2146	40	-	-
5cc	Gilbert Dahlke	Dr	365	6	P	-	Cy,W	D,S	L	-	2131	20	-	-
6cc	-	B	109.5	18	W	-	Cy,H	N	Tco	.6	2110.6	72.07	8-19-48	-
7cb	Berger Herland	Dr	137.9	6	P	-	Cy,W	D,S	Tca	2.1	2162.1	127.27	8-19-48	-
8ba	Carl P. Nystuen	Dr	360	6	P	-	Cy,W	D,S	L	-	2148	22	-	-
8dc1	Carl Tweed	B	15	8	P	-	Cy,G	D,S	L	-	2206	7	-	-
8dc2	do.	Du	20	36	W	-	Cy,W	D,S	L	-	2206	6	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Divide County, North Dakota--Continued											
160-98-11cd	-	Dr	-	3	P	-	Cy,W	S	-	-	2242	-	-	-
14bc	Walter Schilke	B	34.6	24	-	-	Cy,G	S	Tco	1.0	2272.0	11.95	8-19-48	U
14cb	O. Gunderson	Dr	232	1	P	-	Cy,W	S	L	-	2272	142.	-	U
16bc	C. Tweed	Dr	295	6	P		Cy,W	D,S	L		2225	125		
17ba	-	Du	25	36	W	-	Cy,W	D,S	L	-	2201	7	-	-
18aa	S. S. Swenson	Dr	170	2	P	S,G,L	Cy,W	D,S	L	-	2194	140	-	-
18bb	Harold Johnson	Dr	215	2	P	G	Cy,W	D,S	L	-	2170	155	-	-
19bb	E. C. Gorden	Du	20	36	W	S	Cy,H	D,S	L	-	2210	13	-	-
20bc	Andrew Jacobson	Dr	232.5	5	P	G	Cy,W	S	L	-	2222	168	-	U
21ba	-	Dr	-	6	P	-	Cy,W	S	-	-	2262	-	-	-
21dd	-	Dr	-	6	P	-	Cy,W	N	-	-	2271	-	-	-
22ba	T. Kvale	Dr	230	6	P	L,G	Cy,G	D,S	L	-	2270	130	-	-
23cc	Ruben Peterson	Dr	200	6	P	G	Cy,H	N	-	-	2300	-	-	-
24cd	Nels Prson	Dr	-	2	P	-	Cy,W	S	-	-	2328	-	-	-
26bd	Alford Johnson	Dr	90	4	P	-	Cy,W	D,S	L	-	2248	60	-	-
27ad	Mrs. Ellen Olson	Dr	200	2	P	S	Cy,W	D,S	L	-	2270	150	-	-
29ac1	Iver Sateren	Dr	312	5	P	L	Cy,W	S	L	-	2262	162	-	U
29ac2	do.	Du	20	36	C	G	Cy,H	D,S	L	-	2262	18	-	-
29ca	-	Dr	199.5	6	P	-	Cy,W	S	Tca	1.3	2231.3	191.62	8-19-48	-
30dc	Claud Christenson	Dr	242	4	P	L	Cy,W	D,S	L	-	2239	192	-	-
31da	A. Christenson	Dr	260	4	P	L	Cy,W	D,S	L	-	2260	190	-	-
32bc	Hans Sateren	Dr	240	4	P	L	Cy,W	D,S	L	-	2250	200	-	-
32dc	Otto Vicha	B	110	18	T	-	Cy,W	S	L	-	2270	95	-	-
33cd	do.	Dr	280	4	P	L	Cy,W,G	S	L	-	2250	160	-	-
33db	Walter Johnson	B	110	18	T	-	Cy,W	D,S	L	-	2270	90	-	-
34ac	Henry Hanson	Du	13	-	W	S	Cy,H	D,S	L	-	2230	7	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Divide County, North Dakota--Continued											
160- 98-34cd	Olaf Haugen	Du	20	36	W	-	Cy,H,F	D,S	-	-	2260	-	-	-
34dd	S. Salveson	Dr	250	4	P	L	Cy,W	D,S	L	-	2300	200	-	-
160- 99- 1dd	Peter A. Eide	B	95	18	W	-	Cy,W	S	L	-	2119	69	-	U
2bc	A. Koppang	Dr	175	-	-	-	Cy,W	S	-	-	2103	-	-	U
3aa	do.	B	70	24	W	-	Cy,W	S	L	-	2090	10	-	U
3bc	Mary Lester	Du	10	-	-	S,G	Cy,H	D,S	L	-	2042	5	-	-
5cb	Oscar Magnason	Du	14	36	W	-	H	S	L	-	2087	2	-	U
6aa	-	Dr	43.8	3	P	-	-	N	Tca	0.5	2179.5	19.91	8-18-48	-
6bb	Orvin Eide	B	47	18	W	S	Cy,G	D,S	L	-	2120	44	-	-
7dc	Helmer Haugen	Du	15.6	36	W	-	Cy,H	D,S	Tco	1.7	2051.7	7.60	8-18-48	-
10ab	S. Renner	Dr	152	2.5	P	-	Cy,W	S	L	-	2170	100	-	U
11bb	-	Du	9.6	72	C	-	Cy,W	D,S	Tco	1.3	2149.3	8.15	8-18-48	-
12bb	Paul Siem	Dr	140	60	P	-	Cy,W	D,S	L	-	2140	100	-	-
12dd	-	Dr	144.5	6	P	-	Cy,W	N	Tca	1.3	2176.3	133.64	8-19-48	-
13bc	Herman Swenson	Dr	175	2	P	G	Cy,W	D,S	L	-	2171	135	-	-
17cc	-	Dr	-	4	P	-	Cy,W	D,S	-	-	2070	-	-	-
19cd	S. Johnson	Dr	155	4	P	-	Cy,W	D,S	L	-	2134	125	-	-
20ad	P. M. Nygoard	Dr	287	2	P	R	Cy,W	D,S	L	-	2141	90	-	-
23bb	-	Dr	-	4	-	-	Cy,W	D,S	-	-	2186	-	-	-
24cc	-	Dr	-	6	P	-	-	N	-	-	2217	-	-	-
24dc	-	Dr	-	6	P	-	Cy,W	S	-	-	2230	-	-	-
25ac	Renner Bros.	Dr	280	6	P	L	Cy,W	D,S	L	-	2198	100	-	-
26aa	Halby Simle	Dr	273	5	P	L	Cy,W	D,S	L	-	2239	195	-	-
26cd	John Munger	Dr	207	6	P	-	Cy,W	D,S	L	-	2181	180	-	-
27ab	Swen Sheardah	Dr	174.0+	6	P	-	Cy,W	D,S	Hp	1.8	2205.8	172.07	8-18-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						Divide County, North Dakota--Continued								
160-[illegible]28cc	Hagen	Dr	100	3	P	S	C,E	D,S	-	-	2120	-	-	-
28dd	Arnold Edwards	Dr	-	6	P	-	Cy,W	D,S	-	-	2172	-	-	-
29ba	-	Du	18.2	36	W	-	Cy,H	S	Tco	0.6	2128.6	11.30	8-17-48	-
32cd	-	Dr	93.5	6	P	-	Cy,H	N	Hp	1.0	2104.0	53.01	8-17-48	-
35aa	-	Dr	182.4	6	P	-	-	N	Tca	1.0	2221.0	182.42	8-19-48	-
160-100- 1ad	-	B	40.5	12	W	-	Cy,W	-	Tcu	2.3	2204.3	27.61	8-18-48	-
2ac	Louis Moen	B	147.4	24	W	-	N	N	Tco	1.3	2174.3	91.50	8-18-48	-
4cc	-	B	61.15	24	W	-	Cy,H	D,S	Tco	.6	2171.6	44.33	8-17-48	-
4dd1	Obert Berg	Dr	155	4	P	-	Cy,W,G	S	L	-	2150	95	-	-
4dd2	do.	Du	14	36	W	-	Cy,H	D,S	L	-	2150	4	-	-
6da	P. M. Johnson	Dr	75	-	-	-	Cy,W	D,S	L	-	2200	50	-	-
7bc	A. R. Trnquist	Dr	97	6	P	-	Cy,E	D,S	L	-	2200	81	-	-
8ac	Theodor Wrolson	Dr	50	6	P	G	Cy,W	D,S	L	-	2142	38	-	-
8cd1	-	Du	7.2	36	P	±	Cy,H	-	Tco	.5	2100.5	2.75	8-17-48	-
8cd2	-	Du	17.0	36	C	-	Cy,H	-	Tcu	1.9	2101.9	5.23	8-17-48	-
10db	Merl Knudsig	Du	10.2	36	W	-	H	S	Tco	1.5	2138.5	9.38	8-18-48	U
13db	-	Dr	-	4	P	-	Cy,W	-	-	-	2010	-	-	-
15cb	Olaf Karlsrud	Dr	35	6	P	-	Cy,E	D,S	L	-	2080	20	-	-
17ab	John Clar	Dr	101	4	P	-	Cy,W	D,S	L	-	2120	71	-	-
17bc	P. J. Foss	Dr	100	4.5	P	S,G	Cy,W	D,S	L	-	2150	82	-	-
19cd	-	B	26.8	24	W	-	Cy,H	S	Tco	.5	2080.5	13.78	8-17-48	-
20cc	E. A. Elngren	Dr	55	4	P	S,G	Cy,G	D,S	L	-	2100	40	-	-
22dd	S. B. Sorenson	Du	16.2	36	W	-	Cy,H,G	D,S	Tco	.7	2045.7	7.50	8-17-48	-
27bb	A. C. Amundson	Dr	105	6	P	-	Cy,W	D,S	L	-	2071	90	-	-
29bb	R. F. Elngren	Dr	55	4	P	G	Cy,H	D,S	L	-	2087	20	-	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Divide	County, North Dakota--Continued										
160-100-30cc	Donald Knutson	B	62	24	W	-	Cy,H	D,S	L	-	2119	20	-	-
31ba	-	Dr	51.5	6	P	-	Cy,H	N	Tca	1.4	2111.4	50.16	8-17-48	-
31bc	-	Dr	54.7	6	P	-	Cy,H	N	Tca	.9	2110.9	29.03	8-16-48	-
31cc	Clarence Larson	Dr	160	-	P	-	Cy,W	S	L	-	2113	130	-	U
32cb	Alfor Jorstad	Dr	100	6	P	-	Cy,G	D,S	L	-	2090	75	-	-
33dc	Edward C. Nelson	Dr	80	6	P	-	Cy,G	D,S	L	-	2052	53	-	-
34bb1	Elmer Nord	B	16	24	W	G	Cy,G	D,S	L	-	2040	1	-	-
34bb2	do.	B	16	24	W	G	Cy,W	D,S	L	-	2040	15	-	-
34cc	Even Uulledal	B	60	18	-	-	Cy,W	D,S	L	-	2070	50	-	-
160-101- 1aa	Olaf Sletten	Dr	70	6	P	-	Cy,W	D,S	L	-	2220	60	-	-
19dd	Stuart	Du	15.3	36	W	-	Cy,H	N	Tco	.4	-	9.27	8-13-48	-
20dd	-	Dr	-	6	P	-	Cy,W	S	-	-	-	-	-	-
26dd	Olaf Sletten	B	71.4	24	N	-	-	N	Tco	.2	2127.2	61.58	8-17-48	-
26cd	Walter Holman	Dr	282	3	P	-	Cy,W	S	L	-	2235	87	-	U
27cc	V. Nelson	B	66	24	-	-	Cy,E	D,S	L	-	2251	42	-	-
27dd	Olaf Larsen	Dr	190	6	P	-	Cy,W	S	-	-	2232	-	-	U
28cb	Solhime	B	105	24	W	-	Cy,W	S	L	-	2285	65	-	U
29ad	-	Dr	113.4	6	P	-	Cy,H	N	Tca	1.2	-	69.45	8-13-48	-
29bb	Tiadar Sundvold	B	100.8	18	W	-	Cy,W	S	Tco	1.2	-	33.33	8-13-48	U
32aa1	T. M. Olson	Dr	105	6	P	-	Cy,W	S	L	-	-	95	-	U
32aa2	do.	B	60	24	W	-	Cy,H	D	L	-	-	40	-	-
32ba	Kenneth Storehouse	Dr	130	6	P	-	Cy,W	S	L	-	-	80	-	U
33ad	Chris Foos	Dr	52.5	8	P	-	Cy,W	S	Tca	.3	2232.3	28.65	8-13-48	U
34bb	Olaf Johnson	B	-	24	W	-	Cy,W	S	-	-	2224	-	-	-
160-102-25aa	-	B	-	18	W	-	Cy,H	N	Tcu	.5	-	8.84	8-13-48	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Divide County, North Dakota--Continued											
160-102-25dd	Ellevold	B	60	24	W	-	Cy,G	S	L	-	-	50	-	U
			Williams County, North Dakota											
158-101- 2bc	M. Grey	B	74.6	24	W	-	Cy,W	D,S	Tco	1.2	2042.2	39.95	8-16-48	-
4bd	W. Ingwall	Dr	180	6	P	-	Cy,W,G	D,S	-	-	2149	156	-	-
5bb1	O. A. Rustad	Dr	90	6	P	Ss,L	Cy,W	D,S	-	-	2195	82	-	-
5bb2	do.	Dr	190	6	P	-	N	D,S	-	-	2195	145	-	-
5bb3	do.	Dr	190	6	P	-	Cy,W	D,S	-	-	2195	145	-	-
158-102- 2bb1	Clarence Poling	Dr	120	6	P	S	Cy,W	D,S	-	-	2230	Dry	-	-
2bb2	do.	Du	12	36	W	-	Cy,H	S	-	-	2220	-	-	-
159- 98- 1ad	Earl Nelson	Dr	300	4	P	-	Cy,W	D,S	-	-	2303	150	-	-
1dc	F. Micelson	B	50	36,24	W	Q,G	Cy,H	D,S	-	-	-	25	-	-
2cc	C. T. Solen	Dr	135	6	P	S	Cy,E	D,S	-	-	-	124	-	-
3dc	L. Lerbakken	Dr	300	4	P	S	Cy,W	S	-	-	-	210	-	-
4aa	C. Vicha	Dr	234	5	P	Q	Cy,W	D,S	-	-	2220	194	-	-
5dd	-	Dr	-	4	P	-	Cy,W	D,S	-	-	-	-	-	-
6bb	O. E. Wiig	Dr	248	3	P	L	Cy,W	D,S	-	-	2225	163	-	-
6cc	E. Wiig	Dr	135	4	P	S	Cy,W	S	-	-	-	125	-	U
9ad	S. Lerbakken	Dr	190	4	P	L	Cy,W	D,S	-	-	-	160	-	-
10ac	Town of Corinth	Dr	200	4	P	-	Cy,H	P,S	-	-	-	130	-	-
12dc	Sundrud Bros.	Dr	250	2	P	L	Cy,W	S	-	-	-	100	-	-
13aa	Martin Sundsrud	Dr	346	2	P	L	Cy,W	S	-	-	-	100	-	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Williams County, North Dakota--Continued											
159- 99- 2ba	Emil Forsberg	Dr	228	6	P	L	Cy,W	D,S	-	-	2220	178	-	-
4ad	Anton Thoring	Dr	179.8	-	-	-	Cy,W	S	Tca	1.6	2183.6	171.74	8-19-48	U
4dd	A. E. Forsberg	Dr	90	3	P	S	Cy,W	D,S	-	-	-	20	-	-
7ad	-	Dr	-	6,2	P	-	Cy,W	D	-	-	-	-	-	-
9dc	Marlo Ottesn	Dr	165	6	P	-	Cy,W	D,S	-	-	-	140	-	-
10bc	F. Dahl	Dr	80	6	P	Q	Cy,W	D,S	-	-	-	57	-	-
11ba	Sevid	Dr	-	3	P	-	Cy,W	D,S	-	-	-	-	-	-
11dc1	-	Dr	133.5	6	P	-	-	N	Tca	1.0	-	131.80	8-19-48	-
11dc2	-	Dr	-	4,3	P	Cy,H	S	-	-	-	-	-	-	-
14ad1	Mrs. Emma Lohse	Du	50	48	W	G	Cy,W	S	-	-	-	46	-	-U
14ad2	do.	Dr	196	5	P	S	T,E	D	-	-	-	106	-	-
15cb	-	Dr	-	3	P	-	Cy,W	S	-	-	-	-	-	-
159-100- 3cc	Henry Knudsvig	Du	19	-	-	S	Cy,H	D,S	-	-	-	19	-	-
13cc	Orville Berve	Dr	82	4	P	-	Cy,W	D,S	-	-	-	62	-	-
15bb	H. Williams	Dr	96	4	P	-	Cy,W	N	-	-	-	-	-	-
15cc	K. L. Esterby	B	61	24	W	G	Cy,W	D,S	-	-	-	51	-	-
15dc1	F. Broun	Du	25	36	W	G	Cy,H	S	-	-	-	15	-	U
15dc2	do.	Dr	125	6	P	Q	Cy,W	D,S	Tca	.3	-	26.42	8-18-48	-
18bb1	Norman Kittelson	Dn	45	6	P	-	Cy,H	D,S	-	-	2032	35	-	-
18bb2	do.	Du	10	48	W	-	Cy,W	S	-	-	2007	4	-	-
23ad	-	Dr	77.6	2	P	-	Cy,W	S	Tca	1.8	-	60.04	8-20-48	-
24ba	Arnold Berve	Dr	160	4	P	-	Cy,W	D,S	-	-	-	-	-	-
159-101- 2cc	Iver Nysven	B	85	24	W	Q	Cy,W,G	S	-	-	2106	45	-	-
3cd	Olaf Christianson	-	-	1 3/4	P	-	F	S	-	-	2106	-	-	U
6cc	-	B	58.6	24	W	-	Cy,H	D	Tco	1.1	2236.1	37.41	8-13-48	-

See footnotes at end of table.

Table 3.--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Williams County, North Dakota--Continued											
159-101-10ac1	-	Dr	44.0	4	P	-	-	N	Tca	1.2	2097.2	34.68	8-13-48	-
10ac2	-	B	64.5	24	W	-	Cy,W,H	S	Tco	.8	2096.8	42.22	8-13-48	-
10cc	N. A. Gill	Dr	-	3	P	-	Cy,W	S	-	-	2161	-	-	-
10dc	-	-	-	-	-	-	Cy,H	D,S	-	-	2130	-	-	-
11aa	Eugene Olson	Du	12	36	P	-	Cy,H,G	D,S	-	-	2040	6	-	-
12da1	J. M. Larson	Dr	90	6	P	-	Cy,W	D,S	-	-	2084	-	-	-
12da2	Iver Randklev	Dr	-	6	P	-	Cy,W	D,S	-	-	2084	-	-	-
13aa	Victor Kittelson	Dr	-	6	P	-	Cy,W	D,S	-	-	2032	-	-	-
13cc	-	Du	-	24	W	-	Cy,H	N	-	-	2009	-	-	-
14bc	-	Dr	117.8	4	P	-	-	N	Tca	1.3	2050.3	116.98	8-13-48	-
14cc1	-	B	118.5	24	W	-	-	N	Tco	.6	2111.6	81.95	8-16-48	-
14cc2	-	Dr	110.8	6	P	-	Cy,H	D	Tca	1.0	2101.0	82.67	8-16-48	-
15da	-	Dr	-	4	P	-	Cy,W	S	-	-	2146	-	-	-
22aa	Andrew Cornelus	B	84	24	W	-	Cy,E	S	-	-	2078	-	-	U
27ba	Helgeland Selmer	Dr	95	6	P	G	Cy,W	D,S	-	-	2031	10	-	-
27da	-	B	96.5	18	W	-	Cy,G	S	Tcu	.8	2059.8	69.17	8-16-48	-
31ba	J. Bratlien	Dr	6	-	-	-	Cy,G	D,S	-	-	2250	-	-	-
31cc	Harold Schilke	Dr	200	6	P	-	Cy,G	D,S	-	-	2250	80	-	-
32db	Herman Rustad	Dr	116	6	P	L	Cy,W	D,S	-	-	2222	96	-	-
32dc	Emil Rustad	Dr	100	6	P	-	Cy,W	D,S	-	-	2195	93	-	-
33aa	R. Brannon	B,Dr	180	6	P	-	Cy,W	D,S	-	-	2155	160	-	-
34ab	Peter Lunde	B	85	24	W	-	Cy,W,G	S	-	-	2082	70	-	U
34dc	Hans Bratlien	B	64	24	W	S,G,L	Cy,W	D,S	-	-	2039	20	-	-
35aa	S. K. Severson	Dr	-	4	P	-	Cy,W	D,S	-	-	2010	-	-	-
35dc	-	-	-	-	-	-	Cy,G	D,S	-	-	2054	-	-	-

See footnotes at end of table.

Table 3.--Records of wells --Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Williams County, North Dakota--Continued											
159-102- 1bc	George Eberle	Du	47	36	C	-	Cy,W	D,S	-	-	-	33	-	-
2da	-	B	56.2	18	W	-	Cy,G	S	Tcu	0.2	2254.2	14.44	8-13-48	-
7bb	Jens Lund	Dr	200	6	P	-	Cy,W	S	-	-	2128	-	-	U
8cb	C. R. Christensen	B	48.6	12	W	S	-	D,S	Tcu	.4	2113.4	46.19	8-11-48	-
8dd	-	B	150.0	24	W	-	Cy,W	S	Tco	.0	2120.0	74.09	8-11-48	-
12cc	Herman Kohrt	B	80	24	W	-	Cy,G	D,S	-	-	2180	73	-	-
12dd	Murphy	B	70	24	W	-	Cy,H	D,S	-	-	2160	60	-	-
13aa	Town of Hanks	B	65	24	W	-	Cy,H	N	-	-	2130	58	-	U
14cb	-	-	-	-	-	-	Cy,W	S	-	-	2290	-	-	-
18dd	Clarence Johnson	B	151.0	18	W	-	Cy,W	S	Tcu	.5	2155.5	121.37	8-11-48	U
19cd1	T. E. Kilbride	B	71.5	24	W	-	Cy,W	D,S	Tcu	.4	2232.4	22.67	8-11-48	-
19cd2	-	B	32.5	24	W	-	-	N	Tcu	2.2	2234.2	25.27	8-11-48	-
20bc1	Louis Larson	Du	25	36	W	S	Cy,W	D,S	-	-	2217	17	-	-
20bc2	do.	Du	20	36	W	-	Cy,W	S	-	-	2217	17	-	-
20dd	-	B	35.0	24	W	-	Cy,H	D	Tco	1.4	2233.4	21.10	8-11-48	-
24aa	-	B	35.1	24	W	-	Cy,H	D	Tco	1.2	2141.2	33.92	8-11-48	-
26bb	Elmer Hexem	Du	24	48	W	-	Cy,G	D,S	-	-	2259	16	-	-
27aa	do.	Du	20.1	36	C	-	Cy,G	S	Tco	1.5	2250.5	10.82	8-11-48	-
27ba	-	B	25.8	18	W	-	Cy,W	N	Tco	.6	2236.6	11.51	8-11-48	-
29ab	-	-	-	-	-	-	-	N	-	-	2227	-	-	-
29bb	Henry Hoff	Du	19	36	W	-	Cy,H	D,S	-	-	2210	15	-	-
30ad	-	B	37.7	18	W	-	Cy,H	D	Tcu	.8	2236.8	12.5	8-11-48	-
30bd	Albert Fischer	B	59.1	24	W	-	Cy,E	S	Tco	.3	2242.3	43.39	8-11-48	U
33bb	Fischer	Dr	140	6	P	-	Cy,W	D,S	-	-	2210	120	-	-
33dd	Howard Ross	B	121	7	T	L	Cy,W	S	-	-	2262	112	-	U

See footnotes at end of table.

Table 3 .--Records of wells--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			Williams County, North Dakota--Continued											
159-103- 3aa	-	B	76.5	30	C	-	Cy,W	S	Tco	2.8	-	50.01	8-10-48	-
10aa	Carl Jacobson	Dr	-	6	P	-	Cy,W,G	S	-	-	2062	-	-	U
11ab	Harry J. Arnold	Dr	33.3	6	P	R	Cy,W	S	-	-	2101	30	-	U
12ca	Town of Grenora	Du	25	192	C	-	C,E	D	-	-	2068	15	-	-
13aa	M. Nustad	Dr	180	5	P	-	Cy,E	D,S	-	-	2042	110	-	-
13ab	David M. Jetson	B	148	24	W	Q	Cy,W	D,S	-	-	2092	88	-	-
14ca	Angermeier	B	40	24	W	R	Cy,W,G	D,S	-	-	2050	30	-	-
20ad	Lars Lindelie	Dr	130	4	P	Q	Cy,W	D,S	-	-	2029	70	-	-
20ba	Thomas Raaen	Du	12	48		G	-	D,S	-	-	1955	6	-	-
21ac	P. E. Peterson	B	65	24	W	S	Cy,W	D,S	-	-	2055	45	-	-
23dd	Sanford Tangen	Dr	168	6	P	Q	Cy,W,G	S	-	-	2146	148	-	U
24cc	Leedell	B	52.5	30	W	-	Cy,G	S	Tco	1.5	2141.5	37.66	8-10-48	U
24da1	Hans O. Lotlestad	B	42.7	24	P	-	Cy,H	O	Tco	1.1	2215.1	20.70	8-11-48	-
24da2	do.	Du	36	24,18	W	G,S	Cy,H	O	Tco	1.2	2215.2	12.04	5- 5-38	-
24da3	do.	Dr	178.0	6	P	-	-	O	Tca	1.1	2221.1	157.77	8-11-48	-
26ba	Roy Angermeier	Dr	165	6	P	Q	Cy,W	S	-	-	2130	-	-	U
26cc	Ralph Peterson	Dr	160	5	P	G	Cy,W	S	-	-	2184	138	-	U
27cc1	Lief Lundby	B	135	24	W	-	Cy,W,G	S	-	-	2141	120	-	U
27cc2	do.	Du	18	72	C	Q	Cy,E	D	-	-	2136	14	-	-
28ca	Mrs. Anna Lindquist	Du	36	36	W	S	Cy,W	D,S	-	-	2055	27	-	-
29cc	Clifford Price	Dr	120	6	P	Q	Cy,W	D,S	-	-	2035	100	-	-
30dc	Lloyd Erickson	B	53	24	-	G,S	Cy,W	D,S	-	-	1994	38	-	-
32ab	Clifford Price	Dr	114	6	P	-	Cy,W	D,S	-	-	2070	94	-	-

See footnotes at end of table.

Table 3--Records of wells--Continued

Footnotes:

1 See text for description of well-numbering system.

2 B, bored; Dn, driven; Dr, drilled; Du, dug; GP, gravel pit; LM, flooded lignite mine; R, electrical resistivity test site.

3 Measured depths are given in feet and tenths; reported depths are given in feet.

4 C, concrete, brick, or masonry; P, metal pipe; T, tile; W, wood; N, none.

5 C, clay, G, gravel; L, lignite; Q, quicksand; R, rock; S, sand; Ss, sandstone; X, well log available.

6 Method of lift: C, centrifugal pump, Cy, cylinder pump; F, natural flow; J, jet pump; N, none; P, pitcher pump; T, turbine pump. Type of power: E, electric motor; G, gasoline motor; H, hand; W, wind.

7 D, domestic; N, none; O, observation of water level; PS, public supply; S, stock.

8 Bp, base of pump; Hp, hole in pump; L, land surface; Tca, top of casing; Tco, top of cover; Tcu, top of curb; Tp, top of pump.

9 Altitudes in feet and tenths were determined by spirit levelling; altitudes in even feet were interpolated from topographic maps.

10 Measured depths are given in feet, tenths, and hundredths; reported depths are given in feet.

11 C, complete chemical analysis; P, partial chemical analysis; U, unfit for domestic use.

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