

# Water Levels and Artesian Pressure in Observation Wells in the United States in 1948

## Part 5. Northwestern States

*Prepared under the direction of C. G. PAULSEN, Chief Hydraulic Engineer*

---

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1130

*Prepared in cooperation with the States  
of Colorado, Idaho, Oregon, Utah,  
Washington, Wyoming, and other  
agencies*



This copy is **PUBLIC PROPERTY** and is not to  
be removed from the official files. PRIVATE  
POSSESSION IS UNLAWFUL (R. S. Sup. Vol. 2, pp. 380,  
Sec. 749)

**UNITED STATES DEPARTMENT OF THE INTERIOR**

**Oscar L. Chapman, *Secretary***

**GEOLOGICAL SURVEY**

**W. E. Wrather, *Director***

## PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming, and other agencies, by personnel of the Water Resources Division under the direction of:

C. G. Paulsen	Chief Hydraulic Engineer
A. N. Sayre	Chief, Ground Water Branch
S. W. Lohman	District Geologist (Ground Water), Denver, Colo.
B. L. Nace	District Geologist (Ground Water), Boise, Idaho
B. C. Newcomb	District Geologist (Ground Water), Portland, Oreg.
G. H. Taylor	Regional Engineer (Ground Water), Lincoln, Nebr.
H. E. Thomas	District Geologist (Ground Water), Salt Lake City, Utah



## CONTENTS

	Page
Introduction, by A. N. Sayre and others . . . . .	1
Significance of records of water level and artesian pressure . . . . .	1
Annual publication of records by Geological Survey . . . . .	1
Scope of present volume . . . . .	2
Land-surface datum . . . . .	2
Network of Federal observation wells . . . . .	3
Changes in ground-water level in 1948 in the northwestern part of the United States . . . . .	4
Acknowledgments . . . . .	4
Colorado, by W. J. Powell and W. E. Code . . . . .	5
Program of work . . . . .	5
Well descriptions and water-level measurements . . . . .	6
Idaho, by R. L. Nace . . . . .	20
Program of work . . . . .	20
Fluctuations of water level . . . . .	20
Well descriptions and water-level measurements . . . . .	26
Montana, by F. A. Swenson, H. W. Lorenz, and A. E. Torrey . . . . .	38
Program of work . . . . .	38
Fluctuations of water level . . . . .	39
Well-numbering system . . . . .	43
Well descriptions and water-level measurements . . . . .	45
Oregon, by F. A. Watkins . . . . .	79
Program of work . . . . .	79
Precipitation . . . . .	79
Fluctuations of water level . . . . .	80
Well descriptions and water-level measurements . . . . .	82
Utah, by W. B. Nelson and R. G. Butler . . . . .	91
Program of work . . . . .	91
Fluctuations of water level . . . . .	92
Well descriptions and water-level measurements . . . . .	93
Washington, by F. A. Watkins . . . . .	150
Program of work . . . . .	150
Precipitation . . . . .	152
Fluctuations of water level . . . . .	154
Well-numbering system . . . . .	154
Well descriptions and water-level measurements . . . . .	155
Wyoming, by Frank Visher . . . . .	168
Program of work . . . . .	168
Fluctuations of water level . . . . .	168
Well-numbering system . . . . .	168
Well descriptions and water-level measurements . . . . .	169

## ILLUSTRATIONS

Figure 1. Outline map of the United States showing sections of the country covered by the six water-supply papers on water levels and artesian pressure in observation wells in 1948 . . . . .	3
2. Map of Montana showing the nine areas into which the State has been subdivided . . . . .	40
3. Sketch showing well-numbering system adopted for use in Montana . . . . .	44



# WATER LEVELS AND ARTESIAN PRESSURE IN OBSERVATION WELLS IN THE UNITED STATES IN 1948

---

## Part 5. NORTHWESTERN STATES

---

### INTRODUCTION

By A. N. Sayre and others

The ground-water investigations of the United States Geological Survey are primarily concerned with the location and appraisal of the ground-water resources of the Nation. They are carried on principally in financial cooperation with States and municipalities, or at the request of other Federal agencies. Most of the investigations have to do with the availability of usable water supplies, but a few deal with drainage, flood control, construction of waterways and dams, mine drainage, and other problems to which principles of ground-water hydrology are pertinent. Water-Supply Paper 992 lists about 1,800 papers and reports describing ground-water investigations made by the Survey in cooperation with States and municipalities through 1945.

#### Significance of records of water level and artesian pressure

An essential part of the ground-water investigations is the measurement of fluctuations of water level and artesian pressure in wells. The rock formations of the earth are great natural reservoirs in which a part of the water derived from rain and snow is stored to supply wells and springs and to maintain the flow of streams during periods of fair weather. Water levels in wells indicate the stages of these natural reservoirs; they show the extent to which water supplies are depleted by drought or by heavy pumping, whether for public waterworks, irrigation, or industrial uses, and the extent to which they are replenished in seasons of abundant rainfall or melting snow. Changes of pressure in artesian wells also indicate the rate of depletion or replenishment of artesian supplies.

#### Annual publication of records by Geological Survey

The regular publication of records of water level and artesian pressure in the United States was begun by the Geological Survey in 1935 and has

continued yearly since. This series of water-supply papers is in a sense an inventory of ground-water supplies. Prior to 1940 the records were published in a single volume. Beginning with 1940 the records have been published in six volumes, covering the northeastern, southeastern, north-central, south-central, northwestern, and southwestern sections of the country. Hawaii is included in the southwestern section. (See fig. 1.) The introduction to the chapter on each State contains an outline of the general program of work and special features of the program in the current year, such as preliminary reports issued or put on file during the year or of work done in preparation for such a report. A general discussion of the fluctuations of water level and statements in regard to precipitation, pump-age, and other factors affecting water level are included. The following table gives the numbers of water-level reports from 1935 through 1948.

Water-supply papers on water levels and artesian pressure in observation wells in the United States

Year	North-eastern States	South-eastern States	North-central States	South-central States	North-western States	South-western States and Hawaii
1935	777	777	777	777	777	777
1936	817	817	817	817	817	817
1937	840	840	840	840	840	840
1938	845	845	845	845	845	845
1939	886	886	886	886	886	886
1940	906	907	908	909	910	911
1941	936	937	938	939	940	941
1942	944	945	946	947	948	949
1943	986	987	988	989	990	991
1944	1016	1017	1018	1019	1020	1021
1945	1023	1024	1025	1026	1027	1028
1946	1071	1072	1073	1074	1075	1076
1947	1096	1097	1098	1099	1100	1101
1948	1126	1127	1128	1129	1130	1131

#### Scope of present volume

The present volume covers the northwestern States and gives records of water level and artesian pressure in about 1,490 observation wells of the Geological Survey and cooperating agencies in Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming. Of these wells, 30 are equipped with automatic water-stage recorders. For some wells not previously reported complete records of water level are given. For wells whose previous records have been published this volume gives only the current records. If a complete description of a well has been published in a previous report, only the well number or the well number and a brief description are given in this report. This report includes about 7,650 individual determinations of water level and artesian pressure.



## Land-surface datum

Before 1943, in Geological Survey reports, the water levels and artesian pressures for some wells were given in feet above or below the measuring points and for other wells in feet above or below sea level or above or below various assumed datum planes. In 1943, it was decided that uniform

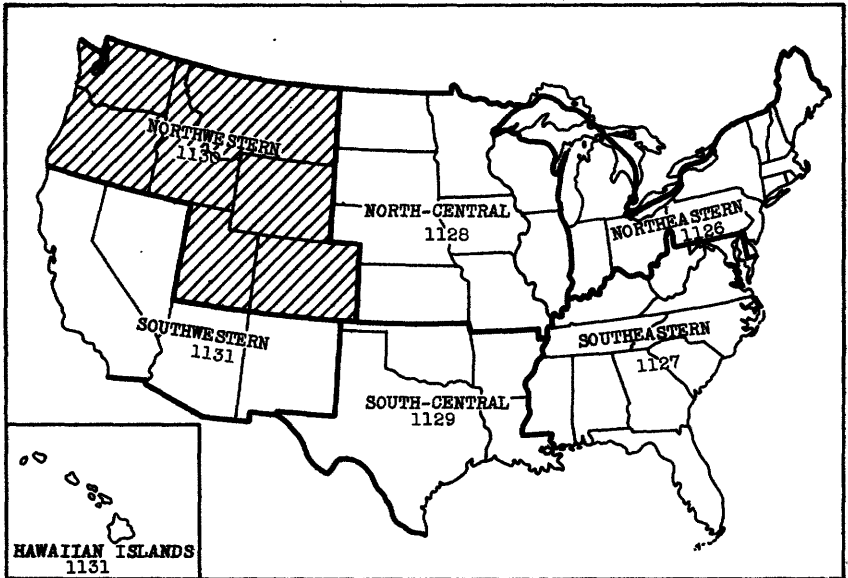


Figure 1.--Outline map of the United States, showing sections of the country covered by the six water-supply papers on water levels and artesian pressure in observation wells in 1948. The shaded section represents the part of the country covered by this volume.

practice should be adopted. Accordingly, a precise datum plane was established approximating the land surface at each well. The water levels and artesian heads for all wells listed in this report are given in feet below land-surface datum unless preceded by a plus (+) sign, or otherwise indicated in the descriptive text for each State. When water levels or artesian heads are referred to land-surface datum for the first time, a conversion factor is given in the descriptive matter preceding them in order to facilitate comparison of the older and newer records.

## Network of Federal observation wells

In 1942 and 1943 the Geological Survey established a network of 60 Federal observation wells. These wells were selected because the fluctuations of water level in them are believed to be typical and represent the

fluctuations that occur in the parts of the country in which the wells are situated. At the end of 1948 the network comprised about 360 wells in 45 States, including 300 wells measured regularly in connection with cooperative ground-water investigations.

Changes in ground-water level in 1948 in the northwestern part of the  
United States

In 1948 the precipitation in four of the seven States in the northwestern section of the country was above normal and the water levels in many wells in these States rose. In Colorado, Utah, and Wyoming precipitation was below normal. The fluctuations of both water level and artesian pressure in wells, however, depend on many factors besides the amount of precipitation. In certain of the observation wells there are fluctuations caused by differences in the rate of pumping or artesian flow from other wells in the area, but most of the observation wells are not noticeably affected by pumping or artesian flow. A summary of the changes in ground-water level is given in the chapter for each State.

Acknowledgments

Miss Dorothy M. Ireland and, later, Miss Verda M. Dougherty had general charge of the assembling of the several reports and did the editing; Mr. Rodney Hart edited the illustrations; and Mrs. Nauvoo Ragland, Mrs. Frances Dowell, and Miss Beulah B. Brunson did the offset typing.

Penn P. Livingston had general supervision of the observation-well program. The measurements were made under the direction of the district supervisors of the Ground Water Branch in the several States.

## COLORADO

By W. J. Powell and W. E. Code

### PROGRAM OF WORK

The observation-well program in Colorado, begun in 1942, was continued in 1948 in cooperation with the Colorado Water Conservation Board and with the Colorado Agricultural Experiment Station, Colorado A. and M. College.

During 1948 a report on "Ground water in the Julesburg area, Colorado," by Thad G. McLaughlin, was published as Ground-Water Series, Circular 1, of the Colorado Water Conservation Board. Field work was completed in Baca County and a report on that area is in preparation. A progress report on the "Ground-water resources of the lower South Platte River Valley between Hardin, Colorado, and Paxton, Nebraska," by L. J. Bjorklund and J. A. Tavelli, was prepared in 1948. The South Platte project is being conducted in cooperation with the Bureau of Reclamation, United States Department of Interior, as a part of the Missouri Basin program. Studies were continued in 1948 in the Denver artesian basin and in the Grand Junction artesian basin in Mesa County and in the irrigated district north of Monte Vista, in the San Luis Valley.

Water levels were being measured in 218 wells at the end of 1947. During the year measurements were discontinued in nine wells and measurements were begun in three wells. At the end of 1948, therefore, observations were being made in 212 wells, and 970 wetted-tape measurements are given below.

The water levels in 147 wells were measured twice yearly by W. E. Code; 3 of the wells were equipped with automatic water-stage recorders; 59 wells, including 50 wells previously measured twice yearly by Code, were measured at monthly intervals by members of the Fort Morgan office of the ground water branch; 22 wells were measured at monthly intervals by members of the Denver office of the ground water branch; 3 wells were measured monthly by engineers of the Denver office of the surface water branch through the courtesy of Francis M. Bell, district engineer; and 1 well was observed monthly by a local observer.

The well-numbering system used in this report is described in Water-Supply Paper 1027.

## WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Adams County

C-1-60-4ccc. W. L. Freeman. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	23.02	Mar. 3	22.70	Oct. 4	26.83	Dec. 6	24.96
Feb. 3	22.84	Apr. 13	22.40	Nov. 4	26.34		

C-1-60-17dcc. Carl Sanden. Records available: 1945-48.

Jan. 8	28.47	Mar. 3	28.35	June 30	30.82	Nov. 4	30.85
Feb. 3	28.09	Apr. 13	28.00	Sept. 1	35.33	Dec. 6	29.77

C-1-60-29cbd. J. D. Singleton. Records available: 1945-48.

Jan. 8	30.68	Mar. 3	30.34	June 30	32.06	Nov. 4	33.28
Feb. 3	30.36	Apr. 13	30.20	Oct. 4	34.88	Dec. 6	32.90

C-1-62-22dac. Charles B. Nordloh. Records available: 1945-48.  
Apr. 23, 43.72; Nov. 10, 44.70.

C-1-62-34cd. John H. Nordloh. Records available: 1946-48. Nov. 10, 41.88.

C-1-65-11cd. David Patton. Records available: 1947-48. Apr. 22, 14.11; Nov. 16, 12.70.

C-1-66-7cc. C. Hose. Records available: 1945-48. Apr. 22, 19.65; Nov. 16, 17.94.

C-1-66-19dc. A. B. Perry. Records available: 1945-48. Apr. 22, 31.78; Nov. 16, 29.29.

C-1-67-13db. Edward Schnute. Records available: 1945-48. Apr. 22, 21.13; Nov. 16, 19.98.

C-1-67-35cda. L. A. Ernst. Records available: 1945-48. Apr. 22, 20.65; Nov. 16, 19.25.

C-2-60-19bcc. Oscar Helgeson. Records available: 1945-48.

Apr. 13	17.40	Aug. 4	17.59	Oct. 4	17.58	Dec. 6	17.54
June 4	17.42	Sept. 1	17.56	Nov. 4	17.68		

C-2-65-11dcd. Box Elder Farms. Records available: 1945-48. Apr. 22, 27.72; Nov. 16, 26.99.

C-2-65-14deb. Box Elder Farms. Records available: 1945-48. Apr. 22, 13.54; Nov. 16, 12.70.

C-2-65-23dab. Box Elder Farms. Records available: 1945-48. Apr. 22, 14.24; Nov. 16, 14.47.

C-2-65-26dba. Box Elder Farms. Records available: 1945-48. Apr. 22, 16.67; Nov. 16, 17.66.

C-2-65-35dbb. Box Elder Farms. Records available: 1945-48. Apr. 22, 14.29; Nov. 16, 15.84.

C-2-65-35dcd. Box Elder Farms. Records available: 1945-48. Apr. 22, 13.14; Nov. 16, 14.87.

C-2-67-10dcd. Cora Wall. Records available: 1945-48. Nov. 16, 25.54.

C-2-67-20ded. Charles Padden. Records available: 1945-48. Apr. 22, 24.28; Nov. 16, 24.32.

C-2-67-31db. M. M. Summers. Records available: 1945-48. Apr. 22, 24.08; Nov. 16, 23.89.

C-3-65-23ddd. L. Erling. Records available: 1945-48. Apr. 22, 14.20; Nov. 16, 15.48.

C-3-67-6dd. H. L. Swanson. Records available: 1945-48. Apr. 22, 16.80; Nov. 16, 17.61.

Arapahoe County

C-4-68-33cd. Frank Hornbuckle. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	9.05	Apr. 23	6.73	July 24	7.32	Sept. 21	7.50
Feb. 3	8.66	May 5	5.87	Aug. 10	7.05	Oct. 11	8.03
Mar. 16	8.84	20	6.11	24	7.1	Dec. 14	9.52
26	8.64	June 23	6.50	Sept. 9	7.37	23	9.46
Apr. 7	8.46	July 9	6.66				

Baca County

C-29-42-10ad. Published incorrectly in Water-Supply Paper 1100 as C-29-42-10dd. Harold Walker. New measuring point beginning May 2, 1948, top of casing, at land-surface datum, 0.30 foot below old measuring point. Records available: 1947-48.

Jan. 31	21.44	May 26	20.44	Sept. 1	21.48	Nov. 17	21.40
Apr. 3	20.52	July 13	20.85	Oct. 18	21.85	Dec. 30	21.13
May 2	20.60	Aug. 11	21.29				

C-29-43-lasb. R. B. Holt. Records available: 1947-48.

Jan. 31	+0.42	July 13	+0.41	Sept. 1	+0.34	Nov. 17	a+0.45
Apr. 3	+.42	Aug. 11	+.41	Oct. 18	+.21	Dec. 30	a+.45
May 2	+.41						

a Water flowing at this level.

C-29-46-18add. Louisa Morris. Records available: 1947-48.

Jan. 29	44.99	July 14	45.15	Sept. 1	44.32	Nov. 17	44.48
Apr. 3	44.80	Aug. 10	44.96	Oct. 1	44.23	Dec. 30	44.88
May 3	45.00						

C-30-45-34ccc. C. J. Alfrey. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 3	88.27	May 27	87.37	Sept. 1	87.14
May 2	87.64	Aug. 11	87.25	Nov. 17	87.19

C-30-46-5ccc. R. K. Knight. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	92.94	May 27	93.02	Sept. 1	93.37	Nov. 17	92.55
Apr. 4	92.97	Aug. 10	93.09	Oct. 1	93.37	Dec. 30	93.29
May 3	93.02						

C-30-46-17bc. Maude A. Rarex. Records available: 1947-48.

Jan. 30	11.59	May 3	11.13	Aug. 10	12.28	Oct. 1	12.99
Mar. 2	11.34	27	11.41	Sept. 1	12.60	Nov. 17	12.84
Apr. 4	11.30	July 14	12.13				

C-31-46-28bbc. Ethyl Taylor. Records available: 1947-48.

Jan. 30	133.69	May 3	134.02	Sept. 1	133.84	Nov. 17	133.18
Apr. 4	133.77	Aug. 10	133.80	Oct. 1	133.90	Dec. 30	133.93

C-31-49-11bab. J. D. Grage. Records available: 1947-48.

Apr. 4	180.86	May 27	180.15	Aug. 10	180.62	Sept. 30	180.78
May 3	180.13	July 14	180.52	Sept. 1	180.93	Nov. 17	180.40

C-32-43-20aaa. H. F. Koelsch. Records available: 1947-48.

Jan. 30	86.41	May 27	86.40	Aug. 11	86.40	Nov. 17	86.03
Apr. 3	86.41	July 13	86.51	Sept. 1	86.55	Dec. 30	86.36
May 2	86.49						

## C-32-48-8cbb. S. D. Huff. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 3	194.00	May 27	193.80	Aug. 10	193.82	Sept. 30	193.76
May 3	194.23	July 14	193.83	Sept. 1	193.92	Nov. 17	193.35

## C-33-45-13dad. J. A. and M. W. Davis. Records available: 1947-48.

Jan. 30	80.08	May 27	79.87	Sept. 1	79.70	Nov. 17	79.68
Apr. 3	79.75	July 13	79.67	Oct. 1	79.85	Dec. 30	79.58
May 2	79.86	Aug. 11	79.61				

## C-35-45-7db. G. S. Shaw. Records available: 1947-48.

Jan. 31	168.84	May 26	168.74	Sept. 1	169.11	Nov. 17	168.47
Apr. 4	169.56	July 13	170.00	Oct. 1	169.29	Dec. 30	169.01
May 3	169.95	Aug. 10	168.51				

Elbert County

## C-9-57-8abb. J. C. Mattson. Records available: 1946-48.

Jan. 29	5.73	May 4	5.59	Aug. 12	6.64	Oct. 2	6.88
Jan. 2	5.53	28	5.90	Sept. 2	6.84	Nov. 1	6.59
Apr. 3	5.42	July 6	6.37				

## C-9-56-34ccb. Heber Ellsworth. Records available: 1946-48.

Feb. 1	11.40	Apr. 3	11.12	May 28	11.21	Nov. 1	12.70
Mar. 3	11.43	May 4	11.04	Oct. 2	13.03	Dec. 31	12.56

C-10-58-8ccc. Heber Ellsworth. Records available: 1946-48. Apr. 3, 9.41; May 4, 9.44; May 28, 9.45. Measurements discontinued.

C-10-58-21bb. Mrs. Frances Simpson. Records available: 1946-48. Feb. 1, 32.62; Mar. 3, 32.73; Apr. 3, 32.72; May 4, 32.75. Measurements discontinued.

## C-10-59-13ca. John Kochis. Records available: 1946-48.

Apr. 3	9.97	July 6	9.86	Sept. 2	10.00	Nov. 1	10.60
May 4	9.20	Aug. 13	10.56	Oct. 2	10.55	Dec. 1	10.57

## C-10-59-22ab. William Groff. Records available: 1946-48.

Feb. 1	11.06	May 4	11.08	Aug. 12	11.94	Dec. 1	11.68
Mar. 3	10.99	28	11.18	Nov. 2	11.77	31	11.55
Apr. 3	10.72						

## C-10-60-26cd. Simla Cemetery. Records available: 1946-48.

Feb. 1	23.88	May 3	23.78	Aug. 13	24.47	Nov. 2	25.29
Mar. 3	23.83	28	23.96	Sept. 2	24.89	Dec. 1	24.54
Apr. 3	23.70	July 6	24.29	Oct. 2	24.92	31	24.40

El Paso County

C-11-61-1b. Owner unknown. New measuring point beginning May 28, 1948, top of concrete curb, at land-surface datum and 1.58 feet below old measuring point. Records available: 1946-48.

Feb. 1	11.43	May 3	11.56	Oct. 2	13.32	Dec. 1	13.10
Mar. 3	11.40	28	11.74	Nov. 2	13.20	31	13.06
Apr. 3	11.39						

## C-11-62-22ad. Anthony Furich. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 3	5.60	July 6	6.21	Nov. 1	6.37
May 3	5.64	Aug. 13	6.11	Dec. 31	6.35

C-15-66-11cbd. Venetucci Bros. Records available: 1945-48. Apr. 11, 37.18; Nov. 4, 36.57.

C-15-66-14abd. T. L. Bender. Records available: 1945-48. Apr. 1, 23.40. Measurements discontinued after Apr. 1. Well replaced by C-15-66-14abd2.

C-15-66-14abd2. T. L. Bender. NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 14, T. 15 N., R. 66 W. Irrigation well, diameter 24 inches, depth unknown. Measuring point, top of casing, 0.5 foot above land-surface datum. Equipped with electrically driven turbine pump. Replaces C-15-66-14abd and is 15 feet from it. Records available: 1948. Nov. 4, 22.82.

C-15-66-25aaa. W. E. Busch. Records available: 1945-47. Apr. 1, 29.74; Nov. 4, 29.20.

C-16-65-16bb. L. F. Oldenstaadt. Records available: 1945-48. Apr. 1, 33.16; Nov. 4, 29.90.

#### Garfield County

C-7-88-29ab. J. F. Smith. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	35.75	Apr. 8	36.10	July 16	28.03	Oct. 14	30.23
Feb. 15	37.51	May 14	34.52	Aug. 12	28.20	Nov. 12	33.13
Mar. 12	36.21	June 17	28.03	Sept. 10	30.33	Dec. 10	34.67

#### Larimer County

B-5-68-17abb. George Peak. Records available: 1945-48. Apr. 21, 7.96; Nov. 15, 9.15.

B-6-68-1ba. M. J. Warner. Records available: 1945-48. Apr. 28, 11.45; Nov. 16, 11.52.

B-7-68-9aaa. Edward Wright. Records available: 1945-48. Apr. 29, 7.96; Nov. 22, 8.32.

B-7-68-10cbb. Drake Estate. Records available: 1945-48. Apr. 29, 5.80; Nov. 22, 6.47.

B-7-68-22bbb. Ray Pitcher. Records available: 1945-48. Apr. 28, 5.77; Nov. 16, 5.95.

B-7-68-23cbb. W. A. Scott. Records available: 1945-48. Apr. 28, 7.05; Nov. 16, 7.18.

B-8-68-4bba. A. Heckman. Records available: 1945-48. Apr. 29, 25.15; Nov. 22, 28.61.

B-8-68-10cbb. A. L. Bee. Records available: 1945-48. Apr. 29, 15.95; Nov. 22, 20.17.

B-8-68-16aa. R. E. Nutter. New measuring point is 2.14 feet below land-surface datum. Records available: 1945-48. Apr. 29, 21.45; Nov. 22, 26.19.

B-8-68-22cbb. J. E. Swansen. Records available: 1945-48. Apr. 29, 9.21; Nov. 22, 12.39.

B-8-68-27cbb. A. L. Seamans. Records available: 1945-48. Nov. 22, 13.93.

B-8-68-28aab. F. L. Bartels. Records available: 1945-48. Apr. 29, 6.95; Nov. 22, 10.13.

B-8-68-33ccc. F. C. Kluver. Records available: 1945-48. Apr. 29, 13.74; Nov. 22, 15.40.

B-9-68-17ab. Harlan Seaworth. Records available: 1945-48. Nov. 22, 44.62.

B-9-68-28bbb. E. F. Meedel. Records available: 1945-48. Apr. 29, 20.72; Nov. 22, 22.21.

B-9-68-33bdc. W. E. Dalby. Records available: 1945-48. Apr. 29, 28.49; Nov. 22, 30.42.

#### Lincoln County

C-9-56-26aa. Owner unknown. Records available: 1946-47. Measurements discontinued after December 1947.

Logan County

B-7-52-7acc. H. F. Schaffer. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level
June 7	11.20	Aug. 6	10.60	Oct. 8	10.38
July 12	11.13	Sept. 10	10.48	Nov. 1	10.80

B-7-53-21bc Hessler Bros. Records available: 1945-48.

Feb. 6	14.88	July 12	15.09	Oct. 8	14.48
Apr. 16	15.20	Sept. 10	16.05	Nov. 1	13.86

B-7-53-23bbb. William Nisson. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 6	30.00	June 7	29.02	Sept. 10	25.71	Nov. 1	24.50
Mar. 12	30.55	July 12	28.15	Oct. 8	24.39	Dec. 6	25.54
Apr. 16	30.98	Aug. 2	28.40				

B-7-53-26ab. Ben Fisher. Records available: 1945-48.

Jan. 2	9.39	July 12	8.89	Sept. 10	8.67	Nov. 1	8.72
Feb. 6	8.69	Aug. 6	9.52	Oct. 8	8.45	Dec. 6	9.04
June 7	8.93						

B-7-54-12cbb. John Amen. Records available: 1945-48. Measurements discontinued.

Date	Water level	Date	Water level	Date	Water level
Feb. 6	10.88	Apr. 16	10.80	July 12	10.55
Mar. 12	11.40	June 7	11.16		

B-8-52-10acc. G. A. Henderson. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	4.92	Apr. 16	5.30	Sept. 14	3.20	Nov. 8	5.00
Feb. 6	5.40	June 7	2.99	Oct. 8	3.99	Dec. 6	5.13
Mar. 12	5.20	Aug. 2	4.71				

B-8-52-17cbb. Joseph Willson. Records available: 1945-48.

Jan. 2	18.54	Apr. 16	19.75	Aug. 2	17.95	Nov. 1	16.37
Feb. 6	19.07	June 7	18.48	Sept. 14	16.78	Dec. 6	17.43
Mar. 12	19.60	July 12	17.82	Oct. 8	15.91		

Morgan County

B-1-55-18bcc. R. H. Awmiller. Records available: 1945-48.

Feb. 3	38.39	June 2	39.77	Sept. 1	41.16	Nov. 2	40.95
Mar. 8	37.94	July 5	40.60	Oct. 7	41.28	Dec. 8	40.47
Apr. 14	37.80						

B-1-55-31dac. James Bolinger. Records available: 1945-48.

Feb. 3	33.91	June 2	35.83	Aug. 2	38.89	Oct. 7	38.01
Mar. 8	34.29	July 5	36.76	Sept. 1	38.61	Dec. 8	36.74
Apr. 14	33.60						

B-1-56-1dc. Mrs. John Shaw. Records available: 1945-48.

Feb. 2	35.83	Apr. 14	36.00	Sept. 1	40.59	Nov. 2	39.68
Mar. 8	36.19	July 5	38.54	Oct. 8	41.69	Dec. 8	38.78



B-1-60-12cc. Anna Hogan. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	32.41	Apr. 13	31.15	Aug. 13	41.99	Nov. 4	37.47
Feb. 3	31.92	July 2	35.84	Oct. 4	42.03	Dec. 6	36.21
Mar. 3	31.64						

B-1-60-23bcc. Louis Westhoff. Records available: 1945-48.

Jan. 8	17.38	Apr. 13	16.51	Sept. 1	20.51	Nov. 4	18.35
Feb. 3	16.95	Aug. 4	21.57	Oct. 4	19.12	Dec. 6	17.79
Mar. 3	16.77						

B-1-60-27dd. Paul Wells. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 8	19.03	Mar. 3	19.92	Nov. 4	21.56
Feb. 3	19.98	Apr. 13	19.79	Dec. 6	21.14

B-2-55-30bcc2. Jacob Bickert. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 2	22.00	May 14	23.90	Aug. 2	26.80	Nov. 2	25.05
Mar. 8	21.85	June 2	25.04	Sept. 1	27.72	Dec. 8	24.55
Apr. 14	21.58	July 5	25.32	Oct. 7	26.09		

B-2-56-1ddd. G. A. Foiles. Records available: 1945-48.

Feb. 2	14.62	May 14	16.20	Aug. 2	15.29	Nov. 2	15.68
Mar. 8	14.53	June 2	14.54	Sept. 1	15.49	Dec. 8	15.07
Apr. 14	14.60	July 7	15.00	Oct. 7	16.51		

B-2-56-13aa. J. L. Hunt. Records available: 1945-48.

Feb. 3	5.49	May 14	9.20	Aug. 2	8.95	Oct. 7	9.06
Mar. 8	5.15	June 2	11.16	Sept. 1	9.02	Dec. 8	7.67
Apr. 14	6.00	July 5	7.88				

B-2-56-24dd2. Max Peterson. Records available: 1945-48. Mar. 30, 16.00; May 14, 16.80; July 5, 19.44; Aug. 2, 20.19; Nov. 2, 19.91.

B-2-60-4ddd. William Reck. Records available: 1945-48.

Jan. 9	55.42	Apr. 13	55.20	Sept. 15	59.25	Nov. 4	57.09
Feb. 3	55.22	June 3	56.29	Oct. 4	58.37	Dec. 6	56.65
Mar. 10	55.25	July 2	56.44				

B-2-60-13dd. C. A. Bresnahan. Records available: 1945-48.

Jan. 8	49.46	Apr. 13	48.02	Aug. 13	52.39	Nov. 4	51.23
Feb. 3	48.35	June 4	49.35	Sept. 15	53.73	Dec. 6	50.75
Mar. 3	48.17	July 2	50.36	Oct. 4	52.14		

B-2-60-26dd. R. A. Baer. Records available: 1945-48.

Jan. 8	58.83	Mar. 3	57.96	June 4	58.96	Nov. 4	64.49
Feb. 3	58.22	Apr. 13	57.35	July 2	60.22	Dec. 6	63.10

B-3-56-7ccb. Jacob Lenhardt. Records available: 1945-48.

Jan. 6	25.09	Apr. 15	26.75	July 2	26.64	Oct. 7	26.06
Feb. 3	24.33	May 17	27.00	Aug. 9	27.79	Nov. 3	26.05
Mar. 10	26.10	June 2	26.66	Sept. 2	26.44	Dec. 9	26.49

B-3-56-24bb. Charles Henry. Records available: 1945-48.

Feb. 3	5.30	May 14	5.40	Aug. 2	6.82	Nov. 3	6.17
Mar. 8	5.08	June 2	5.90	Sept. 1	7.40	Dec. 8	5.82
Apr. 14	5.40	July 7	5.77	Oct. 7	7.56		

## B-3-57-6dc. City of Fort Morgan. Records available: 1945-48.

Lowest daily water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.45	43.65	43.97	.....	44.97	.....	44.92	45.35	45.70	45.87	45.28	44.90
2	.....	43.65	43.99	.....	44.97	.....	44.93	45.40	46.70	45.82	45.26	44.90
3	.....	43.65	43.02	.....	44.96	.....	44.95	45.40	45.70	45.80	45.24	44.90
4	.....	43.68	43.02	.....	44.97	.....	44.95	45.40	45.70	45.76	45.21	44.90
5	.....	43.68	43.02	44.44	44.99	.....	44.95	45.44	45.71	45.76	45.17	44.89
6	43.47	43.70	43.05	44.48	44.99	.....	44.98	45.42	45.71	45.74	45.16	44.89
7	43.47	43.71	43.06	44.49	45.01	.....	45.00	.....	45.71	45.70	45.15	44.90
8	43.51	43.71	43.08	44.49	45.01	.....	45.06	.....	45.70	45.68	45.14	44.90
9	43.51	43.71	44.09	44.51	45.01	.....	45.09	45.32	45.72	45.66	45.13	44.88
10	.....	43.74	44.11	44.55	.....	45.12	45.11	45.33	45.74	45.64	45.11	44.87
11	43.51	43.75	.....	44.55	.....	45.12	45.14	45.37	45.75	45.63	45.10	44.87
12	43.51	43.74	.....	44.59	.....	45.13	45.17	45.40	45.77	45.62	45.07	44.87
13	43.52	43.77	.....	44.61	.....	45.12	45.20	45.43	45.80	45.62	45.05	44.87
14	43.51	43.78	.....	44.63	.....	45.15	45.25	45.42	45.83	45.61	.....	44.89
15	43.53	43.80	44.18	44.66	.....	45.18	45.24	45.41	45.86	45.60	.....	44.90
16	43.53	43.81	44.18	.....	.....	45.19	45.20	45.45	45.88	45.59	.....	44.89
17	43.53	43.82	44.18	.....	.....	45.20	45.22	45.50	45.89	45.55	.....	44.88
18	43.55	43.83	44.20	.....	.....	45.20	45.20	45.52	45.90	45.53	.....	44.87
19	.....	43.87	44.20	.....	.....	.....	45.19	45.55	45.90	45.52	.....	44.89
20	.....	43.87	44.23	.....	.....	45.10	45.19	45.57	45.89	45.51	.....	.....
21	.....	43.88	44.23	44.80	.....	45.10	45.21	45.60	45.88	45.50	.....	44.90
22	.....	43.87	44.24	44.81	.....	45.07	45.25	45.60	45.90	45.47	.....	44.91
23	.....	43.89	44.26	44.85	.....	45.03	45.26	45.60	45.90	45.45	.....	44.91
24	43.61	43.91	44.27	44.86	.....	45.00	45.29	45.63	45.92	45.41	45.93	44.92
25	43.61	43.92	44.30	44.87	.....	45.00	45.31	45.66	45.94	45.41	45.94	44.92
26	43.62	43.91	44.31	44.88	.....	44.98	45.29	45.64	45.95	45.40	45.93	44.91
27	43.62	43.93	44.33	44.88	.....	44.92	45.32	45.67	45.96	45.38	45.93	44.91
28	43.62	43.96	44.33	44.90	.....	44.91	45.34	45.67	45.95	45.35	45.92	44.94
29	43.63	43.96	44.33	44.94	.....	44.90	45.34	45.66	45.91	45.34	45.91	44.95
30	43.64	.....	44.36	44.96	.....	44.90	45.34	45.68	45.90	45.30	45.90	44.99
31	43.65	.....	44.38	.....	.....	.....	45.35	45.69	.....	45.29	.....	44.99

## B-3-57-7cbc. Fred Kimball, Sr. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	45.80	Apr. 15	46.75	July 2	47.14	Oct. 1	48.39
Feb. 5	46.15	May 17	47.60	Aug. 9	48.27	Nov. 3	49.09
Mar. 3	46.40	June 1	46.98	Sept. 9	48.75	Dec. 2	47.12

## B-3-57-30bbc. Hanna &amp; Gelroth. Records available: 1945-48.

Jan. 5	12.22	May 17	12.40	Sept. 9	15.40	Nov. 9	12.89
Feb. 5	12.72	June 1	11.55	Oct. 1	14.11	Dec. 2	12.92
Apr. 13	13.30	July 2	11.54				

## B-3-58-8cb. H. W. Clatworthy. Records available: 1945-48.

Jan. 6	50.14	Apr. 12	51.90	July 2	49.03	Oct. 1	48.52
Feb. 3	50.66	May 13	51.00	Aug. 11	48.65	Nov. 3	48.33
Mar. 10	51.39	June 1	50.36	Sept. 8	48.15	Dec. 3	48.96

## B-3-58-11bb. Alix Stark. Records available: 1945-48.

Jan. 7	53.54	Apr. 15	54.00	Aug. 11	57.42	Nov. 3	55.82
Feb. 3	53.24	May 13	54.65	Sept. 2	57.59	Dec. 3	54.37
Mar. 3	53.70	June 1	54.38	Oct. 1	57.15		

B-3-60-3ccc. H. A. Frank. Records available: 1946-48. Jan. 6, 61.50; Feb. 3, 60.76; Mar. 2, 61.30; Apr. 15, 59.70. Measurements discontinued.

B-3-60-4dc. Carl Bretheuer. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 4, T. 3 N., R. 60 W. Irrigation well, diameter 18 inches, depth unknown. Measuring point, top of casing, 0.5 foot above land-surface datum. Records available: 1948. Sept. 9, 66.87; Oct. 4, 66.65; Nov. 5, 65.50; Dec. 6, 64.99.

## B-3-60-23cd. Kroh Bros. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	55.33	Apr. 13	55.20	Sept. 8	57.31	Nov. 4	56.47
Feb. 3	55.20	June 3	56.00	Oct. 4	56.63	Dec. 6	56.50
Mar. 3	55.28						

## B-3-60-22ccc. B. A. Holden. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	55.54	Mar. 10	54.84	June 3	55.54	Nov. 4	57.80
Feb. 3	55.24	Apr. 13	54.50	Sept. 15	59.32	Dec. 6	57.06

## B-3-60-32cba. L. W. Elstun. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	42.37	Mar. 10	42.25	June 30	41.66	Nov. 4	43.42
Feb. 2	42.27	Apr. 12	42.03	Oct. 4	44.08	Dec. 7	42.97

## B-4-55-9dcc. Rudolph &amp; Schooley. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	15.97	Apr. 14	16.70	Sept. 10	16.52	Nov. 1	16.23
Feb. 4	16.25	June 7	15.36	Oct. 7	16.91	Dec. 8	16.35
Mar. 8	16.43	Aug. 6	16.04				

## B-4-55-18ccd. H. Baumgardner. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	19.15	Apr. 14	19.90	Aug. 6	19.14	Nov. 1	18.55
Feb. 3	19.48	May 14	19.70	Sept. 10	19.12	Dec. 8	19.06
Mar. 8	19.70	June 7	19.19	Oct. 7	19.98		

## B-4-56-23dc. Hansen Bros. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	19.25	Apr. 14	20.10	July 13	18.80	Oct. 7	18.22
Feb. 3	19.62	May 14	19.30	Aug. 6	18.63	Nov. 2	18.40
Mar. 8	19.92	June 7	18.83	Sept. 10	18.36	Dec. 8	19.00

## B-4-60-34dcc. H. E. Brubaker. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	69.98	Apr. 18	67.88	Sept. 8	75.85	Nov. 5	73.14
Feb. 3	69.25	June 3	69.26	Oct. 4	75.61	Dec. 6	71.90
Mar. 2	68.72						

## B-5-55-35ddc. John Pabst. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	18.16	Apr. 16	18.42	Aug. 6	18.49	Nov. 1	17.10
Feb. 4	18.26	June 7	17.73	Sept. 10	17.61	Dec. 7	17.72
Mar. 8	18.30	July 12	17.54	Oct. 7	17.34		

Otero County

C-22-58-21bd. C. Meyer. New measuring point, beginning Mar. 30, 1948, 1.9 feet above land-surface datum, 0.7 foot above old measuring point. Records available: 1945-48. Mar. 30, 30.71; Nov. 4, 28.82.

C-22-59-16dca. C. J. Stauder. Records available: 1945-48. Mar. 30, 20.81; Nov. 4, 19.80.

C-22-59-17bd. W. H. Sauer. Records available: 1945-48. Mar. 31, 14.69; Nov. 4, 13.00.

C-22-59-17ccc. M. Simpson. Records available: 1945-48. Mar. 31, 19.90; Nov. 4, 17.33.

C-22-59-18ccc. M. C. Kesterson. Records available: 1945-47. No measurements made in 1948.

C-22-59-24bc. H. I. Barnard. Records available: 1945-48. Mar. 30, 22.62; Nov. 4, 19.63.

C-22-59-29cbb. M. Madson. Records available: 1945-48. Mar. 31, 12.06; Nov. 4, 12.19.

C-23-57-3bc. H. L. Garber. Records available: 1945-48. Mar. 30, 22.60; Nov. 4, 20.65.

C-23-57-12daa. American Crystal Sugar Co. Records available: 1945-48. Mar. 30, 10.76; Nov. 4, 10.20.

## WATER LEVELS AND ARTESIAN PRESSURE, 1948, NORTHWESTERN STATES

C-23-57-32bdb. J. C. Vroman. Records available: 1945-48. Mar. 30, 12.17; Nov. 4, 11.17.

Pitkin County

C-8-88-27bc. R. O. Sewell. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	32.00	Apr. 8	25.76	July 16	10.78	Oct. 14	23.97
Feb. 15	32.02	May 14	22.45	Aug. 12	22.57	Nov. 12	24.76
Mar. 12	31.37	June 17	12.46	Sept. 10	16.68	Dec. 9	30.13

Pueblo County

C-20-63-34bcd. Excelsior Ranch. Records available: 1945-48. Mar. 30, 10.57; Nov. 4, 11.20.

C-21-61-23bbb. Frank Trebis. Measurements discontinued after Nov. 6, 1947; replaced by C-21-61-23bb2, 50 feet east. Records available: 1945-47.

C-21-61-23bb2. Frank Trebis. Measuring point, top of casing, 0.95 foot above land-surface datum. Mar. 30, 14.65; Nov. 4, 15.81.

C-21-61-23db. Ralph Wright. Records available: 1945-48. Mar. 30, 11.06; Nov. 4, 11.90.

C-21-62-9cd2. Bert Potestio. Records available: 1946-48. Apr. 1, 15.87; Nov. 4, 15.20.

C-21-63-8ca. J. T. McCorkle. Records available: 1945-48. Apr. 1, 31.01; Nov. 4, 29.07.

C-21-63-11cdc. C. A. Wilcox. Records available: 1945-48. Apr. 1, 20.77; Nov. 4, 18.50.

C-21-64-3dbd. Joseph Thomas. Records available: 1945-48. Apr. 1, 17.39; Nov. 4, 15.92.

C-21-64-10bbc. Tony Morrellp. Records available: 1945-48. Apr. 1, 10.84; Nov. 4, 9.44.

Washington County

B-5-54-20bcc. Mr. Palmer. Records available: 1945-48.

Jan. 2	14.07	Apr. 16	15.17	Aug. 6	14.55	Nov. 1	14.29
Feb. 4	15.06	June 7	14.55	Sept. 10	14.63	Dec. 6	14.20
Mar. 8	14.95	July 12	13.79	Oct. 7	15.60		

Weld County

B-1-63-2ccc. R. Ogi. Records available: 1945-48.

Lowest daily water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	58.09	57.42	56.88	56.40	56.03	56.02	.....	.....	59.98	60.60	.....	.....
2	58.04	57.39	56.85	.....	56.00	56.03	.....	58.75	60.18	60.54	.....	.....
3	.....	57.33	56.87	.....	55.99	56.03	56.40	58.96	60.30	60.50	.....	.....
4	.....	.....	56.87	.....	55.99	56.04	56.38	58.81	60.59	60.60	.....	.....
5	.....	.....	56.80	.....	56.10	55.99	56.50	59.02	60.62	60.83	.....	.....
6	57.92	.....	56.81	.....	56.07	55.90	56.59	58.99	.....	60.75	.....	.....
7	57.90	.....	56.80	.....	56.10	55.81	56.64	59.06	.....	60.60	.....	.....
8	57.89	.....	56.71	56.31	55.97	.....	56.87	58.94	.....	60.48	.....	.....
9	57.84	.....	56.72	56.22	55.90	56.05	57.09	59.08	.....	60.40	.....	.....
10	57.84	.....	56.73	56.23	55.92	56.03	57.29	59.44	.....	60.33	59.03	.....
11	57.82	.....	56.70	56.22	55.85	56.07	57.13	59.51	.....	60.29	59.02	.....
12	57.80	.....	56.68	56.22	55.81	56.20	57.36	59.58	.....	60.26	58.99	.....
13	57.81	.....	56.68	56.23	55.75	56.29	57.44	59.40	61.57	60.20	58.95	.....
14	57.77	.....	56.63	56.21	55.68	56.45	57.40	59.30	61.64	60.17	58.93	.....
15	.....	57.14	56.61	56.17	55.85	56.60	57.30	59.21	61.62	.....	58.86	.....
16	57.76	57.11	56.60	56.15	55.80	56.71	57.33	59.17	61.70	.....	58.86	.....
17	57.73	57.10	56.58	56.13	55.70	57.09	57.25	59.14	61.85	.....	58.80	57.87
18	57.72	57.09	56.53	56.15	55.65	57.16	57.21	59.29	61.80	.....	58.80	57.86

B-1-63-2ccc--Continued.

Lowest daily water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	57.69	57.10	.....	.....	55.70	57.20	57.47	59.20	61.50	.....	58.75	57.82
20	57.65	57.09	.....	.....	55.65	57.08	57.58	59.19	61.30	.....	58.70	57.80
21	57.63	57.07	56.56	.....	55.73	56.92	.....	59.30	61.15	.....	58.70	57.79
22	57.60	57.01	56.50	.....	55.90	56.83	.....	59.33	61.05	.....	58.68	57.76
23	57.60	57.05	56.50	56.24	55.90	56.79	.....	59.48	60.97	.....	58.62	57.73
24	57.80	57.05	56.50	56.18	55.80	56.71	.....	59.77	61.04	.....	58.58	57.71
25	57.59	57.00	56.42	56.15	55.73	56.63	.....	60.10	61.02	.....	58.55	57.68
26	57.54	.....	56.50	56.10	55.72	56.60	.....	60.47	60.89	.....	58.50	57.67
27	57.53	.....	56.50	56.10	55.70	56.56	.....	60.69	60.79	.....	58.50	57.62
28	57.50	.....	56.45	56.10	55.63	56.52	.....	60.57	60.74	.....	58.49	57.65
29	57.48	56.89	56.36	56.03	55.67	56.50	.....	60.31	60.68	.....	58.42	57.65
30	57.44	.....	56.40	56.00	55.74	56.50	.....	60.15	60.62	.....	58.40	57.58
31	57.46	.....	56.40	.....	56.00	.....	.....	60.05	.....	.....	.....	57.55

B-1-63-2ddc. Mr. Rider. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	43.64	Apr. 12	43.38	July 1	42.64	Oct. 5	41.02
Feb. 2	43.60	23	43.43	Aug. 13	41.95	Nov. 8	41.18
Mar. 11	43.59	June 4	43.18	Sept. 13	41.41	Dec. 7	41.34

B-1-63-3ccc. John Baumgardner. Records available: 1945-48.

Jan. 9	47.30	Apr. 12	46.82	July 1	45.33	Nov. 8	49.15
Feb. 2	46.92	23	45.70	Sept. 13	52.11	Dec. 7	48.14
Mar. 11	46.22	June 5	46.74	Oct. 5	51.62		

B-1-63-9dd. E. A. Custer. Formerly owned by Mr. Shaklee. Records available: 1945-48.

Jan. 9	51.31	Apr. 12	49.05	June 4	48.64	Nov. 8	50.57
Feb. 2	50.30	23	48.98	Oct. 5	51.03	Dec. 7	50.06
Mar. 11	49.66						

B-1-63-10odd. L. H. Alden. Records available: 1945-48.

Jan. 9	55.28	Apr. 12	53.70	July 1	54.38	Nov. 8	56.34
Feb. 2	54.70	23	53.34	Sept. 13	59.43	Dec. 7	55.16
Mar. 11	54.07	June 4	54.31	Oct. 5	58.65		

B-1-63-15dc. F. C. Kluver. Records available: 1945-48. Measurements discontinued after July 1.

Date	Water level	Date	Water level	Date	Water level
Jan. 9	77.90	Mar. 11	77.30	July 1	76.98
Feb. 2	77.45	Apr. 12	76.75		

B-1-63-22ddc. J. J. Suppes. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 2	78.07	Apr. 12	78.49	June 4	75.41	Nov. 8	80.63
Mar. 11	79.14	23	78.11	July 1	75.84	Dec. 7	80.05

B-1-63-27dc. William Vogt. Records available: 1945-48.

Jan. 9	91.67	June 4	90.74	Sept. 13	97.66	Nov. 8	91.75
Apr. 12	91.20	July 1	90.42	Oct. 5	93.67	Dec. 7	91.45
23	90.98						

B-1-63-28abb. Hudson Gardens Co. Records available: 1945-48.

Jan. 9	74.36	Apr. 12	71.72	July 1	68.62	Oct. 5	71.60
Feb. 2	76.85	23	68.90	Aug. 13	69.33	Nov. 8	75.08
Mar. 11	75.60	June 4	67.19	Sept. 13	70.33	Dec. 7	75.00

B-1-64-18bbd. Joseph DeBell. Records available: 1945-48. Apr. 22, 11.80; Nov. 16, 12.77.

B-1-65-12ccc. Joseph Wuertz. Records available: 1945-48.

Lowest daily water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.67	13.84	13.90	.....	13.99	.....	.....	16.25	14.67	14.09	14.02	14.08
2	13.67	13.82	13.90	.....	13.99	.....	.....	15.95	14.13	14.09	14.03	14.08
3	13.75	13.80	13.96	.....	14.00	.....	.....	16.20	13.60	14.08	14.02	14.08
4	13.75	13.83	13.95	13.97	13.94	.....	.....	16.33	13.35	14.05	14.02	14.07
5	13.74	13.83	13.94	13.98	14.00	.....	.....	16.04	.....	14.03	14.04	14.10
6	13.74	13.82	13.91	13.94	14.00	.....	.....	15.67	.....	14.05	14.06	14.10
7	13.70	13.90	13.91	14.01	13.91	.....	.....	15.85	.....	14.05	14.03	14.10
8	13.72	13.90	13.90	14.01	13.80	.....	.....	15.98	.....	14.05	14.07	14.12
9	13.75	13.84	13.95	14.94	13.70	11.32	.....	16.10	.....	14.06	14.07	14.12
10	13.75	13.90	13.97	14.93	13.60	11.74	.....	16.12	.....	14.05	14.07	14.10
11	13.70	13.92	13.95	13.94	13.38	12.20	.....	16.00	.....	14.05	14.04	14.10
12	13.77	13.90	13.95	14.00	13.15	12.50	.....	15.80	12.90	14.05	14.04	14.10
13	13.78	13.88	13.93	14.01	12.77	12.50	.....	15.47	12.94	14.05	14.04	14.11
14	13.77	13.90	13.90	14.01	12.50	12.43	.....	15.20	12.97	14.05	14.04	14.11
15	13.74	13.88	13.94	13.98	12.30	12.39	.....	14.70	13.00	14.03	14.02	14.15
16	13.76	13.90	13.95	14.01	12.10	12.39	.....	14.09	13.08	14.09	14.03	14.15
17	13.76	13.90	13.90	13.97	11.85	12.39	.....	14.20	13.23	14.09	14.02	14.15
18	13.78	13.86	13.87	13.95	.....	12.42	14.93	14.41	13.28	14.06	14.07	14.15
19	13.78	13.91	13.90	14.03	.....	.....	14.90	14.75	13.25	14.05	14.07	14.15
20	13.77	13.92	13.91	14.03	12.11	.....	14.72	15.10	13.92	14.03	14.04	14.12
21	13.76	13.92	13.95	13.98	12.28	.....	14.72	15.10	14.60	14.03	14.09	14.17
22	13.80	13.88	13.90	13.93	12.40	.....	15.21	15.24	14.84	14.04	14.10	14.18
23	13.80	13.93	13.93	13.96	12.48	.....	15.58	15.40	14.60	14.05	14.05	14.17
24	13.80	13.95	.....	14.00	12.52	.....	15.61	15.58	14.36	14.04	14.03	14.21
25	13.81	13.92	.....	13.96	12.53	.....	15.75	15.74	14.25	14.01	14.02	14.22
26	13.85	13.90	.....	13.99	12.53	.....	15.64	15.92	14.20	14.02	14.04	14.22
27	13.85	13.88	.....	14.01	12.53	.....	15.84	16.11	14.15	14.01	14.14	14.19
28	13.83	13.93	13.92	14.02	12.47	.....	16.00	16.11	14.12	14.00	14.14	14.22
29	13.78	13.93	13.87	13.92	12.35	.....	16.12	15.78	14.10	14.00	14.09	14.22
30	13.80	.....	13.91	13.94	12.12	.....	16.15	15.20	14.09	14.01	14.09	14.21
31	13.84	.....	.....	.....	11.93	.....	16.20	14.88	.....	14.02	.....	14.21

B-1-65-24cdc. Joseph Wuertz. Records available: 1945-48. Apr. 22, 14.74; Nov. 16, 13.53.

B-1-65-25cd. Fred Haffner, Sr. Records available: 1945-48. Apr. 22, 31.81; Nov. 16, 31.54.

B-1-66-7dd. W. A. Wallace. Records available: 1945-48. Apr. 22, 18.82; Nov. 15, 15.79.

B-1-66-30ad. G. J. Mancini. Records available: 1945-48. Apr. 22, 17.60; Nov. 16, 13.01.

B-1-66-31dcd. Carl Caranci. Records available: 1945-48. Apr. 22, 18.78; Nov. 16, 17.27.

B-2-62-18cbc. Mrs. Sadie Knox. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	24.74	Apr. 12	24.47	Aug. 5	25.63	Nov. 4	25.67
Feb. 2	24.63	23	24.15	Sept. 13	25.53	Dec. 7	25.68
Mar. 11	24.48	July 1	24.94	Oct. 14	25.65		

B-2-62-19cdc2. M. C. Klausner. Records available: 1947-48.

Jan. 9	36.30	Apr. 12	35.38	July 1	37.56	Nov. 1	38.15
Feb. 2	36.12	23	35.21	Oct. 5	40.11	Dec. 7	35.63
Mar. 11	35.92	June 5	38.28				

B-2-63-15dcd. Mrs. Sadie Knox. Records available: 1945-48.

Jan. 9	20.36	Mar. 11	19.92	Apr. 23	22.76	Nov. 4	27.08
Feb. 2	20.19	Apr. 12	19.70	Oct. 5	28.48	Dec. 7	22.59

B-2-63-22cc. H. O. Milcap. Formerly owned by W. M. Huff. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	31.40	Apr. 12	30.35	Sept. 13	38.38	Nov. 4	34.96
Feb. 2	30.97	July 1	32.79	Oct. 5	37.57	Dec. 7	33.72
Mar. 11	30.75						

B-2-63-22dc. Zimbleman Bros. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	34.67	Apr. 12	33.66	July 1	37.55	Nov. 4	39.11
Feb. 2	34.38	23	34.58	Oct. 5	43.53	Dec. 7	37.77
Mar. 11	33.91						

B-2-63-23dcc. Edward Weickum. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	45.31	June 5	44.28	Sept. 13	48.60	Nov. 4	49.43
Feb. 2	44.95	July 1	45.46	Oct. 5	50.15	Dec. 7	48.51
Mar. 11	44.60	Aug. 23	48.04				

B-2-63-28ddd. C. V. Maddux. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	36.91	Mar. 11	35.92	Apr. 23	35.27	Nov. 8	40.55
Feb. 2	36.44	Apr. 12	35.47	Oct. 5	42.92	Dec. 7	39.33

B-2-63-32aa. E. J. Elam. Formerly owned by H. Young. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	29.78	Apr. 12	29.60	July 1	29.26	Nov. 8	28.17
Feb. 2	29.60	23	29.09	Sept. 13	28.57	Dec. 7	28.03
Mar. 11	29.70	June 5	29.51	Oct. 5	28.32		

B-2-63-34ccc. R. L. Martin. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	52.97	Apr. 12	50.87	July 1	53.20	Nov. 8	55.59
Feb. 2	52.39	23	50.66	Aug. 13	57.70	Dec. 7	54.28
Mar. 11	51.81	June 5	51.72	Oct. 5	57.70		

B-2-63-35dcc. William A. Carlson. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	47.65	Mar. 11	47.03	Apr. 23	46.20	Nov. 8	48.69
Feb. 2	47.29	Apr. 12	46.40	July 1	46.49	Dec. 7	47.94

B-2-63-36bcb. Martin Scheid. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 2	47.42	Apr. 23	45.92	July 1	46.74	Nov. 8	48.98
Mar. 11	47.00	June 5	46.60	Oct. 5	50.14	Dec. 7	48.46
Apr. 12	46.30						

B-2-64-30cbc. Floyd Schroeder. Records available: 1945-48. Apr. 23, 10.58; Nov. 16, 10.90.

B-2-66-7ddd. A. L. Johnson. Records available: 1945-48. Apr. 21, 13.33; Nov. 15, 10.92.

B-2-66-20bc. E. F. Krause. Records available: 1945-48. Apr. 21, 14.33; Nov. 15, 13.03.

B-2-66-29cc. S. J. Rhode. Records available: 1945-48. Apr. 21, 19.42; Nov. 15, 17.35.

B-3-64-17cc. E. D. Seldin. Records available: 1945-48. Apr. 23, 5.20; Nov. 16, 7.84.

B-3-64-30ccc. Mrs. Maud C. Hanson. Records available: 1945-48. Apr. 23, 5.86; Nov. 16, 7.68.

B-3-66-18cbc. New owner C. C. Oster. Records available: 1947-48. Apr. 21, 17.28; Nov. 15, 13.00.

B-4-64-1ccc. Mrs. Alice St. John. Records available: 1945-48. May 20, 8.58; Oct. 22, 8.24.

B-4-64-10dd. F. L. Chestnut. Records available: 1945-48. May 20, 6.45; Oct. 22, 7.09.

- B-4-64-12cc. H. Duell. Records available: 1945-48. Oct. 22, 13.98.  
 12.96; Nov. 15, 9.70.
- B-4-65-6da. C. E. Goodner. Records available: 1945-48. Apr. 21,  
 Nov. 15, 9.63.
- B-4-65-18daa. Root Bros. Records available: 1945-48. Apr. 21, 7.91;  
 Nov. 15, 9.63.
- B-4-66-9cdc. E. S. Linden. Records available: 1946-48. Apr. 21,  
 23.63; Nov. 15, 20.39.
- B-4-66-13dd. Paul Jewel. Records available: 1945-48. Apr. 21,  
 14.90; Nov. 15, 15.33.
- B-4-66-14bab. W. H. Ewing. Records available: 1945-48. Apr. 21,  
 18.43; Nov. 15, 15.25.
- B-4-66-15ccc. H. G. Martin. Records available: 1945-48. Apr. 21,  
 25.34; Nov. 15, 21.29.
- B-4-66-16ddd. M. L. Winslow. Records available: 1945-48. Apr. 21,  
 8.97; Nov. 15, 6.84.
- B-4-66-17bcc. R. O. Larsen. Formerly owned by R. C. Patrie. Records  
 available: 1945-48. Apr. 21, 7.37; Nov. 15, 7.00.
- B-4-66-19ddd. J. C. Breckon. Records available: 1945-48. Apr. 21,  
 18.75; Nov. 15, 15.60.
- B-4-66-27add. John O. Lorens. Records available: 1945-48. Apr. 21,  
 3.93; Nov. 15, 7.16.
- B-4-66-28cc. Elbert Cogburn. Records available: 1945-48. Apr. 21,  
 19.92; Nov. 15, 18.57.
- B-4-66-31dcc. W. D. Farr. Records available: 1945-48. Apr. 21,  
 17.25; Nov. 15, 16.00.
- B-4-67-13cd. E. H. Sappington. Records available: 1945-48. Apr. 21,  
 7.52; Nov. 15, 6.41.
- B-5-64-35ddd. P. Hoshiko. Records available: 1945-47. No measure-  
 ments made in 1948.
- B-5-65-13ddc. F. A. Plumb. Records available: 1945-48. Apr. 28,  
 17.69; Oct. 22, 10.15.
- B-5-65-26bcc. George Alles, Sr. Records available: 1945-48.  
 Apr. 21, 10.65; Nov. 15, 6.98.
- B-5-65-27ccb. Henry A. Alles. Records available: 1945-48. Apr. 21,  
 14.29; Nov. 15, 10.73.
- B-6-63-29bbb. H. L. Wells. Records available: 1945-48. May 28,  
 13.89; Nov. 17, 14.77.
- B-6-64-24aaa. M. R. Leaver. Records available: 1945-48. May 28,  
 8.09; Nov. 17, 11.00.
- B-6-64-26da. Asa Jones. Records available: 1945-48. Nov. 17, 9.21.
- B-6-64-30bba. M. O. Patten. Records available: 1945-47. No measure-  
 ments made in 1948.
- B-6-64-32bab. Charles Moore. Records available: 1945-48. May 28,  
 28.90; Nov. 17, 27.23.
- B-6-65-3bb. T. H. Wilson. Records available: 1945-48. Nov. 17, 8.24.
- B-6-65-10bbb. L. C. Roberts. Records available: 1945-48. Nov. 17,  
 8.82.
- B-6-65-15bbb. H. N. Huff. Records available: 1945-48. Nov. 17, 11.55.
- B-6-65-17bbc. H. W. Farr. Records available: 1945-48. Apr. 26,  
 24.68; Nov. 17, 27.00.
- B-6-65-18bbb. James Milne. Records available: 1945-48. Apr. 26,  
 25.40; Nov. 17, 27.29.
- B-6-65-21aab. H. N. Bickling. Records available: 1945-48. Apr. 26,  
 9.93; Nov. 17, 10.52.
- B-6-65-34bb. Ildo Williams. Records available: 1945-48. May 28,  
 13.10; Nov. 17, 13.75.
- B-6-66-1bab. Gust Johnson. Records available: 1945-48. Apr. 26,  
 25.79; Nov. 17, 28.65.



- B-6-66-20ccd. J. K. Emerson. Records available: 1945-48. Apr. 28, 14.54; Nov. 16, 14.39.
- B-6-67-12bb. Chris Felte. Records available: 1945-48. Apr. 28, 5.70; Nov. 16, 8.15.
- B-6-67-17dc. Henry Kraus. Records available: 1945-48. Apr. 28, 7.82; Nov. 16, 7.69.
- B-6-67-22aaa. F. A. Davis. Records available: 1945-48. Apr. 28, 7.19; Nov. 16, 7.81.
- B-7-65-7bcc. A. B. Stewart. Records available: 1945-48. Nov. 17, 38.29.
- B-7-65-10ccb. M. H. Graham. Records available: 1945-48. Nov. 17, 15.32.
- B-7-65-16bbb. K. Akahoshi. Records available: 1945-48. Apr. 26, 5.38; Nov. 17, 5.54.
- B-7-65-18cdb. Harry Clark. Records available: 1945-48. Nov. 17, 27.85.
- B-7-65-21aaa. H. G. Liebhardt. Records available: 1945-48. Nov. 17, 8.20.
- B-7-65-28aa. R. F. Blandon. Records available: 1945-48. Nov. 17, 14.79.
- B-7-65-30bbb. J. L. Nix. Records available: 1945-48. May 17, 16.87; Nov. 17, 19.72.
- B-7-66-1ab. C. A. Pettibone. Records available: 1945-48. Nov. 17, 16.36.
- B-7-66-2abb. L. Fletcher. Records available: 1945-48. Nov. 17, 26.85.
- B-7-66-14aba. A. A. Larson. New measuring point established Apr. 17, 1945, top of channel iron, 0.4 foot below land-surface datum. Erroneously published as 0.5 foot above land-surface datum in Water-Supply Paper 1027. Records available: 1945-48. Nov. 17, 16.53.
- B-7-66-14bcc. Mrs. Alice Ehn. Records available: 1945-48. Nov. 17, 16.48.
- B-7-66-25bcc. Guy Clarke. Records available: 1945-48. Apr. 26, 28.33; Nov. 17, 30.70.
- B-8-65-8bbb. H. L. Kramer. Records available: 1945-48. Apr. 26, 21.09; Nov. 17, 21.69.
- B-8-65-20dbb. Edward Vadeburg. Records available: 1945-48. Nov. 17, 15.28.
- B-8-65-28bbb. W. T. Miller. Records available: 1945-48. Nov. 17, 12.47.
- B-8-65-28dbb. A. C. Babb. Records available: 1945-47. Measurements discontinued.
- B-8-65-34abb. J. F. Duncan. Records available: 1945-48. Nov. 17, 6.35.
- B-8-65-34dcc. A. B. McClave. Records available: 1945-48. Nov. 17, 7.10.
- B-8-66-1bab. Herman Babb. Records available: 1945-48. Apr. 26, 19.32; Nov. 17, 20.81.
- B-8-66-22aaa. Troy Jones. Records available: 1945-48. Apr. 26, 18.16.
- B-8-66-26cbb2. C. Fisk. Records available: 1945-48. Nov. 17, 26.22.
- B-9-65-18cbb. U. S. Dept. of Agriculture. Records available: 1945-48. Apr. 26, 20.58.
- B-10-66-12dd. U. S. Dept. of Agriculture. Records available: 1945-48. Apr. 26, 23.72.
- B-10-66-22ccc. U. S. Dept. of Agriculture. Records available: 1945-48. Apr. 26, 44.28.

# IDAHO

By R. L. Nace

## PROGRAM OF WORK

Systematic investigations of the ground-water resources of Idaho were continued in 1948 in cooperation with the Idaho Department of Reclamation. Independent investigations by the Geological Survey on special projects for the Bureau of Reclamation were also made in the Rathdrum Prairie area of Kootenai County, and in the southern part of the Snake River Plain of southern Idaho. The investigations include inventories and special areal studies of geology and ground-water resources, and the development of a State-wide network of selected wells in which periodic observations of static water levels and artesian pressure are made.

The network of observation wells was further expanded in 1948 to achieve better coverage of important areas in the State. At the end of the year observations were being made in 13 of the 44 counties in Idaho. Measurements of observation wells in Ada and Canyon Counties are made by the Geological Survey and the Nampa-Meridian Irrigation District, in Kootenai County, by the Geological Survey, the Washington Water Power Company, and Farragut College, and elsewhere by the Geological Survey and local observers.

### FLUCTUATIONS OF WATER LEVEL

In northern Idaho water levels in three wells in Kootenai County were 8 to 13 feet above the 1947 year-end levels, and reached their highest levels of record. These wells are sufficiently distant from Lake Pend Oreille so that their water levels are influenced chiefly by regional factors in ground-water recharge in the Rathdrum Prairie, rather than by underground seepage from the lake. The gains represent increased underground storage resulting from a large excess of precipitation during the year. Two other wells, less than a mile from Lake Pend Oreille, are strongly influenced by the stage of the lake.

One nonflowing artesian well in Latah County continued the decline noted during 1947, and reached its lowest level of record. A shallow water-table well in Latah County, however, gained slightly in 1948, probably as a result of high local precipitation.

In a single observation well in Boise County, the water level had not entirely recovered from the record low reached in August 1947, but the 1948 year-end level was slightly above that for 1947.

Observation wells in the Boise Valley of Ada and Canyon Counties are in a heavily irrigated area where the effects of local precipitation on water levels are largely masked by the effects of recharge by seepage losses from irrigation. Local complications in water-level fluctuations are introduced also by drainage canals and pumped drainage wells. Four of the nine wells for which long-term records are available reached new record high water levels and were 1 to 2 feet above the 1947 year-end levels. Total rainfall in the area was somewhat below normal but substantially greater than during 1947. The increased precipitation doubtless produced a small net gain in underground storage. This, added to net gains in 1947 and the effects of heavy winter precipitation near the end of 1948, will doubtless aggravate drainage problems in the Boise Valley in 1949.

The Raft River area, in Cassia County, is represented by several wells. For most of these the available record is too short to permit much interpretation. Two of the wells, for which long-term records are available, were somewhat above their average levels of record at the end of the year. Both surface- and ground-water supplies in the Raft River Valley are relatively small. Recently new developments have increased the draft on underground supplies and the effects of further development on underground storage require close observation.

The single observation well in Bonneville County showed a net rise in the water table of 0.8 foot in 1948, reflecting a small increase in rainfall.

Of 21 flowing and nonflowing wells in the Malad Valley, in Oneida County, 6 show net rises of 0.2 foot to 7.0 feet in water levels during the year; for 2 wells year-end water levels are not available for comparison; the remaining 13 wells show net declines of 0.4 foot to 7.0 feet. Precipitation in the area was somewhat below normal and below the 1947 total.

The range of water-level fluctuations during the year was unusual, in May three nonflowing wells reached their highest levels in 6 to 8 years of record; three nonflowing and eight flowing wells dropped to new low record levels in October. Variations in the net changes of water levels in individual wells in the Malad Valley are partly the result of local pumpage and discharge by flowing wells. On the other hand, the generally lowered year-end water levels in the valley reflect withdrawals from permanent storage by increased irrigation pumpage, and probably lowered recharge as a result of deficient rainfall. The effects of further ground-water developments on permanent underground storage in the Malad Valley require continued observation.

Water-level fluctuations during 1948 in observation wells with 6 or more years of record are summarized in the following table.

Comparison of net changes in water level in observation wells in Idaho with precipitation, 1948

County and well No.	Net change	Departure from average (feet) <sub>1</sub>	Precipitation, in inches, at nearest U. S. Weather Bureau Station			
			Station	Total	Departure	Net depart-
				precipi- tation	from normal	ure from 1947 total
Ada:						
4N 1W-36da1	+1.6	+0.3	Meridian	11.38	-0.29	+2.77
3N 1W-1cc1	+1.0	+3	.....	.....	.....	.....
10cc1	+1.3	+3	.....	.....	.....	.....
3N 1E-4ba1			Nampa	9.82	-.03	+2.83
5aa1	+1.5	-.1	Boise (airport)	11.91	-1.19	+1.83
11bb1	+2.4	+2	.....	.....	.....	.....
Boise:						
7N 2E-34ca1	+.7	+2	Emmett	15.29	+3.84	+3.42
Bonneville:						
3N 41E-6cb1	+.8	+1	Ririe	14.53	.....	+2.72
Canyon:						
3N 2W-23dc1	-.7	.0	Caldwell	12.76	+2.55	+3.73
	....	....	Nampa	9.82	-.03	+2.83
Cassia:						
13S 26E-24aa1	+.8		Strevell	10.32	.....	-1.20
16S 27E-26ab1	+.7	-.7	.....	.....	.....	.....
Kootenai:						
53N 4W-24bb1	+8.4	+4	.....	.....	.....	.....
51N 5W-33bb1	+8.0	+3	Coeur d'Alene	35.38	11.03	+6.40
50N 5W-1aa1	+13.9	-.1	.....	.....	.....	.....
Oneida:						
14S 35E-10ab1	+7.0	+6.1	.....	.....	.....	.....
13db1	+.4	-.2	.....	.....	.....	.....
27aa1	-1.0	.0	.....	.....	.....	.....
35bd1	-.8	-.9	.....	.....	.....	.....
36bc1	-.9	-.2	.....	.....	.....	.....
14S 36E-29ba1	-4.1	-.6	.....	.....	.....	.....
32aa1	+5.4	+1.2	.....	.....	.....	.....
32da1	+.4	....	.....	.....	.....	.....
15S 35E-11db1	-1.8	+.9	Malad	13.47	-1.54	-2.42
12ab2	-1.7	+1.1	Malad	11.65	.....	-3.37
			Airport			
12bb1	+.8	+1.8	.....	.....	.....	.....
14ad1	-.4	+2	.....	.....	.....	.....

<sup>1</sup> Average used is nonweighted average of all recorded measurements for each well.

Comparison of net changes in water level in observation wells in Idaho  
with precipitation, 1948--Continued

County and well No.	Net change	Departure from average (feet) <sup>1</sup>	Precipitation, in inches, at nearest U. S. Weather Bureau Station			
			Station	Total precipi- tation	Departure from normal	Net depar- ture from 1947 total
Oneida--Cont.:						
15S 36E-5aa4	-3.1	+0.2	.....	.....	.....	.....
6ac2	+2	+1	.....	.....	.....	.....
6ba1	-1.5	+7	.....	.....	.....	.....
8aa1	-4.6	.0	.....	.....	.....	.....
29ca2	-.9	+3	.....	.....	.....	.....
30ab1	-1.1	+3.7	.....	.....	.....	.....
30ab2	-2.1	.0	.....	.....	.....	.....

<sup>1</sup> Average used is nonweighted average of all recorded measurements for each well.

The total number of wells measured in Idaho in 1948 was 81: Ada 7, Blaine 8, Boise 1, Bonneville 1, Canyon 3, Cassia 11, Elmore 1, Gem 1, Jerome 1, Kootenai 11, Latah 2, Minidoka 5, and Oneida 29.

The year 1948 in Idaho averaged above normal in precipitation. All northern division stations, and those in the more elevated portions of the southwestern division, received precipitation which exceeded the average of all years of record; in several cases the annual total was 150 percent or more of normal. The few stations that showed subnormal annual precipitation totals were all in the southern portions of the State and mostly in semi-arid regions. Precipitation was above normal in the northern division from January through August. October was the only subnormal month in all divisions, and the last two months of the year brought more than normal precipitation to all areas.

Summary for 1948 of net changes in water levels, in feet, in observation wells <sup>1/</sup>

County and well No.	Length of record (years)	Highest of record		Lowest of record		Extreme observed range for period of record	Year-end water level 1948		Above lowest level of record in percent of total observed range	
		Water level	Date	Water level	Date		Water level	Date or below (-) 1947		
Ada:										
4N 1W-36dal	a 27	1.5	9- 9-48	23.7	2- 9-15	22.2	1.5	9- 9-48	+1.6	100
3N 1W-1cdl	b 18	6.8	6-29-48	18.7	4-14-15	11.9	6.9	9- 9-48	+1.0	99
3N 1W-10cdl	c 27	2.0	6- 3-47	11.0	Dec. 1913	9.1	2.0	9- 9-48	+1.3	98
3N 1E-4bal	d 20	10.8	11- 1-43	27.6	11-26-26	16.8	11.9	11-10-48	-1.6	96
5aal	e 16	6.9	9- 9-48	21.3	3-23-35	14.4	6.9	9- 9-48	+1.5	100
11bbl	25	5.4	9- 9-48	19.9	3-31-24	14.5	5.4	9- 9-48	+2.4	100
Boise:										
7N 2E-34aal	6	31.6	5-12-43	42.1	8-6, 13-47	10.5	39.8	12-29-48	+7	21
Bonneville:										
3N 41E-6cbl	e 9	34.0	8-19-25	63.4	3-27-43	29.4	51.4	12-25-48	+8	40
Canyon:										
3N 2W-23cdl	f 23	17.3	9-29-21	28.8	11-18-29	11.5	18.4	9- 9-48	-7	90
3N 2W-25aal	g 20	9.3	10-20-47	21.0	4-21-24	11.7	9.4	9-10-48	-1	99
3N 3W-25aal	16	8.0	10-23-42	12.5	2-23-42	4.5	8.8	9- 9-48	+3	82
Cassia:										
13S 26E-24aal	9	2.4	5- 1-42	7.9	10- 1-41	5.5	(3.5)	7- 7-48	+8	80
16S 27E-26abl	h 12	11.7	10- 8-41	25.5	8-15-36	13.8	17.5	10-23-48	+7	71
Kootenai:										
53N 4W-24bbl	20	453.9	10- 5-48	478.1	1-15-32	24.2	455.8	12-27-48	+8.4	92
51N 5W-33bbl	21	140.2	7-13-48	166.6	2-11-32	26.4	143.0	10-25-48	+8.0	89
50N 5W-1aal	20	179.5	10-25-48	212.3	12- 8-31	32.8	179.5	10-25-48	+13.9	100
Latah:										
39N 5W-7ddl	i 6	50.1	4-19-38	64.3	8-24-48	14.2	(64.3)	8-24	-1.2	0
10acl	j 9	10.6	5- 6-35	17.6	2- 1-37	7.0	(11.1)	8-24	+1.2	92
Oneida:										
14S 33E-31abl	8	3.6	5- 4-48	7.2	7-28-41	3.6	(4.2)	7- 2	+2	83
14S 35E-10abl	7	115.4	5- 4-48	124.6	10-13-47	9.2	117.6	10-25	+7.0	77
13dbl	6	66.7	5- 4-48	76.3	10-21-44	9.6	75.2	10-25	+4	11
27aal	6	52.6	4- 9-47	60.0	10-25-48	7.4	60.0	10-25	-1.0	0
35bdl*	6	+29.0	2-25-46	+17.2	6- 3-48	11.8	20.1	10-25	-8	24
36bcl	6	15.7	4- 1-47	19.7	10-25-48	4.0	19.7	10-25	-9	0
14S 36E-3aal	k 8	59.2	10-16-32	72.6	4-12-32	13.6	(71.0)	5-6	-2.3	13
23.2	7	23.2	7-20-43	32.4	10-25-48	9.2	32.4	10-25	-4.1	10
29bal *	6	+7.6	5- 2-44	1.7	7- 3-48	6.9	+8	10-24	-5.4	14
2-25-46										

\* See footnotes at end of table.

Summary for 1948 of net changes in water levels, in feet, in observation wells--Continued

County and well No.	Length of record (years)	Highest of record		Lowest of record		Extreme observed range for period of record	Year-end water level 1948		Above lowest level of record in percent of total observed range	
		Water level	Date	Water level	Date		Water level	Date		Above (+) or below (-) 1947
Oneida:										
14S 36E-32a1*	6	+3.7	4- 2-47	+8	10-21-44	4.5	+1.7	10-24	+0.4	53
15S 35E-14b1*	6	+25.9	5- 3-44	+12.9	7- 3-48	13.0	+17.7	10-25	-1.8	11
12a2*	6	+23.9	3- 1-45	+13.0	5- 5-48	10.9	+17.0	10-25	-1.7	37
12b2*	6	+14.5	4- 1-47	+2.6	7- 3-48	11.9	+5.6	10-25	+8	25
14a1*	6	+6.4	10-22-46	+1.9	5- 3-44	4.5	+5.6	10-25	-4	66
15S 36E-5a4*	7	+16.0	10-23-45	+9.6	10-24-48	6.4	+9.6	10-24	-3.1	0
8a2*	6	+16.7	2-24-46	+7.3	10-14-47	9.4	+7.5	10-25	+2	3
5b1*	6	+23.1	2- 4-44	+12.2	7- 3-48	10.9	+13.6	10-25	-1.5	13
8a1*	6	+20.1	4- 2-47	+11.6	6-29-43	8.3	+13.3	10-24	-4.6	83
29a2*	6	+12.9	5- 3-44	+7.0	10-28-43	5.9	+10.2	10-24	-9	54
30a1*	6	+14.9	5- 3-44	+12.3	7- 7-43	2.6	+12.6	10-24	-1.1	11
ab2*	6	+12.4	8-20-47	+9.4	10-24-48	3.0	+9.4	10-24	-2.1	0

1/ Wells with less than 6 years of record not included in table.

2/ Measurements in parentheses were not made near end of year.

a Discontinuous record, 1915-17, 1925-48.

b Intermittent record, 1913-16, 1925, 1934-35, 1938-48.

c Discontinuous record, 1912-17, 1928-48.

d Discontinuous record, 1926-29, 1933-48.

e Discontinuous record, 1923-25, 1942-48.

f Discontinuous record, 1921-25, 1928-48.

g Intermittent record, 1921, 1924-25, 1928, 1933-48.

h Discontinuous record, 1936, 1938-48.

i Discontinuous record, 1937-40, 1947-48.

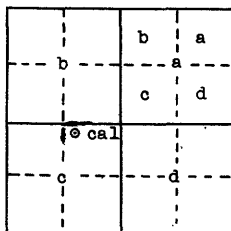
j Discontinuous record, 1934-40, 1947-48.

k Discontinuous record, 1931-32, 1943-48.

\* Flowing artesian well.

## WELL-NUMBERING SYSTEM

Idaho well numbers indicate the locations of wells within the official rectangular subdivisions of the public lands, with reference to the Boise base line and meridian. The first two segments of a number designate the township and range. The third segment gives the section number, followed by two letters and a numeral, which indicate the quarter-section, 40-acre tract, and serial number of the well within the tract. Quarter-sections are lettered a, b, c, and d in counterclockwise order from the northeast quarter of each section, as in the diagram below. Within quarter-sections the 40-acre tracts are lettered in the same manner. Well 7S 2E-34cal is the first well recorded in the NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 34, T. 7 S., R. 2 E.



## WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Ada County

4N 1W-36dal. Richard Foster. Water level influenced strongly by local irrigation. Records available: 1915-17, 1925, 1927-48. Mar. 2, 4.0; Mar. 29, 4.5; June 29, 2.1; Sept. 9, 1.5.

3N 1W-10cl. Jerald Dunten. Water level influenced principally by local irrigation. Records available: 1913-16, 1925, 1934-35, 1938-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 2	9.8	Mar. 29	10.1	June 29	6.8	Nov. 9	8.2
3	10.0	May 10	10.0	Sept. 9	6.9		

3N 1W-10ocl. Arthur Keck. Taps water in shallow Quaternary sediments; water level influenced principally by local irrigation. Records available: 1912-17, 1924-25, 1927-48.

Mar. 2	4.4	Mar. 29	4.4	June 29	2.1	Nov. 9	3.5
3	4.6	May 10	4.3	Sept. 9	2.0		

3N 1E-4bal. Ellen F. Beebe. Taps water in Quaternary sand and gravel; water level influenced strongly by local irrigation. Records available: 1926-29, 1933-48. Mar. 4, 17.8; Nov. 10, 11.9.

3N 1E-5aal. J. E. Wingate. Taps water in Quaternary sand and gravel; water level influenced strongly by local irrigation. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level
Mar. 2	15.0	Mar. 29	16.1	June 29	11.0
4	15.6	May 10	17.6	Sept. 9	7.0



3N 1E-11bb1. H. L. Randall. Water level influenced principally by local irrigation. Records available: 1924-48.

Date	Water level	Date	Water level	Date	Water level
Mar. 5	9.7	May 10	11.3	Sept. 9	5.4
29	11.5	June 29	6.5		

3N 2E-21bc1. Boise Project Board of Control. Formerly owned by Bureau of Reclamation, U. S. Dept. of Interior. Taps water in shallow sand and gravel. Water level influenced principally by local irrigation. Records available: 1947-48.

Mar. 2	9.5	May 10	10.8	Sept. 9	4.5
29	9.5	June 29	7.1	Dec. 27	7.7

#### Blaine County

8S 26E-15bd1. Drilled stock well, diameter 4 inches; depth to pump cylinder 177 feet; galvanized-iron casing. Measuring point,  $\frac{3}{4}$ -inch hole in east side of pump stand, about 1.3 feet above land-surface datum. Taps water in Snake River basalt. Records available: 1948.

May 13	172.6	Sept. 15	173.9	Oct. 22	170.4
June 30	174.6	25	173.6	Dec. 23	176.5

#### Boise County

7N 2E-34cal. Jack N. Kohtala. US 99. Water level influenced principally by local precipitation. Taps water in Quaternary hillwash. Records available: 1943-48. Float-gage readings.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	40.4	Apr. 7	37.0	July 7	40.0	Oct. 6	40.7
14	40.6	14	36.8	14	40.3	13	40.6
21	40.6	21	36.8	21	40.8	20	40.8
28	40.5	28	36.5	28	40.8	27	40.7
Feb. 4	40.5	May 5	36.3	Aug. 4	41.2	Nov. 3	40.3
11	40.4	12	36.0	11	41.0	10	40.4
18	40.2	19	35.7	18	41.8	17	40.1
25	39.5	26	36.1	25	40.8	24	40.2
Mar. 3	a38.7	June 2	36.4	Sept. 1	41.4	Dec. 1	40.1
10	38.5	9	40.3	8	41.6	8	40.1
17	38.4	16	41.7	15	41.3	15	40.1
24	37.6	23	40.4	22	41.3	22	39.9
31	37.4	30	40.7	29	41.8	29	39.8

a Tape-line measurement.

#### Bonneville County

3N 41E-6cb1. Poplar Store. US 82. Water level influenced principally by local precipitation and irrigation. Tape-line measurements. Records available: 1923, 1925, 1942-48.

Jan. 3	53.6	Mar. 27	60.0	June 26	43.5	Sept. 11	36.3
10	54.5	Apr. 3	60.1	July 3	42.7	18	37.1
17	54.6	10	61.4	10	40.8	25	38.2
24	56.2	17	61.7	17	38.5	Oct. 2	39.3
31	57.0	24	62.2	24	36.7	9	40.2
Feb. 7	56.6	May 1	60.9	31	36.0	16	41.1
14	57.6	15	59.2	Aug. 7	34.5	23	41.9
21	54.2	22	a58.1	14	35.5	Nov. 20	44.7
28	58.3	29	56.4	21	35.5	Dec. 11	49.6
Mar. 6	58.8	June 5	51.8	28	35.6	18	51.1
13	57.5	12	50.7	Sept. 4	35.8	25	51.4
20	60.2	19	44.6				

a Irrigation water turned into ditches.

Canyon County

3N 3W-25aal. Charles Imberg. Unused drilled well, diameter 6 inches, depth about 145 feet, galvanized-iron casing; open bottom. Measuring points: (1) Well platform, about 0.4 foot above land-surface datum; (2) top of casing, 2.5 feet below land-surface datum. Water levels influenced strongly by local irrigation. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level
Oct. 16, 1933	8.4	Mar. 2, 1939	11.4	Feb. 22, 1945	11.6
Mar. 12, 1934	10.2	Nov. 16	10.8	Dec. 12	11.2
Nov. 6	11.1	Mar. 4, 1940	12.1	Feb. 27, 1946	12.1
Mar. 1, 1935	9.1	Nov. 26	10.8	Dec. 15	10.8
Oct. 22	9.4	Mar. 14, 1941	12.0	Feb. 27, 1947	12.3
Mar. 9, 1936	11.9	Oct. 28	8.2	Oct. 17	9.1
Nov. 6	9.0	Feb. 23, 1942	12.5	Mar. 1, 1948	12.0
Mar. 18, 1937	12.0	Oct. 23	8.0	June 29	10.0
Nov. 2	10.1	Feb. 19, 1943	11.6	Sept. 9	8.8
Mar. 15, 1938	12.2	Nov. 3	8.6	Nov. 8	9.6
Oct. 22	8.2	Feb. 21, 1944	11.9		

3N 2W-23dcl. Mrs. A. J. Richards and others. Water level influenced principally by local irrigation. Records available: 1921, 1925, 1928-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 2	22.4	Mar. 29	22.6	June 29	19.2	Nov. 8	19.3
3	21.6	May 10	21.4	Sept. 9	18.4		

3N 2W-25aal. John Hubbard. Drilled domestic and stock well, diameter 6 inches, depth about 34 feet, 34 feet galvanized-iron casing; open bottom. Measuring point, top of casing, 3.3 feet below land-surface datum. Water levels influenced strongly by local irrigation. Records available: 1921, 1924-25, 1928, 1933-48.

Date	Water level	Date	Water level	Date	Water level
Sept. 29, 1921	19.2	Dec. 4, 1937	15.8	Feb. 23, 1944	13.9
Apr. 21, 1924	21.0	Oct. 27, 1938	12.3	Feb. 26, 1945	14.7
Oct. 16, 1925	14.3	Mar. 7, 1939	15.6	Dec. 13	13.1
Nov. 10, 1928	16.2	Nov. 21	14.4	Mar. 1, 1946	14.6
Sept. 21, 1933	15.9	Mar. 8, 1940	16.4	Dec. 16	11.8
Mar. 13, 1934	16.8	Nov. 30	14.3	Feb. 28, 1947	14.1
Nov. 10	16.1	Mar. 17, 1941	16.5	Oct. 20	9.3
Mar. 8, 1935	18.3	Oct. 30	12.1	Mar. 3, 1948	14.4
Oct. 22	15.3	Feb. 25, 1942	15.1	June 29	12.1
Mar. 7, 1936	17.4	Oct. 29	12.1	Sept. 10	9.4
Nov. 5	13.8	Feb. 22, 1943	14.9	Nov. 8	11.0
Mar. 17, 1937	16.8	Nov. 6	10.9		

Cassia County

10S 23E-20dcl. City of Burley. Taps water in Quaternary alluvial sand and gravel. Water level influenced principally by local irrigation and pumpage of nearby wells. Tape-line measurements. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	13.9	May 1	17.0	July 2	16.1	Oct. 2	16.9
Feb. 2	14.5	7	16.6	Aug. 3	16.3	Nov. 2	12.0
Mar. 1	15.8	June 10	16.3	Sept. 1	16.4	Dec. 1	12.8
Apr. 2	16.0						

10S 23E-20dc3. City of Burley well 5. Taps artesian water in Pleistocene (?) gravel and lava below the Burley lake beds. Air-gage measurements. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 11 a189.4		June 10	194	Sept. 1	199	Nov. 2	209
Apr. 2	194	July 2	204	Oct. 2	206	Dec. 1	184
May 1	194	Aug. 3	199				

a Tape-line measurement.

10S 25E-10bal. Robert Simplot. Drilled stock well, diameter 6 inches, depth to pump cylinder, 175 feet, black-iron casing to hard rock, open hole below. Measuring point, opening at top of pump stand, at east side, about 1.9 feet above land-surface datum. Taps water in Snake River basalt. Records available: 1928, 1948. May 24, 1928, 156.1; Sept. 17, 1948, 153.4; Oct. 23, 1948, 154.3.

11S 26E-14abl. G. S. Matthews. Drilled stock well, diameter 4 inches, depth 157 feet, 140 feet of black-iron casing, open hole below. Measuring point, top of casing, about at land-surface datum. Taps water in Quaternary sand and gravel. Water level influenced principally by local precipitation and recharge. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
Mar. 10	109.7	July 1	105.1	Oct. 23	105.3
May 7	107.1	Sept. 15	106.6		

11S 26E-26ocl. Robert Simplot. Abandoned dug well, diameter 36 inches, depth 33 feet, rock cribbing, open bottom. Measuring point, top of wooden platform, about 0.3 foot above land-surface datum. Taps water in Quaternary sand and gravel. Water level influenced principally by local precipitation and recharge. Records available: 1928, 1948. Oct. 3, 1928, 30.9; Sept. 16, 1948, 32.2; Sept. 25, 1948, 32.2; Oct. 23, 1948, 32.1.

13S 22E-9dcl. Abandoned dug well, diameter 52 inches, depth 112.5 feet, concrete curb and concrete tile casing; open bottom. Measuring point, base of broken pump stand, about 0.2 foot above land-surface datum. Taps water in sand and gravel. Water level influenced chiefly by regional recharge. Records available: 1948. Sept. 15, 69.8; Sept. 25, 69.8; Oct. 26, 70.7; Dec. 23, 73.4.

13S 26E-24aal. John C. Hitt. Taps water in Quaternary alluvial gravel. Water level influenced principally by local irrigation and precipitation. Records available: 1941-48. Mar. 10, 3.6; May 7, 3.1; July 1, 3.5.

13S 27E-30bcl. J. D. Pierce. Taps water in Quaternary alluvial cobble gravel. Water level influenced chiefly by local irrigation and stage of Raft River. Records available: 1947-48. Mar. 10, 6.9; May 7, 6.9; July 1, 7.9; Oct. 23, 7.4.

15S 24E-26bcl. Abandoned dug well, diameter 48 inches, depth 41 feet, no casing. Measuring point, top of wooden platform, about at land-surface datum. Taps water in Quaternary hillwash and gravel. Water level influenced chiefly by local precipitation and recharge. Records available: 1948. July 31, 34.7; Sept. 14, 35.6; Sept. 24, 36.7; Oct. 23, 37.0.

15S 25E-6abl. Jenny Wake. Dug domestic well, diameter 6 inches, depth 34 feet, concrete tile casing; open bottom. Measuring point, top of casing, about at land-surface datum. Taps water in Quaternary hillwash and gravel. Water level influenced chiefly by local precipitation and recharge. Records available: 1948. July 31, 24.7; Sept. 14, 28.2; Sept. 24, 28.8; Oct. 23, 29.0.

16S 27E-26abl. Cook. Taps water in Quaternary hillwash. Water level influenced chiefly by local precipitation. Records available: 1936, 1938-48. Aug. 3, 13.9; Sept. 24, 14.9; Oct. 22, 17.1; Oct. 23, 17.5.

#### Elmore County

1N 4E-23aal. James O. Beck. Taps water in Quaternary alluvial sands. Water level influenced principally by local precipitation. Records available: 1947-48. Mar. 11, 25.1; May 3, 25.6; May 22, 25.2.

#### Gem County

7N 2W-35abl. R. J. Howard. Dug domestic well, diameter 36 inches, depth 99 feet, concrete tile casing; open bottom. Measuring points: (1) Top of concrete curb, about 0.5 foot above land-surface datum; (2) top of wooden platform, about 4.0 feet below land-surface datum. Measurements by local observer, 1941-42; by U. S. Geological Survey, 1948. Records available: 1941-42, 1948.

## 7N 2W-35ab1--Continued.

Date	Water level	Date	Water level	Date	Water level
Aug. 2, 1941	73.5	Jan. 2, 1942	69.8	June 3, 1942	77.6
Sept. 3	70.9	Feb. 3	71.8	July 6	75.4
Oct. 2	68.3	Mar. 3	73.2	Oct. 15	68.3
Nov. 3	67.6	Apr. 1	74.9	Aug. 23, 1948	77.8
Dec. 2	68.4	May 3	76.3		

Jerome County

8S 19E-33cal. Bureau of Reclamation, U. S. Dept. of Interior. Abandoned drilled well, diameter 12 inches, depth about 403 feet, stove-pipe casing to hard rock; open hole below. Measuring point, top of casing collar, about 2.2 feet below land-surface datum. Taps water in Snake River basalt. Water level influenced chiefly by regional recharge. Records available: 1946, 1948.

Nov. 6, 1946	160.0	May 3, 1948	166.1	Oct. 22, 1948	158.6
Mar. 11, 1948	164.8	21	166.1	Dec. 24	161.4
Apr. 23	165.9	June 30	167.0		

Kootenai County

53N 4W-24bb1. Washington Water Power Co. well 91. C. T. Jurgens. Taps water in fluvioglacial gravel. Water level influenced chiefly by regional recharge. Float-gage readings by owner. Records available: 1929-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	464.25	May 3	462.48	July 26	454.73	Nov. 15	454.83
12	464.27	June 7	459.03	Aug. 2	454.58	22	454.98
19	464.30	21	457.83	9	454.33	29	455.13
26	464.32	28	456.85	30	454.03	Dec. 6	455.23
Feb. 2	464.35	July 5	456.13	Sept. 5	453.93	13	455.43
9	464.35	12	455.63	19	454.03	20	455.69
Apr. 8	463.08	19	454.96	26	454.03	27	455.83

a Tape measurement by U. S. Geological Survey.

b Highest water level of record.

53N 2W-3bcl. War Assets Administration. Farragut Naval Training Base well 7. Drilled semipublic supply and fire-protection well; diameter 16 inches, depth about 331 feet, steel casing perforated from 266 to 326 feet; open bottom. Taps water in fluvioglacial gravels and sands. Water level influenced largely by percolation from nearby Lake Pend Oreille. Measuring point, pump base, about 2,271 feet above mean sea-level datum of 1929 (revised), and about 1.2 feet above land-surface datum. Air-line measurements by A. R. Hollen, maintenance engineer, Farragut College. Records available: 1943-48.

Date	Water level	Date	Water level	Date	Water level
Oct. 7, 1943	221	Nov. 20, 1943	225	Dec. 7, 1943	226
22	226	22	225	8	226
23	223	23	225	9	226
28	224	24	225	13	224
30	225	25	225	16	226
Nov. 5	226	26	225	17	226
6	226	27	225	18	226
7	226	29	225	19	226
10	225	30	226	20	226
11	225	Dec. 1	226	21	226
15	225	2	228	22	226
16	225	3	226	23	226
17	225	4	226	24	226
18	225	5	226	25	226
19	225	6	226	27	226

## 53N 2W-3bcl--Continued.

Date	Water level	Date	Water level	Date	Water level
Dec. 28, 1943	226	Oct. 30, 1944	227	Mar. 25, 1946	226
29	226	Nov. 4	227	Apr. 1	225
30	226	14	228	8	224
31	226	21	227	15	224
Jan. 1, 1944	226	26	227	22	224
3	226	Dec. 4	227	29	225
5	226	19	227	May 6	219
6	226	22	227	13	218
7	226	31	227	20	217
11	226	Jan. 4, 1945	227	27	216
12	226	17	227	June 12	214
16	226	19	227	19	215
17	226	25	227	26	216
19	226	29	227	July 11	219
24	226	Feb. 1	227	18	219
31	226	7	227	25	219
Feb. 1	226	Apr. 14	226	Aug. 1	219
7	226	21	226	8	219
15	225	26	226	22	219
21	225	May 11	224	29	219
22	226	13	224	Sept. 3	224
26	226	20	223	12	224
Mar. 1	226	28	222	19	224
2	226	June 2	220	Oct. 3	224
4	226	11	218	10	225
7	226	17	218	17	225
13	226	25	219	24	225
20	226	29	219	Nov. 6	225
21	226	July 2	219	20	225
24	226	8	219	Dec. 4	224
Apr. 3	226	12	220	11	224
May 4	227	18	221	18	224
5	227	28	222	25	223
9	227	31	223	Jan. 6, 1947	224
11	227	Aug. 6	223	14	224
15	226	13	224	21	224
16	225	17	224	28	224
20	225	25	225	Feb. 4	224
23	225	30	225	12	224
28	225	Sept. 19	225	18	224
29	224	23	226	25	223
30	224	30	226	Mar. 4	223
June 4	223	Oct. 2	226	11	223
5	223	15	225	18	223
10	222	21	226	25	223
23	222	22	224	Apr. 1	223
27	224	27	225	8	223
July 1	223	Nov. 5	224	15	223
18	225	12	226	22	222
24	224	19	226	29	221
30	224	28	226	May 6	219
Aug. 6	225	Dec. 1	226	13	215
14	226	3	226	20	213
16	225	8	226	28	213
24	226	17	226	June 3	213
31	226	24	226	10	213
Sept. 4	226	Jan. 7, 1946	226	20	213
14	227	21	224	24	214
17	226	28	223	July 1	216
19	227	31	226	8	218
24	227	Feb. 4	224	15	218
Oct. 2	226	10	225	22	219
9	227	19	224	29	221
14	227	25	224	Aug. 5	223
18	227	Mar. 4	227	12	223
23	227	11	224	19	223

## 53N 2W-3bc1--Continued.

Date	Water level	Date	Water level	Date	Water level
Aug. 26, 1947	224	Feb. 10, 1948	224	July 20, 1948	216
Sept. 2	224	17	224	27	216
9	224	24	224	Aug. 3	218
16	224	Mar. 2	224	10	219
23	224	9	224	17	221
30	224	16	224	24	221
Oct. 7	224	23	224	Sept. 7	222
14	224	30	224	14	222
21	224	Apr. 7	224	21	222
28	222	13	224	28	223
Nov. 4	222	20	224	Oct. 5	223
11	222	27	223	12	223
18	222	May 4	220	19	224
25	222	11	218	26	224
Dec. 2	224	18	217	Nov. 3	224
9	224	25	214	10	224
16	224	June 1	209	17	224
23	224	8	209	24	224
30	224	15	209	Dec. 1	224
Jan. 6, 1948	224	22	207	8	223
13	224	29	210	15	223
20	224	July 6	212	22	223
27	224	13	215	29	223
Feb. 3	224				

53N 2W-9a1. War Assets Administration. Farragut Naval Training Base well 2. Drilled semipublic supply and fire-protection well, diameter 16 inches, depth about 351 feet, steel casing perforated from 280 to 345 feet. Taps water in fluvioglacial gravel. Water level influenced largely by stage of nearby Lake Pend Oreille. Measuring point, pump base, about 2,292.1 feet above mean sea-level datum of 1929 (revised), and about 0.6 foot above land-surface datum. Air-line measurements by A. E. Holien, maintenance engineer, Farragut College. Records available: 1943-48.

Aug. 1942	a255	Sept. 11, 1943	246	Feb. 23, 1944	249
Feb. 13, 1943	249	14	246	Mar. 4	248
14	249	15	247	8	249
17	248	18	246	15	249
22	248	19	246	20	248
24	248	22	248	29	249
Mar. 16	249	25	248	Apr. 3	250
25	249	Oct. 1	246	10	250
Apr. 19	243	8	246	24	250
23	242	9	246	28	250
27	241	11	247	May 2	250
May 2	240	27	248	3	250
3	240	30	248	5	250
4	241	Nov. 7	248	9	250
10	240	17	247	10	248
15	240	21	248	11	250
31	240	27	246	15	249
June 15	238	Dec. 1	248	20	248
20	237	25	248	29	249
21	237	29	249	30	247
July 3	237	Jan. 2, 1944	252	June 5	247
30	241	5	249	20	247
Aug. 1	241	6	248	23	245
3	241	7	248	27	245
4	242	17	248	July 1	248
18	245	19	249	18	248
19	245	24	248	24	248
21	243	31	248	30	250
23	243	Feb. 1	248	Aug. 6	248
30	246	11	248	7	248
Sept. 1	246	15	248	14	250
9	246	21	248	16	250

a Reported depth to water at completion of drilling.

## 53N 2W-9a1--Continued.

Date	Water level	Date	Water level	Date	Water level
Aug. 24, 1944	250	June 24, 1946	238	Nov. 4, 1947	245
31	250	July 4	241	11	245
Sept. 4	250	11	241	18	245
7	250	18	241	25	245
14	250	25	241	Dec. 2	245
17	249	Aug. 1	241	9	246
19	249	8	241	16	246
24	249	22	241	23	246
29	249	29	241	30	248
Oct. 2	249	Sept. 3	246	Jan. 6, 1948	243
9	249	12	246	13	243
18	249	19	247	20	244
23	249	Oct. 3	247	27	244
30	252	10	247	Feb. 3	246
Nov. 4	250	17	247	10	246
13	250	24	247	17	246
21	250	Nov. 6	247	24	246
26	250	20	247	Mar. 2	246
Dec. 4	250	Dec. 4	246	9	246
19	250	11	246	16	248
22	250	18	246	23	248
30	250	25	245	30	248
Jan. 4, 1945	250	Jan. 6, 1947	245	Apr. 7	246
17	250	14	245	13	246
19	250	21	246	20	245
25	250	28	246	27	244
28	250	Mar. 4	246	May 4	243
Feb. 2	250	12	246	11	241
7	250	18	246	18	238
15	250	25	245	25	236
28	250	Apr. 1	245	June 1	231
Mar. 7	250	8	245	8	228
14	250	15	245	15	229
25	250	22	244	22	229
Apr. 7	250	29	233	29	230
June 6	241	May 6	232	July 6	234
Oct. 22	248	13	237	13	236
26	251	20	235	20	238
Nov. 5	248	28	235	27	239
19	250	June 3	235	Aug. 3	241
24	249	10	236	10	241
Dec. 3	248	20	236	17	242
10	248	24	236	24	243
24	248	July 1	238	31	243
Jan. 20, 1946	248	8	239	Sept. 7	244
Feb. 4	248	15	241	14	244
18	248	22	242	21	244
25	248	29	243	28	244
Mar. 11	248	Aug. 5	245	Oct. 5	245
18	248	11	245	12	245
Apr. 1	248	19	245	19	245
8	248	26	245	26	245
14	248	Sept. 2	245	Nov. 3	245
22	248	9	246	10	245
29	248	16	246	17	245
May 6	243	23	246	24	245
13	243	30	246	Dec. 1	245
20	241	Oct. 7	246	8	246
27	241	14	246	15	246
June 5	243	21	246	22	246
11	238	28	245	29	246
19	238				

52N 4W-35dcl. J. H. Dye. Dug stock and domestic well, back-filled around 6-inch steel casing, depth 306 feet. Taps water in fluvioglacial gravels. Records available: 1948. Aug. 30, 298.3; Oct. 13, 297.9.

51N 5W-21dcl. Bob Bowen. Dug and drilled stock and domestic well, back-filled around 4-inch steel casing, depth about 190 feet. Taps water in fluvioglacial gravel. Records available: 1941, 1948. Nov. 27, 1941, 175.5; May 27, 1948, 163.5; Aug. 26, 158.7.

51N 5W-31bcl. Peter Beck. Dug and drilled stock and domestic well, back-filled around 7-inch steel casing, depth about 156 feet. Taps water in fluvioglacial coarse sand. Records available: 1941, 1948. Nov. 29, 1941, 132.6; May 28, 1948, 116.6; Aug. 26, 1948, 117.6.

51N 5W-33bbl. Washington Water Power Co. well 58. Spokane International Railway Co. Taps water in fluvioglacial gravels. Records available: 1926-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 8	150.3	May 27	143.9	Aug. 12	140.7	Oct. 18	142.5
May 25	144.2	July 13	140.2	Oct. 14	142.6	25	143.0

a Pumping.

51N 4W-7bcl. Skinner Estate. Unused drilled well, diameter 5 inches, steel casing. Taps water in fluvioglacial gravel and sand. Records available: 1942, 1948. July 22, 1942, 272.5; June 11, 1948, 261.5; Aug. 26, 1948, 258.4; Oct. 14, 257.3.

51N 4W-10ccl. Civil Aeronautics Authority. Unused drilled well, diameter 4 inches, steel casing. Taps water in fluvioglacial outwash. Records available: 1941, 1948. Nov. 5, 1941, 291.5; June 12, 1948, 280.5; Aug. 27, 1948, 275.2; Oct. 14, 1948, 275.0.

51N 4W-26bal. Rudolph. Drilled stock and domestic well, depth 283 feet. Taps water in fluvioglacial outwash. Records available: 1942, 1948. July 22, 1942, 271.3; June 12, 1948, 257.5; Aug. 27, 1948, 251.8; Oct. 14, 1948, 252.0.

50N 5W-1a1. Washington Water Power Co. well 98. Post Falls Irrigation District. Taps water in fluvioglacial gravel. Pumping at time of each measurement. Records available: 1929-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 8	194.5	July 13	184.9	Oct. 18	182.9
May 25	191.7	Aug. 12	182.4	25	179.5

#### Latah County

39N 5W-7dd1. Inland Motor Freight Co. Taps artesian water in Moscow Basin. Records available: 1937-40, 1947-48. Aug. 24, 64.3.

39N 5W-10acl. Geological Survey, U. S. Dept. of Interior. Records available: 1934-40, 1947-48. Aug. 24, 11.1.



Minidoka County

8S 23E-27bd1. Bureau of Reclamation, U. S. Dept. of Interior well C. Drilled irrigation-test well, diameter 20 inches, depth 260 feet, 21 feet of steel casing; open hole below. Measuring point, top of casing, about 4,237.5 feet above mean sea-level datum of 1929, and about 2.5 feet above land-surface datum. Taps water in Snake River basalt. Water level influenced chiefly by regional recharge. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 25	a178	July 9	178.04	Aug. 5	178.69	Sept. 25	177.66
Mar. 11	179.00	21	178.85	12	178.59	Oct. 22	177.67
Apr. 23	178.93	29	178.81	Sept. 15	177.98	Dec. 24	177.93
May 3	179.19						

a Reported by driller on completion of drilling.

8S 24E-7dal. Bureau of Reclamation, U. S. Dept. of Interior well B. Drilled irrigation test well, diameter 20 inches, depth 240 feet, 31 feet of steel casing; open hole below. Measuring point, top of casing, 4,240.8 feet above mean sea-level datum of 1929, and about 2.2 feet above land-surface datum. Taps water in Snake River basalt. Water level influenced principally by regional recharge. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 12	a168	July 9	168.58	Aug. 5	168.34	Sept. 25	167.53
Apr. 23	168.51	21	168.43	12	168.24	Oct. 22	167.40
May 3	168.93	29	168.59	Sept. 15	167.65	Dec. 23	167.69

a Reported by driller on completion of drilling.

8S 24E-11bal. Bureau of Reclamation, U. S. Dept. of Interior well A. Drilled irrigation-test well, diameter 20 inches, depth 225 feet, 50 feet of steel casing; open hole below. Measuring point, top of casing, about 4,253.1 feet above mean sea-level datum of 1929, and about 2.0 feet above land-surface datum. Taps water in Snake River basalt. Water level influenced chiefly by regional recharge. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 10	164.38	July 9	163.78	Aug. 5	163.30	Sept. 25	162.75
Apr. 23	164.44	21	163.50	12	163.19	Oct. 22	163.13
May 3	164.55	29	163.45	Sept. 15	162.78		

9S 22E-33ad1. Bureau of Reclamation, U. S. Dept. of Interior. Adjusted elevation of measuring point, 4,141.1 feet above mean sea-level datum of 1929, and about 0.5 foot above land-surface datum. Taps water in Snake River basalt. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 9	227.26	May 23	228.43	Aug. 5	228.13	Sept. 25	227.20
Apr. 23	227.70	June 30	228.00	12	228.04	Oct. 22	227.91
May 3	228.01	July 29	228.16	Sept. 15	227.58	Dec. 24	226.88

9S 24E-1db2. Louis Madrid. Adjusted elevation of measuring point: 4,153.8 feet above mean sea-level datum of 1929, and about 0.2 foot above land-surface datum. Taps water in Snake River basalt and interbedded sediments. Water level influenced strongly by local seepage from irrigation. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 10	69.96	July 29	57.54	Aug. 1	55.27	Sept. 25	56.54
May 13	70.76	Aug. 5	58.73	Sept. 15	54.26	Dec. 23	67.69
June 30	60.56						

Oneida County

11S 35E-30cbl. Russell Daniels. Taps water in Pleistocene(?) alluvial sands under low local artesian pressure. Records available: 1947-48. Mar. 12, 26.9; May 4, 25.0.

11S 35E-31acl. Russell Daniels. Probably taps local water table in Quaternary river gravel. Records available: 1947-48. Mar. 12, 41.0; May 4, 31.1.

13S 35E-33ecl. Mrs. K. T. Jones. Taps water in Paleozoic rocks. Records available: 1946-48. May 4, 294.3; July 2, 293.8; Oct. 25, 298.1.

13S 35E-36cc1. Dave Deschamps. Taps regional water table in Pleistocene sediments. Records available: 1946-48. Mar. 12, 82.0; May 4, 82.0; July 2, 83.1; Oct. 25, 81.8.

14S 35E-31ab1. Myrle Hubbard. Probably taps water in Bonneville formation. Records available: 1941-48. May 4, 3.6; July 2, 4.2.

14S 34E-31da1. Roy Davis. Taps water in Paleozoic rocks. Records available: 1947-48. May 4, 380.6; July 2, 380.4; Oct. 24, 384.4.

14S 35E-10ab1. John W. Leavitt. Taps water in Bonneville formation. Records available: 1931, 1943-48. Mar. 12, 117.6; May 4, 115.4; July 2, 117.4; Oct. 25, 117.6.

14S 35E-13db1. Progressive Pump Co. Taps water in delta beds of Bonneville formation. Records available: 1943-48. Mar. 12, 67.7; May 4, 66.7; Oct. 25, 75.2.

14S 35E-27aa1. Davis & Ipsen. Taps water in Bonneville formation. Records available: 1943-48. Mar. 12, 54.6; May 4, 53.1; Oct. 25, 60.1.

14S 35E-35bd1. John W. Price. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 13, +23.9; May 5, +23.7; July 3, +17.2; Oct. 25, +20.1.

14S 35E-36bc1. Smith & Illum. Taps water in Bonneville formation. Records available: 1943-48. Mar. 13, 16.0; May 5, 15.9; Oct. 25, 19.7.

14S 36E-32a1. Walter K. Dastrop. Taps water in delta sand and gravel of Bonneville formation. Records available: 1931-32; 1943-48. Mar. 15, 70.6; May 6, 71.1.

14S 36E-29ba1. R. R. Jones. Nonflowing artesian well; taps water in Bonneville formation. Records available: 1931, 1943-48. Mar. 13, 27.8; May 5, 28.3; July 2, 29.1; Oct. 25, 32.4.

14S 36E-32aa1. R. J. Harding. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements on Mar. 15 and May 5. Records available: 1931, 1943-48. Mar. 15, +4.7; May 5, +3.6; July 3, +0.7; Oct. 24, +0.8.

14S 36E-32da1. William Howard. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements except on Oct. 24. Records available: 1931-32; 1943-48. Mar. 15, +1.8; May 5, +1.0; July 2, +0.6; Oct. 24, 1.7.

15S 34E-6ab1. Joe Thorpe. Dug stock and domestic well, depth 85 feet. Measuring point, upper surface of wooden platform, about at land-surface datum. Taps perched water in bottomland alluvium above Bonneville formation. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
May 29, 1947	32.5	May 4, 1948	14.2	Oct. 24, 1948	31.2
Aug. 12	42.3	July 2	18.5		

15S 35E-1da1. Joseph Josephson. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 13, +29.2; May 5, +30.0; July 3, +21.1; Oct. 25, +24.5.

15S 35E-1db1. L. R. Waldron. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 13, +23.3; May 5, +21.4; July 3, +12.9; Oct. 25, +17.7.

15S 35E-12ab2. James H. Williams. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements, except on May 5. Records available: 1931, 1943-48. Mar. 16, +13.2; May 5, +13.0; July 3, +14.1; Oct. 25, +17.0.

15S 35E-12bb1. James H. Williams. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. May 5, +12.4; July 3, +2.6; Oct. 25, +5.6.

15S 35E-14ad1. Ben Jones. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 15, +5.6; May 5, +5.7; July 3, +5.7; Oct. 25, +5.6.

15S 36E-5aa4. Dives Bros. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1931-32; 1943-48. Mar. 15, +13.1; May 6, +12.2; July 3, +13.1; Oct. 24, +9.6.

15S 36E-5ac2. Will John. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1931, 1943-48. Mar. 13, +14.6; May 5, +15.5; July 3, +9.0; Oct. 25, +7.5.

15S 36E-6ba1. A. E. Scott. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 13, +17.8; May 6, +18.1; July 3, +12.2; Oct. 25, +13.6.

15S 36E-8aa1. Edward Vaughn. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements except on Mar. 15 and July 5; four adjacent wells flowing during measurements. Records available: 1943-48. Mar. 15, +15.9; May 6, +15.0; July 3, +17.2; Oct. 24, +13.3.

15S 36F-22ab1. Moroni V. Rees. Drilled stock well, diameter 8 inches, depth 101 feet. Measuring point, top of casing, approximately 4,410 feet above mean sea-level datum of 1929, and about 1.0 foot above land-surface datum. Taps water in Bonneville formation. Records available: 1943, 1947-48.

Date	Water level	Date	Water level	Date	Water level
July 15, 1943	+13.0	May 5, 1948	+20.3	Oct. 24, 1948	+19.4
May 5, 1948	+19.0	July 3	+20.6		

15S 36E-29ca2. Tom Dudley. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 15, +11.4; May 5, +11.7; July 3, +7.4; Oct. 24, +10.2.

15S 36E-30ab1. John W. Jenkins. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Mar. 15, +13.3; May 5, +13.7; July 3, +13.1; Oct. 24, +12.6.

15S 36E-30ab2. John W. Jenkins. Flowing artesian well; taps water in Bonneville formation. Flowing prior to measurements. Records available: 1943-48. Oct. 24, +9.4.

## MONTANA

By F. A. Swenson, H. W. Lorenz, and A. E. Torrey

### PROGRAM OF WORK

During 1948 the periodic measurements of the water level in observation wells in Montana were continued in connection with ground-water studies being made as part of the investigational program of the Missouri River Basin Development Plan. The general observation-well program in Montana consists of a skeleton network of 31 wells located to give a State-wide coverage. Most of these wells were established during June and early July 1947, but the network also includes a few wells established earlier. A total of 228 measurements was made of the water level in these 31 wells during 1948 under the immediate direction of A. H. Tuttle, district engineer, surface water branch.

In connection with general ground-water studies on the proposed Lower Marias Irrigation Project in Hill and Chouteau Counties, 22 observation wells were established during 1945 and 1946. A total of 164 measurements was made of the water level in 19 of these wells during 1948 under the immediate direction of T. R. Smith, engineer, United States Department of the Interior, Bureau of Reclamation.

In 1946 and 1947 a total of 37 observation wells was established in Roosevelt, Valley, and Sheridan Counties in connection with general ground-water studies being made of the proposed Missouri-Souris Irrigation Project. A total of 389 measurements was made of the water level in these wells during 1948 under the immediate direction of the engineer in charge of the Wolf Point office of the Bureau of Reclamation.

During 1948 general geologic and ground-water studies were started in Helena Valley, in Lewis and Clark County, and along the Yellowstone River Valley, in Custer, Prairie, and Dawson Counties. In connection with the study in Helena Valley, 121 observation wells were established and measured at monthly intervals. A total of 961 measurements was made of the water level in these wells in 1948. A total of 431 measurements was made of the

water level in the 94 observation wells in the Yellowstone River Valley during 1948. Records of these 215 wells appear for the first time in this report.

The water-level observation program in the valley and delta area between Kalispell and Flathead Lake, in Flathead County, has been carried on by the Bureau of Reclamation in cooperation with the Geological Survey. Acknowledgment is here made to C. S. Hazen, Project Planning Office of the Bureau of Reclamation at Kalispell, for furnishing the water-level measurements made in Flathead County. This investigation was begun in May 1928 by the Geological Survey under the authorization of the Federal Power Commission to determine the effects of the regulation of the altitude of the water surface of Flathead Lake and Flathead River on the water table under about 25 square miles of area. Flathead Lake has been subject to regulation by Kerr Dam since April 1938. The information on changes of ground-water levels is of prime importance to those engaged in agriculture and to those planning construction projects in the area. The results of a study of the records for 1928 to 1937, inclusive, are contained in a report by Cady.<sup>1</sup> A later report by McDonald<sup>2</sup> summarizes some of the effects of storage in Flathead Lake. Between October 1947 and October 1948, 437 measurements were made of the water level in 35 of the original 47 observation wells, the others having been destroyed. Records of the measurements made after October 1948 were unavailable when this report was prepared. The locations and descriptions of the wells in Flathead County are published in Water-Supply Papers 777 and 990.

#### FLUCTUATIONS OF WATER LEVEL

For the purpose of discussing changes in water level in observation wells, the State has been arbitrarily subdivided into nine areas as shown in figure 2.

---

<sup>1</sup> Cady, R. C., Effect upon ground-water levels of proposed surface-water storage in Flathead Lake, Montana: U. S. Geol. Survey Water-Supply Paper 849-B, pp. 59-81, 1941.

<sup>2</sup> McDonald, C. C., Effects of storage in Flathead Lake, Montana, on ground-water levels: U. S. Geol. Survey, unpublished typewritten report, August 1946.

The part of Montana west of the Continental Divide is a large area of mountainous country with fertile irrigated valley lands. Considerable parts of this area are covered by timber. It generally has milder winters, cooler summers, and more frequent, abundant, and evenly distributed precipitation than other parts of the State. Total precipitation ranges from about 45

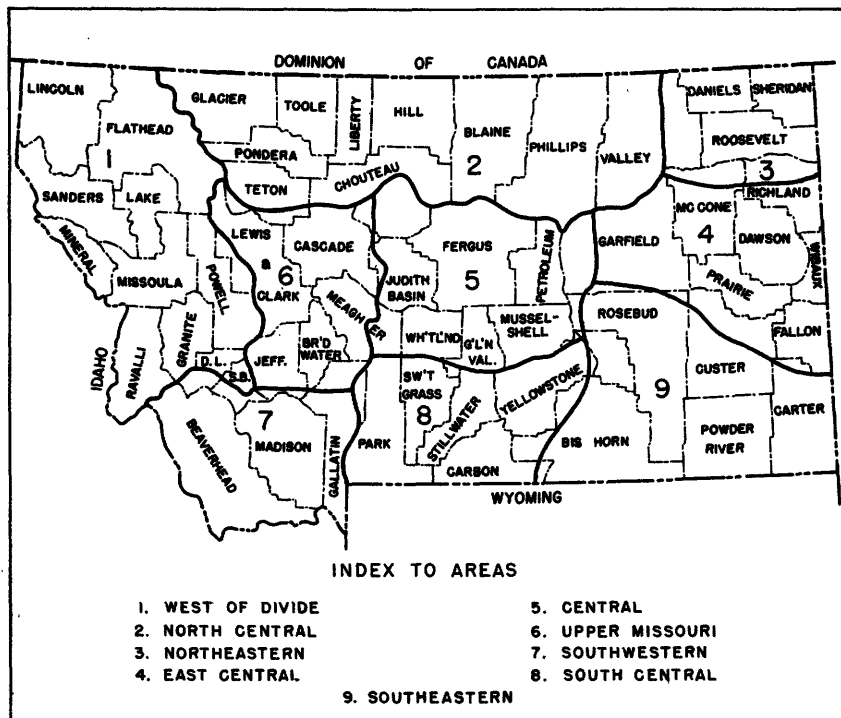


Figure 2.--Map of Montana showing the nine areas into which the State has been subdivided for discussion of water-level fluctuations.

inches in the higher mountain areas to about 12 inches in the valleys which lie in the rainshadow of mountain ranges. Snow cover and precipitation were higher than normal during the spring and early summer of 1948. This resulted in disastrous floods and higher than normal water levels in observation wells. The excessive precipitation during the spring was followed by below-normal precipitation during the summer and fall, and water levels in some wells were as much as 3 feet lower at the end of 1948 than they had been during 1947.

North-central Montana lies north of the Missouri River between Fort Peck and the Rocky Mountains and includes the drainage basin of the Teton River. It is an area of great plains, with high mountains in the western part and with several small mountain ranges within the area. This area has a characteristic continental-type climate with great ranges in temperature and scanty precipitation. Average annual precipitation is 12 to 14 inches over most of this area. During the spring and summer months of 1948, the water level in observation wells in Glacier, Toole, Teton, and Phillips Counties, and in some wells in Valley and Hill Counties, were higher than during 1947 but by later 1948 the water level in most wells was about normal. The water level in all of the shallow observation wells in Chouteau and most of the observation wells in Hill County was considerably lower than normal during the spring and summer of 1948 and, in some of the wells, the water level remained lower than normal for the entire year.

Northeastern Montana lies north of the Missouri River and east of Fort Peck. It is a rolling upland plain chiefly devoted to grazing and dry land wheat raising. This section of the State has a continental-type climate with an average rainfall of 12 to 14 inches. During 1948 the water level in observation wells in this part of the State was about the same or somewhat higher than during 1946 and 1947.

East-central Montana lies south of the Missouri River, east of the Musselshell drainage, and north of a line through Miles City. It is a hilly section mainly used for stock-grazing purposes, except for irrigated and cultivated lands along the main stream valleys. Annual precipitation ranges from about 13 to 15 inches. Prior to 1948 water-level measurements were made in only 2 wells within this area and the records are too scanty for comparisons to be made. During 1948 a total of 94 observation wells was selected along the Yellowstone River valley in this area.

Central Montana lies south of the Missouri River and includes the entire drainage basin of the Musselshell River. It is a rolling to mountainous area chiefly devoted to grazing but with considerable land devoted to cultivated crops. Annual precipitation ranges from about 12 to 18 inches, the heavier precipitation generally falling at the higher altitudes. The water level in only one observation well is being measured in this area and although records are too scanty to establish any definite trend the water level in this well was consistently more than 1 foot lower during 1948 than during 1947.

The Upper Missouri section of Montana includes all drainage of the Missouri River between Fort Benton and Three Forks. It is a rough mountainous area devoted to mining, grazing, and timber, with considerable dry land and irrigation farming on the valley bottoms and the more level land. Average annual precipitation ranges from about 12 to 20 inches, the heavier precipitation falling mainly on higher mountain lands. The water in two observation wells within this section of the State has been measured periodically since 1947 but no definite trends can be noted within this short period of record. Both wells are on irrigated lands and the water-level fluctuations are closely related to irrigation. During 1948, 121 new observation wells were established in connection with geologic and hydrologic studies being made in Helena Valley.

Southwestern Montana includes all of the drainage basins of the Jefferson, Madison, and Gallatin Rivers, which converge at Three Forks to form the Missouri River. It is a rough, mountainous, timbered area with irrigated farms on valley lands. The average annual precipitation ranges from about 10 to 20 inches, the greater precipitation generally occurring at the higher altitudes. The water level in three observation wells has been measured periodically in this area since 1947 but the period of record is too short for determination of trends. All of the observation wells are in irrigated areas and water-level fluctuations are definitely influenced by irrigation. The well near Dillon is notable for its extreme range in water-level fluctuation, showing a seasonal change of more than 21 feet. This well was dug



in very permeable gravels which are heavily irrigated during the relatively short irrigation season; during the remainder of the year the water drains away.

South-central Montana includes all of the Yellowstone River drainage basin above the mouth of the Big Horn River, and consists of rugged mountainous country and fertile irrigated lands along all major streams. Average annual precipitation ranges from 10 to 20 inches, the greater precipitation generally occurring at the higher altitudes. The water level in two observation wells, both in irrigated areas, is being measured periodically in this area. Both wells had a definitely lower water level during the fall and winter of 1948 than during the same period in 1947.

Southeastern Montana includes the drainage basin of the Big Horn River and lies south of a line through Miles City. It is a rough hilly area chiefly devoted to grazing. Lands along the principal stream valleys are irrigated and some dry land crops are raised. The average annual precipitation ranges from 12 to 16 inches. The water level in five observation wells is periodically measured in this area but the period of record is not long enough for trends of water-level fluctuations to be determined. The water level in four of the wells was essentially the same in 1948 as in 1947. The water level in the observation well at Alzada, near the Wyoming State line, was about 2 feet lower during the fall of 1948 than it was during 1947.

#### WELL-NUMBERING SYSTEM

Each well for which water-level measurements appear in this report has been assigned a number based on its location within the Bureau of Land Management surveys of the area. The component parts of a well number are: A capital letter indicating the quadrant of the principal meridian and base-line system; a township number; a range number; a section number; and two or more lower case letters which indicate the location of the well within the section. The quadrants into which the State is divided by the principal meridian and base line are designated A, B, C, and D beginning in the north-east quadrant and continuing in a counter-clockwise direction. The lower case letters designate, respectively, the quarter section, the quarter-quarter section, the 10-acre tract, and the  $2\frac{1}{2}$ -acre tract; they are assigned in the same manner as the capital letters. Most well numbers indicate a

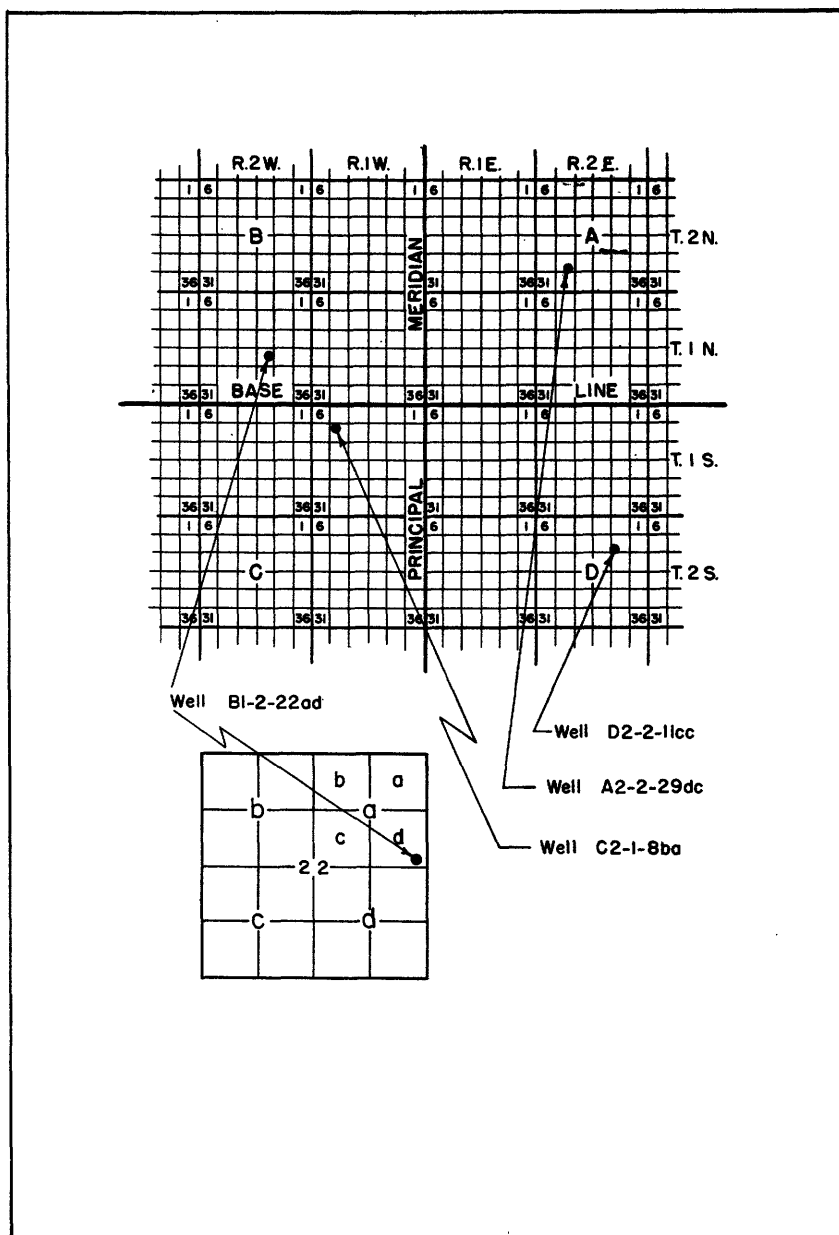


Figure 3.--Sketch showing well-numbering system adopted for use in Montana.

location no closer than the quarter-quarter section; the closer locations are indicated only when two or more wells are in the same quarter-quarter section. In certain instances, two or more wells in the same quarter-quarter section are distinguished simply by the addition of a serial number. The well-numbering system is illustrated in figure 3.

The wells in Flathead County, which formerly were identified by serial numbers, have been renumbered according to the coordinate location system.

#### WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

##### Beaverhead County

C8-9-9bb. James Rebich. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 27	27.00	Mar. 31	29.10	Sept. 26	15.28
Mar. 3	28.50	July 15	7.38	Nov. 18	22.30

##### Bighorn County

D2-34-25db. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	10.21	Apr. 12	11.28	June 8	4.70	Aug. 22	4.23
Feb. 18	11.10	May 17	11.60	19	4.64	Oct. 5	5.29
Mar. 10	11.27						

##### Blaine County

A33-18-16cb. Geological Survey, U. S. Dept. of Interior. Records available: 1942-48. Jan. 8, 9.11. Well destroyed, measurements discontinued.

A33-18-29db. James Nemetz. Measuring point, top of 8 by 12-inch timber over well at carved arrow, 0.7 foot above land-surface datum. Records available: 1948.

Jan. 8	8.37	Mar. 25	5.70	Apr. 23	7.20	June 23	5.94
Feb. 7	7.83	Apr. 4	6.27	June 17	5.01	July 15	7.93

A33-18-29ac. Lohman Estate. In north end of pump and water tower house, 75 feet east of house, 75 feet west of Midway Tavern, and 125 feet north of grain elevator, in town of Lohman. Unused dug domestic and stock well, depth 25.4 feet; in alluvial sand and gravel. Measuring point, base of pump at orange-painted arrow, 1.2 feet above land-surface datum. Records available: 1948. Oct. 19, 10.31.

##### Broadwater County

A7-2-32cd. V. J. Doig. Records available: 1947-48. Apr. 5, 6.35; Sept. 2, 4.62; Dec. 5, 6.22.

##### Carter County

D9-60-19cc. Alzada Gospel Church. Records available: 1947-48.

Jan. 9	19.01	Apr. 28	20.40	July 29	18.80	Nov. 10	19.20
Feb. 12	19.28	May 18	19.17	Sept. 2	18.78	Dec. 21	19.19
Mar. 16	19.41	June 23	19.04	Oct. 14	21.33		

##### Chouteau County

A28-10-28ab. Maynard Johnson. Records available: 1946-48.

## A28-10-28ab--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 13	11.82	July 9	12.23	Sept. 10	12.89	Nov. 15	13.96
Mar. 22	6.00	Aug. 11	12.00	Oct. 11	13.45	Dec. 13	14.36
June 9	12.12						

## A28-11-2ab. Gordon Crofoot. Records available: 1946-48.

Feb. 13	(a)	July 9	10.05	Sept. 10	9.23	Nov. 15	9.96
Mar. 22	9.40	Aug. 11	8.87	Oct. 11	9.48	Dec. 13	9.95
June 9	10.10						

a Dry.

## A28-11-10cc. A. J. Cline. New measuring point, top of well platform, 1.00 foot above old measuring point. Records available: 1946-48.

Feb. 13	15.26	July 9	13.02	Sept. 10	12.77	Nov. 15	14.40
Mar. 22	14.82	Aug. 11	10.34	Oct. 11	14.08	Dec. 13	14.58

## A28-12-8dd. S. M. Dyrland. Records available: 1946-48.

Feb. 13	12.75	July 9	10.28	Sept. 10	9.50	Nov. 15	12.37
Mar. 22	12.78	Aug. 11	8.93	Oct. 11	10.91	Dec. 13	12.81
June 9	13.80						

## A28-13-5dd. Christopher Jensen. Records available: 1945-48.

Feb. 13	a4.50	July 9	7.36	Sept. 10	9.10	Nov. 15	9.63
Mar. 22	a6.15	Aug. 11	7.92	Oct. 11	9.50	Dec. 13	a9.63
June 9	6.59						

a Ice in well.

## A28-13-7bb. Robert W. Martin. Records available: 1946-48.

Feb. 13	48.55	July 9	48.76	Sept. 10	48.70	Nov. 15	48.75
Mar. 22	48.53	Aug. 11	49.43	Oct. 11	48.80	Dec. 13	49.07
June 9	48.84						

## A29-11-16cc. State of Montana. Records available: 1946-48.

Feb. 13	a13.93	July 9	13.71	Sept. 10	12.39	Nov. 15	12.42
Mar. 22	12.32	Aug. 11	12.39	Oct. 11	12.53	Dec. 13	a14.44
June 9	12.70						

a Pumping prior to measurement.

## A29-11-32bb. Peter Christofferson. Records available: 1946-48.

Feb. 13	a8.50	July 9	8.77	Sept. 10	9.04	Nov. 15	9.39
Mar. 22	a8.80	Aug. 11	8.49	Oct. 11	9.27	Dec. 13	9.45
June 9	8.63						

a Frozen.

## A29-13-21aa2. Geological Survey, U. S. Dept. of Interior. Records available: 1947-48.

Jan. 6	16.22	Mar. 23	16.31	June 17	16.23	Aug. 27	16.36
Feb. 2	16.25	Apr. 22	16.23	July 15	16.31	Nov. 13	16.35
Mar. 1	16.26						

Custer County

## A7-47-13dd. Owner unknown. Records available: 1947-48.

Jan. 8	40.42	Apr. 15	41.82	July 27	40.00	Nov. 10	39.21
Feb. 10	41.04	May 18	41.57	Aug. 31	39.50	Dec. 22	40.52
Mar. 17	41.49	July 9	40.68	Oct. 14	38.45		

A8-47-11ad. Ray Torjenson. Drilled domestic well, diameter 4 inches, depth 20.4 feet. Measuring point, top of casing, 2.65 feet above land-surface datum, and 2,341.07 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
July 2	8.40	Sept. 24	7.71	Dec. 22	8.85
Aug. 2	8.09	Nov. 26	8.53		

A8-47-13ad. A. C. Door. Drilled domestic well, diameter 4 inches, depth 29.9 feet. Measuring point, top of casing, 0.25 foot above land-surface datum, and 2,353.68 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
July 2	15.75	Sept. 24	15.39	Dec. 22	16.64
Aug. 2	15.58	Nov. 26	16.33		

A8-47-13bc. Owner unknown. Drilled well, diameter 4 inches, depth 49.5 feet. Measuring point, top of casing, 0.65 foot above land-surface datum, and 2,348.82 feet above mean sea level. Records available: 1948.

July 2	8.93	Sept. 24	8.94	Dec. 22	9.89
Aug. 2	8.29	Nov. 26	9.54		

A8-47-13da. William Dyba. Driven domestic well, diameter 1½ inches, depth 13.6 feet. Measuring point, base of pump, 0.3 foot above land-surface datum, and 2,352.63 feet above mean sea level. Records available: 1948.

July 2	7.85	Sept. 24	7.80	Dec. 22	9.28
Aug. 2	7.45	Nov. 26	8.72		

A8-47-27aa. State of Montana, Port of Entry station. Drilled domestic well, diameter 2.5 inches, depth 58.0 feet. Measuring point, top of casing, 1.6 feet above land-surface datum, and 2,351.02 feet above mean sea level. Records available: 1948. Sept. 10, 9.15; Nov. 26, 9.56; Dec. 22, 10.07.

A8-47-27ba. Ted Matzen. Dug domestic well, diameter 4 feet, depth 14.4 feet. Measuring point, top of curb, 1.67 feet above land-surface datum. Records available: 1948.

July 2	10.33	Sept. 24	11.68	Dec. 22	12.87
Aug. 2	7.91	Nov. 26	12.72		

A8-47-27bb. Owner unknown. Drilled domestic well, diameter 4 inches, depth 50.3 feet. Measuring point, top of casing, 0.5 foot above land-surface datum, and 2,351 feet above mean sea level. Records available: 1948.

July 2	15.98	Sept. 24	14.63	Dec. 22	11.82
Aug. 2	15.93	Nov. 26	11.82		

A8-47-27cb. C. E. Hough. Dug well, diameter 3 feet, depth 13.4 feet. Measuring point, top of curb, 1.9 feet above land-surface datum, and 2,353.20 feet above mean sea level. Records available: 1948.

July 8	8.90	Sept. 24	7.76	Dec. 22	8.67
Aug. 2	7.06	Nov. 26	8.30		

A8-47-27dc. Owner unknown. Drilled domestic well, diameter 3 inches, depth 25.5 feet. Measuring point, southeast corner of top of pump platform, 0.3 foot above land-surface datum, and 2,353.64 feet above mean sea level. Records available: 1948. July 2, 14.75; Aug. 2, 13.52; Sept. 24, 12.87; Nov. 26, 13.33.

A8-47-27dd. Carl May. Dug irrigation well, diameter 4 feet, depth 10 feet. Measuring point, top of platform, 0.1 foot above land-surface datum, and 2,353.71 feet above mean sea level. Records available: 1948.

July 2	5.01	Sept. 24	3.56	Dec. 22	6.57
Aug. 2	3.22	Nov. 26	5.41		

A8-47-28dd. Owner unknown. Driven domestic well, diameter 1.6 inches, depth 15.9 feet. Measuring point, top of casing, 0.2 foot above land-surface datum, and 2,348.43 feet above mean sea level. Records available: 1948.

July 2	10.21	Sept. 24	11.23	Dec. 22	(a)
Aug. 2	10.25	Nov. 26	(a)		

a Plugged.

A8-48-8ab. Ray Olson. Dug well, diameter 3 feet, depth 29.0 feet. Measuring point, top of platform, 0.6 foot above land-surface datum. Records available: 1948.

July 9	26.15	Sept. 24	25.51	Dec. 22	26.50
Aug. 2	26.16	Nov. 26	26.22		

A9-48-2ca. Alick Beckman. Drilled test hole, diameter 3 inches, depth 13.1 feet. Measuring point, top of casing, 0.95 foot above land-surface datum, and 2,303.87 feet above mean sea level. Records available: 1948. Aug. 3, 9.43; Nov. 26, 9.47; Dec. 22, 9.56.

A9-48-2cc. Carl Astrom. Drilled test hole, diameter 3 inches, depth 9.5 feet. Measuring point, top of casing, 0.93 foot above land-surface datum, and 2,297.48 feet above mean sea level. Records available: 1948. Aug. 3, 7.79; Sept. 23, 3.77; Nov. 26, 4.50; Dec. 22, 4.65.

A9-48-2dd. Alick Beckman. Drilled test hole, diameter 3 inches, depth 5.6 feet. Measuring point, top of casing, 1.4 feet above land-surface datum, and 2,297.45 feet above mean sea level. Records available: 1948. Sept. 23, 2.05; Nov. 26, 2.89; Dec. 22, 2.95.

A9-48-3cc. Laurids Lund. Drilled test hole, diameter 3 inches, depth 13.2 feet. Measuring point, top of casing, 0.85 foot above land-surface datum, and 2,309.44 feet above mean sea level. Records available: 1948. Aug. 3, 10.71; Sept. 23, 9.15; Nov. 26, 10.79; Dec. 22, 10.94.

A9-48-3cd. Otto Schmitt. Drilled test hole, diameter 3 inches, depth 7.0 feet. Measuring point, top of casing, 1.09 feet above land-surface datum, and 2,301.22 feet above mean sea level. Records available: 1948. Aug. 3, 4.93; Sept. 23, 2.27; Nov. 26, 3.41; Dec. 22, 3.56.

A9-48-3dc. George Robbahn. Drilled test hole, diameter 3 inches, depth 8.1 feet. Measuring point, top of casing, 0.58 foot above land-surface datum, and 2,303.81 feet above mean sea level. Records available: 1948. Aug. 3, 3.30; Sept. 23, 2.07; Nov. 26, 3.70; Dec. 22, 4.19.

A9-48-3dd. Carl Astrom. Drilled test hole, diameter 3 inches, depth 12.0 feet. Measuring point, top of casing, 1.1 feet above land-surface datum, and 2,305.86 feet above mean sea level. Records available: 1948. Aug. 3, 8.97; Sept. 23, 1.40; Nov. 26, 9.13; Dec. 22, 9.65.

A9-48-8cd. Burt Hanson. Drilled test hole, diameter 3 inches, depth 8.4 feet. Measuring point, top of casing, 1.45 feet above land-surface datum, and 2,307.94 feet above mean sea level. Records available: 1948. Aug. 3, 5.62; Sept. 23, 5.09; Nov. 26, 5.39; Dec. 22, 4.48.

A9-48-8da. Tony Janutes. Drilled test hole, diameter 3 inches, depth 7.3 feet. Measuring point, top of casing, 0.59 foot above land-surface datum, and 2,305.69 feet above mean sea level. Records available: 1948. Aug. 3, 6.39; Sept. 23, 4.48; Nov. 26, 5.62; Dec. 22, 5.85.

A9-48-8dd. Burt Hanson. Drilled test hole, diameter 3 inches, depth 8.4 feet. Measuring point, top of casing, 0.99 foot above land-surface datum, and 2,306.73 feet above mean sea level. Records available: 1948. Aug. 3, 7.95; Sept. 23, 5.05; Nov. 26, 7.32; Dec. 22, 7.21.

A9-48-9aaba. Laurids Lund. Drilled test hole, diameter 3 inches, depth 7.7 feet. Measuring point, top of casing, 1.12 feet above land-surface datum, and 2,301.50 feet above mean sea level. Records available: 1948. Aug. 3, 2.53; Nov. 26, 2.65; Dec. 22, 2.76.

A9-48-9aabd. Laurids Lund. Drilled test hole, diameter 3 inches, depth 8.0 feet. Measuring point, top of casing, 1.12 feet above land-surface datum, and 2,301.48 feet above mean sea level. Records available: 1948. Aug. 3, 3.61; Sept. 23, 1.84; Nov. 26, 2.70; Dec. 22, 3.16.

A9-48-9ad. Fred Wambolt. Drilled test hole, diameter 3 inches, depth 8.4 feet. Measuring point, top of casing, 0.94 foot above land-surface datum, and 2,301.37 feet above mean sea level. Records available: 1948. Aug. 3, 3.87; Sept. 23, 4.50; Nov. 26, 4.51; Dec. 22, 4.55.

A9-48-9db. Fred Wambolt. Drilled test hole, diameter 3 inches, depth 8.4 feet. Measuring point, top of casing, 1.04 feet above land-surface datum, and 2,301.89 feet above mean sea level. Records available: 1948. Aug. 3, 3.85; Sept. 23, 2.72; Nov. 26, 3.59; Dec. 22, 3.66.

A9-48-10aa. George Robbahn. Drilled test hole, diameter 3 inches, depth 7.3 feet. Measuring point, top of casing, 1.05 feet above land-surface datum, and 2,302.46 feet above mean sea level. Records available: 1948. Aug. 3, 5.38; Sept. 23, 4.63; Nov. 26, 5.14; Dec. 22, 5.56.

A9-48-10bb. Henry George. Drilled test hole, diameter 3 inches, depth 6.8 feet. Measuring point, top of casing, 0.71 foot above land-surface datum, and 2,302.21 feet above mean sea level. Records available: 1948. Aug. 3, 5.73; Sept. 23, 5.14; Nov. 26, 5.59; Dec. 22, 5.64.

A9-48-10ca. Henry George. Drilled test hole, diameter 3 inches, depth 9.6 feet. Measuring point, top of casing, 1.1 feet above land-surface datum, and 2,299.99 feet above mean sea level. Records available: 1948. Aug. 3, 4.75; Sept. 23, 4.37; Nov. 26, 4.56; Dec. 22, 4.90.

A9-48-17aa. Kirkpatrick. Drilled test hole, diameter 3 inches, depth 7.5 feet. Measuring point, top of casing, 1.22 feet above land-surface datum, and 2,309.18 feet above mean sea level. Records available: 1948. Aug. 3, 5.66; Sept. 23, 5.52; Nov. 26, 6.20; Dec. 22, 6.30.

A9-48-17ba. Kirkpatrick. Drilled test hole, diameter 3 inches, depth 9.6 feet. Measuring point, top of casing, 1.08 feet above land-surface datum, and 2,307.45 feet above mean sea level. Records available: 1948. Aug. 3, 7.27; Sept. 23, 4.52; Nov. 26, 6.90; Dec. 22, 6.92.

A10-49-3bb. H. Watts. Dug domestic well, diameter 2 feet, depth 20.4 feet. Measuring point, top of plank covering over well, 0.45 foot above land-surface datum, and 2,247 feet above mean sea level. Records available: 1948. Aug. 23, 18.23; Sept. 24, 17.75; Nov. 26, 17.58; Dec. 22, 17.85.

A10-49-3dd. H. Watts. Dug domestic well, diameter 2 feet, depth 21.4 feet. Measuring point, top of plank covering, 1.3 feet above land-surface datum, and 2,270 feet above mean sea level. Records available: 1948. Aug. 23, 18.60; Sept. 24, 17.78; Nov. 26, 18.94; Dec. 22, 18.95.

A10-49-20dd. A. Henry. Drilled test hole, diameter 2.5 inches, depth 14.7 feet. Measuring point, top of casing, 1.0 foot above land-surface datum. Records available: 1948. Aug. 24, 12.72; Sept. 27, 12.66; Nov. 27, 12.47; Dec. 24, 12.42.

#### Daniels County

A35-47-12cd. State of Montana. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 17	15.51	Apr. 22	15.09	Nov. 11	15.48
Feb. 21	15.66	Aug. 18	14.24	Dec. 13	15.59

#### Dawson County

A13-53-10dc. E. Miller. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.0 feet above land-surface datum, and 2,178.15 feet above mean sea level. Records available: 1948.

May 5	8.35	Aug. 19	9.00	Nov. 27	(a)
28	8.50	Sept. 27	8.12	Dec. 27	(a)

a Dry.

A13-53-10dd. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.0 feet above land-surface datum, and 2,169.11 feet above mean sea level. Records available: 1948.

May 5	5.00	Aug. 19	5.70	Nov. 27	4.55
28	4.75	Sept. 27	5.16	Dec. 27	5.05

A13-53-11eb. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.73 feet above land-surface datum, and 2,164.31 feet above mean sea level. Records available: 1948.

May 5	5.00	Aug. 19	6.00	Nov. 27	5.29
28	5.00	Sept. 27	6.47	Dec. 24	5.61

A13-53-11ec. W. Siegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 0.48 foot above land-surface datum, and 2,152.25 feet above mean sea level. Records available: 1948.

May 5	1.90	Aug. 19	2.30	Nov. 27	1.84
28	2.00	Sept. 27	1.92	Dec. 24	2.09

A13-53-11ed. W. Siegle. Drilled test hole, diameter 2 inches, depth 10 feet. Measuring point, top of casing, 1.92 feet above land-surface datum, and 2,148.36 feet above mean sea level. Records available: 1948.

May 5	1.40	Aug. 19	1.30	Nov. 27	1.53
28	1.50	Sept. 27	1.42	Dec. 24	1.82

A13-53-11dc. W. Siegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.05 feet above land-surface datum, and 2,147.70 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	3.85	Aug. 19	4.20	Nov. 27	4.87
28	3.90	Sept. 27	4.52	Dec. 24	4.77

A13-53-14bb. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.7 feet above land-surface datum, and 2,155.11 feet above mean sea level. Records available: 1948.

May 5	3.15	Aug. 19	3.90	Nov. 27	3.45
28	2.80	Sept. 27	4.43	Dec. 27	3.86

A13-53-15aaa. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.97 feet above land-surface datum, and 2,170.65 feet above mean sea level. Records available: 1948.

May 5	4.85	Aug. 19	5.10	Nov. 27	4.35
28	2.80	Sept. 27	2.22	Dec. 27	4.95

A13-53-15aad. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.89 feet above land-surface datum, and 2,170.65 feet above mean sea level. Records available: 1948.

May 5	2.10	Aug. 19	3.00	Dec. 27	2.71
28	.80	Nov. 27	1.87		

A14-54-lad. School. Drilled domestic well, diameter 4 inches, depth 50 feet. Measuring point, top of casing, 0.6 foot above land-surface datum, and 2,167 feet above mean sea level. Records available: 1948. Sept. 27, 17.97; Nov. 26, 18.36; Dec. 24, 18.52.

A14-54-2dd. Owner unknown. Dug domestic well, diameter 2 feet, depth 9.85 feet. Measuring point, base of pump, 0.47 foot above land-surface datum, and 2,164 feet above mean sea level. Records available: 1948. Sept. 21, 6.16; Nov. 26, 5.86; Dec. 24, 6.06.

A14-54-33ab. Owner unknown. Drilled test hole, diameter 2 inches, depth 14 feet. Measuring point, top of casing, 2.40 feet above land-surface datum, and 2,124.16 feet above mean sea level. Records available: 1948.

May 5	2.00	Aug. 19	3.00	Nov. 27	0.95
28	2.75	Sept. 27	1.72	Dec. 27	2.24

A14-54-33aca. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.02 feet above land-surface datum, and 2,120.26 feet above mean sea level. Records available: 1948.

May 5	5.00	Aug. 24	5.10	Nov. 27	4.44
28	5.00	Sept. 27	4.93	Dec. 27	5.16

A14-54-33acb. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.46 feet above land-surface datum, and 2,121.42 feet above mean sea level. Records available: 1948.

May 5	6.65	Aug. 24	2.20	Nov. 27	3.24
28	4.80	Sept. 27	1.82	Dec. 27	4.12

A14-54-33acc. G. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.27 feet above land-surface datum, and 2,121.01 feet above mean sea level. Records available: 1948.

May 5	5.25	Aug. 20	5.20	Nov. 27	4.77
28	5.40	Sept. 27	5.10	Dec. 27	5.39



A14-54-33baa. Owner unknown. Drilled test hole, diameter 2 inches, depth 13 feet. Measuring point, top of casing, 2.68 feet above land-surface datum, and 2,125.93 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	1.75	Aug. 20	1.00	Nov. 27	0.95
28	1.65	Sept. 27	.52	Dec. 27	2.24

A14-54-33bab. Owner unknown. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.33 feet above land-surface datum, and 2,131.17 feet above mean sea level. Records available: 1948.

May 5	6.65	Aug. 20	2.20	Nov. 27	3.29
28	4.80	Sept. 27	1.82	Dec. 27	4.12

A14-54-33bacb. R. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.18 feet above land-surface datum, and 2,132.59 feet above mean sea level. Records available: 1948.

May 5	2.00	Aug. 24	3.60	Nov. 27	1.82
28	2.75	Sept. 27	2.10	Dec. 27	2.02

A14-54-33bacd. R. Diegle. Drilled test hole, diameter 2 inches, depth 25 feet. Measuring point, top of casing, 1.96 feet above land-surface datum, and 2,137.30 feet above mean sea level. Records available: 1948.

May 5	5.75	Aug. 24	5.20	Nov. 27	4.76
28	6.10	Sept. 27	5.23	Dec. 27	5.06

A14-54-33bad. Owner unknown. Drilled test hole, diameter 2 inches, depth 12 feet. Measuring point, top of casing, 2.01 feet above land-surface datum, and 2,124.96 feet above mean sea level. Records available: 1948.

May 5	2.00	Aug. 24	3.30	Nov. 27	2.27
28	2.50	Sept. 27	2.85	Dec. 27	3.06

A14-54-33bba. R. Diegle. Drilled test hole, diameter 2 inches, depth 7.5 feet. Measuring point, top of casing, 2.28 feet above land-surface datum, and 2,130.78 feet above mean sea level. Records available: 1948.

May 5	1.50	Aug. 19	2.90	Nov. 27	0.42
28	2.20	Sept. 27	1.67		

A14-54-33bbc. R. Diegle. Drilled test hole, diameter 2 inches, depth 12 feet. Measuring point, top of casing, 2.04 feet above land-surface datum, and 2,128.24 feet above mean sea level. Records available: 1948.

May 5	3.20	Aug. 19	3.20	Nov. 27	2.96
28	4.50	Sept. 27	3.15	Dec. 27	3.63

A14-54-33bbcb. R. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.1 feet above land-surface datum, and 2,129.46 feet above mean sea level. Records available: 1948.

May 5	7.00	Aug. 19	4.70	Nov. 27	5.24
28	6.30	Sept. 27	4.97	Dec. 27	5.68

A14-54-33bcc. R. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.0 feet above land-surface datum, and 2,125.19 feet above mean sea level. Records available: 1948.

May 5	4.10	Aug. 19	3.20	Nov. 27	4.16
28	4.00	Sept. 27	3.86	Dec. 27	3.80

A14-54-33bcd. R. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.75 feet above land-surface datum, and 2,123.51 feet above mean sea level. Records available: 1948.

May 5	4.00	Aug. 19	4.20	Nov. 27	4.13
28	4.20	Sept. 27	4.15	Dec. 27	4.77

A14-54-33bdb. R. Diegle. Drilled test hole, diameter 2 inches, depth 8 feet. Measuring point, top of casing, 1.76 feet above land-surface datum, and 2,130.99 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	4.80	Aug. 20	4.70	Nov. 27	4.14
28	6.00	Sept. 27	4.32	Dec. 27	4.41

A14-54-33bdca. R. Diegle. Drilled test hole, diameter 2 inches, depth 10 feet. Measuring point, top of casing, 2.0 feet above land-surface datum, and 2,123.26 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	1.90	Aug. 19	3.50	Nov. 27	2.94
28	2.50	Sept. 27	2.52	Dec. 27	2.75

A14-54-33bdcb. R. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 1.91 feet above land-surface datum, and 2,123 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	2.65	Aug. 24	4.10	Nov. 27	3.74
28	3.20	Sept. 27	2.91	Dec. 27	3.79

A14-54-33ca. G. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.24 feet above land-surface datum, and 2,123.03 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	5.00	Aug. 24	5.10	Nov. 27	4.44
28	5.00	Sept. 27	4.93	Dec. 27	5.16

A14-54-33cb. G. Diegle. Drilled test hole, diameter 2 inches, depth 15 feet. Measuring point, top of casing, 2.04 feet above land-surface datum, and 2,124.67 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	6.50	Aug. 19	5.50	Nov. 27	5.04
28	6.25	Sept. 27	5.15	Dec. 27	5.68

A14-55-6dd. Hathaway. Driven domestic well, diameter 1.5 inches, depth 26.7 feet. Measuring point, base of pump, 1.22 feet above land-surface datum, and 2,139 feet above mean sea level. Records available: 1948. Sept. 25, 22.71; Nov. 26, 21.84; Dec. 24, 22.61.

A15-55-19dc. Owner unknown. Drilled domestic well, diameter 4 inches, depth 20 feet. Measuring point, base of pump, 0.6 foot above land-surface datum, and 2,145 feet above mean sea level. Records available: 1948. Sept. 27, 12.69; Nov. 26, 13.43; Dec. 24, 13.56.

A15-55-20bb. Owner unknown. Drilled domestic well, diameter 6 inches, depth 20.8 feet. Measuring point, base of pump, 0.4 foot above land-surface datum, and 2,138 feet above mean sea level. Records available: 1948. Sept. 27, 5.91; Nov. 27, 7.57; Dec. 24, 5.83.

A15-55-20cb. J. Denis. Dug domestic well, diameter 3 feet, depth 17.35 feet. Measuring point, base of pump, 1.3 feet above land-surface datum, and 2,137 feet above mean sea level. Records available: 1948. Sept. 27, 7.92; Nov. 27, 7.26; Dec. 24, 7.68.

A18-56-25cb. Mrs. B. Stevenson. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 23	25.01	Mar. 31	24.90	Oct. 18	25.01
Feb. 25	25.01	Apr. 26	24.95	Dec. 10	24.51

#### Fergus County

A14-16-9dd. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 4	30.10	June 23	29.30	Aug. 30	30.16	Nov. 1	30.93
30	34.87	July 28	31.60	Sept. 29	30.52		

Flathead County

Water levels in observation wells in the valley and delta area between Kalispell and Flathead Lake were higher in 1948 than at any time during the period of record as the result of heavy precipitation and high runoff in this area. Much of the ground-water recharge doubtless came from percolation downward but high stages of the river and Flathead Lake prevented the ground-water discharge which takes place into these bodies of surface water when they are at lower levels.

Although water-level measurements have been made at different times of the month and under varying conditions, it is believed that some generalizations can be drawn regarding the fluctuations of water level over the years. The average water level in 35 wells during 1948 was about 2.5 feet higher than the average water level in 47 wells in 1929. The greatest differences between water levels recorded in 1929 and 1948 were in the fall and winter months, and it seems a valid assumption that this condition is mainly the result of regulation of Flathead Lake by the Kerr Dam. Water levels, before lake regulation, were ordinarily higher during the spring months; thus, the net change in spring water levels is not as great as the net change in fall water levels.

When the average monthly depth to water of the 35 wells in 1948 is compared with the average depth to water in 39 wells in 1942 it is found that the water level was about 2.3 feet higher in 1948 than in 1942. As the Kerr Dam was in operation both years, the differences show no marked relation to the seasons. The greatest difference is shown during the month of June when the average water level in wells was about 2.8 feet higher in 1948 than in 1942. The measurement on June 7, 1948, followed the peak discharge of the Flathead River, which occurred on May 23; this accounts to some extent for the large rise in water level.

The average water level in the 35 wells was about 0.7 foot higher in 1948 than in 1947. This rise in water level is entirely the result of the natural conditions described above, as no changes were made in the regulated level of Flathead Lake. The lake level was high during 1948, but this was the result of excessive runoff and was not due to regulation.

In the following tabulation, the number in parentheses is the well number under which water-level measurements for earlier years were published.

## B27-20-5aa (33). Hartman. Records available: 1928-44, 1946-48.

Date	Water level	Date	Water level	Date	Water level
Nov. 4, 1947	10.37	Apr. 8, 1948	10.00	July 17, 1948	9.71
Dec. 3	10.30	May 3	9.88	Aug. 7	9.73
Jan. 9, 1948	10.22	June 7	9.65	Sept. 10	10.11
Feb. 3	10.18	July 2	9.63	Oct. 22	10.05
Mar. 3	9.99				

## B27-20-5ab (31). Hartman. Records available: 1928-44, 1946-48.

Nov. 4, 1947	15.95	Apr. 8, 1948	15.88	July 17, 1948	15.78
Dec. 3	15.90	May 3	15.74	Aug. 7	15.73
Jan. 9, 1948	15.98	June 7	15.64	Sept. 10	15.73
Feb. 3	15.90	July 2	15.73	Oct. 22	15.93
Mar. 3	16.01				

## B27-20-5bb (30). Hodgeson School. Records available: 1928-44, 1946-48.

Nov. 4, 1947	13.87	Apr. 8, 1948	13.52	July 17, 1948	13.52
Dec. 3	13.86	May 3	13.58	Aug. 7	13.53
Jan. 9, 1948	13.94	June 7	13.54	Sept. 10	13.60
Feb. 3	13.98	July 2	13.52	Oct. 22	13.74
Mar. 3	13.83				

## B27-20-5da (34). O'Connell. Records available: 1928-44, 1946-48.

Nov. 4, 1947	9.98	Apr. 8, 1948	9.82	July 17, 1948	9.51
Dec. 3	10.05	May 3	9.75	Aug. 7	9.52
Jan. 9, 1948	10.05	June 7	9.50	Sept. 10	9.61
Feb. 3	10.02	July 2	9.43	Oct. 22	9.73
Mar. 3	10.05				

## B27-20-5dd (35). Bellinger. Records available: 1928-44, 1946-48.

Nov. 4, 1947	12.55	Apr. 8, 1948	12.03	July 17, 1948	11.87
Dec. 3	12.50	May 3	12.00	Aug. 7	11.86
Jan. 9, 1948	12.50	June 7	12.05	Sept. 10	11.99
Feb. 3	12.41	July 2	11.82	Oct. 22	12.10
Mar. 3	12.23				

## B27-20-6aa (21). Thompson. Records available: 1928-44, 1946-48.

Nov. 4, 1947	0.12	Apr. 8, 1948	1.18	July 17, 1948	0.60
Dec. 3	.09	May 3	1.80	Aug. 7	.20
Jan. 9, 1948	.05	June 7	1.41	Sept. 10	.43
Feb. 3	.00	July 2	.52	Oct. 22	.29
Mar. 3	.00				

## B27-20-6ba (29). Syverson. Records available: 1928-44, 1946-48.

Nov. 4, 1947	2.63	Apr. 8, 1948	5.02	July 17, 1948	1.61
Dec. 3	2.17	May 3	4.77	Aug. 7	1.48
Jan. 9, 1948	3.02	June 7	.58	Sept. 10	1.83
Feb. 3	3.80	July 2	1.51	Oct. 22	1.72
Mar. 3	4.58				

## B27-20-8bb (19). Manning. Records available: 1928-44, 1946-48.

Nov. 4, 1947	2.35	Apr. 8, 1948	1.04	July 17, 1948	2.37
Dec. 3	2.02	May 3	1.27	Aug. 7	1.54
Jan. 9, 1948	1.42	June 7	1.20	Sept. 10	2.48
Feb. 3	2.45	July 2	1.63	Oct. 22	2.26
Mar. 3	1.70				

## B27-20-8da (36). Wagoner. Records available: 1928-44, 1946-48.

Nov. 4, 1947	15.10	Apr. 8, 1948	14.78	July 17, 1948	14.48
Dec. 3	15.05	May 3	14.67	Aug. 7	14.40
Jan. 9, 1948	14.84	June 7	14.78	Sept. 10	14.54
Feb. 3	15.00	July 2	14.50	Oct. 22	14.60
Mar. 3	14.95				

B27-20-8dd (37). Damon. Records available: 1928-44, 1946-48.

Date	Water level	Date	Water level	Date	Water level
Nov. 4, 1947	10.90	Apr. 8, 1948	9.55	July 17, 1948	9.67
Dec. 3	10.84	May 3	9.75	Aug. 7	9.74
Jan. 9, 1948	10.77	June 7	9.76	Sept. 10	10.03
Feb. 3	10.71	July 2	9.54	Oct. 22	10.27
Mar. 3	10.26				

B27-20-17ad (38). Lee. Records available: 1928-44, 1946-48.

Nov. 4, 1947	2.70	Apr. 8, 1948	1.74	July 17, 1948	1.78
Dec. 3	2.55	May 3	1.70	Aug. 7	1.46
Jan. 9, 1948	2.13	June 7	1.51	Sept. 10	1.74
Feb. 3	2.21	July 2	1.59	Oct. 22	1.86
Mar. 3	2.04				

B27-20-17cc (1). Beauchamp. Records available: 1928-44, 1946-48.

Nov. 4, 1947	5.00	Apr. 8, 1948	4.38	July 17, 1948	4.68
Oct. 3	4.94	May 3	4.22	Aug. 7	4.42
Jan. 9, 1948	4.64	June 7	3.03	Sept. 10	5.17
Feb. 3	5.35	July 2	3.64	Oct. 22	5.07
Mar. 3	5.42				

B27-20-19ad (9). Keller. Records available: 1928-44, 1946-48.  
Flooded on June 7.

Nov. 4, 1947	3.93	Mar. 3, 1948	4.94	July 17, 1948	3.38
Oct. 3	4.04	Apr. 8	4.22	Aug. 7	3.29
Jan. 9, 1948	3.96	May 3	3.75	Sept. 10	3.80
Feb. 3	4.60	July 2	2.43	Oct. 22	3.97

B27-20-19ba (43). Kleinham. Records available: 1928-44, 1946-48.

Nov. 4, 1947	7.75	Apr. 8, 1948	7.38	July 17, 1948	6.73
Dec. 3	7.66	May 3	7.18	Aug. 7	6.95
Jan. 9, 1948	7.53	June 7	6.83	Sept. 10	7.22
Feb. 3	7.46	July 2	8.43	Oct. 22	7.38
Mar. 3	7.50				

B27-20-19bb (44). Websters. Records available: 1928-44, 1946-48.

Nov. 4, 1947	14.24	Apr. 8, 1948	13.50	July 17, 1948	13.63
Dec. 3	14.20	May 3	13.40	Aug. 7	13.72
Jan. 9, 1948	14.14	June 7	13.65	Sept. 10	13.85
Feb. 3	14.07	July 2	13.10	Oct. 22	13.92
Mar. 3	13.52				

B27-20-20aa (11). Taylor. Records available: 1928-44, 1946-48.

Nov. 4, 1947	5.12	Apr. 8, 1948	4.08	July 17, 1948	5.24
Dec. 3	4.93	May 3	3.61	Aug. 7	4.48
Jan. 9, 1948	4.50	June 7	3.73	Sept. 10	5.23
Feb. 3	4.99	July 2	4.40	Oct. 22	5.03
Mar. 3	5.00				

B27-20-20ab (41). Zellar. Records available: 1928-44, 1946-48.

Nov. 4, 1947	7.00	Apr. 8, 1948	6.14	July 17, 1948	6.43
Dec. 3	6.90	May 3	5.70	Aug. 7	6.31
Jan. 9, 1948	6.58	June 7	5.52	Sept. 10	6.70
Feb. 3	6.77	July 2	5.76	Oct. 22	6.96
Mar. 3	7.12				

B27-20-20bd (10). Yeaw. Records available: 1928-44, 1946-48.

Nov. 4, 1947	5.85	Mar. 3, 1948	6.77	July 2, 1948	4.66
Dec. 3	5.87	Apr. 8	5.39	Aug. 17	5.65
Jan. 9, 1948	5.40	May 3	5.38	Sept. 10	5.89
Feb. 3	6.73	June 7	.87	Oct. 22	6.08

## B27-20-20da (40). Taylor. Records available: 1928-44, 1946-48.

Date	Water level	Date	Water level	Date	Water level
Nov. 4, 1947	1.88	Mar. 3, 1948	4.70	Aug. 17, 1948	1.54
Dec. 3	2.60	Apr. 8	3.87	Sept. 10	1.89
Jan. 9, 1948	3.30	May 3	4.23	Oct. 22	2.49
Feb. 3	5.40	July 2	3.14		

## B27-20-21aa (14). Rousseille. Records available: 1928-44, 1946-48.

Nov. 4, 1947	6.43	Apr. 8, 1948	10.01	July 17, 1948	6.11
Dec. 3	6.75	May 3	9.88	Aug. 7	5.57
Jan. 9, 1948	7.24	June 7	7.07	Sept. 10	6.16
Feb. 3	8.07	July 2	5.45	Oct. 22	6.29
Mar. 3	9.15				

## B27-20-21ab (39). Conrad. Records available: 1928-44, 1946-48.

Nov. 4, 1947	3.36	Apr. 8, 1948	1.42	July 17, 1948	3.28
Dec. 3	3.08	May 3	2.51	Aug. 7	2.15
Jan. 9, 1948	2.20	June 7	1.35	Sept. 10	3.21
Feb. 3	3.70	July 2	2.15	Oct. 22	3.59
Mar. 3	3.69				

## B27-20-21ca (13). Conrad. Records available: 1928-44, 1946-48.

Flooded on June 7, July 2, 17.

Nov. 4, 1947	4.40	Apr. 8, 1948	0.78	Sept. 10, 1948	3.07
Jan. 9, 1948	2.30	May 3	1.98	Oct. 22	3.20
Feb. 3	3.50	Aug. 17	1.98		

## B27-20-22ac (3). Oldenberg. Records available: 1928-44, 1946-48.

Flooded on June 7.

Nov. 4, 1947	10.16	Mar. 3, 1948	9.80	July 17, 1948	5.40
Dec. 3	10.10	Apr. 8	9.65	Aug. 7	5.56
Jan. 9, 1948	10.00	May 3	9.42	Sept. 10	7.04
Feb. 3	9.95	July 2	3.21	Oct. 22	7.45

## B27-20-22bd-1 (2). Oldenberg. Records available: 1928-44, 1946-48.

Nov. 4, 1947	6.77	Apr. 8, 1948	5.78	July 17, 1948	3.77
Dec. 3	6.59	May 3	5.55	Aug. 7	3.72
Jan. 9, 1948	6.35	June 7	.00	Sept. 10	4.64
Feb. 3	6.16	July 2	2.98	Oct. 22	4.77
Mar. 3	6.13				

## B27-20-22bd-2 (4). Oldenberg. Records available: 1928-44, 1946-48.

Flooded on June 7.

Nov. 4, 1947	5.98	Mar. 3, 1948	5.05	July 17, 1948	2.42
Dec. 3	5.76	Apr. 8	4.58	Aug. 7	2.33
Jan. 9, 1948	5.35	May 3	4.47	Sept. 10	3.62
Feb. 3	5.20	July 2	.23	Oct. 22	3.78

## B27-21-1dd (20). Reed. Records available: 1928-44, 1946-48.

Nov. 4, 1947	2.15	Apr. 8, 1948	1.84	July 17, 1948	1.82
Dec. 3	2.12	May 3	1.73	Aug. 7	1.87
Jan. 9, 1948	1.90	June 7	1.57	Sept. 10	2.06
Feb. 3	2.28	July 2	1.88	Oct. 22	1.87
Mar. 3	2.16				

## B27-21-13cd (7). Cleary. Records available: 1928-44, 1946-48.

Nov. 4, 1947	17.93	Apr. 8, 1948	17.62	July 17, 1948	17.57
Dec. 3	18.04	May 3	17.71	Aug. 7	17.57
Jan. 9, 1948	17.88	June 7	17.78	Sept. 10	17.93
Feb. 3	17.86	July 2	17.30	Oct. 22	17.71
Mar. 3	17.70				

## B27-21-23aa (45). Three Corners Ranch. Records available: 1928-44, 1946-48. Plugged on June 7.

Nov. 4, 1947	19.93	Feb. 3, 1948	19.65	Apr. 8, 1948	19.57
Dec. 3	19.86	Mar. 3	19.71	May 3	19.45
Jan. 9, 1948	19.82				

## B27-21-23ab (8). Koenig. Records available: 1928-44, 1946-48.

Date	Water level	Date	Water level	Date	Water level
Nov. 4, 1947	2.40	Apr. 8, 1948	1.61	July 17, 1948	1.78
Dec. 3	2.10	May 3	1.47	Aug. 7	1.84
Jan. 9, 1948	2.05	June 7	1.46	Sept. 10	2.05
Feb. 3	2.16	July 2	1.44	Oct. 22	2.19
Mar. 3	2.01				

## B28-20-31ad (22). Lowden. Records available: 1928-44, 1946-48.

Nov. 4, 1947	12.66	Apr. 8, 1948	14.15	July 17, 1948	12.62
Dec. 3	12.77	May 3	14.34	Aug. 7	12.62
Jan. 9, 1948	13.15	June 7	13.06	Sept. 10	12.96
Feb. 3	13.51	July 2	12.47	Oct. 22	12.74
Mar. 3	13.84				

## B28-20-32da (32). Papendicks. Records available: 1928-44, 1946-48.

Nov. 4, 1947	7.85	Apr. 8, 1948	6.88	July 17, 1948	6.88
Dec. 3	7.73	May 3	6.40	Aug. 7	6.88
Jan. 9, 1948	7.53	June 7	6.20	Sept. 10	7.45
Feb. 3	7.36	July 2	6.64	Oct. 22	7.44
Mar. 3	7.10				

## B28-21-34bc (47). Parkers. Records available: 1928-44, 1946-48.

Nov. 4, 1947	10.89	Mar. 3, 1948	13.28	July 17, 1948	8.90
Dec. 3	11.25	Apr. 8	13.80	Aug. 7	9.18
Jan. 9, 1948	11.56	May 3	13.58	Sept. 10	10.70
Feb. 3	12.70	July 2	7.82	Oct. 22	11.36

## B28-21-35da (26). Caton. Records available: 1928-44, 1946-48.

Nov. 4, 1947	9.16	Mar. 3, 1948	9.64	July 17, 1948	8.93
Dec. 3	9.17	Apr. 8	10.21	Aug. 7	8.73
Jan. 9, 1948	9.48	May 3	10.70	Sept. 10	8.70
Feb. 3	9.70	July 2	9.05	Oct. 22	8.92

## B28-21-36db (27). Weaver. Records available: 1928-44, 1946-48.

Nov. 4, 1947	4.63	Apr. 8, 1948	9.30	July 17, 1948	3.88
Dec. 3	5.33	May 3	9.22	Aug. 7	3.98
Jan. 9, 1948	6.43	June 7	1.99	Sept. 10	4.36
Feb. 3	7.50	July 2	3.24	Oct. 22	4.74
Mar. 3	8.40				

## B28-21-36dd (28). Hancock. Records available: 1928-44, 1946-48.

Nov. 4, 1947	11.80	Apr. 8, 1948	13.20	July 17, 1948	11.93
Dec. 3	11.90	May 3	13.28	Aug. 7	11.80
Jan. 9, 1948	12.28	June 7	12.52	Sept. 10	11.81
Feb. 3	12.62	July 2	12.00	Oct. 22	11.80
Mar. 3	12.89				

Gallatin County

## D2-4-14dd. Owner unknown. Records available: 1947-48.

Feb. 10	8.00	Sept. 23	5.46	Dec. 1	7.28
Sept. 1	5.27	Oct. 27	5.98		

Glacier County

## B32-11-3dd. U. S. Government. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 14	2.32	May 20	0.11	July 24	1.27	Aug. 17	2.15
Apr. 1	.21	27	.11	Aug. 10	1.85	Oct. 25	1.90
19	.48						

Granite County

B6-14-27ad. State of Montana. Records available: 1947-48. Frozen on Feb. 20.

Date	Water level	Date	Water level	Date	Water level
Mar. 25	2.78	July 28	4.99	Dec. 18	5.46
May 13	3.05	Nov. 10	5.94		

Hill County

A29-11-3cc. George Dillman. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 13	8.10	July 9	8.10	Sept. 10	8.87	Nov. 15	9.05
Mar. 22	6.80	Aug. 11	8.70	Oct. 11	10.02	Dec. 13	9.25

A30-11-27cb. E. J. Walls. Records available: 1945-48.

Feb. 13	19.00	July 9	19.08	Sept. 10	19.24	Nov. 15	19.14
Mar. 22	19.00	Aug. 11	19.19	Oct. 11	19.52	Dec. 13	19.10
June 9	19.02						

A30-11-32cb. Frank Silvernale. Records available: 1945-48. Frozen on Feb. 13 and Mar. 22.

Date	Water level	Date	Water level	Date	Water level
July 9	13.37	Sept. 10	12.08	Nov. 15	10.86
Aug. 11	12.33	Oct. 11	13.14	Dec. 13	11.00

A30-12-36aa. Fred Schmith. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 13	27.75	June 9	27.60	Aug. 11	27.73	Oct. 11	29.18
Mar. 22	27.40	July 9	27.87	Sept. 10	28.27		

A30-13-26dc. Great Northern Railway Co. Records available: 1946-48. Frozen on Feb. 12 and Mar. 22.

June 9	8.49	Aug. 11	6.59	Oct. 11	7.78	Dec. 13	8.33
July 9	7.54	Sept. 10	7.23	Nov. 15	8.12		

A30-13-29dc. A. Nedregger. Records available: 1945-48.

Feb. 13	14.30	July 9	14.95	Sept. 10	15.28	Nov. 15	15.74
Mar. 22	14.44	Aug. 11	15.13	Oct. 11	15.50	Dec. 13	16.05
June 9	14.81						

A30-13-35bc. William Cowan. Records available: 1945-48.

Feb. 12	16.30	July 9	14.79	Sept. 10	14.26	Nov. 15	15.10
Mar. 22	16.73	Aug. 11	13.77	Oct. 11	14.72	Dec. 13	15.47
June 9	15.58						

A30-14-8bd. R. Swan. Records available: 1945-48.

Feb. 12	31.19	July 9	32.60	Sept. 10	32.40	Nov. 15	32.78
Mar. 22	32.70	Aug. 11	31.88	Oct. 11	31.93	Dec. 13	33.00
June 9	34.22						

a Pumping prior to measurement.

A31-14-23bc. Clint Clark. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
Feb. 12	18.16	June 9	18.45	Aug. 11	18.54
Mar. 22	18.18	July 9	18.50		

A32-15-17dd. Geol. Survey, U. S. Dept. of Interior. Records available: 1947-48.



## A32-15-17dd--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	46.80	Mar. 23	45.92	June 17	45.46	Aug. 27	44.32
Feb. 7	46.52	Apr. 22	45.72	July 15	45.39	Nov. 13	45.21
Mar. 1	46.27						

Jefferson County

B1-4-8cd. Joe Merrick. Records available: 1947-48. Apr. 1, 5.30; July 12, 5.94; Sept. 26, 5.10.

Lake County

B21-20-2dc. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 27	26.40	May 5	27.42	Dec. 18	25.04
Mar. 18	27.20	Oct. 21	24.10		

Lewis and Clark County

B10-2-6ba. Holt. Dug domestic and stock well, diameter 48 inches, depth 10.1 feet. Measuring point, top of concrete porch floor, 1.27 feet above land-surface datum, and 3,688.87 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	5.33	June 24	4.73	Aug. 24	4.73	Oct. 21	5.06
20	5.53	July 26	4.71	Sept. 22	5.15	Dec. 21	5.10

B10-2-6bb. L. A. Ramsey. Dug irrigation pit, diameter 30 feet, depth 20.2 feet. Measuring point, end of pump platform, 2.44 feet below land-surface datum, and 3,684.76 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	5.34	June 24	3.94	Aug. 24	3.68	Oct. 21	4.12
20	4.54	July 26	3.78	Sept. 22	4.19		

B10-2-6bc. L. A. Ramsey. Dug irrigation pit, diameter 35 feet, depth 18.7 feet. Measuring point, pump platform, 7.81 feet below land-surface datum, and 3,691.69 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	11.11	June 24	10.21	Aug. 25	8.93	Oct. 22	10.09
20	11.21	July 26	10.27	Sept. 22	9.66		

B10-2-6ca. Munson Bros. Dug irrigation pit, diameter 35 feet, depth 19.85 feet. Measuring point, pump platform, 8.3 feet below land-surface datum, and 3,692.70 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	11.60	June 24	9.70	Aug. 24	9.45	Oct. 22	9.59
20	11.70	July 26	9.85	Sept. 22	10.10		

B10-2-6cc. Munson Bros. Dug irrigation pit, diameter 40 feet, depth 38.5 feet. Measuring point, pump platform, 12.76 feet below land-surface datum, and 3,701.14 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 11	22.67	June 24	17.06	Aug. 25	14.52	Oct. 22	15.34
20	17.76	July 26	15.81	Sept. 22	14.81		

B10-2-17ca. Wm. Huhnerfuch. Abandoned dug well, diameter 30 inches, depth 67.4 feet. Measuring point, top of well cover, at land-surface datum, and 3,779.75 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	65.50	June 24	66.50	Aug. 25	64.15	Oct. 22	64.07
20	65.90	July 26	65.62	Sept. 22	64.35	Dec. 4	63.85

B10-2-30dc. Andy Cherkovich. Dug domestic and stock well, diameter 48 inches, depth 49 feet. Measuring point, pump platform, 6.12 feet below land-surface datum, and 3,871.08 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	43.62	June 24	30.42	Aug. 25	24.37	Oct. 22	24.12
20	43.72	July 26	25.12	Sept. 22	21.14	Dec. 4	29.62

B10-3-2bb. M. Donaldson. Abandoned dug well, diameter 36 inches, depth 8.2 feet. Measuring point, pump house floor, 0.5 foot above land-surface datum, and 3,691.81 feet above sea level. Records available: 1948.

May 6	3.50	June 24	3.30	Aug. 24	4.24	Oct. 21	3.29
19	3.60	July 23	3.98	Sept. 22	4.31		

B10-3-2cd. M. Donaldson. Dug and drilled domestic and stock well, diameter 48 inches, depth 38 feet. Measuring point, pump house floor, 0.2 foot above land-surface datum, and 3,715.30 above mean sea level. Records available: 1948.

May 6	10.70	June 24	7.30	Aug. 23	3.59	Oct. 21	6.84
19	9.90	July 23	5.67	Sept. 22	4.11	Dec. 3	8.51

B10-3-2dbl. E. K. Hilger. Abandoned dug well, diameter 48 inches, depth 12.05 feet. Measuring point, top of 2-inch plank cover, 0.2 foot above land-surface datum, and 3,705.31 feet above mean sea level. Records available: 1948.

May 6	5.70	June 24	5.40	Aug. 24	3.21	Oct. 21	4.90
19	5.80	July 23	4.26	Sept. 22	3.85	Dec. 3	5.73

B10-3-2db2. E. K. Hilger. Abandoned dug well, diameter 48 inches, depth 9.20 feet. Measuring point, top of 2-inch wooden rim, at land-surface datum, and 3,698.07 feet above mean sea level. Records available: 1948. Flooded by irrigation water on Aug. 23.

May 6	5.90	June 24	4.30	Sept. 22	2.91	Dec. 3	4.56
19	5.70	July 23	3.72	Oct. 21	3.64		

B10-3-3bal. F. W. May. Dug domestic well, diameter 24 inches, depth 8.2 feet. Measuring point, top of concrete casing, 1.50 feet above land-surface datum, and 3,688.65 feet above mean sea level. Records available: 1948.

May 4	3.70	June 23	2.80	Aug. 24	4.99	Oct. 21	4.52
18	3.20	July 22	4.19	Sept. 22	5.28	Dec. 3	4.23

B10-3-3ba2. F. W. May. Drilled stock well, diameter 6 inches, depth 26.12 feet. Measuring point, top of steel casing, 0.5 foot above land-surface datum, and 3,687.4 feet above mean sea level. Records available: 1948.

May 4	5.90	June 23	3.50	Aug. 24	5.06	Dec. 3	5.37
18	6.00	July 22	4.59	Oct. 20	5.65		

B10-3-3bc. L. P. Barney. Drilled domestic and stock well, diameter 6 inches, depth 32.95 feet. Measuring point, top of concrete rim on pump pit, 0.5 foot above land-surface datum, and 3,691.04 feet above mean sea level. Records available: 1948.

May 4	4.45	June 23	3.05	Aug. 24	5.56	Oct. 21	5.10
18	3.25	July 22	5.08	Sept. 22	5.65	Dec. 3	5.40

B10-3-3cc. E. E. Stanfield. Dug stock well, diameter 24 inches, depth 8.5 feet. Measuring point, top of concrete casing, 0.8 foot above land-surface datum, and 3,700.69 feet above mean sea level. Records available: 1948.

May 4	3.20	June 23	2.20	Aug. 24	4.30	Oct. 21	3.64
18	2.80	July 22	3.36	Sept. 22	4.40	Dec. 3	3.47

B10-3-4ab. R. E. McGowan. Abandoned dug well, diameter 36 inches, depth 7.21 feet. Measuring point, 2-inch plank platform, 0.5 foot above land-surface datum, and 3,695.23 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 4	2.80	June 23	2.20	Aug. 24	4.21	Oct. 21	3.83
18	2.50	July 22	3.32	Sept. 22	4.33	Dec. 3	3.50

B10-3-4ba. H. Robinson. Dug domestic and stock well, diameter 30 inches, depth 8.5 feet. Measuring point, plank platform over well, 0.5 foot below land-surface datum, and 3,697.62 feet above mean sea level. Records available: 1948.

May 4	4.30	June 23	3.10	Aug. 24	5.74	Oct. 21	5.35
18	3.30	July 22	4.95	Sept. 22	5.74	Dec. 3	5.18

B10-3-5aa. Ellis. Dug irrigation well, diameter 36 inches, depth 8.42 feet. Measuring point, pump platform, 0.5 foot above land-surface datum, and 3,705.94 feet above mean sea level. Records available: 1948.

May 4	4.60	June 23	2.20	Aug. 23	3.34	Oct. 21	3.52
18	2.60	July 22	2.64	Sept. 22	4.10	Dec. 3	3.08

B10-3-5ad. Ellis. Dug and drilled irrigation well, diameter 60 inches, depth 56 feet. Measuring point, top of concrete casing, at land-surface datum, and 3,714.64 feet above mean sea level. Records available: 1948.

May 4	6.70	July 22	5.93	Aug. 24	7.25	Oct. 20	7.05
18	6.30	Aug. 23	12.88	Sept. 21	8.33	Dec. 3	6.86
June 22	5.60						

B10-3-5ba. Harold McCarl. Dug domestic and stock well, diameter 30 inches, depth 15.05 feet. Measuring point, top of pump platform, 0.8 foot above land-surface datum, and 3,715.80 feet above mean sea level. Records available: 1948.

Apr. 28	9.90	June 22	8.20	Aug. 21	8.59	Oct. 19	9.71
May 17	9.60	July 21	8.35	Sept. 20	9.51	Dec. 2	9.55

B10-3-5cb. Ray Melvin. Dug domestic well, diameter 24 inches, depth 24.1 feet. Measuring point, top of well platform, at land-surface datum, and 3,736.61 feet above mean sea level. Records available: 1948.

Apr. 28	17.00	June 22	14.50	Aug. 21	13.15	Oct. 19	14.68
May 17	16.90	July 21	13.50	Sept. 20	14.32	Dec. 2	14.61

B10-3-5dd1. Munger. Drilled irrigation well, diameter 6 inches, depth 33.60 feet. Measuring point, top of casing, 0.36 foot above land-surface datum, and 3,730.76 feet above mean sea level. Records available: 1948.

Apr. 28	4.34	June 22	3.14	Aug. 21	3.36	Oct. 19	4.46
May 17	3.84	July 21	2.64	Sept. 20	5.66	Dec. 2	4.26

B10-3-5dd2. Munger. Dug stock well, diameter 30 inches, depth 35.10 feet. Measuring point, 2-inch well platform, 0.25 foot above land-surface datum, and 3,726.85 feet above mean sea level. Records available: 1948.

Apr. 28	4.05	June 22	2.95	Aug. 21	3.75	Oct. 19	4.33
May 17	3.65	July 21	2.53	Sept. 20	5.84	Dec. 2	3.92

B10-3-6ac. Forest Vale Cemetery, Odd Fellow Addition. Dug irrigation well, diameter 72 inches, depth 35.4 feet. Measuring point, pump house floor, west side of trap door, 1.15 feet above land-surface datum, and 3,747.15 feet above mean sea level. Records available: 1948.

Apr. 27	20.75	June 22	16.95	Aug. 21	15.63	Oct. 19	17.97
May 17	20.85	July 21	16.13	Sept. 20	16.55		

B10-3-6bd. Forest Vale Cemetery. Dug and drilled irrigation well, diameter 72 inches, depth 90 feet. Measuring point, 2-inch floor planking on north side of trap door, 0.74 foot above land-surface datum, and 3,748.04 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	22.76	June 22	17.36	Aug. 21	23.44	Oct. 19	18.67
May 17	20.86	July 27	17.13	Sept. 20	18.29	Dec. 1	19.31

a Pumping recently.

B10-3-6ca. H. L. Posey. Dug domestic and stock well, diameter 40 inches, depth 26.7 feet. Measuring point, top of 2-inch planking, 0.5 foot above land-surface datum, and 3,754.85 feet above mean sea level. Records available: 1948.

Apr. 27	23.20	June 22	18.60	Aug. 21	18.64	Oct. 19	20.26
May 17	22.40	July 21	18.49	Sept. 20	19.80	Dec. 1	20.86

B10-3-6dal. E. D. Ludtke. Dug domestic and stock well, diameter 28 inches, depth 22.9 feet. Measuring point, top of plank platform, 0.38 foot above land-surface datum, and 3,738.28 feet above mean sea level. Records available: 1948.

Apr. 28	17.52	June 22	14.82	Aug. 21	13.65	Oct. 19	14.80
May 17	17.82	July 21	13.86	Sept. 20	14.25	Dec. 2	14.86

B10-3-6da2. Fredericks. Dug domestic well, diameter 30 inches, depth 17.8 feet. Measuring point, top of 2-inch pump platform, 5.21 feet below land-surface datum, and 3,736.59 feet above mean sea level. Records available: 1948.

Apr. 28	15.11	June 22	12.21	Aug. 21	10.67	Oct. 19	12.04
May 17	15.81	July 21	11.27	Sept. 20	11.99	Dec. 2	12.16

B10-3-6dd. Royston. Dug domestic well, diameter 48 inches, depth 47.2 feet. Measuring point, top of concrete casing, at land-surface datum, and 3,743.87 feet above mean sea level. Records available: 1948.

Apr. 28	13.70	June 22	11.10	Aug. 21	9.14	Oct. 19	10.66
May 17	13.50	July 21	9.59	Sept. 20	10.12	Dec. 2	10.47

B10-3-7aa1. Bryant. Dug and drilled domestic well, diameter 48 inches, depth 35 feet. Measuring point, north porch floor, at land-surface datum, and 3,756.06 feet above mean sea level. Records available: 1948.

Apr. 28	12.90	June 22	10.60	Aug. 21	7.49	Oct. 19	8.75
May 17	12.70	July 21	7.52	Sept. 20	9.19		

B10-3-7aa2. B. Menard. Dug domestic well, diameter 30 inches, depth 28.2 feet. Measuring point, top of 3-inch well cover, 0.63 foot above land-surface datum, and 3,759.93 feet above mean sea level. Records available: 1948.

Apr. 28	18.57	June 22	14.13	Aug. 21	11.59	Oct. 19	13.04
May 17	18.13	July 21	12.33	Sept. 20	12.36	Dec. 2	13.79

B10-3-7ac. Ashwood. Abandoned dug stock well, diameter 48 inches, depth 20.1 feet. Measuring point, pump base planking, 0.75 foot above land-surface datum, and 3,769.75 feet above mean sea level. Records available: 1948.

Apr. 27	14.65	June 22	8.35	Aug. 21	7.67	Oct. 19	8.71
May 17	13.65	July 21	7.83	Sept. 20	8.60	Dec. 2	8.40

B10-3-7ad1. E. K. Hilger. Dug irrigation well, diameter 36 inches, depth 36.2 feet. Measuring point, 2-inch plank platform, 1.0 foot above land-surface datum, and 3,766.92 feet above sea level. Records available: 1948.

Apr. 27	9.80	June 22	4.00	Aug. 21	4.91	Oct. 19	5.30
May 17	7.80	July 21	4.55	Sept. 20	5.64	Dec. 2	5.23

B10-3-7ad2. J. F. Hatcher. Dug and drilled irrigation well, diameter 30 inches, depth 42.6 feet. Measuring point, pump floor, at land-surface datum, and 3,762.85 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	11.50	June 22	6.20	Aug. 21	5.92	Oct. 19	6.68
May 17	10.40	July 21	5.94	Sept. 20	6.72	Dec. 2	6.54

B10-3-7cd. Porter Bros. Dug irrigation well, diameter 48 inches, depth 17.1 feet. Measuring point, 2-inch planking covering well, 0.84 foot below land-surface datum, and 3,795.06 feet above sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	9.94	June 22	4.24	Aug. 21	4.62	Oct. 19	5.49
May 17	7.34	July 21	3.39	Sept. 20	5.43	Dec. 2	5.64

B10-3-7dc. McHugh Dairy. Dug irrigation well, diameter 72 inches, depth 33 feet. Measuring point, 3-inch plank over steel casing, at land-surface datum, and 3,793.34 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	16.00	June 22	10.20	Aug. 21	10.01	Oct. 19	10.93
May 17	13.80	July 21	9.98	Sept. 20	10.80	Dec. 2	10.98

B10-3-8aa. Geo. N. Middlemas. Drilled irrigation well, diameter 6 inches, depth 35.5 feet. Measuring point, top of steel casing, 0.80 foot above land-surface datum, and 3,735.50 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	3.40	June 22	1.90	Aug. 21	2.12	Oct. 19	3.15
May 17	3.40	July 21	1.99	Sept. 20	2.72	Dec. 2	2.95

B10-3-8bc. Geo. N. Middlemas. Abandoned dug well, diameter 72 inches, depth 13.8 feet. Measuring point, floor over well, 2.22 feet above land-surface datum, and 3,756.02 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	8.78	June 22	4.48	Aug. 21	5.00	Oct. 19	5.39
May 17	7.68	July 21	4.45	Sept. 20	7.26	Dec. 2	5.23

B10-3-8cb. K. Monroe. Dug irrigation well, diameter 36 inches, depth 18.8 feet. Measuring point, 2-inch plank platform, at land-surface datum, and 3,762.22 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	10.70	June 22	5.00	Aug. 21	5.42	Oct. 19	6.73
May 17	8.40	July 21	6.07	Sept. 20	7.29	Dec. 2	6.85

B10-3-8cc. H. A. Lamb. Dug irrigation well, diameter 72 inches, depth 31.4 feet. Measuring point, 6-inch beam at top of ladder, 1.37 feet above land-surface datum, and 3,781.57 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	21.23	June 22	16.53	Aug. 21	12.95	Oct. 19	16.52
May 17	20.93	July 21	16.25	Sept. 20	15.49	Dec. 2	16.57

B10-3-8dd. H. A. Lamb. Dug stock well, diameter 48 inches, depth 11.7 feet. Measuring point, 2-inch planking over well, 1.44 feet above land-surface datum, and 3,749.44 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	6.66	June 22	4.66	Aug. 21	4.52	Oct. 19	4.98
May 17	6.86	July 21	5.28	Sept. 20	4.93	Dec. 2	5.06

B10-3-9da. Cain. Dug stock well, diameter 16 inches, depth 2.95 feet. Measuring point, top of steel casing, 0.90 foot above land-surface datum, and 3,714.07 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	1.10	June 23	0.60	Aug. 23	1.35	Oct. 20	1.10
18	1.10	July 22	1.15	Sept. 21	1.36	Dec. 3	.85

B10-3-9dd. Albert Olson. Dug irrigation well, diameter 24 inches, depth 7.62 feet. Measuring point, top of platform cover, 0.5 foot above land-surface datum, and 3,717.84 feet above mean sea level. Records available: 1948.

## B10-3-9dd--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	4.10	June 23	2.80	Aug. 23	4.60	Oct. 20	4.21
18	3.10	July 22	4.17	Sept. 21	4.10	Dec. 3	4.10

B10-3-10bb. Tom Herrin. Dug and drilled domestic and stock well, diameter 30 inches, depth 26.4 feet. Measuring point, top of tile casing, 1.12 feet below land-surface datum, and 3,706.88 feet above mean sea level. Records available: 1948.

May 4	6.12	June 28	5.82	Aug. 24	6.96	Oct. 21	6.25
18	6.52	July 22	6.54	Sept. 22	7.04	Dec. 3	6.32

B10-3-10cc. Camille Huber. Dug stock well, diameter 48 inches, depth 7.1 feet. Measuring point, top of wooden rim of casing, 0.9 foot above land-surface datum, and 3,724.51 feet above mean sea level. Records available: 1948.

May 3	4.10	June 24	2.90	Aug. 23	4.75	Oct. 20	4.49
18	3.60	July 22	4.27	Sept. 21	4.91	Dec. 3	4.37

B10-3-10dd. M. Warren. Dug domestic well, diameter 60 inches, depth 14.2 feet. Measuring point, top of platform, 0.66 foot above land-surface datum, and 3,738.26 feet above mean sea level. Records available: 1948.

May 3	12.34	June 23	7.74	Aug. 23	3.49	Oct. 20	5.84
18	10.64	July 22	3.84	Sept. 21	4.46	Dec. 3	7.29

B10-3-11ab1. E. K. Hilger. Dug irrigation well, diameter 72 inches, depth 36.5 feet. Measuring point, top of concrete casing, 0.78 foot above land-surface datum, and 3,725.38 feet above mean sea level. Records available: 1948.

May 6	17.52	June 24	14.82	Aug. 23	8.72	Oct. 21	11.40
19	17.07	July 23	11.69	Sept. 22	9.30	Dec. 3	12.89

B10-3-11ab2. E. K. Hilger. Dug irrigation well, diameter 72 inches, depth 37.6 feet. Measuring point, top of concrete casing, 1.12 feet above land-surface datum, and 3,725.62 feet above mean sea level. Records available: 1948.

May 6	18.48	June 24	16.58	Aug. 24	10.24	Oct. 21	12.08
19	17.68	July 23	13.73	Sept. 22	10.66	Dec. 3	13.55

B10-3-11ba. Donaldson. Dug irrigation well, diameter 72 inches, depth 37.1 feet. Measuring point, top of pump house, floor, at land-surface datum, and 3,722.90 feet above mean sea level. Records available: 1948.

May 5	15.80	June 24	12.00	Aug. 24	6.39	Oct. 20	9.40
19	15.00	July 23	8.71	Sept. 21	6.96	Dec. 5	11.16

B10-3-11cc. Chas. Olsen. Drilled irrigation well, diameter 12 inches, depth 54.7 feet. Measuring point, top of casing, 0.7 foot above land-surface datum, and 3,740.07 feet above mean sea level. Records available: 1948.

May 3	15.90	June 23	8.50	Aug. 23	3.57	Oct. 20	8.05
18	14.50	July 22	4.67	Sept. 21	4.57	Dec. 3	9.97

B10-3-14cb. John Rogan. Dug irrigation well, diameter 108 inches, depth 47.20 feet. Measuring point, top of planking over casing, 0.42 foot above land-surface datum, and 3,745.42 feet above sea level. Records available: 1948.

May 3	23.98	June 24	16.88	Aug. 23	9.81	Oct. 20	12.37
18	23.98	July 22	9.26	Sept. 21	11.45	Dec. 3	15.06

B10-3-14db. E. F. Peterson. Dug domestic and stock well, diameter 6 inches, depth 38.1 feet. Measuring point, top of pump platform, at land-surface datum, and 3,770.34 feet above mean sea level. Records available: 1948.

## B10-3-14db--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	29.40	June 24	24.20	Aug. 23	14.80	Oct. 20	18.25
18	28.30	July 22	18.88	Sept. 21	16.19	Dec. 3	20.51

B10-3-15abl. Burton. Dug stock well, diameter 40 inches, depth 7.5 feet. Measuring point, top of steel casing, 0.5 foot above land-surface datum, and 3,739.21 feet above mean sea level. Records available: 1948.

May 3	7.40	June 23	3.20	Aug. 23	3.70	Oct. 20	4.30
18	7.00	July 22	3.01	Sept. 21	3.95	Dec. 3	5.33

B10-3-15ab2. Schwartz. Abandoned dug irrigation well, diameter 48 inches, depth 8.8 feet. Measuring point, top of 2-inch platform, 0.5 foot above land-surface datum, and 3,735.43 feet above mean sea level. Records available: 1948.

May 3	7.50	June 23	2.90	Aug. 23	3.00	Oct. 20	3.66
18	6.40	July 22	1.92	Sept. 21	3.05	Dec. 3	4.54

B10-3-15ac. John Rogan. Dug domestic well, diameter 36 inches, depth 15.6 feet. Measuring point, top of pump platform, 0.4 foot above land-surface datum, and 3,745.42 feet above mean sea level. Records available: 1948.

May 3	7.80	June 24	4.60	Aug. 23	1.65	Oct. 20	3.21
18	6.70	July 22	3.91	Sept. 21	2.66	Dec. 3	3.86

B10-3-15ba. M. A. Halverson. Dug irrigation well, diameter 72 inches, depth 12.5 feet. Measuring point, top of wooden casing rim, 0.5 foot above land-surface datum, and 3,733.17 feet above mean sea level. Records available: 1948.

May 3	2.80	June 23	2.40	Aug. 23	3.05	Oct. 20	2.99
18	3.80	July 22	2.64	Sept. 21	3.41	Dec. 3	4.03

B10-3-15bd. B. H. Lichtwardt. Dug domestic and stock well, diameter 48 inches, depth 11.5 feet. Measuring point, top of concrete platform, 0.5 foot above land-surface datum, and 3,739.79 feet above mean sea level. Records available: 1948.

Apr. 30	4.40	June 23	3.60	Aug. 23	4.45	Oct. 20	4.64
May 18	3.80	July 22	4.53	Sept. 21	4.85	Dec. 3	4.61

B10-3-16ac. B. H. Lichtwardt. Abandoned dug well. Measuring point, 2-inch plank cover, 1.0 foot above land-surface datum, and 3,754.23 feet above mean sea level. Records available: 1948.

Apr. 30	14.30	June 23	12.90	Aug. 23	11.39	Oct. 20	13.12
May 18	14.30	July 22	12.29	Sept. 21	13.11	Dec. 2	13.35

B10-3-16bc. B. H. Lichtwardt. Drilled irrigation well, diameter 6 inches, depth 70 feet. Measuring point, end of discharge pipe, 2.64 feet above land-surface datum, and 3,773.14 feet above mean sea level. Records available: 1948.

Apr. 30	27.26	June 23	24.36	Aug. 21	22.34	Oct. 20	23.00
May 18	27.26	July 21	22.65	Sept. 21	22.47	Dec. 2	24.26

B10-3-16da. B. H. Lichtwardt. Dug domestic and stock well, diameter 16 inches, depth 10.8 feet. Measuring point, top of pump platform, 0.6 foot above land-surface datum, and 3,743.26 feet above mean sea level. Records available: 1948.

Apr. 30	3.90	June 23	2.40	Aug. 23	3.20	Oct. 20	3.55
May 18	3.90	July 22	3.10	Sept. 21	3.25	Dec. 3	3.80

B10-3-17bc. Resurrection Cemetery. Dug irrigation well, diameter 48 inches, depth 55.8 feet. Measuring point, top of concrete casing, 0.5 foot above land-surface datum, and 3,806.09 feet above mean sea level. Records available: 1948.

Apr. 27	42.30	June 22	40.50	Aug. 21	37.87	Oct. 19	35.64
May 17	42.40	July 21	44.09	Sept. 20	36.72	Dec. 2	34.63

a Pumping heavily.

B10-3-18ac. J. L. Yuhas. Dug and drilled irrigation well, diameter 8 inches, depth 57.0 feet. Measuring point, 3-inch planking over well, 0.63 foot above land-surface datum, and 3,825.73 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	37.57	June 22	33.37	Aug. 21	34.02	Oct. 19	33.84
May 17	37.37	July 21	34.34	Sept. 20	34.77	Dec. 2	34.07

B10-3-18ad. A. Wolf. Abandoned dug domestic well, diameter 36 inches, depth 48.9 feet. Measuring point, top of concrete casing, 1.0 foot above land-surface datum, and 3,812.71 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	40.30	June 22	38.00	Aug. 21	34.58	Oct. 19	33.55
May 17	40.10	July 21	36.36	Sept. 20	33.78	Dec. 2	32.56

B10-3-22aa1. W. W. Lichtwardt. Dug domestic well, diameter 36 inches, depth 24.3 feet. Measuring point, top of concrete porch platform, 2.32 feet above land-surface datum, and 3,769.82 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	15.48	June 23	7.18	Aug. 23	6.18	Oct. 20	6.13
18	14.48	July 22	7.32	Sept. 21	6.43	Dec. 3	8.45

B10-3-22aa2. W. W. Lichtwardt. Drilled stock well, diameter 6 inches, depth 56.2 feet. Measuring point, top of plank platform, 0.5 foot above land-surface datum, and 3,769.36 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	7.30	June 24	9.00	Aug. 23	6.50	Oct. 20	6.85
18	6.50	July 22	8.40	Sept. 21	6.50	Dec. 2	9.33

B10-3-22ab. G. Bompert. Abandoned dug well, diameter 36 inches, depth 17.9 feet. Measuring point, top of plank platform, 0.36 foot above land-surface datum, and 3,764.76 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	13.74	June 24	6.44	Aug. 23	5.55	Oct. 20	5.97
18	13.04	July 22	7.01	Sept. 21	6.29	Dec. 3	7.77

B10-3-22ba. James Bompert. Dug domestic and stock well, diameter 30 inches, depth 47.6 feet. Measuring point, top of 3-inch pump platform, 0.7 foot above land-surface datum, and 3,785.90 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 3	36.20	June 24	33.90	Aug. 23	31.80	Oct. 20	30.40
18	35.70	July 22	32.90	Sept. 21	31.75	Dec. 2	31.93

B10-3-22da. Truttau. Dug domestic and stock well, diameter 36 inches, depth 84 feet. Measuring point, top 2-inch pump platform, 1.75 feet above land-surface datum, and 3,825.15 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	67.25	June 24	61.15	Aug. 23	57.20	Oct. 20	56.55
18	64.65	July 22	57.65	Sept. 21	55.11	Dec. 2	59.65

B10-3-24cb. L. C. Henry. Abandoned dug well, diameter 30 inches, depth 46.5 feet. Measuring point, top of concrete casing, at land-surface datum, and 3,821.87 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 7	42.00	June 23	25.20	Aug. 25	21.35	Oct. 22	27.25
20	40.80	July 23	16.87	Sept. 22	24.54	Dec. 4	29.50

B10-3-24dc. Poe. Dug stock well, diameter 48 inches, depth 38 feet. Measuring point, top of platform, 0.15 foot below land-surface datum, and 3,838.05 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	17.95	June 24	7.95	Aug. 25	12.42	Oct. 21	18.52
20	15.45	July 23	8.36	Sept. 22	19.15	Dec. 4	25.50



B10-4-12da. A. L. Flacker. Dug domestic and stock well, diameter 40 inches, depth 19.2 feet. Measuring point, top of 2-inch planking, 0.16 foot above land-surface datum, and 3,801.86 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	11.54	June 22	4.04	Aug. 21	4.00	Oct. 19	5.37
May 17	8.74	July 21	3.33	Sept. 20	4.46	Dec. 1	5.75

B10-4-12dd. John Brass. Dug domestic and stock well, diameter 15 inches, depth 12 feet. Measuring point, top of 1-inch planking over well, 0.83 foot below land-surface datum, and 3,810.17 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	8.33	June 22	3.53	Aug. 21	5.15	Oct. 19	5.79
May 17	6.33	July 21	2.26	Sept. 20	5.33		

B10-4-13ab. W. U. Harrer. Dug domestic and stock well, diameter 40 inches, depth 15.6 feet. Measuring point, top of 1-inch plank platform, 0.59 foot above land-surface datum, and 3,820.89 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	9.21	June 22	1.21	Aug. 21	6.92	Oct. 19	7.87
May 17	7.01	July 21	4.16	Sept. 20	8.26	Dec. 1	7.93

B10-4-13da. A. Moser. Dug domestic and stock well, diameter 36 inches, depth 12.7 feet. Measuring point, top of 2-inch plank platform, 0.87 foot above land-surface datum, and 3,824.27 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 27	8.43	June 22	5.63	Aug. 21	6.80	Oct. 19	8.37
May 17	6.33	July 21	5.81	Sept. 20	8.46	Dec. 1	7.89

B11-2-19db. R. J. Frey. Dug domestic and stock well, diameter 60 inches, depth 50 feet. Measuring point, pump platform, 3.73 feet below land-surface datum, and 3,675.57 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 11	20.03	June 24	20.53	Aug. 24	19.48	Oct. 21	19.85
20	20.13	July 23	19.29	Sept. 22	20.17		

B11-2-31ac. Rose Austin. Abandoned dug well, diameter 24 inches, depth 12.9 feet. Measuring point, top of concrete casing, 2.31 feet above land-surface datum, and 3,684.61 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	8.09	June 24	6.49	Aug. 23	7.29	Oct. 21	8.08
20	8.59	July 23	7.19	Sept. 23	8.14	Dec. 4	8.11

B11-2-31bc. Munson Bros. Dug stock well, diameter 12 inches, depth 13.4 feet. Measuring point, top of concrete pump house floor, 0.5 foot above land-surface datum, and 3,674.3 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	1.40	June 24	2.00	Aug. 24	2.70	Oct. 21	2.12
20	1.90	July 26	2.34	Sept. 22	2.66	Dec. 4	1.81

B11-2-31cc. L. A. Ramsey. Dug domestic well, diameter 12 inches, depth 8.8 feet. Measuring point, top of steel casing, 1.5 feet above land-surface datum, and 3,686.66 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	4.10	June 24	3.80	Aug. 24	4.05	Oct. 21	4.17
20	4.50	July 26	4.03	Sept. 22	4.32	Dec. 4	4.17

B11-2-31cd. Munson Bros. Abandoned dug and driven well, diameter 12 inches, depth 18.1 feet. Measuring point, top of casing, 1.5 feet above land-surface datum, and 3,685.41 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	5.20	June 24	5.30	Aug. 24	5.95	Oct. 21	6.10
20	5.40	July 26	4.70	Sept. 22	6.19	Dec. 4	6.06

B11-2-31cd2. Holt. Dug irrigation pit, diameter 35 feet, depth 24 feet. Measuring point, top of pump platform, 0.5 foot above land-surface datum, and 3,685.57 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	2.50	June 24	2.40	Aug. 24	1.65	Oct. 21	1.69
20	2.60	July 26	1.63	Sept. 22	1.72		

B11-2-31db. Clife Merritt. Dug domestic and stock well, diameter 30 inches, depth 24.1 feet. Measuring point, top of pump platform, 0.35 foot above land-surface datum, and 3,696.35 feet above mean sea level. Records available: 1948.

May 10	20.65	June 24	20.75	Aug. 24	19.40	Oct. 21	20.08
20	20.75	July 23	19.55	Sept. 22	20.11	Dec. 4	20.14

B11-3-13cb. Chas. Vulk. Abandoned dug well, diameter 30 inches, depth 29 feet. Measuring point, top of concrete casing, 0.87 foot above land-surface datum, and 3,686.67 feet above mean sea level. Records available: 1948.

May 5	24.83	June 23	24.43	Aug. 23	20.61	Oct. 20	22.45
20	24.83	July 23	21.64	Sept. 21	21.97	Dec. 3	22.89

B11-3-13dd. North pumping station. Dug domestic well, diameter 48 inches, depth 9.35 feet. Measuring point, 2-inch plank platform, 1.0 foot above land-surface datum, and 3,658.41 feet above mean sea level. Records available: 1948.

May 5	5.80	June 23	4.30	Aug. 23	2.32	Oct. 20	4.11
20	6.60	July 23	3.77	Sept. 21	4.05	Dec. 2	4.42

B11-3-14bb. Miller. Dug domestic well, diameter 36 inches, depth 65 feet. Measuring point, pump platform, 0.2 foot above land-surface datum, and 3,746.40 feet above mean sea level. Records available: 1948.

May 5	60.70	June 23	62.30	Aug. 23	58.08	Oct. 20	58.22
20	62.80	July 23	58.84	Sept. 21	57.92	Dec. 3	58.99

B11-3-15bc. Wm. Darcy. Dug domestic and stock well, diameter 48 inches, depth 17.55 feet. Measuring point, pump platform, 6.5 feet below land-surface datum, and 3,707.51 feet above mean sea level. Records available: 1948.

May 5	16.50	June 23	10.50	Aug. 23	9.26	Oct. 20	12.94
20	15.70	July 23	8.42	Sept. 21	11.17	Dec. 2	13.40

B11-3-15cb. Victor Proul. Dug domestic and stock well, diameter 48 inches, depth 11.1 feet. Measuring point, pump platform, 0.3 foot above land-surface datum, and 3,695.30 feet above mean sea level. Records available: 1948.

May 5	8.90	June 23	6.30	Aug. 23	6.02	Oct. 20	8.65
20	8.40	July 22	6.01	Sept. 21	6.90		

B11-3-15dd. N. Stranberg. Abandoned dug well, diameter 36 inches, depth 13.25 feet. Measuring point, top of plank platform, 0.74 foot above land-surface datum, and 3,668.04 feet above mean sea level. Records available: 1948.

May 5	10.96	June 23	10.56	Aug. 23	8.56	Oct. 20	9.54
20	10.66	July 23	8.67	Sept. 21	9.48	Dec. 2	9.68

B11-3-16bc. E. F. Mote. Dug domestic well, diameter 60 inches, depth 37.52 feet. Measuring point, top of 1-inch platform cover, at land-surface datum, and 3,743.80 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
Apr. 30	32.30	June 22	29.40	Aug. 23	25.45
May 18	32.90	July 21	27.50	Sept. 21	25.66

B11-3-16cb. Dave Gentry. Drilled domestic and stock well, diameter 6 inches, depth 28.7 feet. Measuring point, top of casing, 1.34 feet above land-surface datum, and 3,731.64 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	21.86	June 22	17.64	Aug. 23	12.42	Oct. 20	16.13
May 18	21.96	July 21	10.84	Sept. 21	13.47	Dec. 2	17.90

B11-3-16dd. Amos Thompson. Abandoned dug well, diameter 24 inches, depth 8.7 feet. Measuring point, top of platform cover, 0.63 foot above land-surface datum, and 3,699.53 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	7.07	June 22	7.07	Aug. 23	6.01	Oct. 20	6.37
20	6.67	July 22	6.21	Sept. 21	7.02	Dec. 2	6.48

B11-3-17cd. Lutz. Dug and drilled domestic and stock well. Measuring point, 4-inch square sill over well, 0.2 foot above land-surface datum, and 3,739.63 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	25.40	June 22	17.80	Aug. 23	16.54	Oct. 20	19.27
May 18	25.60	July 21	13.78	Sept. 21	17.88	Dec. 2	20.40

B11-3-18dd. Wm. Taylor. Abandoned dug domestic and stock well, diameter 24 inches, depth 42.6 feet. Measuring point, top of plank pump platform, 0.86 foot above land-surface datum, and 3,754.86 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	38.44	June 22	36.94	Aug. 23	33.77	Oct. 20	34.29
May 18	38.64	July 21	34.97	Sept. 21	33.76	Dec. 2	34.65

B11-3-19ad. E. A. Chareilton. Drilled domestic well, diameter 6 inches, depth 63 feet. Measuring point, top of casing, 4.23 feet below land-surface datum, and 3,744.67 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	34.73	June 22	30.43	Aug. 21	28.34	Oct. 20	30.15
May 18	34.83	July 21	28.19	Sept. 21	30.49	Dec. 2	30.49

B11-3-21ab. Owner unknown. Observation well, diameter 2 inches, depth 4 feet. Measuring point, top of casing, 0.1 foot above land-surface datum, and 3,682.00 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	1.00	June 22	1.00	Aug. 24	1.30	Oct. 20	0.45
20	1.20	July 22	1.10	Sept. 21	1.39		

B11-3-21cd. Masonic Home. Domestic dug well, diameter 30 inches, depth 14.5 feet. Measuring point, top of concrete casing, 2.19 feet above land-surface datum, and 3,681.29 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	7.91	June 23	8.41	Aug. 23	6.33	Oct. 20	7.26
19	9.11	July 22	5.64	Sept. 21	7.02	Dec. 2	8.22

B11-3-21dc1. Masonic Home. Abandoned irrigation well, diameter 60 inches, depth 29.9 feet. Measuring point, top of concrete casing, 2.61 feet above land-surface datum, and 3,680.91 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	8.49	June 23	5.31	Aug. 24	4.56	Oct. 20	7.06
19	8.29	July 23	6.06	Sept. 21	5.78	Dec. 2	7.51

B11-3-21dc2. Masonic Home. Dug irrigation well, diameter 72 inches, depth 22.4 feet. Measuring point, wooden rim of casing, 1.25 feet above land-surface datum, and 3,681.35 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	10.15	June 23	10.35	Aug. 23	9.41	Oct. 20	9.97
19	10.45	July 23	9.58	Sept. 21	10.05	Dec. 21	10.16

B11-3-21dd. Urho Jarvi. Dug domestic and stock well, diameter 48 inches, depth 10.7 feet. Measuring point, top of well platform, at land-surface datum, and 3,669.92 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	7.80	June 23	6.90	Aug. 23	7.12
19	7.80	July 23	7.87	Sept. 21	5.27

B11-3-22cb. Owner unknown. Abandoned dug well, diameter 36 inches, depth 6.56 feet. Measuring point, rim of stone casing, at land-surface datum, and 3,665.00 feet above sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	4.30	June 23	4.50	Aug. 23	6.15	Oct. 20	6.00
19	4.20	July 23	5.55	Sept. 21	6.30	Dec. 2	5.22

B11-3-22cc. Chris Siewert. Dug domestic well, diameter 16 inches, depth 13.2 feet. Measuring point, top of platform cover, 1.0 foot above land-surface datum, and 3,667.42 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	7.40	June 23	7.60	Aug. 23	8.42	Oct. 20	8.76
19	7.10	July 23	8.10	Sept. 21	9.12	Dec. 3	8.25

B11-3-23bb. Pete Clausen. Dug and drilled domestic and stock well, diameter 24 inches, depth 90 feet. Measuring point, pump platform, 0.6 foot above land-surface datum, and 3,659.44 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
May 5	5.70	June 23	4.50	Aug. 23	3.91
20	5.40	July 23	3.12	Sept. 21	4.17

B11-3-25dc. F. Miller. Dug irrigation well, diameter 72 inches, depth 12 feet. Measuring point, pump platform, 0.5 foot above land-surface datum, and 3,672.94 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	5.70	June 24	6.20	Aug. 24	7.28	Oct. 21	6.50
20	6.10	July 26	6.29	Sept. 22	7.22	Dec. 4	6.04

B11-3-26dd. Lewis and Clark County. Observation well, diameter 2 inches, depth 4 feet. Measuring point, top of casing, 0.1 foot above land-surface datum, and 3,660.51 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 6	1.19	June 24	1.49	Aug. 24	2.69	Oct. 21	3.12
19	1.19	July 23	1.69	Sept. 22	3.40		

B11-3-28ac. John Hurmi. Observation well, diameter 2 inches, depth 4 feet. Measuring point, top of well casing, 0.1 foot above land-surface datum, and 3,662.8 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	0.03	June 23	0.13	Aug. 23	1.23	Oct. 20	1.52
19	.23	July 23	.53	Sept. 21	2.11	Dec. 2	1.46

B11-3-30ad1. W. Rossiter. Abandoned dug well, diameter 36 inches, depth 11.9 feet. Measuring point, 2-inch plank platform, 0.5 foot above land-surface datum, and 3,718.81 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 29	9.60	June 22	3.90	Aug. 21	5.25	Oct. 19	8.87
May 17	8.80	July 21	4.19	Sept. 21	5.88	Dec. 2	7.30

B11-3-30ad2. Harry Ebert. Dug and drilled domestic well, diameter 36 inches, depth 37.5 feet. Measuring point, top of pump platform, 3.4 feet below land-surface datum, and 3,713.30 feet above mean sea level. Records available: 1948.

## B11-3-30ad2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 29	8.60	June 22	4.40	Aug. 21	5.47	Oct. 19	6.33
May 17	8.60	July 21	4.04	Sept. 20	5.78	Dec. 2	6.50

B11-3-30cc. Quist. Dug stock well, diameter 36 inches, depth 26.4 feet. Measuring point, 2-inch plank platform, at land-surface datum, and 3,741.98 feet above mean sea level. Records available: 1948.

Apr. 29	26.30	June 22	18.20	Aug. 23	18.43	Oct. 20	20.02
May 17	25.20	July 21	17.02	Sept. 21	19.00	Dec. 2	22.49

B11-3-30da. Len Frank. Abandoned dug well, diameter 36 inches, depth 16 feet. Measuring point, top of plank covering over well, 0.4 foot above land-surface datum, and 3,711.99 feet above mean sea level. Records available: 1948.

Apr. 29	5.90	June 22	4.20	Aug. 21	4.66	Oct. 19	5.39
May 17	5.60	July 21	3.54	Sept. 20	5.32	Dec. 2	5.14

B11-3-31bb. Fred Bader. Abandoned dug well, diameter 36 inches, depth 21.3 feet. Measuring point, 2-inch plank platform over well, 2.0 feet below land-surface datum, and 3,723.00 feet above mean sea level. Records available: 1948.

Apr. 29	10.20	June 22	5.60	Aug. 23	5.80	Oct. 20	6.38
May 17	5.50	July 21	4.00	Sept. 21	6.18	Dec. 2	6.94

B11-3-31cc. Mills. Drilled irrigation well, diameter 6 inches, depth 110 feet. Measuring point, top of casing, 0.83 foot above land-surface datum, and 3,729.43 feet above mean sea level. Records available: 1948.

Apr. 29	11.07	June 22	9.37	Aug. 23	8.17	Oct. 20	8.82
May 17	10.87	July 21	8.62	Sept. 21	8.52	Dec. 2	9.04

B11-3-31da. Joe Parent. Dug stock well, diameter 36 inches, depth 10.93 feet. Measuring point, top of pump platform, at land-surface datum, and 3,715.45 feet above mean sea level. Records available: 1948.

Apr. 29	7.00	June 22	4.60	Aug. 21	5.82	Oct. 19	6.58
May 17	6.60	July 21	4.54	Sept. 20	6.60	Dec. 2	6.44

B11-3-32cc1. Ray Ehlers. Dug domestic well, diameter 48 inches, depth 12.33 feet. Measuring point, top of concrete pump platform, 5.7 feet below land-surface datum, and 3,715.80 feet above mean sea level. Records available: 1948.

Apr. 29	11.40	June 22	7.70	Aug. 21	9.00	Oct. 19	10.38
May 17	10.90	July 21	8.75	Sept. 20	10.06	Dec. 2	10.35

B11-3-32cc2. Ray Ehlers. Dug irrigation well, diameter 60 inches, depth 17.2 feet. Measuring point, 3-inch plank platform on south side of well, 1.0 foot below land-surface datum, and 3,719.29 feet above mean sea level. Records available: 1948.

Apr. 28	11.20	June 22	8.60	Aug. 21	9.12	Oct. 19	10.38
May 17	10.70	July 21	9.07	Sept. 20	10.08	Dec. 2	10.30

B11-3-32db1. Richard Kelly. Abandoned dug irrigation well, diameter 48 inches, depth 6 feet. Measuring point, top of northeast corner of 4-inch square upright of wooden casing, at land-surface datum, and 3,706.33 feet above mean sea level. Records available: 1948.

Apr. 28	3.10	June 22	2.80	Aug. 21	2.65	Oct. 19	4.06
May 17	3.30	July 21	2.62	Sept. 20	4.40	Dec. 2	3.66

B11-3-32db2. Richard Kelly. Dug irrigation well, diameter 60 inches, depth 8.2 feet. Measuring point, top of 2-inch pump platform, 1.0 foot above land-surface datum. Records available: 1948.

Apr. 28	2.10	June 22	2.00	Aug. 21	2.77	Oct. 19	2.66
May 17	2.40	July 21	2.20	Sept. 20	3.18	Dec. 2	2.40

B11-3-32dc. Antone Schartz. Dug irrigation well, diameter 36 inches, depth 15.9 feet. Measuring point, top of concrete casing, 1.87 feet above land-surface datum, and 3,713.77 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 28	6.03	June 22	5.53	Aug. 21	6.43	Oct. 19	7.34
May 17	6.23	July 21	4.43	Sept. 20	7.41	Dec. 2	6.97

B11-3-33cc. Wm. C. Thiel. Dug stock and irrigation well, diameter 30 inches, depth 7.92 feet. Measuring point, top of pump platform, 0.6 foot above land-surface datum, and 3,699.81 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 4	3.00	June 23	2.50	Aug. 24	3.92	Oct. 21	3.61
18	2.90	July 22	3.30	Sept. 22	4.25	Dec. 3	3.29

B11-3-34cc. Montana State Vocational School. Dug and drilled well, diameter 72 inches, depth 16.7 feet. Measuring point, top of concrete floor platform, 1.8 feet below land-surface datum, and 3,680.39 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 4	4.60	June 23	2.30	Aug. 24	4.69	Oct. 21	4.26
18	4.40	July 22	3.95	Sept. 22	4.65	Dec. 3	4.21

B11-3-35ac. Lewis and Clark County. Observation well, diameter 2 inches, depth 4 feet. Measuring point, top of casing, 0.1 foot above land-surface datum, and 3,671.55 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 6	1.00	June 24	1.40	Aug. 24	1.53	Oct. 21	0.85
19	1.80	July 23	2.80	Sept. 22	1.53		

B11-3-36cd. D. Gibson. Dug domestic and stock well, diameter 48 inches, depth 9.2 feet. Measuring point, top of pump platform, 0.7 foot above land-surface datum, and 3,682.06 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 5	2.70	June 24	2.60	Aug. 25	2.87	Oct. 21	2.54
19	2.90	July 23	3.00	Sept. 22	3.05	Dec. 4	2.47

B20-6-8da. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 15	11.49	May 21	8.95	July 23	9.94	Oct. 21	10.52
Mar. 4	11.32	27	9.00	Aug. 17	10.21	25	10.58
30	10.84	June 23	7.42	Sept. 10	10.37	Dec. 2	10.76
Apr. 23	10.45	July 5	9.12	Oct. 9	10.40		

### Lincoln County

B31-31-32db. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 14	9.50	Apr. 27	6.58	Aug. 12	9.65
Mar. 15	9.90	June 2	5.02	Dec. 15	11.96

### McCone County

A19-48-10db. Eldridge. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 16	29.31	Oct. 18	29.40	Dec. 16	29.06
Apr. 26	28.80	Dec. 6	29.01		

### Mineral County

B18-28-24dc. Walter Nettleton. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 12	7.57	Apr. 24	3.79	Dec. 13	6.70
Mar. 4	7.60	May 26	1.50		

Missoula County

B13-19-18ba. Owner unknown. Records available: 1942-48. Jan. 12, 27.30; Mar. 3, 28.00; Mar. 31, 27.75. Deepened and sealed; measurements discontinued.

Phillips County

A31-34-8ca. W. D. Miller. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	6.04	Mar. 25	6.71	June 16	3.49	Dec. 15	5.30
Feb. 6	6.31	Apr. 2	6.80	Aug. 19	2.65	17	5.25
Mar. 15	6.63	24	6.57	Sept. 22	5.75		

Powder River County

D5-51-33da. Broadus Rodeo Association. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	35.81	Apr. 28	35.68	Sept. 2	35.80	Nov. 11	35.10
Feb. 12	35.75	June 23	35.61	Oct. 14	35.23	Dec. 21	35.18
Mar. 17	35.75	July 28	35.80				

Prairie County

A11-50-17ac. A. Martin. Dug domestic well, diameter 3 feet, depth 21.2 feet. Measuring point, top of wooden casing, 1.08 feet above land-surface datum, and 2,249 feet above mean sea level. Records available: 1948. Aug. 26, 10.05; Sept. 24, 10.11; Nov. 26, 10.20; Dec. 22, 10.52.

A11-50-30aa. R. Gatfield. Dug domestic well, diameter 3 feet, depth 13.50 feet. Measuring point, top of wooden curbing, 2.1 feet above land-surface datum, and 2,246 feet above mean sea level. Records available: 1948. Aug. 2, 9.13; Sept. 24, 9.25; Nov. 26, 7.46; Dec. 22, 7.90.

A12-51-3dc. Owner unknown. Drilled stock well, diameter 4 inches, depth 67.6 feet. Measuring point, top of casing, 1.84 feet above land-surface datum, and 2,264.17 feet above mean sea level. Sept. 24, 7.89; Nov. 26, 8.43; Dec. 22, 8.50.

A12-51-16ac. L. Hubing. Drilled domestic well, diameter 6 inches, depth 26 feet. Measuring point, top of casing, 6.6 feet below land-surface datum, and 2,243.87 feet above mean sea level. Records available: 1948. Aug. 2, 20.49; Sept. 24, 19.20; Nov. 26, 20.75; Dec. 22, 19.15.

A12-51-16cb. Young. Driven well, diameter 2 inches, depth 11.9 feet. Measuring point, top of vertical pipe, 0.63 foot above land-surface datum, and 2,250.83 feet above mean sea level. Records available: 1948. Aug. 26, 10.93; Sept. 24, 10.95; Nov. 26, 10.92; Dec. 22, 11.02.

A12-51-16cd. G. Dickson. Drilled domestic well, diameter 6 inches, depth 47.3 feet. Measuring point, top of casing, 0.4 foot above land-surface datum, and 2,255.73 feet above mean sea level. Records available: 1948. Aug. 2, 20.57; Sept. 24, 20.31; Nov. 26, 20.13; Dec. 22, 20.05.

A12-51-16dc. H. C. Stith. Driven well, diameter 2 inches, depth 27.3 feet. Measuring point, top of casing, 0.3 foot above land-surface datum, and 2,256.22 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level
July 28	20.20	Sept. 24	19.98	Dec. 22	19.80
Aug. 2	20.15	Nov. 26	19.82		

A12-51-21ab. Kate Warner. Drilled well, diameter 6 inches, depth 42.6 feet. Measuring point is at land-surface datum, and 2,256.25 feet above mean sea level. Records available: 1948. Aug. 26, 22.78; Sept. 24, 22.54; Nov. 26, 22.36; Dec. 22, 23.79.

A12-52-1ad. A. Schwartz. Dug domestic well, diameter 2.7 feet, depth 33.4 feet. Measuring point, base of pump, 0.93 foot above land-surface datum, and 2,221 feet above mean sea level. Records available: 1948. Aug. 31, 31.12; Sept. 24, 31.09; Nov. 26, 31.03; Dec. 22, 31.22.

A13-52-34ac1. Owner unknown. Dug domestic well, diameter 2 feet, depth 29.2 feet. Measuring point, base of pump, 0.43 foot above land-surface datum, and 2,204.5 feet above mean sea level. Records available: 1948. Aug. 2, 18.93; Sept. 24, 18.89; Nov. 26, 18.86; Dec. 22, 18.89.

A13-52-34ac2. D. Caphart. Dug domestic well, diameter 3 feet, depth 18.8 feet. Measuring point, top of casing, 0.82 foot above land-surface datum, and 2,205 feet above mean sea level. Records available: 1948. Aug. 27, 16.54; Sept. 24, 16.66; Nov. 26, 16.38; Dec. 22, 16.34.

A13-52-34ad1. J. Kessler. Dug domestic well, diameter 2 feet, depth 19.3 feet. Measuring point, top of casing, 1.16 feet above land-surface datum, and 2,206 feet above mean sea level. Records available: 1948. Aug. 8, 15.81; Sept. 24, 15.79; Nov. 26, 15.77; Dec. 22, 15.79.

A13-52-34ad2. Congregational Church. Dug domestic well, diameter 2 feet, depth 17.4 feet. Measuring point, top of casing, 0.26 foot above land-surface datum, and 2,206 feet above mean sea level. Records available: 1948. Aug. 31, 15.92; Sept. 24, 15.79; Nov. 26, 15.69; Dec. 22, 15.69.

A13-52-34bd. A. Fisher. Dug domestic well, diameter 2 feet, depth 23.2 feet. Measuring point, base of pump, 0.2 foot above land-surface datum, and 2,227.3 feet above mean sea level. Records available: 1948. Aug. 2, 18.24; Sept. 24, 18.17; Nov. 26, 18.10; Dec. 22, 18.05.

A13-52-34ca1. Middlestaedt. Dug domestic well, diameter 3 feet, depth 21.9 feet. Measuring point, top of concrete casing, 0.45 foot above land-surface datum, and 2,238.6 feet above mean sea level. Records available: 1948. Aug. 27, 18.29; Sept. 24, 18.23; Nov. 26, 18.17; Dec. 22, 18.19.

A13-52-34ca2. Hoffer. Dug domestic well, diameter 2 feet, depth 17 feet. Measuring point, top of casing, 1.13 feet above land-surface datum, and 2,227.3 feet above mean sea level. Records available: 1948. Aug. 27, 15.13; Sept. 24, 14.98; Nov. 26, 14.87; Dec. 22, 14.94.

A13-52-34cb. Gifford. Dug domestic well, diameter 2.5 feet, depth 19.9 feet. Measuring point is at land-surface datum, and 2,225.3 feet above mean sea level. Records available: 1948. Aug. 27, 17.74; Sept. 24, 17.71; Nov. 26, 17.89; Dec. 22, 17.80.

A13-52-34da. F. Kaul, Sr. Dug domestic well, diameter 2.5 feet, depth 19.8 feet. Measuring point, top of casing, 0.5 foot above land-surface datum, and 2,205.5 feet above mean sea level. Records available: 1948. Aug. 28, 17.00; Sept. 24, 17.09; Nov. 26, 16.92; Dec. 22, 17.03.

A13-52-34db1. Ebeling. Dug domestic well, diameter 2.7 feet, depth 22.6 feet. Measuring point, top of concrete casing, 0.23 foot above land-surface datum, and 2,204.7 feet above mean sea level. Records available: 1948. Aug. 2, 19.25; Sept. 24, 19.21; Nov. 26, 19.18; Dec. 22, 19.02.

A13-52-34db2. Cristopp. Dug domestic well, diameter 3 feet, depth 22.8 feet. Measuring point, top of pump platform, 0.82 foot above land-surface datum, and 2,205 feet above mean sea level. Records available: 1948. Aug. 31, 19.73; Sept. 24, 19.75; Nov. 26, 19.65; Dec. 22, 19.68.

A13-52-35dc. Kirkpatrick. Drilled well, diameter 3 inches, depth 40 feet. Measuring point, top of casing, 0.45 foot above land-surface datum, and 2,312.45 feet above mean sea level. Records available: 1948. Sept. 24, 30.65; Nov. 26, 29.02; Dec. 22, 29.15.

A13-53-30ab. Owner unknown. Drilled domestic well, diameter 4 inches, depth 48.8 feet. Measuring point, top of casing, 0.44 foot above land-surface datum, and 2,203 feet above mean sea level. Records available: 1948. Sept. 20, 22.46; Nov. 26, 22.42; Dec. 22, 22.86.

#### Ravalli County

B7-20-18ab. Owner unknown. Records available: 1947-48. Feb. 27, 9.60; Mar. 31, 11.33; July 18, 6.52; Sept. 19, 8.18.

#### Roosevelt County

A27-48-10cb. Joseph Comrad. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 7	16.53	July 8	16.39	Dec. 6	16.02
May 7	16.14	Sept. 8	15.80		



## A27-48-12bc. Harry Johnston. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	21.60	Apr. 9	21.41	July 8	21.01	Nov. 3	20.74
Feb. 4	20.65	May 7	21.41	Sept. 8	20.65	Dec. 6	19.60
Mar. 3	21.53	June 15	21.02	Oct. 4	20.68		

## A27-49-7bb. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	7.38	Apr. 9	7.20	July 8	7.20	Nov. 3	7.63
Feb. 4	7.20	May 7	6.58	Sept. 8	6.95	Dec. 6	7.61
Mar. 3	7.87	June 15	6.50	Oct. 4	7.85		

## A27-51-9ca. Leo Combs. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	10.15	Apr. 9	9.98	July 8	8.97	Nov. 3	7.26
Feb. 4	10.80	May 11	9.06	Oct. 4	7.20	Dec. 3	9.87
Mar. 3	10.29	June 14	10.85				

## A27-52-8ac. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	66.65	Apr. 9	66.80	July 8	66.70	Nov. 2	66.69
Feb. 4	66.77	May 11	66.65	Sept. 7	66.76	Dec. 3	66.82
Mar. 3	66.77	June 14	67.00	Oct. 4	66.78		

## A27-52-8ad. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	65.35	Apr. 9	65.36	July 8	66.85	Nov. 2	65.60
Feb. 4	63.75	May 11	65.59	Sept. 7	65.85	Dec. 3	67.82
Mar. 3	(a)	June 14	65.63	Oct. 4	65.87		

a Reported dry.

## A27-52-16bd. Rattle Thunder. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	37.95	May 11	35.88	Sept. 7	36.52	Nov. 2	36.12
Feb. 4	37.52	June 14	37.63	Oct. 4	36.35	Dec. 3	37.34
Apr. 9	36.88	July 8	36.57				

## A28-49-34bd. Eddie Bear. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	35.15	Apr. 9	33.90	June 14	33.72	Sept. 8	33.83
Feb. 4	34.95	May 7	33.95	July 8	33.85	Oct. 4	33.75

## A28-49-35ca. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	17.00	Mar. 18	17.48	May 18	17.70	Oct. 4	17.78
10	16.98	Apr. 9	17.55	June 14	17.72	Nov. 3	17.91
Feb. 4	17.16	23	17.64	July 8	17.74	Dec. 1	17.90
Mar. 3	17.26	May 7	17.72	Sept. 8	17.60	6	18.04

## A28-50-33dc. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	20.07	Apr. 9	18.79	July 8	18.71	Oct. 4	18.15
Feb. 4	20.70	May 7	17.66	Sept. 8	18.60	Nov. 3	18.40
Mar. 3	19.78	June 14	18.45				

## A28-53-30dd. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	25.85	Apr. 8	26.47	July 7	26.61	Nov. 2	25.05
Feb. 4	26.88	May 11	25.70	Sept. 7	25.13	Dec. 3	26.02
Mar. 4	27.25	June 14	26.60	Oct. 5	24.73		

## A28-57-28dd. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	25.05	Mar. 18	25.48	May 13	24.75	Oct. 5	24.96
23	26.28	27	24.90	June 14	24.82	Nov. 2	25.15
Feb. 5	25.26	Apr. 8	25.10	July 7	24.84	Dec. 3	25.05
Mar. 4	25.20	May 11	25.01	Sept. 7	25.10		

A29-51-36aa. Bureau of Reclamation, U. S. Dept. of Interior. Observation well, diameter 2 inches, depth 3.5 feet. Measuring point, top of casing, 0.5 foot above land-surface datum, and 2,051.3 feet above mean sea level. Records available: 1947-48.

## A29-51-36aa--Continued.

Date	Water level	Date	Water level	Date	Water level
Oct. 27, 1947	2.16	June 15, 1948	1.87	Sept. 7, 1948	2.90
Dec. 3	2.23	July 7	2.98	Oct. 5	2.88
Feb. 4, 1948	2.16	Aug. 4	1.24	Dec. 3	1.76
May 12	.30				

A29-51-36bb. Bureau of Reclamation, U. S. Dept. of Interior. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 12	5.22	July 7	8.15	Sept. 7	8.84	Dec. 3	8.89
June 15	7.36	Aug. 4	8.59	Oct. 5	8.92		

A29-52-30ac. Bureau of Reclamation, U. S. Dept. of Interior. Observation well, diameter 2 inches, depth 85 feet (caved back). Measuring point, top of casing, 0.1 foot above land-surface datum, and 2,043.3 feet above mean sea level. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 27, 1947	4.61	June 15, 1948	4.23	Sept. 7, 1948	4.55		
Dec. 3	4.70	July 7	4.43	Oct. 5	4.70		
May 12, 1948	4.10	Aug. 4	4.25	Dec. 3	4.88		

A29-52-31cc. Bureau of Reclamation, U. S. Dept. of Interior. Observation well, diameter 2 inches, depth 31.5 feet. Measuring point, top of casing, 2,068.3 feet above mean sea level. Caved in on Dec. 3. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	8.55	May 12	8.10	July 7	8.09	Sept. 7	8.26
Feb. 4	8.52	June 15	7.95	Aug. 4	8.09	Oct. 5	8.08
Apr. 9	8.23						

## A30-53-29dd. Owner unknown. Records available: 1946-48.

Jan. 7	57.25	Mar. 4	57.31	July 7	57.25	Oct. 5	57.02
Feb. 4	57.23	May 11	57.16	Sept. 7	57.25	Dec. 3	57.12

## A30-55-1aa. Owner unknown. Records available: 1947-48.

Jan. 7	29.93	Apr. 8	28.13	July 7	29.18	Nov. 2	29.24
Feb. 5	29.40	May 11	29.19	Sept. 7	29.30	Dec. 3	29.13
Mar. 4	29.33	June 14	29.16	Oct. 5	29.16		

## A30-55-36ad. Owner unknown. Records available: 1946-48.

Jan. 7	10.01	Apr. 8	8.85	June 14	11.34	Oct. 5	23.88
Feb. 4	10.32	May 11	7.61	Sept. 7	18.15	Dec. 3	10.26
Mar. 4	10.81						

## A30-56-7cc. Christopherson. Records available: 1946-48.

Jan. 7	60.60	May 11	60.39	Sept. 7	60.41	Nov. 2	60.22
Mar. 4	60.50	June 14	60.30	Oct. 5	60.25	Dec. 3	61.24
Apr. 8	60.48	July 7	61.41				

## Sheridan County

## A31-55-24aa. Owner unknown. Records available: 1947-48.

Jan. 7	92.25	Mar. 4	92.11	May 11	92.24	July 7	92.40
Feb. 5	92.38	Apr. 8	92.38	June 14	92.15		

A31-55-27bc. Fish & Wildlife Service, U. S. Dept. of Interior. Records available: 1946-48.

Jan. 7	6.05	Apr. 8	4.55	July 7	4.85	Oct. 5	6.12
Feb. 5	6.00	May 11	3.91	Aug. 4	5.07	Nov. 2	5.40
Mar. 4	6.06	June 14	4.43	Sept. 7	5.62	Dec. 3	5.53

A31-56-30bb. Geological Survey, U. S. Dept. of Interior. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	55.20	Apr. 8	55.25	July 7	55.21	Oct. 5	55.13
Feb. 5	54.33	May 11	55.24	Aug. 4	55.46	Nov. 2	55.17
Mar. 4	55.25	June 14	55.46	Sept. 7	55.26	Dec. 3	55.14

A31-56-31bb. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	23.95	Apr. 8	23.92	July 7	23.92	Oct. 5	23.99
Feb. 5	23.95	May 11	23.78	Aug. 4	23.96	Nov. 2	24.01
Mar. 4	23.13	June 14	24.13	Sept. 7	24.01	Dec. 3	23.95

A32-56-31bb. Geological Survey, U. S. Dept. of Interior. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	33.60	Apr. 8	33.14	July 7	32.87	Oct. 5	33.30
Feb. 5	33.48	May 11	32.52	Aug. 4	33.07	Nov. 2	33.38
Mar. 4	33.72	June 14	32.46	Sept. 7	33.32	Dec. 3	33.48

A33-56-31bb. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	36.46	Apr. 8	36.47	July 7	36.09	Nov. 2	36.08
Feb. 5	36.55	May 11	36.21	Sept. 7	36.12	Dec. 3	36.10
Mar. 4	36.51	June 14	36.15	Oct. 5	36.05		

A33-57-33dd. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	68.75	Apr. 8	69.44	July 7	69.12	Oct. 5	68.90
Feb. 5	69.22	May 11	69.84	Aug. 4	70.46	Nov. 2	68.80
Mar. 4	69.41	June 14	69.10	Sept. 7	69.90	Dec. 3	68.93

A33-58-34bb. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	79.85	Apr. 8	81.31	July 7	80.97	Oct. 5	79.94
Feb. 5	80.83	May 11	81.27	Aug. 4	81.25	Nov. 2	79.95
Mar. 4	80.88	June 14	80.18	Sept. 7	81.14	Dec. 3	80.81

#### Stillwater County

D2-23-29ba. Alvin Southworth. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 5	7.83	June 7	9.78	Aug. 13	4.97	Oct. 19	3.87
Mar. 23	10.75	July 2	8.74	Sept. 30	3.15	Dec. 15	6.75
May 3	11.15	8	8.09	Oct. 6	5.17	17	6.73
8	11.25						

#### Sweetgrass County

A4-14-14ba. Spike VanCleave. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 13	14.45	July 26	6.64	Nov. 1	8.75
June 30	9.27	Oct. 5	6.59	Dec. 2	12.50

#### Teton County

B25-1-15ab. Don Meech. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	14.84	Mar. 1	15.02	June 10	12.60	Sept. 14	13.96
Feb. 6	14.90	May 8	14.55	Aug. 16	12.21	Dec. 2	14.47

#### Toole County

B36-2-8cc. Clyde Hannon. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	6.83	Mar. 4	7.00	May 8	3.20	Dec. 1	7.82
Feb. 3	6.95	Apr. 5	4.90	Aug. 10	4.65		

Valley County

A26-40-3bd. Owner unknown. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	(a)	Apr. 6	1.54	July 6	3.50	Sept. 8	7.88
Feb. 3	(a)	May 7	2.36	Aug. 3	5.48	Oct. 4	6.91
Mar. 1	5.35	June 7	2.23				

a Dry.

A26-45-1cb. George Conner. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 5	23.40	Mar. 1	24.54	May 7	23.31
Feb. 3	23.39	Apr. 6	23.85	June 7	23.90

A26-45-6aa. Owner unknown. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	21.85	Apr. 6	22.50	July 6	19.10	Oct. 4	17.87
Feb. 3	20.55	May 7	21.60	Aug. 3	18.85	Nov. 1	19.73
Mar. 1	22.14	June 7	20.29	Sept. 8	18.65	Dec. 2	20.08

A27-40-7ad (formerly A27-39-7ad). Owner unknown. Records available: 1946-48.

Jan. 5	8.90	Apr. 6	8.80	July 6	8.70	Oct. 4	9.37
Feb. 3	9.00	May 7	8.66	Aug. 3	9.03	Nov. 12	9.54
Mar. 1	9.12	June 7	8.51	Sept. 8	9.45		

A27-41-7bc. Mrs. Dan Oakland. Records available: 1946-48.

Jan. 5	(a)	Mar. 1	14.62	May 7	(a)	July 6	15.57
Feb. 3	(a)	Apr. 6	14.69	June 7	15.51		

a Dry.

A27-41-23bb. John Rowe. Records available: 1946-48.

Jan. 5	17.55	Apr. 6	17.85	July 6	18.27	Oct. 4	17.98
Feb. 3	17.55	May 7	17.96	Aug. 3	18.40	Nov. 1	18.12
Mar. 1	18.23	June 7	17.75	Sept. 8	18.75	Dec. 2	18.35

A27-43-22cd. Owner unknown. Records available: 1946-48.

Jan. 5	24.10	Apr. 6	24.91	July 6	24.31	Nov. 7	24.01
Feb. 3	24.38	May 7	24.30	Oct. 4	24.43	Dec. 2	24.46
Mar. 1	24.18	June 7	24.28				

A27-45-33dc. Eva Mae Smith. Records available: 1947-48.

Jan. 5	10.55	Apr. 6	11.95	July 6	7.79	Oct. 4	7.11
Feb. 3	11.25	May 7	10.42	Aug. 3	7.10	Nov. 1	8.40
Mar. 1	11.65	June 7	9.85	Sept. 8	6.62	Dec. 2	8.87

A28-38-1bb. Owner unknown. Records available: 1946-48.

Jan. 5	37.35	Apr. 6	37.62	July 6	37.32	Sept. 8	37.21
Feb. 3	37.58	May 7	37.57	Aug. 3	37.28	Oct. 4	37.02
Mar. 1	38.27	June 7	37.29				

A29-37-1aa (formerly A28-36-1aa). Owner unknown. Records available: 1946-48.

Jan. 5	91.35	Apr. 6	90.68	July 6	90.36	Sept. 8	90.52
Feb. 3	90.50	May 7	90.62	Aug. 3	90.54	Oct. 4	89.97
Mar. 1	91.16						

Yellowstone County

A4-33-1aa. Cross Service Station. Records available: 1948.

Jan. 6	10.81	Apr. 14	11.42	Aug. 19	8.99	Oct. 27	9.58
Feb. 6	11.21	July 8	9.15	Sept. 3	9.02	Nov. 12	9.91
Mar. 15	11.61	26	8.81	Oct. 7	8.75	Dec. 22	10.64

## OREGON

By F. A. Watkins

### PROGRAM OF WORK

The water-level program in Oregon was continued during 1948 in co-operation with the Oregon State Engineer. Throughout the year measurements were made at 66 wells. Descriptions of eight wells appear for the first time in this report; three wells were discontinued. Altogether, 522 measurements of water level or pressure head were made during the year; also included in this report are 9 measurements made prior to 1948. Two float gages were in operation throughout the year; in a third well a local observer made weekly tape measurements and at two other wells the owners made periodic readings of pressure head either with a pressure gage or water manometer tube.

During the year a preliminary report on ground-water occurrence near Beaverton, Washington County, was completed and released. In addition, field work was carried on in Lake County, and field work continued on a ground-water inventory of the Walla Walla River Basin, in Umatilla County.

### PRECIPITATION

The first of the two following tables shows average monthly and seasonal distribution of precipitation, in inches and in percentage of the whole, at two representative stations for 50 years of record. It also shows rainfall in percentage of the average for the water-year ending September 30, 1948. The second table shows, by provinces, the precipitation at 18 representative stations, in inches, and relative wetness, in percentage of the 50-year average, for the water-year ending September 30, 1948. Precipitation was above average throughout the State, ranging from 105.8 percent of normal at Newport, Lincoln County, to 169.0 percent at Umatilla, Umatilla County. Average for the State was 129.9 percent of normal. Snowfall was above average over most of the State. These data are taken from U. S. Weather Bureau records.

Monthly precipitation at two representative stations in the State of Oregon, in 1947-48, in percentage of the yearly average for the 50-year period ending September 30, 1940

Month	Portland Willamette Valley sub- province (western Oregon)			Baker Grande Ronde subprovince (eastern Oregon)		
	50-year average		1947-48	50-year average		1947-48
	Inches	Percent	Percent	Inches	Percent	Percent
October	2.80	7.2	24.8	0.74	6.6	14.6
November	6.05	15.5	8.5	1.02	9.0	11.8
December	6.66	17.0	12.3	1.23	10.9	4.3
January	5.80	14.9	17.2	1.19	10.6	6.7
February	4.74	12.1	16.4	1.06	9.4	11.4
March	3.92	10.0	10.5	1.05	9.3	13.8
Subtotal	29.97	76.7	89.7	6.29	55.8	62.6
April	2.73	7.0	11.7	.98	8.7	13.5
May	1.93	4.9	9.9	1.25	11.1	17.1
June	1.48	3.8	3.6	1.10	9.7	17.7
July	.48	1.2	.8	.48	4.3	6.2
August	.61	1.6	4.0	.46	4.1	5.9
September	1.86	4.8	9.9	.71	6.3	2.2
Subtotal	9.09	23.3	39.9	4.98	44.2	62.6
The year	39.06	100.0	129.6	11.27	100.0	125.2

Precipitation and relative wetness for the year ending Sept. 30, 1948, at 18 representative climatologic stations in the State of Oregon

Province	Station and county	Precipitation, 1947-48	
		Inches	Percentage of 50-year average <sup>a</sup>
Northern Coast Ranges	Ashland, Jackson	27.26	138.4
	Astoria, Clatsop	93.51	121.2
	Bandon, Coos	71.44	113.5
	Grants Pass, Josephine	33.98	115.7
	Newport, Lincoln	69.52	105.8
Puget-Willamette Trough	Albany, Linn	48.98	120.9
	Eugene, Lane <sup>b</sup>	46.38	123.0
	Falls City, Polk	81.30	112.5
	Portland, Multnomah	50.64	129.6
	Salem, Marion	48.90	127.8
Columbia Plateau	Zigzag, Clackamas	c 98.10	123.3
	Baker, Baker	14.11	125.2
	Bend, Deschutes	20.87	164.6
	La Grande, Union	27.53	143.7
	The Dalles, Wasco	18.55	137.3
Basin and Range	Umatilla, Umatilla	12.66	169.0
	Harney Branch Experiment Station, Harney	11.52	127.3
	Klamath Falls, Klamath	18.11	138.9

a Average for years ending Sept. 30, 1891, to 1940.

b Station moved to Eugene Airport July 1945.

c Estimated in minor part.

#### FLUCTUATIONS OF WATER LEVEL

##### Willamette Valley subprovince

Four rounds of water-level measurements were made in 13 wells and three rounds in 2 wells. In well IN/1-34N1 (US 107), at Portland, 11 measurements were made. This well taps confined water in alluvium. In well 15/4W-32M1, at Junction City, 47 tape measurements were made by a

local observer. In addition, the descriptions of three wells appear in this report for the first time. Altogether, 161 measurements of water level were made in 19 wells in 1948.

In 14 wells for which comparable measurements were available, the September-end water levels were 0.42 foot higher in 1948 than in 1947.

Wells in the Willamette Valley subprovince are listed under Benton, Lane, Linn, Marion, Multnomah, Washington, and Yamhill Counties.

#### Deschutes River subprovince

##### Prineville area

In the Prineville area three rounds of water-level measurements were made in five wells and one well was discontinued. Altogether, 23 measurements of water level or pressure head were made in 1948. One pressure gage and one water manometer tube were in use throughout the year.

In three wells having comparable records, two drawing water from the Pleistocene (?) artesian aquifer in an area of heavy pumping, show a rise of 1.80 feet while the other, which is about 3.5 miles northwest of Prineville and out of the area of heavy pumping, shows a rise of 8.45 feet over the year-end level of 1947.

Records for observation wells in the Prineville area are listed under Crook County.

##### The Dalles area

Rounds of water-level measurements were made in four wells in The Dalles area. These are new observation wells and their descriptions appear in this report for the first time along with seven measurements of water level made in 1948 and eight made prior to 1948. In the one well for which comparable measurements were available, the year-end water level in 1948 was 25.67 feet above the year-end level of 1947, a rise which may have resulted from decreased pumpage.

Wells in The Dalles area are listed under Wasco County.

#### Summer Lake subprovince

In the Fort Rock Valley three rounds of measurements were made in six wells, one well was discontinued, another was added to replace it and two rounds were made on the new well. In one well in the Chewaucan River Valley three rounds of measurements were made in 1948. Water levels in October 1948 were, on the average, 0.35 foot lower than in October 1947. Records for these wells are listed under Lake County.

## Walla Walla subprovince

In the Walla Walla Basin 8 rounds of water-level measurements were made in 15 wells by W. C. Mason, local watermaster. In addition, a float gage was maintained throughout the year in one well and read at biweekly intervals by the owner. In all, 212 measurements of water level were made in 1948.

In the 15 wells, the September 1948 levels were, on the average, 2.06 feet above the September 1947 levels. In well 6N/35-36H1 the highest level of the year occurred in July--1.82 feet above the high of 1947 which occurred in May. Wells in the Walla Walla Basin are listed under Umatilla County.

## Harney Basin subprovince

Three rounds of water-level measurements were made on eight wells and two rounds on one well in 1948. A local observer took weekly readings at one well equipped with a float gage. Altogether, 84 measurements of water level were made in 1948. At the float-gage well, 23/31-33E1, the September-end water level of 1948 was 0.05 foot above the September-end water level of 1947, but the high water level of 1948--in June--was 0.50 foot below the high level of 1947, which also occurred in June. On the average, the water levels of October 1948 were slightly above those of October 1947. Records for these wells are listed under Harney County.

## Grande Ronde subprovince

In the Grande Ronde subprovince observation wells are in both the Baker (Powder River) and the Grande Ronde valleys. Two rounds of water-level measurements were made on three wells in the Baker Valley and one well was temporarily discontinued. Water levels in the three wells were higher in July 1948 than in October 1947. Two rounds of water levels were also made on three wells in the Grande Ronde Valley. At these three wells the water levels were slightly higher in July 1948 than in October 1947. Records for wells in these two valleys are listed under Baker and Union Counties.

## WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

The following records of water levels in observation wells are given by counties in alphabetical sequence, with the names of the respective ground-water subprovinces indicated after each county name. Under each



county the records are given in order of well numbers, the system of which has been described in Water-Supply Paper 990, page 19.

Baker County - Baker Valley

Grande Ronde subprovince

7/39-20N1. City of Baker. Permanent observation well. Taps shallow water in alluvium. Records available: 1936; 1938-48. Mar. 16, 3.10; July 22, 3.70.

8/39-22F1. Baker County. Permanent observation well. Taps shallow water in alluvium. Records available: 1936; 1938-48. Mar. 16, 3.82; July 22, 4.27.

8/40-19D1. Baker County. Permanent observation well. Taps shallow water in alluvium. Records available: 1936; 1938-48. Mar. 16, 3.33; July 22, 4.10.

8/40-23A1. Baker County. Permanent observation well. Taps shallow water in alluvium. Records available: 1936; 1938-48. Measurements temporarily discontinued.

Benton County

Willamette Valley subprovince

14/5W-10R1. Chris Lindseth. Taps water in old (?) alluvium. Records available: 1938-48. Mar. 12, 9.54; July 18, 13.47; Sept. 10, 15.54; Dec. 10, 12.01.

Crook County

Deschutes River subprovince

14/15-11B1. Earl Forest. Records available: 1947. Measurements discontinued.

14/15-15Q1. M. D. Colahan. Flowing artesian well; pressure-gage readings by owner. Records available: 1945-48. Feb. 9, 56.0; Mar. 10, 60.0; Aug. 6, 51.5; Oct. 27, 72.75.

14/16-19H1. Leslie Clauson. Water from sandy material of Pleistocene (?) lacustrine sediments. Records available: 1947-48. Mar. 19, 17.51; Aug. 5, 4.50; Oct. 27, 7.89.

14/16-32N1. E. E. Wagoner. Originally flowing artesian well at present drawn down by adjacent pumped wells so that water level is below land-surface most of the year. Records available: 1944-48. Mar. 19, 7.49; Oct. 27, 7.53.

15/16-5D1. Pacific Power & Light Co. Water from alluvium along Ochoco Creek. Records available: 1947-48. Mar. 19, 6.45; Oct. 27, 6.61.

15/16-6A1. M. E. Gerow. Flowing artesian well. Records available: 1943-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 16	10.0	May 19	5.5	June 20	6.17	Oct. 27	7.0
Feb. 15	5.0	Apr. 2	4.0	Sept. 1	3.0		6.95
Mar. 10	4.0	May 31	2.5	Oct. 1	6.0	Dec. 7	8.0

Harney County

## Harney Basin subprovince

22/31-34N1. Frank Whiting. Taps confined water in Danforth formation. Records available: 1936-48. Mar. 17, 10.40; Aug. 3, 10.02; Oct. 26, 11.63.

23/31-3D2. Harney County. Water-table well. Records available: 1936; 1938-48. Mar. 17, 6.09; Aug. 3, 6.03; Oct. 26, 7.39.

23/31-14A3. Harney County. Water-table well. Records available: 1936; 1938-48. Mar. 17, 10.04; Aug. 3, 8.38; Oct. 26, 9.83.

23/31-16E1. Harney County. Water-table well. Records available: 1936; 1938-48. Mar. 17, 7.13; Aug. 4, 6.09; Oct. 26, 7.36.

23/31-33E1. Harney County. Water-table well. Records available: 1936; 1938-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	6.68	Apr. 11	5.42	July 11	2.92	Oct. 3	6.47
11	6.33	18	5.31	18	3.39	10	6.53
18	6.30	25	5.20	25	3.94	17	6.61
25	6.31	28	5.08	28	4.16	24	6.69
27	6.33	May 2	4.78	Aug. 1	4.42	26	6.70
Feb. 1	6.33	9	3.84	4	4.55	28	6.71
8	6.45	16	3.02	8	4.86	Nov. 7	6.67
15	6.55	23	2.08	15	5.21	14	6.75
22	6.49	28	2.00	22	5.50	21	6.78
28	6.26	June 6	1.54	28	5.68	28	6.78
Mar. 7	6.17	13	1.47	Sept. 5	5.96	Dec. 5	6.75
14	6.13	20	1.40	12	6.13	12	6.50
17	6.14	27	2.26	19	6.30	19	6.45
21	6.07	28	2.28	26	6.41	26	6.46
28	5.63	July 4	2.58	28	6.41	28	6.51
Apr. 4	5.52						

23/32-7L1. Harney Branch Experiment Station. Water table well. Records available: 1933-48. Mar. 17, 7.83; Aug. 4, 3.91; Oct. 26, 7.10.

23/32-7L2. Harney Branch Experiment Station. Taps confined water in deep valley fill. Records available: 1933-48. Mar. 17, 6.09; Oct. 26, 6.82.

23/32-30R1. Harney County. Water-table well. Records available: 1936; 1938-48. Mar. 17, 11.77; Aug. 4, 11.76; Oct. 26, 11.75.

24/31-28E1. Harney County. Water-table well. Records available: 1936; 1938-48. Mar. 17, 9.88; Aug. 4, 8.59; Oct. 26, 9.47.

Lake County - Fort Rock Valley

## Summer Lake subprovince

25/14-15E1. Soil Conservation Service. Taps confined water. Records available: 1932; 1935-36; 1938-48. Mar. 18, 48.95; Aug. 5, 48.77; Oct. 22, 52.88.

26/15-22B1. Soil Conservation Service. Records available: 1932; 1935-36; 1938-48. Measurements discontinued; replaced by 26/15-22B2.

26/15-22B2. Soil Conservation Service. NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 22, T. 26 S., R. 15 E. This well replaces well 26/15-22B1 which was destroyed.  $3\frac{1}{2}$  miles south and  $6\frac{1}{2}$  east of Fort Rock, 150 feet south of road, 21 feet east of concrete engine base. Drilled well, diameter 12 inches, depth 83 feet. Water from lacustrine sediments. Land-surface datum is about 4,313 feet above sea level. Records available: 1948. Aug. 5, 27.86; Oct. 24, 27.85.

27/15-4G1. H. M. Parks. Taps confined water. Records available: 1932; 1935-36; 1938-48. Mar. 18, 41.59; Aug. 5, 43.36; pumping 1,000 gallons a minute; Oct. 24, 41.54.

27/15-4G2. H. M. Parks. Taps confined water. Records available: 1932; 1935-36; 1938-48. Mar. 18, 43.00; Aug. 5, 43.44; Oct. 25, 43.02.

27/17-22R2. W. D. Collins. Water-table well. Records available: 1938; 1940-48. Mar. 18, 28.22; Aug. 5, 28.28; Oct. 19, 28.26.

27/18-6E2. W. D. Collins. Water-table well. Records available: 1940-48. Mar. 18, 24.11; Aug. 5, 24.23; Oct. 19, 24.27.

27/18-7N1. Rolly Hardin. Formerly owned by Mr. Martin. Taps water table. Records available: 1938-48. Mar. 18, 26.96; Aug. 5, 27.96; Oct. 19, 27.13.

36/21-6B1. C. W. E. Jennings. Water-table well. Records available: 1941-48. Mar. 18, 14.23; Aug. 4, 13.70; Oct. 26, 13.60.

#### Lane County

##### Willamette Valley subprovince

15/4W-32M1. Junction City. Taps water in gravel. Records available: 1928-30; 1935-36; 1938-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	3.74	Mar. 27	4.71	June 26	6.48	Oct. 16	8.87
10	4.12	Apr. 8	4.75	July 3	7.12	23	9.10
17	4.53	15	4.77	10	7.54	30	9.24
24	5.10	22	4.81	17	8.84	Nov. 6	9.01
31	5.41	29	4.85	24	8.72	13	8.45
Feb. 7	3.91	May 8	5.21	31	9.12	20	7.81
14	3.97	15	5.29	Aug. 9	9.10	27	6.02
21	4.21	22	5.31	14	9.00	Dec. 4	5.41
28	4.46	29	5.84	21	8.92	10	3.85
Mar. 6	4.51	June 5	6.01	28	8.64	11	5.10
12	4.93	12	6.11	Sept. 10	9.10	18	4.80
13	4.58	18	6.28	Oct. 2	8.71	25	4.63
20	4.65	19	6.29	9	8.76		

16/3W-32G1. Leo Sidwell. Taps water in young alluvium. Records available: 1928-30; 1935-36; 1938-48. Mar. 12, 8.71; June 18, 10.44; Sept. 10, 11.94; Dec. 10, 8.36.

#### Linn County

##### Willamette Valley subprovince

10/4W-12F1. Henry Hoefler. Taps water in gravel. Records available: 1928-30; 1935-36; 1938-48. Mar. 12, 17.56; June 18, 19.35; Sept. 10, 22.48; Dec. 10, 16.08.

11/5W-36Q1. E. L. Beach. Taps water in old (?) alluvium. Records available: 1929-30; 1935-36; 1938-48. Mar. 12, 15.62; June 18, 19.36; Dec. 10, 15.07.

12/2W-14B1. Sigurd H. Lanstrom. Taps water in alluvium. Records available: 1941-48. Mar. 12, 5.78; June 18, 7.80; Sept. 10, 9.73; Dec. 10, 4.35.

12/3W-9R1. J. H. Swatzka. Taps water in old alluvium. Records available: 1928-30; 1935-36; 1938-48. Mar. 12, 2.82; June 18, 12.85, pumping; Sept. 10, 15.07; Dec. 10, 1.94.

#### Marion County

##### Willamette Valley subprovince

4/1W-2C1. W. F. Keil. Taps water in valley fill. Records available: 1938-48. Mar. 11, 2.62; June 17, 3.93; Sept. 13, 16.10; Dec. 9, 0.65.

4/1W-23G1. Ben Burch. Taps water in old alluvium. Records available: 1947-48. Mar. 11, 54.30; June 17, 53.45; Sept. 13, 52.30; Dec. 9, 51.81.

4/2W-4C1. W. J. Gering. Taps water in young alluvium. Records available: 1928-30; 1935-36; 1938-48. Mar. 11, 10.31; June 17, 11.36; Sept. 13, 14.46; Dec. 9, 9.89.

4/2W-34R1. Johnson School. Taps water in valley fill. Records available: 1928-30; 1935-36; 1938-48. Mar. 11, 2.06; June 17, 7.56; Sept. 13, 15.84; Dec. 9, 0.71.

5/2W-25M1. Agricultural Research Corporation (Sam H. Brown). Taps confined water in sand and gravel. Records available: 1938-48. Mar. 11, 13.74; June 17, 15.89; Sept. 13, 22.13; Dec. 9, 16.85.

6/3W-33R1. Gideon E. Stolz. Taps water in gravel and cobbles. Records available: 1929-30; 1935-36; 1938-48. June 17, 20.96; Sept. 13, 27.08; Dec. 9, 22.96.

6/1-7M1. Fred Lucht. Taps water in gravel. Records available: 1928-30; 1935-36; 1938-48. Mar. 11, 1.34; June 17, 5.39; Sept. 13, 11.61; Dec. 9, 0.12.

#### Multnomah County

##### Willamette Valley subprovince

1N/1-34N1. Weisfield & Goldberg. Taps confined water in alluvium. Records available: 1941-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	31.70	Apr. 30	30.08	Aug. 2	a 32.88	Nov. 2	a 32.63
Feb. 27	31.40	June 1	a 26.33	30	a 34.74	30	a 33.13
Mar. 31	29.32	28	a 28.79	Oct. 4	a 35.02		

a Pumping.

#### Umatilla County - Walla Walla Basin

##### Walla Walla subprovince

5N/35-1C1. John Clark. Water-table well. Records available: 1933-48.

Jan. 23	17.30	Apr. 6	17.90	June 19	18.79	Sept. 20	22.88
Mar. 4	16.72	May 12	13.25	July 29	21.34	Nov. 5	22.35

5N/35-2C1. E. J. McSherry. Water-table well. Records available: 1933-48.

Jan. 23	18.25	Apr. 6	18.56	June 19	14.03	Sept. 20	10.30
Mar. 4	18.36	May 12	17.65	July 29	13.78	Nov. 5	16.58

5N/35-3H1. J. M. Morse Estate. Water-table well. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	35.68	Apr. 6	37.12	June 19	21.22	Sept. 20	17.52
Mar. 4	(a)	May 12	33.08	July 29	17.50	Nov. 5	34.24

a Dry.

6N/35-13R1. M. O. Beauchamp. Water-table well. Records available: 1933-48.

Jan. 23	5.54	Apr. 6	7.64	June 19	5.49	Sept. 20	7.12
Mar. 4	7.32	May 12	6.75	July 29	5.85	Nov. 5	6.63

6N/35-14L1. Conrad Miller. Water-table well. Records available: 1933-48.

Jan. 23	7.61	Apr. 6	10.15	June 19	9.62	Sept. 20	8.67
Mar. 4	9.19	May 12	9.58	July 29	8.15	Nov. 5	9.29

6N/35-20G1. McBride. Water-table well. Records available: 1933-48.

Jan. 23	6.65	Apr. 6	8.39	June 19	5.59	Sept. 20	20.67
Mar. 4	7.95	May 12	4.97	July 29	(a)	Nov. 5	5.68

a Dry.

6N/35-20Q1. R. P. Lile. Water-table well. Records available: 1933-48.

Jan. 23	35.41	Apr. 6	(a)	June 19	32.10	Sept. 20	34.61
Mar. 4	(a)	May 12	32.40	July 29	32.73	Nov. 5	32.19

a Dry.

6N/35-24Q1. C. B. Miller. Water-table well. Records available: 1933-48.

Jan. 23	10.55	Apr. 6	10.16	June 19	14.08	Sept. 20	13.59
Mar. 4	10.10	May 12	9.36	July 29	7.65	Nov. 5	11.29

6N/35-26C2. Earl Ransom. Water-table well. Records available: 1933-48.

Jan. 23	20.85	Apr. 6	22.04	July 29	15.02	Nov. 5	22.30
Mar. 4	21.15	May 12	20.26	Sept. 20	14.35		

6N/35-28H1. W. J. Rand. Water-table well. Records available: 1933-48.

Jan. 23	13.49	Apr. 6	13.60	June 19	11.61	Sept. 20	10.67
Mar. 4	13.51	May 12	11.33	July 29	10.67	Nov. 5	11.06

6N/35-28N1. Lottie McKnight. Water-table well. Records available: 1933-48.

Jan. 23	23.89	Apr. 6	24.49	June 19	16.06	Sept. 20	18.08
Mar. 4	26.44	May 12	17.41	July 29	16.73	Nov. 5	12.98

6N/35-30M1. Thad Shepherd. Water-table well. Records available: 1933-48.

Jan. 23	21.21	Apr. 6	21.05	June 19	17.19	Sept. 20	26.27
Mar. 4	26.65	May 12	17.76	July 29	17.81	Nov. 5	22.39

6N/35-3401. Alpha Reese. Water-table well. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	48.19	Apr. 6	50.14	June 19	35.29	Sept. 20	35.43
Mar. 4	49.43	May 12	46.07	July 29	37.22	Nov. 5	47.18

6N/35-3601. Mr. Redfern. Water-table well. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	16.61	Apr. 6	15.32	June 19	11.82	Sept. 20	31.78
Mar. 4	15.04	May 12	11.84	July 29	31.55	Nov. 5	20.87

6N/35-36H1. U. S. 108. Walter Hermann. Water-table well. Records available: 1933-48.

Jan. 6	18.88	Apr. 12	13.72	June 28	9.75	Sept. 28	24.45
13	16.91	15	13.73	July 2	8.68	Oct. 3	25.28
15	16.08	18	13.58	6	8.26	6	25.95
19	15.25	22	13.29	8	8.50	11	24.19
21	15.09	26	13.10	14	10.36	16	22.26
23 a	15.10	28	13.06	18	12.12	20	21.15
28	15.14	May 3	13.06	23	14.71	22	21.34
Feb. 3	15.83	5	13.06	28	17.35	25	21.17
10	17.18	6	12.96	29 a	17.55	27	21.55
12	17.45	8	13.07	Aug. 4	18.65	29	21.71
15	17.97	10	13.17	7	19.79	Nov. 4	22.47
19	18.62	12 a	12.93	9	20.33	5 a	22.54
21	18.56	14	12.64	14	22.35	7	22.50
23	18.29	17	11.90	17	22.92	11	22.63
25	17.94	19	11.47	20	23.60	15	23.15
Mar. 4	15.56	23	11.00	23	23.79	17	23.38
4 a	15.49	25	10.86	28	23.57	22	23.66
7	15.01	28	10.72	Sept. 2	24.02	29	23.54
15	14.57	June 5	11.05	6	24.71	Dec. 3	20.80
22	14.53	9	10.59	9	25.29	9	20.52
28	14.34	14	10.43	18	25.50	12	20.51
29	14.28	17	10.50	20 a	25.21	16	19.96
Apr. 2	14.03	19 a	10.57	22	24.54	19	19.91
5	13.84	20	10.42	24	24.44	23	20.56
6 a	13.79	24	10.56	27	24.44	30	21.30
10	13.67						

a Tape measurement by W. C. Mason, watermaster, District 5.

#### Union County - Grande Ronde Valley

##### Grande Ronde subprovince

1/39-17L1. A. F. Furman. Water-table well. Records available: 1940-48. Mar. 16, 19.42; July 22, 18.05.

3/38-10B1. Union County. Water-table well. Records available: 1936; 1938-48. Mar. 16, 5.79; July 22, 6.66.

3/38-25B1. Union County. Water-table well. Records available: 1936; 1938-48. Mar. 16, 6.07; July 22, 6.70.

#### Wasco County

##### Deschutes River subprovince

1N/13-23D1. Well 65 in Water Supply Paper 659-B. Cherry Hill District Improvement Co. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 23, T. 1 N., R. 13 E., about 2 miles south of The Dalles and 0.2 mile southeast of Three Mile Creek, in cherry orchard. Drilled well, diameter 12 inches, depth 301 feet. Water from Yakima basalt. Land-surface datum is 323 feet above sea level. Measurements are from readings of air depth gauge reported to be calibrated to read depth below land surface. Records available: 1947-48. Oct. 10, 1947, 220; Mar. 15, 1948, 224; July 13, 1948, 230.

1N/13-32G1. Milton Martin. SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 32, T. 1 N., R. 13 E., about  $4\frac{1}{2}$  miles south of The Dalles on Three Mile Creek, about 400 feet south of road and 200 feet northeast of house. Drilled well, diameter 8 inches, depth 336 feet. Flowing artesian water from basalt. Land-surface datum is about 1,170 feet above sea level. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
Oct. 1946	a 140	May 6, 1947	c 70.80	Oct. 10, 1947	e 121.62
May 4, 1947	abl21.62		ad144.72	Mar. 15, 1948	d144.72

a Reported.

b Immediately after flowing 800 gallons a minute.

c Flowing 800-900 gallons a minute.

d Static condition.

e Flowing 200-300 gallons a minute.

1N/13-32H1. Earl Lash. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 32, T. 1 N., R. 13 E., about  $4\frac{1}{2}$  miles south of The Dalles on Three Mile Creek, about 200 feet south of the road, in frame pumphouse. Drilled well, diameter 6 inches, depth 179 feet. Flowing artesian water from basalt. Land-surface datum is about 1,200 feet above sea level. Water levels from pressure gage readings. Records available: 1947-48. May 5, 1947, 29.72, flowing about 64 gallons a minute; Oct. 10, 1947, 43.58, nearby well flowing; Mar. 15, 1948, 56.5.

2N/12-25R1. Ward Weber. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 25, T. 2 N., R. 12 E., about 3 miles northwest of The Dalles on Chenoweth Creek, about 50 feet southeast of road, in small frame pumphouse in cherry orchard. Drilled well, diameter 8 inches, depth 443 feet. Water from sandstone in The Dalles formation. Land-surface datum is about 500 feet above sea level. Records available: 1947-48. Oct. 9, 1947, 142.00; Mar. 15, 1948, 108.81; July 13, 1948, 116.7; Oct. 21, 1948, 116.33.

### Washington County

#### Willamette Valley subprovince

1/1W-28C2. Ray Kuiken. NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 28, T. 1 S., R. 1 W., about 1.8 miles southwest of Beaverton, 60 feet west of house, under small frame pumphouse. Drilled well, diameter 6 inches, depth 161 feet. Water from basalt. Land-surface datum is about 330 feet above sea level. Records available: 1948. Measurements discontinued after June 10.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	141.42	Mar. 1	141.33	Mar. 24	140.69	Apr. 22	141.30
27	140.00	4	141.08	Apr. 12	142.11	May 5	142.45
Feb. 3	139.29	10	140.54	14	141.78	21	141.41
17	140.93	13	140.33	16	142.32	June 10	142.89
28	141.71	18	140.42				

1/1W-2R1. Elinore Shively. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 21, T. 1 S., R. 1 W. About 1.5 miles southwest of Beaverton, 50 feet northwest of house under frame pumphouse. Drilled well, diameter 6 inches, depth 141 feet. Water from basalt. Land-surface datum is about 285 feet above sea level. Records available: 1948.

Feb. 26	100.21	Apr. 16	101.03	May 5	98.91	June 10	101.83
Apr. 12	100.76	18	100.90	21	100.02	Oct. 13	105.23
15	100.26	22	100.17				

1/1-21Q2. Guy Woodworth. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 21, T. 1 S., R. 1 W. About 1.6 miles southwest of Beaverton, 15 feet west of house under small frame building. Drilled well, diameter 6 inches, depth 164 feet. Water from basalt. Land-surface datum is about 345 feet above sea level. Water level affected by pumpage from nearby city well. Records available: 1948.

Jan. 23	153.16	Feb. 26	155.86	Mar. 24	154.68	May 5	155.15
Feb. 3	152.83	Mar. 4	154.52	Apr. 12	156.55	21	155.88
5	153.88	10	153.99	16	158.28	June 22	160.27
10	155.70	13	153.39	22	154.71	Oct. 13	161.89
17	155.42						

Yamhill County

Willamette Valley subprovince

5/5W-13B1. George Fuller. Taps confined water in gravel and sand. Records available: 1928-30; 1935-36; 1938-48. Mar. 11, 10.05; June 17, 13.43; Sept. 13, 30.69, pumping; Dec. 9, 10.22.



## UTAH

By W. B. Nelson and R. G. Butler

### PROGRAM OF WORK

Ground-water investigations in Utah, in cooperation with the State Engineer, have been in progress since 1935. These investigations include two interrelated programs which may be designated as (1) a yearly State-wide inventory of ground-water storage based on periodic measurements and on continuous records of water-level fluctuations in selected wells in each of the ground-water basins, and (2) detailed studies of individual basins to determine the source, movement, and disposal of the ground water, and to show the relation of present development to the maximum economic development that is possible in those areas.

The relative amounts of water stored from year to year in underground reservoirs may be determined from the measurements of water levels in wells in much the same way that storage in a surface reservoir is determined from observation of its stages. Records of water-level fluctuations in wells are useful, also, in determining periods and amounts of natural recharge, the effects of natural and artificial discharge, the direction of movement of the water, and in many other ways. The usefulness of the measurements increases, in general, with the length of the record. Long-period records are especially valuable in the detailed studies of the source, movement, and disposal of ground water in individual basins. The State-wide program thus serves, not only as a yearly inventory of ground-water storage, but also as a source of basic data for subsequent detailed studies.

The State-wide inventory now includes records of measurements in 42 ground-water areas, which include most of the regions in which wells have been developed in the State. In each of these areas the selected observation wells are measured periodically with a steel tape or, in the case of a flowing well, with a mercury manometer gage. In many of the areas one or more wells are equipped with continuous recording water-stage or pressure

gages which are serviced once a week. During 1948 a total of 1,925 measurements was made in 574 wells, and 26 water-stage and pressure recorders were maintained. The data thus collected are summarized in the following pages.

Measurements of water levels were made by the Salt Lake City Corporation in Salt Lake County and by the Bureau of Reclamation in Wasatch County.

During the year, Technical Publication No. 5 was included in the Twenty-sixth Biennial Report of the Utah State Engineer that was published early in 1949. The title of this report is: Ground Water in the East Shore Area, Utah - Part I, Bountiful District, Davis County, by H. E. Thomas and W. B. Nelson. Detailed investigations were made in Escalante Valley, Sanpete Valley, Ashley Valley, Juab Valley, and the Weber Delta of the East Shore Area.

#### FLUCTUATIONS OF WATER LEVEL

Utah lies within three ground-water provinces as outlined by Meinzer.<sup>1</sup> These are the Southwestern Bolson, the Montana-Arizona plateau, and the Northern Rocky Mountains province, which are approximately coextensive with the Utah portions of the Basin and Range, the Colorado Plateau, and the Middle Rocky Mountains physiographic provinces as outlined by Fenneman.<sup>2</sup> The characteristics peculiar to each of these ground-water provinces were described in an earlier report.<sup>3</sup> Each of the three provinces has been divided into several ground-water areas, and for each area representative observation wells have been selected to show the changes in water levels each year. The net rise or decline of level is the mathematical average of the changes in water-levels in the selected wells making up a group, and may differ considerably from the changes in individual wells in the area. A summary of the water levels for the period 1935-45 is given in an earlier report.<sup>4</sup>

1 Meinzer, O. E., The occurrence of ground water in the United States: U. S. Geol. Survey Water-Supply Paper 489, pp. 309-314, 1923.

2 Fenneman, N. M., Physical divisions of the United States: U. S. Geol. Survey map, 1930.

3 Thomas, H. E., and Bach, W. K., Utah, in Water levels and artesian pressure in observation wells in the United States in 1940: U. S. Geol. Survey Water-Supply Paper 910, p. 35, 1941.

4 Thomas, H. E., and Nelson, W. B., Utah, in Water levels and artesian pressure in observation wells in the United States in 1945, Pt. 5, Northwestern States: U. S. Geol. Survey Water-Supply Paper 1027, pp. 101-102, 1948.

Average water-level changes during 1948 in groups of observation wells in areas within the Southwestern Bolson province ranged from -2.9 to +2.1 feet. Water levels in the Flowell area of Millard County continued to rise and attained the highest levels recorded at any time since 1929, but in most of the areas water levels declined slightly. Precipitation over the larger part of the Utah portion of the province was from 1 to 3 inches less than normal. Development of ground water in Escalante Valley, in Iron and Washington Counties, continued on a large scale during the year from applications filed with the State Engineer prior to the closing of the area to new applications in 1946 by his office.

All but three of the areas under observation in the Montana-Arizona Plateau province showed a decline in water levels during 1948. Precipitation was less than normal at most Weather Bureau stations in the area.

Water levels declined slightly in most of the observation wells in the Northern Rocky Mountains province. Precipitation at Weather Bureau stations in the area in general was less than normal.

#### WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Observation wells in Utah are listed alphabetically by counties, and numerically within the ground-water areas. Wells are listed by their coordinate number in numerical order under each area or district.<sup>5</sup> The State claim or application number is that used in the State Engineer's records. Claim numbers refer to wells in existence when the State ground-water law went into effect in March 1935, and application numbers refer to wells developed subsequently. The table includes data concerning depth, diameter, measuring point, and similar information concerning new observation wells not published previously. All other wells have been listed in Water-Supply Paper 1100. The following list shows for each well the location or coordinate number; the State claim or application number; the name of the owner; and the years for which records of measurements are available. Thereafter the dates of water-level measurements in 1948 are listed. All measurements listed are below land-surface datum unless otherwise indicated. Wells that were discharging by artesian flow when visited were closed 10 minutes before taking the artesian pressure.

<sup>5</sup> For description of the well-numbering system used in Utah, see Thomas, H. E., and Bach, W. K., op. cit., p. 38.

The following table shows the number of observation wells in Utah by counties and areas within the counties, the number that have been discontinued, the number of automatic water-stage and pressure recorders in use, and the number of periodic measurements included in the report. The numbers in parentheses following the names of the ground-water areas in the table correspond to numbers on the map indicating the areas. (See fig. 4 in Water-Supply Paper 1027.)

Distribution, by counties and areas, of observation wells in Utah in 1948

County and area	Number of observa- tion wells		Number of periodic measure- ments	Wells with record- ing gages	
	During 1948	Discontinued during year		Throughout year	Part of year
Beaver					
Beaver Valley (4)	6	0	21	0	0
Escalante Valley (1)	23	1	117	0	1
Box Elder					
East Shore area (15)	11	0	59	0	0
Lower Bear River Valley (18)	6	0	11	0	0
Mantua Valley (16)	1	0	3	0	0
Blue Spring Valley (19)	3	0	3	0	0
Curlew Valley (20)	3	0	3	0	0
Grouse Creek Valley (23)	3	0	3	0	0
Park Valley (22)	6	0	6	0	0
Raft River Valley	3	0	3	0	0
Cache					
Cache Valley (17)	18	0	31	1	0
Carbon	1	0	0	0	0
Davis					
East Shore area (15)					
Layton District	10	1	27	0	0
Bountiful District	21	0	36	3	0
Duchesne					
Uinta Basin (31)	20	0	66	0	0
Garfield					
East Sevier Valley (26)	5	0	13	0	0
Upper Sevier Valley (25)	3	0	9	0	0
Grand					
Colorado River area (32)					
Courthouse Syncline	2	0	9	0	0
Green River Desert	1	0	5	0	0
Moab-Spanish Valley	2	0	7	0	0
Iron					
Cedar City Valley (2)					
Coal Creek District	6	0	18	1	0
Enoch District	4	0	7	0	0
Hamilton Fort District	2	0	3	0	0
Iron Springs District	5	0	10	0	0
Kanarraville District	3	0	8	0	0
Midvalley District	5	0	8	0	0
Queatchupah District	3	0	6	0	0
Rush Lake District	3	0	4	0	0
Escalante Valley (1)	34	1	147	0	0
Parowan Valley (3)					
Buckhorn District	3	0	5	0	0
Little Salt Lake District	5	0	25	0	0

## Distribution, by counties and areas, of observation wells in Utah in 1948--Continued

County and area	Number of observa- tion wells		Number of periodic measure- ments	Wells with record- ing gages	
	During 1948	Discontinued during year		Throughout year	Part of year
Iron-Continued					
Paragonah District	2	0	13	0	0
Parowan District	6	0	39	0	0
Summit District	1	0	2	0	0
Juab					
Juab Valley (8)					
Chicken Creek District	2	0	3	0	0
Salt Creek District	5	0	13	0	0
Snake Valley (7)	4	0	4	0	0
Millard					
Escalante Valley (1)	4	0	7	0	0
Pavant Valley (5)					
Fillmore District	0	0	0	0	0
Flowell District	3	0	6	1	0
Hatton District	6	0	12	0	0
Kanosh District	4	0	3	0	0
Meadow District	2	0	2	0	0
Pavant District	4	0	11	0	0
Sevier Desert (6)	16	0	41	0	0
Snake Valley (7)	6	0	4	0	0
Morgan					
Morgan Valley (37)	11	0	11	0	0
Piute					
Grass Valley (28)	2	0	5	0	0
Upper Sevier Valley (26)	2	0	6	0	0
Rich					
Bear Lake Valley (40)	11	0	11	0	0
Upper Bear River Valley (39)	7	0	7	0	0
Salt Lake					
Jordan Valley (14)	31	0	141	3	0
San Juan					
San Juan River area (33)					
Moab-Spanish Valley	1	0	1	0	0
Church Rock Syncline	6	0	9	0	0
LaSal Valley	1	0	2	0	0
Sage Plain	11	0	62	1	0
Sanpete					
Central Sevier Valley (29)	9	0	19	0	0
Sanpete Valley (30)	20	0	40	1	1
Sevier					
Central Sevier Valley (29)		0		0	0
Grass Valley (28)	3	0	3	0	0
Summit					
Weber Canyon	1	0	0	0	0
Kimball Valley (36)	2	0	2	0	0
Rhodes Valley (35)	5	0	5	0	0
Tooele					
Rush Valley (12)	10	0	15	0	0
Salt Lake Desert	0	0	0	0	0
Tooele Valley (13)					
Burmester District	6	0	6	0	0
Erda District	6	0	130	1	0
Grantsville District	6	0	10	1	0
Lake Point District	3	0	4	0	0
Marshall District	2	0	5	0	0
Uintah					
Uinta Basin (31)	32	2	334	0	1

## Distribution, by counties and areas, of observation wells in Utah in 1948--Continued

County and area	Number of observa- tion wells		Number of periodic measure- ments	Wells with record- ing gages	
	During 1948	Discontinued during year		Throughout year	Part of year
Utah					
Cedar Valley (11)	1	0	1	0	0
Goshen Valley (9)	2	0	4	0	0
Utah Lake Valley (10)					
North Utah Basin	20	0	28	2	0
South Utah Basin	15	0	22	0	0
Wasatch					
Heber Valley (34)	7	0	34	3	0
Washington					
Escalante Valley (1)	3	0	6	0	0
Virgin River Area (24)	1	0	2	0	0
Wayne					
Fremont Valley (27)	3	0	3	0	0
Weber					
East Shore area (15)	35	1	133	3	0
Ogden Valley (38)	2	0	0	2	0
Totals	577	6	1928	23	3

Beaver County - Beaver Valley

(C-28-7)16aaa 1. Records available: 1941-48. Mar. 9, 53.00; July 12, 53.64.

(C-28-7)21daa 1. E. F. Baldwin. Records available: 1935-48. Mar. 9, 22.59; July 12, 16.43; Dec. 2, 19.70.

(C-29-7)3cbb 1. Harry Hodges. Records available: 1938-48. Mar. 9, 19.24; July 13, 13.91; Dec. 2, 20.29.

(C-29-7)17odd 1. State claim 6919. Drought Relief Administration. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 9	17.82	Aug. 25	9.71	Oct. 25	16.93	Dec. 2	21.14
July 13	1.75	Sept. 25	15.73	Nov. 26	20.78		

(C-29-7)28dbd 1. James Nowers. Records available: 1935-48. Mar. 9, 17.77; July 13, 13.56; Dec. 2, 18.92.

(C-29-8)25cac 1. State claim 13115. Beaver School District. Records available: 1936-48. Well flowing prior to measurements. Mar. 9, +12.3; July 13, +12.0; Dec. 2, +13.2.

Beaver County - Escalante Valley<sup>6</sup>

(C-26-10)32cad 1. State claim 10257. Burton Smithson. Records available: 1936-48. Mar. 10, 11.50; Dec. 3, 13.69.

(C-27-10)18da. Hazel Cannon. Records available: 1941-48. Mar. 10, 12.75; July 14, 13.30; Dec. 3, 13.84.

(C-28-10)8cdd-1. J. R. Murdock. Records available: 1940-48.

Jan. 25	1.94	Mar. 27	1.43	June 30	3.35	Oct. 5	a 3.06
Mar. 3	1.13	Apr. 30	2.10	July 29	4.28	24	a 3.97
10	1.20	May 30	2.91	Aug. 31	4.69	Nov. 30	3.44

a Pumping.

6 For other wells in this valley see pages 110-112, 115, 143-144.

(C-28-10)19add 1. State claim 6564. J. A. Kirk and Sam Cline. Records available: 1936-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	3.20	Apr. 28	a 13.97	July 13	a 17.30	Oct. 5	5.48
Mar. 3	2.54	May 30	a 15.03	Aug. 29	a 20.56	Nov. 28	4.46
10	2.44	June 30	a 17.34	Aug. 31	a 20.03	Nov. 30	4.80
27	1.81						

a Pumping.

(C-28-10)29cdc 1. State application 11742. J. H. Hanlon. Records available: 1938-45; 1948.

Jan. 25	8.60	Apr. 28	a 21.50	July 29	a 26.97	Oct. 28	10.98
Mar. 1	8.09	May 30	a 25.80	Aug. 31	a 24.48	Nov. 30	10.20
27	7.92	June 30	a 27.32	Oct. 5	a 24.59	Dec. 3	10.12

a Pumping.

(C-28-10)33aba-2. Duluth Land Co. Records available: 1943-48. Well destroyed; measurements discontinued after May 23.

Date	Water level	Date	Water level	Date	Water level
Jan. 25	23.47	Mar. 10	24.83	Apr. 28	25.51
Mar. 1	24.55	27	25.33	May 23	22.45

(C-28-11)22dab 1. Houston & Goff. Records available: 1941-48. July 14, 32.70; Dec. 3, 32.72.

(C-28-11)36add 1. State of Utah. Records available: 1932-34; 1938-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	9.58	Mar. 27	8.14	July 13	12.00	Oct. 2	14.06
Feb. 29	8.71	Apr. 24	6.57	27	13.33	28	13.11
Mar. 1	8.71	May 27	9.13	Aug. 31	14.44	Nov. 30	11.96
10	8.55	June 30	10.98				

(C-28-10)6ded 1. State claim 13116. Duluth Land Co., Milford. Records available: 1935-48.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.55	29.18	.....	28.67	29.08	.....	29.99	30.33	30.25	29.83	30.28	.....
2	29.54	29.11	.....	.....	29.10	.....	29.94	30.37	30.24	29.86	30.29	.....
3	29.54	.....	28.76	.....	29.13	.....	29.95	30.39	30.21	29.90	30.29	.....
4	.....	.....	28.77	28.74	29.15	.....	30.00	.....	30.17	.....	30.33	30.37
5	.....	.....	28.77	28.76	29.18	.....	30.07	.....	30.13	.....	.....	30.38
6	.....	.....	28.74	28.78	29.20	29.59	30.12	.....	30.06	.....	.....	30.37
7	.....	.....	28.73	28.81	29.22	29.57	.....	.....	30.08	.....	.....	30.39
8	.....	.....	28.71	28.83	29.25	29.59	.....	.....	30.08	.....	.....	30.39
9	.....	.....	28.68	28.84	29.30	29.59	30.22	30.18	30.08	.....	.....	30.39
10	.....	.....	.....	28.83	29.32	29.63	30.23	30.16	30.10	.....	.....	.....
11	.....	.....	.....	28.84	29.35	29.66	30.23	30.18	30.12	.....	.....	30.38
12	.....	.....	.....	.....	29.38	29.67	30.25	30.19	30.16	.....	.....	30.36
13	.....	.....	.....	.....	29.40	29.68	30.27	30.20	30.20	.....	.....	30.33
14	.....	.....	.....	.....	29.40	.....	30.29	30.24	30.23	.....	.....	30.30
15	.....	.....	.....	.....	29.40	.....	30.29	30.26	30.23	.....	.....	30.29
16	.....	.....	.....	.....	29.36	.....	30.25	.....	30.08	.....	.....	30.27
17	.....	.....	.....	.....	29.32	.....	30.19	.....	29.71	.....	.....	30.25
18	.....	.....	.....	28.91	29.31	.....	30.19	.....	29.38	.....	.....	.....
19	.....	.....	.....	28.92	29.37	.....	30.21	.....	29.18	.....	.....	.....
20	.....	.....	.....	28.92	29.40	.....	30.21	.....	29.29	.....	.....	30.22
21	.....	.....	.....	28.92	29.43	29.55	30.22	.....	.....	.....	.....	30.22
22	.....	.....	.....	28.92	29.50	29.57	30.27	.....	.....	.....	.....	30.21
23	.....	.....	.....	28.94	29.55	29.63	30.32	30.30	.....	.....	.....	30.20
24	.....	.....	.....	28.98	29.60	29.67	30.33	30.32	.....	.....	.....	30.24
25	.....	.....	.....	29.03	29.63	29.74	30.35	30.34	.....	.....	.....	30.27

a Water in old river channel.

(C-29-10)6ded 1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	.....	.....	28.69	29.03	29.61	29.79	30.37	30.33	.....	.....	.....	30.30
27	29.62	.....	28.68	29.04	29.57	29.84	30.41	30.30	.....	.....	.....	30.31
28	29.54	.....	28.67	29.06	29.54	.....	30.44	30.30	.....	30.33	.....	30.34
29	29.45	.....	28.64	29.06	29.54	29.95	30.47	.....	29.74	30.33	.....	30.36
30	29.36	.....	28.63	29.07	29.62	29.97	30.47	30.31	29.78	30.31	.....	30.37
31	29.28	.....	28.66	.....	.....	.....	30.47	30.28	.....	30.28	.....	30.37

(C-29-10)16ccc-1. G. S. Barclay. Records available: 1937-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	46.48	May 27	47.91	July 27	46.57	Oct. 28	46.80
Mar. 1	46.60	June 30	46.97	Aug. 31	47.54	Nov. 30	46.75
27	46.02	July 13	47.04	Oct. 5	46.33	Dec. 3	46.60
Apr. 28	46.78						

(C-29-11)ladd-1. State claim 10290. Duluth Land Co. Records available: 1935-48. Dec. 4, 20.40.

(C-29-11)4baa-1. W. H. Child. Records available: 1941-46; 1948. Dec. 3, 35.31.

(C-29-11)11cdd-1. State claim 7540. Preston Davis. Records available: 1937-48.

Jan. 26	17.99	Apr. 28	17.54	July 28	a 38.35	Oct. 28	18.95
Mar. 1	17.77	May 27	19.43	Aug. 31	20.00	Nov. 30	18.72
26	17.64	June 30	a 37.00	Oct. 5	19.46	Dec. 4	18.72

a Pumping.

(C-29-11)20cdd-1. Public land. Records available: 1939-47. No measurements made in 1948.

(C-29-11)22ddd-1. State claim 10667. P. V. Haworth. Records available: 1935-48.

Jan. 26	25.10	May 27	25.68	July 27	26.53	Oct. 28	25.94
Mar. 1	25.16	June 30	25.07	Aug. 31	26.77	Nov. 30	25.57
26	25.05	July 14	26.26	Oct. 5	26.17	Dec. 4	25.55
Apr. 28	25.06						

(C-29-11)29ada-1. Public land. Records available: 1936-48. July 14, 15.09; Dec. 4, 14.98.

(C-29-11)35bcd-1. Public land. Records available: 1935-36; 1940-48. July 14, 41.50; Dec. 4, 41.59.

(C-30-11)4cdd-1. Records available: 1935-48. July 14, 25.77; Dec. 4, 26.04.

(C-30-12)4add-1. T. J. Norris. Records available: 1940-48. Mar. 10, 109.13.

(C-30-12)11bbb-1. D. L. Barnes. Records available: 1936-47. No measurements made in 1948.

(C-30-12)31cab-2. State claim 13455. Corrine Dibkey. Records available: 1938-48. Mar. 10, 16.15; July 14, 16.15; Dec. 4, 16.00.

(C-30-13)29dcc-1. C. D. Vaughn. Records available: 1938; 1940-48. Dec. 4, 55.97.

(C-30-13)34bbb-1. J. F. Dinwiddie. Records available: 1940-48. Mar. 10, 45.77; Dec. 4, 45.84.



Box Elder County - East Shore area 7

(B-7-2)2aba-1. State claim 11922. Earl Lemon. Records available: 1917-24; 1931-32; 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	41.60	May 3	40.33	Aug. 2	38.84	Oct. 24	39.49
Feb. 28	42.28	27	38.28	27	39.21	Nov. 26	40.18
Mar. 31	42.95	June 25	37.58	Oct. 3	39.26	Dec. 31	41.10

(B-7-2)1libaa. Bonneville Orchard Co. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	37.16	May 3	39.12	Aug. 2	37.58	Oct. 24	33.15
Feb. 28	37.99	27	39.20	27	34.82	Dec. 31	34.97
Apr. 2	38.70	June 25	39.56	Oct. 3	32.58		

(B-7-2)1libaa-3. Bonneville Orchard Co. State claim 6409. Records available: 1947-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	34.90	May 3	36.61	Aug. 2	34.30	Oct. 24	30.24
Feb. 28	36.88	27	37.42	27	32.07	Dec. 31	33.21
Apr. 2	36.58	June 25	36.69	Oct. 3	29.70		

(B-7-2)1loda-1. State claim 1489. First Savings Bank of Ogden. Records available: 1936-48. Apr. 2, 20.43; Dec. 31, 19.45.

(B-8-2)1llead-1. State claim 973. Clark. Records available: 1946-48. Apr. 2, 31.98; Dec. 31, 29.23.

(B-8-2)23cdb-1. State claims 1284 and 8126. Willard Water Co. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	40.04	May 3	38.76	Aug. 2	33.76	Oct. 24	38.80
Feb. 28	41.45	27	32.30	27	35.88	Dec. 31	40.72
Apr. 2	40.82	June 25	28.42	Oct. 3	37.97		

(B-8-2)26cdd-1. State claim 917. A. P. Ward. Records available: 1946-48. Apr. 2, +30.8; Dec. 31, +22.0.

(B-9-2)12ccc-1. State claim 499. G. D. Reeder. Records available: 1938-48. Apr. 2, 8.57; Dec. 31, 8.24.

(B-9-2)14dac-1. State claim 549. W. W. and J. F. Knudsen. Records available: 1935-48. Apr. 2, 19.58; Dec. 31, 17.53.

(B-9-2)25bda-1. State claim 268. First National Bank of Brigham. Records available: 1937-48. Apr. 2, 24.43; Dec. 31, 20.62.

(B-9-2)35dcd-1. State claim 477. F. H. Hansen. Records available: 1935-48. Apr. 2, 42.31; Dec. 31, 39.94.

Box Elder County - Lower Bear River Valley

(B-9-3)1bbb-1. State claim 8477. Federal Land Bank. Records available: 1936-48. Apr. 2, 4.83; Dec. 31, 5.24.

(B-10-3)8dc-1. State application 16985. C. A. Gardner. Records available: 1936-48. Apr. 2, 6.79; Dec. 31, 7.85.

(B-10-3)32aaa-1. B. E. Stallings. Records available: 1938-48. Apr. 2, 4.70; Dec. 31, 6.51.

(B-11-3)21bbb-3. J. A. House. Records available: 1936-48. Apr. 2, 3.91; Dec. 31, 4.13.

(B-11-4)1llaaa-1. State claim 3337. Fred Deininger. Records available: 1936-48. Apr. 2, 5.97; Dec. 31, 5.98.

7 For other wells in this valley see pages 102-106, 144-148.

(B-12-4)11cb. State claim 14152. Adolph Harris. Records available: 1936-48. Oct. 27, 113.64.

Box Elder County - Mantua Valley

(B-9-1)22ccc-1. Ramond Jeppesen. Records available: 1937-48. Apr. 1, 25.77; June 25, 21.57; Dec. 30, 23.96.

Box Elder County - West Box Elder area

Blue Spring Valley

(B-13-5)17bca-1. State claim 3776. R. A. Miller. Records available: 1935-48. Oct. 22, 60.94.

(B-13-5)28cba. Joseph Aebischur. Records available: 1936-48. Oct. 22, 57.90.

(B-13-6)1cac-1. Deacon Bros. Records available: 1940-48. Oct. 22, 149.80.

Curlew Valley

(B-12-11)16cdc-1. Grazing Service, U. S. Dept. of Interior. Records available: 1935-36; 1938-48. Oct. 23, 8.57.

(B-14-8)1lab. B. S. Cutler. Records available 1936-41; 1943-48. Oct. 22, 43.25.

(B-14-9)10ada-1. Abe Rose. Records available: 1936-42; 1944-48. Oct. 22, 96.74.

Grouse Creek Valley

(B-10-18)28dcd-1. State application 13796. Grazing Service, U. S. Dept. of Interior. Records available: 1939-48. Oct. 23, 119.22.

(B-11-18)22aa. A. L. Paskett. Records available: 1936; 1938-47. No measurements made in 1948.

(B-11-18)23bb. Central Pacific Railroad. Records available: 1936; 1939-48. Oct. 22, 21.08.

Park Valley

(B-10-15)26bad-1. State application 13796. Grazing Service, U. S. Dept. of Interior. Records available: 1939-48. Oct. 23, 99.79.

(B-12-14)2aa. F. J. Hirschle. Records available: 1936; 1938-48. Oct. 23, 7.94.

(B-13-13)28dd. L. G. Carter. Records available: 1936; 1938-48. Oct. 23, 14.04.

(B-13-13)32aa. John Vance. Records available: 1936; 1938-48. Oct. 23, 33.75.

(B-13-14)25ab. J. H. Kunzler. Records available: 1936; 1938-48. Oct. 23, 15.44.

(B-13-14)26bd. W. A. Newman. Records available: 1936; 1938-48. Oct. 23, 19.20.

Raft River Valley

(B-14-15)3ddd-1. M. A. Smith. State claim 19482. Records available: 1936; 1938-48. Oct. 22, 50.50.

(B-14-15)11cc. M. A. Smith. Records available: 1936; 1938-48. Oct. 22, 23.80.

(B-15-14)36. H. Alberts. Records available: 1936, 1938-48. Oct. 22, 4.13.

Cache County - Cache Valley

(A-9-1)10add-1. State claim 8135. Drought Relief Administration. Records available: 1936-48. Apr. 1, 28.50.

(A-10-1)4ab. O. H. Anderson. Records available: 1936-48. Apr. 1, 10.42; Oct. 7, 8.53; Oct. 20, 8.68; Dec. 30, 9.69.

(A-11-1)3bda-1. State claims 23 and 8136. Drought Relief Administration. Records available: 1936-47. No measurements made in 1948.

(A-11-1)8dda-3. State claim 1199. Amalgamated Sugar Co. Records available: 1935-48. Apr. 1, +13.4; Dec. 30, +15.5.

(A-11-1)18ddd-1. State claim 5950. Lovenus Olsen. Records available: 1936-48. Apr. 1, +7.2; Dec. 30, +10.0.

(A-11-1)30bdd-2. State claim 18191. Wilford Ward. Records available: 1936-48. Apr. 1, 1.87; Oct. 21, +2.18; Dec. 30, +1.02.

(A-12-1)3bbb-1. State claims 19 and 8129. Smithfield Irrigation Co. Records available: 1936-48. Apr. 1, 14.70; Dec. 30, 8.15.

(A-12-1)3bbb-2. Nora Johnson. Records available: 1936-40; 1942-48. Oct. 7, 2.43; Oct. 21, 3.85; Dec. 30, 8.79.

(A-12-1)29bdd. Arnold Nielson. Records available: 1940-48.

Water level at noon, from recorder charts  
(Above land-surface datum)

Day	Jan.	Feb.	Mar.	Apr.	May	Sept.	Oct.	Nov.	Dec.
1	21.6	21.6	....	18.2	....	....	20.3	21.1	19.9
2	21.0	21.0	....	17.9	....	....	20.3	21.0	20.0
3	21.0	21.7	....	17.9	....	....	....	20.9	19.9
4	20.9	21.3	....	17.7	....	....	....	21.0	19.9
5	20.9	21.2	....	17.6	....	....	....	21.2	19.9
6	20.8	21.6	....	17.8	....	....	....	21.1	19.8
7	20.8	21.3	....	17.8	....	....	....	21.1	19.7
8	....	21.3	....	17.7	....	....	....	21.1	19.7
9	....	....	....	17.7	....	....	....	21.1	20.0
10	....	....	....	17.7	....	....	....	20.9	20.0
11	....	....	....	17.7	....	....	....	21.0	19.6
12	....	....	....	....	17.6	....	....	21.0	19.6
13	....	....	....	....	17.5	....	....	20.8	19.3
14	....	....	....	....	17.5	....	....	20.9	19.2
15	....	....	....	....	17.6	....	....	21.0	19.3
16	....	....	....	....	17.6	....	....	20.9	19.2
17	....	....	....	....	17.6	....	....	20.8	19.3
18	....	....	....	....	17.5	....	....	20.9	19.2
19	....	....	....	....	17.4	19.7	....	20.8	19.2
20	....	....	....	....	17.4	19.9	....	20.7	19.3
21	....	....	....	....	17.5	19.9	21.2	20.7	19.3
22	....	....	....	....	....	20.1	21.1	20.7	19.3
23	....	....	....	....	....	20.2	21.1	20.6	19.3
24	....	....	....	....	....	20.0	21.3	20.6	19.3
25	....	....	....	....	....	20.1	21.3	20.7	19.2
26	....	....	....	....	....	20.0	21.2	20.7	19.2
27	....	....	....	....	....	20.0	21.1	20.1	19.3
28	....	....	18.0	....	....	20.0	21.4	20.1	19.2
29	....	....	18.2	....	....	....	21.3	19.8	19.0
30	....	....	18.2	....	....	20.2	21.2	20.0	19.1
31	21.5	....	18.2	....	....	....	21.1	....	19.4

(A-12-1)31dab-1. State claim 2537. R. S. Painter. Records available: 1936-47. No measurements made in 1948.

(A-13-1)29bdb-1. State claim 1682. J. C. Cannell. Records available: 1936-48. Apr. 1, -3.05; Dec. 30, +1.64.

(A-14-1)22bad-1. State claim 17652. C. B. Stoddard. Records available: 1938-48. Apr. 1, +6.9.

(A-14-1)34adb-1. State claim 1373. Crockett Well Co. Records available: 1935-48. Apr. 1, 15.79; Oct. 21, 14.08.

(A-14-1)34dca-1. State application 12652. Richmond Irrigation Co. Records available 1937-48. Apr. 1, 4.42; Oct. 21, 3.17.

(B-11-1)13bbc-1. State claim 19315. Alma Olsen. Records available: 1936-48. Apr. 1, +40.7.

(B-11-1)35caa-1. State claim 1475. J. A. Miesman. Records available: 1936-48. Flowing prior to measurements. Apr. 1, +17.3; Dec. 29, +19.9.

(B-12-1)8cdb-2. State claim 16851. Edward Edwards. Records available: 1936-48. Flowing prior to measurements. Apr. 2, +9.2; Dec. 31, +9.3.

(B-13-1)30acc-1. State claim 2757. E. R. Ballard. Records available: 1936-48. Flowing prior to measurements. Apr. 2, +21.4; Dec. 31, +21.5.

#### Carbon County

(D-13-9)24aa-1. State claim 11742. Helper City. Records available: 1946-47. No measurements made in 1948.

#### Davis County - East Shore area<sup>8</sup>

##### Layton District

(B-3-1)15aab-1. State claim 8156. Drought Relief Administration. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 18	13.87	July 2	13.69	Dec. 27	13.90
May 27	14.02	Aug. 27	14.18		

(B-3-1)24aaa-4. State claim 10019. Lagoon Resort. Records available: 1935-48. Apr. 18, +8.5.

(B-3-1)24aad-1. State claim 10012. Lagoon Resort. Records available: 1935-48. Apr. 18, +3.0.

(B-4-1)19cd. Charles Layton. Records available: 1935-48. Apr. 18, 1.81; May 27, 3.26; July 2, 1.33; Aug. 27, 1.34.

(B-4-1)30ba. W. W. Evans. Records available: 1935-48.

Apr. 18	1.36	July 2	0.67	Dec. 27	1.36
May 27	1.05	Aug. 27	.51		

(B-4-1)34cbc-3. State claim 14733. Kaysville Canning Corporation. Records available: 1937-48. Apr. 18, 4.14; Aug. 27, 5.51; Dec. 27, 3.54.

(B-4-2)1dcc-1. State claim 8139. Drought Relief Administration. Records available: 1936-47. Measurements discontinued.

(B-4-2)9caa-1. State claim 11285. A. D. Miller. Records available: 1937-48. Flowing prior to measurements on July 2 and Aug. 27. Apr. 17, +19.4; July 2, +18.0; Aug. 27, +16.9; Dec. 27, +20.2.

<sup>8</sup> For other wells in this area see pages 99, 144-148.

(B-4-2)10daa-1. State claim 8143. Drought Relief Administration. Records available: 1936-43; 1947. No measurements made in 1948.

(B-5-3)36ada-1. State claim 3074. Mary Stoddard. Records available: 1935-48. Flowing prior to measurements. Apr. 19, +29.4; July 2, +28.1; Aug. 27, +25.5; Dec. 27, +27.1.

## Bountiful District

(A-2-1)6dcd-2. State claim 188. Zions Aid Society. Records available: 1946-48. Apr. 19, +11.3; Dec. 13, +10.0.

(A-2-1)7aba-4. State claim 14688. Kate M. Chase. Records available: 1946-48. Apr. 19, +24.4; Dec. 13, +19.1.

(A-2-1)7ddc-1. State claims 4989 and 8155. Centerville City Corporation. Records available: 1939; 1945-48. Apr. 2, 12.35; Dec. 13, 11.29.

(A-2-1)17ccb-1. State claim 11318. Will Holbrook. Records available: 1937-48. Apr. 2, 32.30; Dec. 13, 27.57.

(A-2-1)18abd-12. T. Q. Williams. Records available: 1938-48.

Water level at noon, from recorder charts  
(Above land-surface datum)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.9	22.2	21.7	....	21.4	23.6	22.3	19.7	17.0	22.3	....	22.3
2	22.8	22.2	21.7	21.5	21.5	25.2	21.7	19.3	16.7	22.1	....	22.3
3	22.8	22.1	21.6	21.2	21.6	25.6	20.0	21.1	17.0	22.0	....	22.4
4	22.7	22.0	21.5	21.1	21.7	26.1	18.2	21.2	17.0	22.1	....	22.2
5	22.7	22.0	21.6	21.1	21.3	26.5	17.7	21.1	16.7	....	....	22.1
6	22.8	22.0	21.6	21.1	21.6	26.2	17.6	21.6	20.0	22.1	....	22.0
7	22.9	22.0	21.6	21.0	21.7	26.5	17.1	21.8	19.1	22.1	....	22.0
8	22.9	21.9	21.5	21.0	21.5	26.4	17.3	22.2	18.6	22.2	....	22.0
9	22.7	21.9	21.6	....	21.7	24.8	17.1	22.2	18.5	22.2	....	21.9
10	22.8	21.9	21.3	....	21.7	26.2	17.1	....	18.4	22.2	22.2	22.0
11	22.8	22.0	21.3	....	22.0	23.7	....	20.0	20.4	22.2	22.1	22.0
12	22.7	21.9	21.4	....	22.1	22.1	....	18.9	....	22.0	21.9	22.1
13	22.7	21.8	21.5	....	22.5	21.0	19.6	18.6	....	22.0	22.1	22.0
14	22.8	....	21.5	....	....	21.7	18.7	18.5	....	22.1	22.2	22.1
15	22.7	....	21.3	....	....	23.4	18.7	18.6	....	22.1	22.3	22.0
16	22.6	22.0	21.2	....	....	21.9	18.6	17.9	....	....	22.2	21.9
17	22.7	21.9	21.2	21.3	20.8	20.8	19.2	16.7	....	....	22.4	21.8
18	22.8	21.9	21.2	21.2	21.1	23.1	19.4	16.8	....	....	22.3	21.8
19	22.7	21.9	21.3	21.2	22.0	22.7	19.4	17.1	....	....	22.3	21.8
20	22.7	21.8	21.2	21.3	22.0	20.9	22.1	17.0	....	....	22.2	21.9
21	22.7	21.9	21.2	21.0	22.1	22.8	22.7	17.6	....	....	22.2	....
22	22.6	22.0	21.2	21.3	22.6	24.5	22.9	....	....	....	22.2	....
23	22.7	21.9	21.3	21.3	22.1	25.5	....	....	....	....	22.2	....
24	22.7	....	21.3	21.2	22.5	26.3	....	....	....	....	22.3	....
25	22.6	....	21.1	21.1	20.4	28.0	....	....	....	....	22.3	....
26	22.4	21.9	21.1	20.8	....	28.3	....	....	....	....	22.3	....
27	22.2	21.7	21.1	21.2	18.7	28.5	....	....	22.0	....	21.8	....
28	22.4	21.7	....	21.5	21.3	28.7	....	....	22.1	....	....	....
29	22.3	21.7	....	21.7	21.6	28.4	....	....	22.1	....	....	....
30	22.3	....	....	21.4	21.8	25.4	22.2	....	22.2	....	22.4	....
31	22.2	....	....	....	21.6	....	20.7	....	....	....	....	....

(A-2-1)18dca-2. State claim 18335. Earl L. Burnham. Records available: 1945-48. Apr. 2, 7.44; Dec. 13, 6.78.

(A-2-1)19ccb-1. State claim 16478. Kirkland Nursery. Records available: 1945-48. Apr. 2, 42.42; Dec. 13, 41.27.

(A-2-1)19dbc-1. State claim 1447. Bountiful City Corporation. Records available: 1937-48. Apr. 2, 67.88; Dec. 13, 66.75.

(A-2-1)31ada-1. State application 17511. R. N. Schluter. Records available: 1946-48. Apr. 2, 130.84; Dec. 13, 132.39.

## 104 WATER LEVELS AND ARTESIAN PRESSURE, 1948, NORTHWESTERN STATES

(A-2-1)31caa-1. State application 17634. H. E. Calder. Records available: 1946-48. Apr. 2, 155.40.

(A-2-1)31cca-1. State claim 8147. South Bountiful Junction Water Co. Records available: 1946-48. Apr. 2, 125.90; Dec. 13, 125.77.

(B-2-1)24bad-3. State claim 2677. C. R. Gull. Records available: 1946-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	+47.5	....	....	+48.0	+49.6	+47.0	+45.5	+48.4	+48.1	+47.5
2	....	+46.8	....	....	+47.9	+49.5	+46.0	(b)	+48.3	+48.0	+47.6
3	+49.2	+47.0	+47.9	+49.6	+48.2	+49.4	(b)	(b)	+48.3	+47.6	....
4	+48.9	+46.7	+47.6	+49.6	+48.6	+49.0	+46.3	(b)	+48.4	+47.4	....
5	+49.2	+46.7	+47.7	+49.2	+48.8	+47.0	+47.3	+45.0	+48.4	+47.9	....
6	+48.7	+47.7	+47.9	+48.4	+48.1	+48.1	+47.4	+45.5	+48.3	+47.9	....
7	+48.8	+46.5	+47.7	+48.5	+48.9	+47.4	+47.3	+45.6	+48.4	+47.9	....
8	+48.7	+47.5	+48.0	+48.4	+48.0	+47.2	+47.8	+45.3	+48.4	....	....
9	+49.3	+46.6	+48.0	+48.7	+48.8	+47.0	+48.0	+45.4	+48.4	....	....
10	+49.0	+46.7	+48.0	+49.1	+48.9	+46.9	+46.7	+45.4	+48.3	+47.5	....
11	+48.9	+46.4	+47.5	+49.3	+48.1	....	+46.4	+45.5	+48.3	+47.7	....
12	+48.9	+46.2	+47.2	+48.9	+47.9	+46.7	+46.3	+45.3	+48.1	+47.9	....
13	+49.6	+46.4	+47.5	+49.6	+46.6	+47.1	+46.5	+45.5	+48.0	+47.9	+47.9
14	+48.4	....	+47.4	+49.3	+47.2	+47.6	+46.5	+45.9	+48.1	+47.9	+47.7
15	+48.8	....	+47.6	+49.0	+47.4	+47.8	+46.2	+45.6	+48.3	+47.9	+47.1
16	+48.8	....	+47.8	(b)	+47.2	+47.3	+46.4	+45.7	+48.1	+48.0	+47.0
17	+48.4	....	+47.9	+48.3	+46.5	+47.1	+46.2	+46.3	+48.0	+48.3	+47.0
18	+48.4	....	+47.6	+47.9	+47.2	+45.5	+45.5	+46.3	+48.0	+47.8	+47.0
19	....	....	....	+47.6	+47.3	+46.7	+45.3	+46.4	+48.4	+48.0	+46.7
20	....	....	....	+47.9	(b)	+47.6	+44.7	+47.1	+48.0	+48.1	+47.1
21	....	....	....	+47.6	+47.3	+47.4	+45.0	+47.7	+48.3	+48.2	+47.4
22	....	....	....	+47.3	+48.0	+47.8	+45.5	+47.9	+48.3	+48.8	+47.0
23	....	....	....	+46.7	+48.5	+47.0	+45.4	+48.0	+48.3	+48.5	+47.1
24	....	....	....	+46.8	+49.3	+47.8	+45.3	+47.9	+48.3	+47.9	+47.1
25	....	....	....	+47.6	+50.0	+48.0	+45.2	+48.2	+48.2	+47.6	....
26	....	....	....	+46.6	+50.2	+46.8	+45.7	+47.9	+48.3	+48.3	....
27	....	....	....	+46.9	+49.9	+46.2	+45.9	+48.3	....	+47.9	....
28	....	....	....	+46.6	+49.8	+46.0	+45.5	+48.6	....	+47.9	....
29	+47.5	....	....	+47.3	+49.8	+45.5	+46.2	+48.4	....	+48.5	....
30	+47.7	....	....	+47.7	+50.0	+46.1	+45.7	+48.4	....	+48.1	....
31	+48.0	....	....	+47.9	+46.8	....	....	+48.0	....	....	....

a Flowing during preceding 24 hrs.

b Flowing.

(B-2-1)24bad-5. State claim 11382. George Mann. Records available: 1946-48.

Water level at noon, from recorder charts

Day	Jan.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	....	+23.5	+23.8	+22.0	+21.4	+26.5	+28.1	+30.2
2	....	....	....	+23.5	+23.1	+20.4	+21.9	+26.4	+28.2	+30.2
3	+30.1	+30.3	+30.3	+25.7	+22.2	+20.8	+22.3	+26.2	+28.3	+30.2
4	+30.1	+30.5	+30.3	+26.7	+22.2	+21.1	+21.6	+26.6	+28.2	....
5	+30.0	+30.6	+29.9	+26.6	+21.6	+20.9	+21.4	+26.7	+28.1	....
6	+30.1	+30.7	+28.5	+26.4	+21.5	+22.4	+22.6	+27.0	+28.2	....
7	+30.1	+30.6	+28.6	+24.5	+20.6	+23.3	+23.0	+27.3	+28.3	....
8	+30.0	+30.4	+28.4	+25.5	+20.6	+24.4	+23.0	+27.5	+29.1	....
9	+29.9	+30.4	+28.3	+24.9	+20.8	+24.2	+23.0	+27.1	+28.9	....
10	....	+30.4	+28.9	+24.5	+20.6	+23.0	+22.9	+26.7	+28.2	....
11	....	+30.4	+29.2	+23.3	+20.7	+22.8	+22.7	+27.4	....	....
12	....	+30.5	+29.3	+22.7	+19.1	+22.3	+22.6	....	....	....
13	....	+30.7	+29.6	+21.2	+19.4	+21.6	+22.8	+27.4	....	+31.2
14	....	+30.6	+28.1	+21.6	+19.6	+21.1	+22.7	+27.2	....	+31.2
15	....	+30.4	+27.8	+21.1	+21.0	+20.8	+23.0	+26.9	....	+31.1
16	....	+30.3	+28.1	+21.3	+20.6	+20.9	+22.9	+27.0	....	+31.2
17	....	+30.4	+27.5	+21.1	+20.2	+20.6	+22.9	+27.1	....	+31.2
18	....	....	+27.2	+20.6	+20.0	+20.6	+22.4	+27.5	....	+31.1

(B-2-1)24bad-5 --Continued.

## Water level at noon, from recorder charts

Day	Jan.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	....	....	+27.1	+20.4	+20.3	+20.1	....	+27.2	....	+31.2
20	....	....	+26.1	+21.2	+22.5	+20.3	+24.6	+27.2	....	+31.3
21	+30.4	....	+26.8	+22.2	+23.2	+20.7	+25.4	+27.2	+29.2	+31.3
22	+30.3	....	+26.0	+24.0	+22.8	+20.1	+25.8	+27.5	+29.3	+31.1
23	+30.1	....	+26.4	+25.4	+21.5	+20.9	+26.2	+28.0	+29.2	+31.2
24	+30.2	....	+25.9	+26.4	+22.7	+21.0	+25.8	+28.2	+29.3	+31.2
25	+30.2	....	+25.5	+27.2	+21.8	+20.6	+25.7	+28.1	+29.4	....
26	+30.2	....	+25.2	+27.0	+21.2	+20.5	+26.2	....	+29.4	....
27	....	....	+25.3	+27.3	+21.3	+20.9	+26.7	....	+29.5	....
28	....	....	+24.6	+27.2	+21.2	+20.8	+26.2	....	+29.7	....
29	....	....	+24.4	+25.7	+20.5	+21.4	+26.3	....	+29.9	....
30	....	....	+23.8	+24.6	+21.6	+21.7	+25.5	....	+29.9	....
31	....	....	....	....	+21.1	+21.3	....	+27.9	....	....

(B-2-1)24dec-3. Wasatch Oil Refining Co. Woods Cross. Records available: 1945-48.

## Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	...	...	+6.0	...	+7.4	...	...	+7.2	...	+7.1	...	...
2	...	...	+6.2	+6.0	+7.5	...	...	+7.2	...	+7.1	...	...
3	...	...	+6.3	+5.9	...	...	...	+6.9	...	+7.2	...	...
4	...	...	+6.1	+5.8	...	...	...	+7.0	...	+7.1	...	...
5	...	...	+6.3	+5.6	...	...	...	...	...	+7.0	+6.4	...
6	...	...	...	+5.6	...	...	+7.6	...	...	+6.9	+6.4	...
7	...	...	...	+5.7	+7.6	...	+7.9	...	...	+6.7	+6.4	...
8	...	...	...	+5.9	+7.6	...	+7.9	...	...	+6.9	+6.3	...
9	...	...	...	...	+7.7	+7.9	+7.8	...	+6.6	+6.9	+6.2	...
10	+7.5	...	...	...	+7.7	+7.8	...	...	+6.7	+6.8	+6.2	+5.9
11	+7.5	...	...	...	...	+7.7	...	+7.0	+6.6	+6.7	+6.3	+6.0
12	...	...	...	...	...	+7.5	...	+7.1	+6.5	...	...	+5.8
13	...	...	...	...	...	...	+7.1	+7.2	+6.4	...	...	+5.8
14	...	...	...	...	+8.1	+7.1	+7.4	+7.0	+6.6	...	...	+5.7
15	...	...	...	+5.7	+8.1	+7.1	+7.3	+6.9	...	+6.8	...	+5.7
16	...	...	...	+6.0	+7.9	+7.3	+7.3	+6.6	...	+6.9	...	+6.3
17	...	...	...	...	+7.8	+7.1	+7.2	...	...	+6.7	...	+5.8
18	...	...	...	...	+7.7	+6.9	+7.3	...	+6.7	+6.7	...	+5.5
19	...	...	...	...	+7.6	+6.8	...	...	+6.6	...	...	+5.4
20	...	...	...	...	+7.5	+7.0	...	...	+6.6	...	...	+5.7
21	+7.3	...	...	...	+7.9	+7.1	...	...	+6.7	...	...	+5.6
22	+7.4	...	...	...	+7.5	...	...	...	+7.0	...	...	+5.8
23	...	...	...	...	+7.6	+7.6	+7.5	...	+7.2	...	...	+5.6
24	...	...	...	...	+7.5	+8.2	+7.5	...	...	...	...	...
25	...	...	...	...	+7.1	+8.4	+7.7	...	...	...	...	...
26	...	...	...	...	+7.2	+8.3	+7.8	...	...	...	...	...
27	...	...	...	...	+7.2	+8.3	+7.6	...	...	...	+6.0	+5.9
28	...	+6.3	...	...	...	+8.5	+7.7	...	...	...	+6.0	+4.8
29	...	+6.3	...	...	+7.2	+8.6	+7.8	...	...	...	+5.9	+4.9
30	...	...	...	+7.5	+7.2	...	+8.0	...	...	...	...	+5.2
31	...	...	...	...	+7.0	...	+7.2	...	...	...	...	+5.7

(B-2-1)25bad-2. State claim 12452. Myrtle Hatch. Records available: 1936-48. Dec. 10, +7.3.

(B-2-1)25caa-4. Adolphus Ellis. Records available: 1936; 1946-48. Apr. 2, 8.26; July 7, 6.50; Dec. 10, 8.17.

(B-2-1)26aad-1. State claim 3556. N. L. Starrs. Records available: 1936-48. Apr. 2, +48.9; Dec. 13, +47.5.

(B-2-1)35dad-1. State claim 11335. D. E. Howard. Records available: 1936; 1946-48. Flowing prior to measurements. Apr. 2, +16.6; July 7, +11.0; Dec. 10, +15.3.

(B-2-1)36bad-2. State claim 4550. M. P. Parkin. Records available: 1936-48. Apr. 2, 15.05; July 5, 14.08; Dec. 10, 15.48.

(B-2-1)36bhd-1. State claim 951. Anna I. Lemon. Records available: 1936-48. Apr. 19, +10.4; Dec. 10, +9.7.

(B-2-1)36ccb-1. State claim 17108. Edna T. Harwood. Records available: 1931-48. Apr. 19, +6.7; Dec. 10, +5.62.

Duchesne County - Uinta Basin.<sup>9</sup>

U(C-1-2)4adc-1. State claim 8162. Drought Relief Administration. Records available: 1936-48. Oct. 4, 13.87.

U(C-1-2)15bbc-1. State claim 2152. R. M. Clarke. Records available: 1935-48. Flowing prior to measurement. Oct. 4, +13.9.

U(C-1-2)27aaa-1. State claim 8169. Records available: 1935-48. Montwell Latter Day Saints Ward. Flowing prior to measurement. Oct. 4, +12.2.

U(C-1-3)28dcd-1. D. H. Allred. Records available: 1939-48. June 30, 5.21; Oct. 4, 8.02.

U(C-1-3)31cca-5. R. A. Lister. Records available: 1939-48. June 30, 2.03; Oct. 4, 5.11.

U(C-1-4)14aad-1. State application 12748. Forest Service, U. S. Dept. of Agriculture. Records available: 1939-48. June 30, 2.90; Oct. 4, 2.90.

U(C-1-4)28dcc-1. State claim 8170. Drought Relief Administration. Records available: 1939-48. June 30, 4.74; Oct. 4, 10.09.

U(C-1-5)13ada-3. State claim 8165. Drought Relief Administration. Records available: 1936-48. June 30, 7.00.

U(C-2-1)15dda-1. State application 12977. R. Q. Warnock. Records available: 1939; 1942-45; 1947-48. Oct. 4, +29.8.

U(C-2-1)22bb. State application 12440. E. H. Peterson. Records available: 1937-43; 1945-48. July 3, +7.9; Oct. 4, +12.2.

U(C-2-1)22bcb-1. State claim 958. Stephen Wegac. Stopped flowing. Records available: 1935-43; 1945-4. No measurements made in 1948.

U(C-2-2)23bac-1. State claim 1658. City of Roosevelt. Records available: 1935-48. Flowing prior to measurement. Oct. 4, +6.1.

U(C-2-3)33ccd-1. E. B. Thompson. Records available: 1939-48. Flowing prior to measurement. Oct. 4, +3.57.

U(C-3-3)8cdd-1. Henry Richins. Records available: 1936-48. Oct. 4, +21.5.

U(C-3-4)7cad-1. Knight Investment Co. Records available: 1936; 1939-40; 1942-48. Oct. 4, 101.39.

U(C-3-4)21aaa-1. Knight Investment Co. Records available: 1936-48. June 30, 110.25; Oct. 4, 114.36.

U(C-3-4)22bab-1. Knight Investment Co. Records available: 1936-48. June 30, 159.40; Oct. 4, 159.61.

U(C-4-2)5bb. Drought Relief Administration. Records available: 1935-48.

---

<sup>9</sup> For other wells in this basin see pages 135-138.



U(C-4-2)5bb.--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	2.67	Apr. 3	3.30	July 15	1.80	Oct. 1	2.94
3	2.14	15	3.31	27	2.58	15	2.97
15	2.34	May 1	3.40	Aug. 1	2.78	Nov. 1	2.87
Feb. 1	2.61	15	3.40	15	2.90	15	2.81
15	2.82	June 1	3.40	Sept. 1	3.09	Dec. 1	2.77
Mar. 1	3.03	15	2.79	15	3.17	15	2.79
15	3.24	July 1	3.33				

U(C-4-3)4bdc-1. State application 12568. Bureau of Reclamation, U. S. Dept. of Interior. Records available: 1939-48.

Date	Water level	Date	Water level	Date	Water level
Mar. 21	5.79	July 27	7.45	Oct. 4	7.85
June 30	6.78	Aug. 30	7.90		

Garfield County - East Sevier Valley

(C-31-2)10cba-1. Gus Lambson. Records available: 1937-48. Mar. 16, 17.31; July 21, 9.06; Dec. 10, 8.06.

(C-32-2)2dad-1. T. W. Roberts. Records available: 1937-48. Mar. 16, 11.27; July 21, 9.19; Dec. 10, 9.27.

(C-35-4)34dca-1. State claim 5140. Charles and Will Proctor. Records available: 1938-48. July 20, 6.20; Dec. 10, 7.12.

(C-36-3)7aac-1. Lillie Stead. Records available: 1938-48. Mar. 16, 4.24; July 21, 8.20; Dec. 10, 7.44.

(C-36-3)18bdd-1. R. G. Syrett. Records available: 1938-48. Mar. 16, 97.41; Dec. 10, 86.50. Measurements discontinued.

Garfield County - Upper Sevier Valley<sup>10</sup>

(C-35-5)28bcd-1. State application 11739. Annie Wilcock. Records available: 1937-48. Mar. 16, 47.62; July 20, 42.60; Dec. 10, 44.47.

(C-34-5)8abd-2. D. W. Woodard. Records available: 1935-48. Mar. 16, 17.85; July 20, 11.58; Dec. 10, 15.15.

(C-36-5)29da. J. A. Yardley. Records available: 1935-48. Mar. 16, 30.77; July 20, 27.42.

Grand County - Colorado River area

## Courthouse Syncline

(D-22-19)27dbb-1. Frank Paxton. Records available: 1942-43; 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 3	42.91	Aug. 31	43.96	Oct. 9	44.29	Dec. 1	44.33
30	43.21	Sept. 13	43.80	Nov. 1	43.43		

(D-24-20)22bac-1. State application 13068. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1942-44; 1946-48. June 3, 11.90; Oct. 9, 11.44.

10 For other wells in this valley see page 118.

## Green River Desert

(D-22-24)29cbc-1. State application 13068. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
June 30	20.15	Oct. 7	21.78	Dec. 1	21.09
Aug. 31	20.17	Nov. 1	21.21		

Meab-Spanish Valley<sup>11</sup>

(D-25-21)28add-1. State application 13068. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
June 3	35.32	Oct. 9	37.00	Dec. 1	37.23
Sept. 12	36.60	Nov. 1	37.16		

(D-26-22)17dbb-2. Cleveland. Records available: 1942-43; 1946-48. Adjacent windmill pumping during measurements. June 5, 47.35; Oct. 7, 48.28.

Iron County - Cedar City Valley

## Coal Creek District

(C-35-11)21dbd-1. State claim 1222. D. C. Urie. Cedar City. Records available: 1939-48.

## Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25.64	25.27	24.90	24.44	.....	24.36	25.32	26.18	26.85	27.12	.....	.....
2	25.62	25.24	24.88	24.43	.....	24.40	25.38	26.19	26.89	27.11	.....	.....
3	25.62	25.25	24.88	.....	.....	24.42	25.42	26.19	26.90	27.07	.....	.....
4	26.02	25.60	25.26	24.80	.....	.....	24.44	25.47	26.19	26.89	27.15	.....
5	26.01	25.58	25.24	24.77	.....	.....	24.45	25.53	26.19	26.91	27.16	.....
6	26.00	25.59	25.20	24.75	.....	.....	.....	25.62	26.22	26.97	27.15	27.25
7	25.98	25.61	25.19	24.76	.....	.....	.....	25.66	26.22	26.99	27.14	27.25
8	25.96	25.63	25.18	24.74	.....	.....	.....	25.69	26.24	27.00	27.19	27.25
9	25.96	25.58	25.14	24.72	.....	.....	.....	25.75	26.26	27.02	27.20	27.27
10	25.94	25.53	25.17	24.68	.....	.....	.....	25.80	26.27	27.05	27.17	27.22
11	25.92	25.56	.....	24.67	.....	24.09	.....	25.82	26.27	27.06	27.17	27.22
12	25.93	.....	25.37	24.76	.....	.....	.....	25.86	26.29	27.12	27.20	27.22
13	25.94	.....	25.34	24.76	.....	.....	.....	25.90	26.30	27.17	27.21	27.20
14	.....	.....	25.31	24.74	.....	.....	.....	25.95	26.29	27.20	27.21	.....
15	.....	25.53	25.31	24.71	.....	.....	.....	26.00	26.30	27.26	27.19	.....
16	.....	25.53	25.30	24.69	.....	.....	24.82	26.03	26.32	27.31	.....	27.20
17	.....	25.50	25.28	24.65	24.59	.....	.....	26.02	26.36	27.36	.....	27.18
18	25.81	25.47	25.27	24.68	.....	.....	.....	26.05	26.39	27.35	.....	27.21
19	25.84	25.46	.....	24.67	.....	.....	.....	26.11	26.40	27.38	.....	27.20
20	25.83	25.43	.....	24.64	.....	.....	.....	26.12	26.43	27.41	.....	27.13
21	25.81	25.41	25.29	24.60	.....	.....	.....	26.10	26.45	27.42	27.25	27.12
22	25.78	25.35	.....	24.57	.....	.....	.....	26.10	26.48	27.40	.....	27.11
23	25.76	25.33	.....	24.56	.....	.....	25.05	26.03	26.53	27.39	.....	27.07
24	25.74	25.39	.....	24.59	.....	.....	25.07	26.03	26.58	27.35	.....	.....
25	25.72	25.39	.....	24.54	.....	.....	25.09	26.06	26.60	27.29	.....	.....
26	25.75	25.33	.....	24.51	.....	.....	25.12	26.09	26.66	27.23	.....	.....
27	.....	25.31	.....	24.53	.....	.....	25.12	26.24	26.68	27.17	.....	.....
28	.....	25.28	.....	24.50	.....	24.51	25.13	26.25	26.72	27.14	27.27	.....
29	.....	25.29	.....	24.49	.....	24.43	25.19	26.24	26.78	27.11	.....	.....
30	.....	.....	24.92	24.46	24.17	24.57	25.25	26.22	26.82	27.10	.....	.....
31	.....	.....	24.96	.....	.....	.....	25.28	26.17	.....	27.11	.....	.....

(C-35-11)21dec-1. State claim 11599. Wilford Fife. Records available: 1931; 1935-48. Mar. 11, 27.58; Dec. 6, 31.49.

<sup>11</sup> For other wells in this valley see page 124.

(C-35-11)27acc-1. State claim 382. Fernleigh Gardner. Records available: 1931; 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 1	39.96	Apr. 12	38.44	July 30	54.57	Oct. 3	47.09
Mar. 8	39.23	May 29	39.96	Aug. 28	55.40	Nov. 28	44.10
11	40.21	July 15	53.62	Sept. 24	56.30		

(C-35-11)33aac-1. State claim 5126. Cottonwood Pump & Irrigation Co. Records available: 1930; 1935-48. Mar. 11, 62.35; Dec. 6, 67.57.

(C-36-11)8aab-1. State claim 13494. Leonard Hargrave. Records available: 1935-48. Mar. 11, 43.19; Dec. 6, 47.82.

(C-36-11)18aba-2. State claim 17383. Jacob Smith. Records available: 1936-48. Dec. 6, 23.29.

#### Enoch District

(C-34-10)31cbc-1. M. S. Jones. Records available: 1938-48. Dec. 5, 1.95.

(C-35-10)18cbb-1. Richard Williams. Records available: 1937-48. Mar. 14, 46.94; Dec. 5, 54.11.

(C-35-11)1cdc-1. State claim 17278. Ray Grimshaw. Records available: 1937-48. Mar. 14, 2.20; Dec. 5, 3.84.

(C-35-11)14dab-1. State claim 14000. David Murie. Records available: 1937-48. Mar. 14, 2.69; Dec. 5, 3.93.

#### Hamilton Fort District

(C-36-12)26cbb-1. State claim 13747. Cox & Thorley. Records available: 1938-48. No measurements made in 1948.

(C-37-12)11dbc-1. Oliver Berkholder. Records available: 1938-48. Mar. 14, 8.20; July 17, 8.90; Dec. 9, 8.73.

#### Iron Springs District

(C-35-11)31acd-1. State claim 13498. Heber Jensen. Records available: 1930; 1935-48. Mar. 11, 22.31; Dec. 6, 26.38.

(C-35-12)34dcd-1. State claim 4873. R. J. and W. M. Shay. Records available: 1936-48. Mar. 11, 16.41; Dec. 6, 17.08.

(C-36-12)1aaa-2. State claim 13995. M. J. McFarland. Records available: 1931; 1936-48. Mar. 11, 9.63; Dec. 6, 14.72.

(C-36-12)12dba-1. State claim 15411. Branch Agricultural College. Records available: 1936-48. Mar. 11, 16.40; Dec. 6, 16.49.

(C-36-12)14bbd-1. G. H. Pratt. Records available: 1936-48. Mar. 14, 6.03; Dec. 6, 6.88.

#### Kanarrville District

(C-37-12)23acb-1. State claim 13010. Federal Land Bank. Records available: 1935-48. Mar. 14, 51.98; July 17, 66.00; Dec. 9, 55.18.

(C-37-12)34abb-1. State claims 1646 and 8184. Kanarra Field & Reservoir Co. Records available: 1935-48. Mar. 14, 38.59; Dec. 9, 39.49.

(C-38-12)3becb-1. State claim 12845. Ford & Williams. Records available: 1938-48. Mar. 14, 66.57; July 17, 67.02; Dec. 9, 67.25.

#### Midvalley District

(C-34-11)29bad-1. E. E. Williams. Records available: 1937-48. Dec. 5, 25.54.

(C-34-11)36cbc-2. State claim 10820. George Grimshaw. Records available: 1937-48. Mar. 14, 19.11; Dec. 5, 20.06.

(C-35-11)4dda-1. State claim 5121. Federal Land Bank. Records available: 1937-48. Dec. 5, 5.20.

(C-35-11)8cdd-1. State claim 13703. Records available: 1937-48. Mar. 14, 11.81; Dec. 5, 14.05.

(C-35-11)15aac-1. State claim 1220. H. D. Haight. Records available: 1937-48. Mar. 14, 6.70; Dec. 5, 7.19.

#### Queatchupah District

(C-36-12)20ddc-1. State claim 13516. E. I., H. D., and L. M. Jones. Records available: 1940-48. Mar. 14, 1.94; Dec. 6, 2.18.

(C-36-12)28ccc-1. A. P. Spilsbury. Records available: 1938-48. Flowing prior to measurements. Mar. 14, +6.8; Dec. 6, +7.3.

(C-37-12)9baa-1. State claim 16350. Platt Watson. Records available: 1938-48. Flowing prior to measurements. Mar. 14, +3.58; Dec. 6, +4.12.

#### Rush Lake District

(C-33-11)30ddd-1. State claim 6005. G. P. Stapley. Records available: 1938-48. Dec. 5, 35.47.

(C-34-10)6ccc-1. State claim 11213. Public land. Records available: 1938-48. Mar. 13, 9.35; Dec. 5, 10.75.

(C-34-11)9cdc-1. D. C. Evans. Records available: 1938-48. Dec. 5, 22.26.

#### Iron County - Escalante Valley<sup>12</sup>

(C-31-12)19ccd-1. State claim 20091. Public land. Records available: 1939-48. July 14, 48.91; Dec. 4, 48.79.

(C-31-13)1a-1. State claim 6486. Public land. Records available: 1938-48. Dec. 4, 27.54.

(C-31-13)4cdd-1. Pearl Boeck. Records available: 1938-48. Dec. 4, 24.74.

(C-31-13)33ccc-1. Lemont Lowe. Records available: 1938-45; 1947-48. Pumping prior to measurement. Dec. 4, 40.50.

(C-32-14)28bbb-1. State claim 17227. Joseph Dyson. Records available: 1937-48. Mar. 10, 2.78; July 14, 3.21; Dec. 4, 3.32.

(C-33-13)3d. Rebecca Bullock. Records available: 1941-43; 1945-47. No measurements made in 1948.

(C-33-15)12aaa-1. State of Utah. Records available: 1939-43; 1945-48. July 14, 15.75.

<sup>12</sup> For other wells in this valley see pages 96-98, 116, 143-144.

(C-33-15)19bcc-1. Robins & Maguire. Records available: 1937-43; 1945-48. Mar. 11, 72.75; July 14, 72.60; Dec. 7, 72.74.

(C-33-15)31cbb-1. Jesse Carlson. Records available: 1936-48. Mar. 11, 26.63; July 14, 27.23; Dec. 7, 26.74.

(C-33-16)10ccc-1. Aram Boghession. Records available: 1937; 1946-48. Mar. 11, 91.38.

(C-33-16)19ddd-1. Clarence Lynd. Records available: 1935-48. Mar. 11, 66.04; Dec. 7, 66.20.

(C-33-17)29dcb-1. Frank Webster. Records available: 1935-43; 1945-48. Mar. 11, 107.35.

(C-34-14)31ccc-1. Geological Survey, U. S. Dept. of Interior. Records available: 1939-43; 1945-48. Mar. 11, 13.86; July 14, 14.18; Dec. 7, 14.55.

(C-34-16)9cbcb-1. Augustus Lott. Records available: 1937-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 11	7.53	June 1	7.45	July 31	7.80	Oct. 30	8.40
31	7.68	July 1	7.69	Aug. 31	7.80	Nov. 30	8.00
Apr. 30	7.04	15	7.65	Sept. 30	7.90	Dec. 7	8.21

(C-34-17)9ddd-1. William Haigh. Records available: 1937-48. Mar. 11, 30.27; Dec. 7, 30.46.

(C-35-12)18ddd-2. State claim 11258. Columbia Steel Co. Records available: 1935-48. Mar. 11, 11.50; July 14, 12.00; Dec. 7, 12.64.

(C-35-15)3dccc-1. State claim 3790. C. G. Clarke. Records available: 1935-48.

Mar. 12	14.13	June 1	15.29	July 31	18.85	Oct. 30	14.50
31	14.73	July 1	16.27	Aug. 31	20.73	Nov. 30	14.56
Apr. 30	14.32	14	20.30	Sept. 30	15.00	Dec. 7	14.00

(C-35-15)3dccc-2. State claim 3788. R. D. Clarke. Records available: 1936-48. Mar. 12, 13.69; July 13, 36.80, pumping; Dec. 7, 13.38.

(C-35-15)6cddd-1. Frank Bridel. Records available: 1936-48.

Mar. 12	12.58	June 1	12.32	July 31	13.33	Oct. 30	13.74
31	12.57	July 1	12.62	Aug. 31	13.74	Nov. 30	13.65
Apr. 30	12.29	14	13.00	Sept. 30	13.87	Dec. 7	13.57

(C-35-15)30acc-2. Hugh Ash. Records available: 1936-48. Dec. 8, 28.40.

(C-35-16)3bcdd-1. State claim 3792. C. G. Clarke. Records available: 1937-48. Mar. 11, 15.96; July 15, 16.74; Dec. 7, 17.08.

(C-35-16)22add-1. State claim 10337. G. and S. Inatomi. Records available: 1937-48. Mar. 12, 23.12.

(C-35-17)3bbod-1. State claim 8432. L. E. and H. M. Sevy. Records available: 1936-48. Mar. 11, 46.28; Dec. 7, 46.93.

(C-35-17)25cddd-1. Henry Brenn. Records available: 1935-48.

Mar. 31	37.55	July 1	38.45	Sept. 30	39.20	Nov. 30	39.50
Apr. 30	37.55	31	38.90	Oct. 30	39.90	Dec. 8	39.10
June 1	37.97	Aug. 31	39.29				

(C-36-15)8bbba-1. R. F. Jones. Records available: 1941-47. No measurements made in 1948.

(C-36-16)5a-2. Public land. Records available: 1941-47. No measurements made in 1948.

(C-36-16)8ddd-1. J. A. Eldredge. Records available: 1941-48. Well destroyed; measurements discontinued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 12	58.64	June 1	59.20	July 31	60.90	Sept. 30	60.40
31	58.61	July 1	60.04	Aug. 31	61.36	Oct. 30	60.45
Apr. 30	58.90						

(C-36-16)16dda-1. C. J. Erickson. Records available: 1937-48.

Mar. 12	59.62	June 1	59.83	Aug. 31	60.93	Oct. 30	61.20
31	59.65	July 1	60.63	Sept. 30	60.70	Nov. 30	61.20
Apr. 30	59.35	31	60.90				

(C-36-16)19abb-1. T. W. Jones. State claim 15511. Records available: 1947-48.

Apr. 30	74.00	July 1	79.64	Aug. 31	81.19	Oct. 30	80.64
June 1	73.90	31	81.69	Sept. 30	80.45	Nov. 30	80.70

(C-36-16)19caa-1. J. A. Eldredge. Records available: 1941-42; 1944-48.

Mar. 12	82.58	June 1	84.30	Aug. 31	86.10	Oct. 30	85.50
31	a 91.20	July 1	84.70	Sept. 30	86.20	Nov. 30	86.40
Apr. 30	86.08	31	85.45				

a Pumping.

(C-36-16)27ddc-1. State claim 10283. Ivins Investment Co. Records available: 1945-48.

Mar. 12	125.57	June 1	126.00	Aug. 31	126.98	Nov. 30	127.44
31	125.67	July 1	126.15	Sept. 30	127.27	Dec. 8	127.33
Apr. 30	125.89	31	127.70	Oct. 30	127.39		

(C-36-16)29daa-1. State application 16189. Weyl-Zuckerman Co. Records available: 1945-48.

Mar. 12	88.03	June 1	89.00	July 31	90.30	Oct. 30	90.90
31	87.96	July 1	89.60	Aug. 31	91.50	Nov. 30	90.55
Apr. 30	88.19	15	all 90.00	Sept. 30	91.00	Dec. 7	90.41

a Pumping.

(C-36-16)31bddd-1. W. H. Leigh. Records available: 1941-48. Mar. 12, 104.54; Dec. 8, 115.40.

(C-36-16)32ddd-1. J. C. Bosshardt. Records available: 1941-42; 1945-48. Mar. 31, 130.16; Nov. 30, 134.60.

#### Iron County - Parowan Valley

##### Buckhorn District

(C-32-8)1ada-1. Iron County. Records available: 1939-48. Mar. 13, 48.78; Dec. 5, 48.70.

(C-32-8)34aad-5. State claim 18168. H. W. Lunt Roadside Park, Paragonah. Records available: 1946-48. Mar. 13, +10.3.

(C-32-8)35bcb-1. State claim 5683. H. N. Edwards. Records available: 1935-48. Flowing prior to measurements. Mar. 13, +6.8; Dec. 5, +7.3.

##### Little Salt Lake District

(C-33-9)28abd-1. State claim 17259. John Dolorinski. Records available: 1938-46. No measurements made in 1948.

(C-33-9)32cod-2. State claim 17335. Alfred Wilcox. Records available: 1938-48. Flowing prior to measurement. Mar. 13, +7.4.

(C-33-9)34cbd-2. State claim 5694. Mary Marsden. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 13	18.73	June 27	a 59.71	Sept. 26	a 50.20	Dec. 5	27.80
Apr. 25	21.20	July 25	a 60.20	Oct. 31	a 54.96	26	22.95
May 30	a 44.55	Aug. 29	a 60.35	Nov. 28	30.89		

a Nearby wells pumping.

(C-34-9)6bcd-1. State claim 13506. G. D. Hyatt. Records available: 1938-48. Mar. 13, 4.74; Dec. 5, 6.01.

(C-34-9)8bdd-1. State claim 4868. P. H. Gurr. Records available: 1938-48.

Mar. 13	18.08	June 27	17.86	Sept. 26	17.65	Dec. 5	18.80
Apr. 25	18.95	July 25	17.83	Oct. 31	18.54	26	18.55
May 30	18.15	Aug. 29	17.66	Nov. 28	18.80		

#### Paragonah District

(C-33-8)28bbb-1. State claim 15133. State of Utah. Records available: 1940-48. Mar. 13, 10.16; Dec. 5, 12.09.

(C-34-8)5bca-1. Drought Relief Administration. Records available: 1935-48.

Mar. 13	22.00	June 27	19.47	Sept. 26	19.90	Dec. 5	20.40
Apr. 25	20.50	July 25	19.50	Oct. 31	20.03	26	20.53
May 30	19.80	Aug. 29	19.65	Nov. 28	20.39		

#### Parowan District

(C-33-9)24aba-1. State claim 10202. A. J. Decker. Records available: 1938-48. Mar. 13, +18.5; Dec. 5, +15.1.

(C-33-9)34dcd-1. State claim 6750 and State application 1426. Federal Land Bank. Records available: 1935-48. Mar. 13, 4.08; Dec. 5, 4.60.

(C-33-9)35ddd-1. State claim 13812. State of Utah. Records available: 1937-48.

Mar. 13	38.86	June 27	a 47.16	Sept. 26	a 48.68	Dec. 5	40.36
Apr. 25	38.60	July 25	a 50.20	Oct. 31	a 43.75	26	38.33
May 30	a 47.70	Aug. 29	a 49.47	Nov. 28	39.44		

a Pumping.

(C-33-9)36dcd-1. State claim 494. H. L. Adams. Records available: 1933-48. Mar. 13, 39.85; Dec. 5, 39.90.

(C-34-9)10bdd-1. State claim 8801. Federal Land Bank. Records available: 1937-48.

Mar. 13	51.85	June 27	a 60.44	Sept. 26	55.60	Dec. 5	51.85
Apr. 25	46.80	July 25	a 63.20	Oct. 31	54.39	26	51.90
May 30	a 56.75	Aug. 29	a 62.40	Nov. 28	52.92		

a Pumping.

(C-34-9)16cdd-1. State claim 5818. Federal Land Bank. Records available: 1938-48.

(C-34-9)16cdd-1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 13	27.31	June 27	25.04	Sept. 26	25.61	Dec. 5	26.06
Apr. 25	26.40	July 25	24.40	Oct. 31	26.00	26	25.10
May 30	25.60	Aug. 29	25.24	Nov. 28	26.09		

## Summit District

(C-34-10)24abc-1. State application 12115. R. J. Green. Records available: 1938-48. Mar. 13, 53.52; Dec. 4, 53.94.

Juab County - Juab Valley

## Chicken Creek District

(C-15-1)4ddd-1. C. H. Johnson. Records available: 1938-48. Flowing prior to measurement. Mar. 18, +5.61.

(C-15-1)12aba-1. State claim 10223. R. C. Mangleson. Records available: 1935-48. Mar. 18, 52.66; Dec. 15, 54.20.

## Salt Creek District

(C-12-1)36dca-1. State claim 2227. Orson Gazier. Records available: 1935-48.

## Water level at noon, from recorder charts

Mar. 18	14.60	Aug. 12	18.27	Sept. 11	19.83	Oct. 5	20.77
July 11	16.03	13	18.33	12	19.72	10	20.64
19	16.61	14	18.42	13	19.54	11	20.70
20	16.87	15	18.48	14	19.66	12	20.78
21	16.95	16	18.55	15	19.82	13	20.84
22	17.06	17	18.59	16	19.90	14	20.89
23	17.20	18	18.66	17	20.00	15	20.97
24	17.26	19	18.72	18	20.06	16	21.00
25	16.95	20	18.78	19	20.18	17	21.03
26	17.06	21	18.85	20	20.22	18	21.07
27	17.22	22	18.96	21	20.26	19	21.09
28	17.34	23	19.02	22	20.29	20	21.08
29	17.48	24	19.09	23	20.34	21	21.14
30	17.58	25	19.16	24	20.34	22	21.16
Aug. 1	17.89	26	19.22	25	20.12	23	21.18
2	17.98	27	19.27	26	20.14	24	21.20
3	17.98	28	19.33	27	20.25	25	22.21
4	18.07	29	19.40	28	20.35	26	22.23
5	18.06	30	19.45	29	20.43	27	22.23
6	17.63	Sept. 5	19.50	30	20.50	28	22.23
8	17.67	6	19.57	Oct. 1	20.58	29	22.24
8	17.88	7	19.62	2	20.63	30	22.24
9	18.00	8	19.67	3	20.68	31	22.25
10	18.12	9	19.73	4	20.73	Dec. 15	20.90
11	18.18	10	19.78				

(D-11-1)9bbb-4. State claim 3099. J. L. and H. J. Fowkes. Records available: 1935-48. Mar. 18, +12.3; July 11, +11.2.

(D-11-1)31abc-1. Loren Keyte. Records available: 1936-39; 1941-48. Flowing prior to measurements. Mar. 18, +3.68; Dec. 15, +2.65.

(D-13-1)6cbc-1. State claim 8188. Nephi Irrigation Co. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level
Mar. 18	17.30	July 11	21.20	Dec. 15	24.70
May 19	18.55	Oct. 10	24.19		



(D-14-1)6baa-1. State claim 2730. C. H. Garrett. Records available: 1935-48. Mar. 18, 188.86; Dec. 15, 188.54.

Juab County - Snake Valley <sup>13</sup>

(C-11-16)6ccc. J. H. Guilmette. Records available: 1938-48. Nov. 22, 17.93.

(C-11-17)1bdc-1. State claim 8190. Drought Relief Administration. Records available: 1938-48. Nov. 22, 2.44.

(C-13-18)14dcc-1. Will Parker. Records available: 1938-48. Nov. 22, 16.96.

(C-13-18)23aab-2. Charles Nielson. Records available: 1939-48. Nov. 22, 7.21.

Millard County - Escalante Valley <sup>14</sup>

(C-24-10)22aca-1. Grazing Service, U. S. Dept. of Interior. Records available: 1941-48. Mar. 10, 10.44; Dec. 3, 13.86.

(C-24-10)22acb-1. Grazing Service, U. S. Dept. of Interior. Records available: 1941-48. Mar. 10, 7.60; Dec. 3, 11.52.

(C-25-10)9dba-1. E. C. Hiltbrand. Records available: 1941-48. Mar. 10, 55.80.

(C-25-10)26caa-1. State of Utah. Records available: 1941-48. Mar. 10, 16.12; Dec. 3, 16.30.

Millard County - Pavant Valley

Pavant District

(C-19-4)31bcc-1. State claim 4263. Union Pacific Railroad. Records available: 1936-48. Mar. 9, 7.55; July 12, 6.12; Nov. 30, 6.38.

(C-19-5)4dda-1. State claim 16405. Lawrence Clark. Records available: 1936-48. Mar. 9, 25.62; July 12, 25.25; Nov. 30, 24.60.

(C-20-5)13dad-1. C. H. Day. Records available: 1937-48. Mar. 9, 40.31; July 12, 37.30; Dec. 1, 38.06.

(C-20-5)22bcc-1. State claim 7671. Arnold Lesin. Records available: 1936-48. Flowing prior to measurements. Mar. 9, +9.6; Dec. 1, +11.3.

Flowell District

(C-21-5)9cdc-1. State claim 6221. John Carling. Records available: 1943-48. Flowing prior to measurements. Mar. 9, 1.09; July 12, 10.58; Dec. 5, 1.71.

(C-21-5)21aba-1. State of Utah. Records available: 1929; 1935-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	....	....	8.06	9.07	9.43	9.66	....	....	....
2	....	....	....	....	8.11	9.05	9.46	9.69	9.19	....	....
3	....	....	....	....	8.09	8.48	9.46	9.66	8.90	....	....
4	....	....	1.60	....	8.03	8.63	9.45	9.66	8.77	....	....
5	....	....	....	....	8.03	....	9.33	9.73	8.78	....	....
6	....	....	....	....	8.10	....	9.32	9.74	8.83	....	....
7	....	....	....	....	8.10	....	9.31	9.74	8.44	....	....
8	+ .06	+ .87	....	....	....	....	9.32	9.75	8.30	....	....
9	+ .05	....	....	....	9.20	9.12	9.32	9.76	8.16	....	....

<sup>13</sup> For other wells in this valley see pages 117-118.

<sup>14</sup> For other wells in this valley see pages 96-98, 143-144.

(C-21-5)21aba-1--Continued.

Water level at noon, from recorder charts											
Day	Jan.	Feb.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
10	+0.10	....	....	....	9.09	9.13	9.34	9.77	7.97	....	....
11	.54	....	....	....	8.87	9.12	9.35	9.67	7.96	....	....
12	-.01	....	....	6.42	8.88	9.20	9.36	9.68	8.05	+0.05	+1.18
13	+0.01	....	....	6.48	8.82	9.22	9.36	9.69	7.91	....	....
14	+0.09	....	....	6.49	9.12	9.28	9.39	9.60	7.76	....	....
15	+0.18	+0.99	....	6.44	9.40	9.27	9.40	9.56	6.34	....	....
16	....	+0.93	....	6.92	9.31	9.28	9.40	9.55	5.84	....	....
17	....	+0.95	....	6.55	....	9.29	9.40	9.44	5.69	....	....
18	....	+0.95	....	6.74	....	9.30	9.38	9.54	5.54	....	....
19	....	....	....	6.96	....	9.30	9.41	9.55	....	....	+1.50
20	....	....	....	6.96	....	....	9.44	....	....	....	....
21	....	....	....	6.94	....	9.35	9.40	....	....	....	....
22	....	....	....	7.06	....	9.35	9.42	....	....	....	....
23	+0.65	....	....	7.10	....	9.36	9.45	....	....	....	....
24	+0.67	....	....	7.11	....	9.32	9.47	9.31	....	....	....
25	+0.70	+1.35	....	7.15	....	9.38	9.47	9.33	....	....	....
26	+0.67	....	....	7.18	....	9.29	9.47	9.43	....	....	....
27	+0.61	....	....	....	9.03	9.27	9.54	9.45	....	....	....
28	+0.69	+1.50	....	....	9.06	9.27	9.58	9.04	....	....	....
29	....	....	....	....	9.06	9.28	9.60	9.03	....	+0.96	....
30	+0.72	....	....	....	9.06	9.30	9.57	9.10	1.57	....	....
31	....	....	....	8.10	....	9.37	9.65	....	....	....	....

(C-21-5)34baa-1. State claim 17381. Frank Sweeting. Record available: 1942-48. Mar. 9, 27.37; July 12, 32.82; Dec. 1, 28.12.

## Hatton District

(C-22-5)28bec-1. State claim 7675. H. N. Bushnell. Records available: 1943-48. Mar. 9, 10.78; Dec. 1, 11.22.

(C-22-5)28dbd-1. State claim 16860. Charles Swallow. Records available: 1943-48. Mar. 9, 31.10; Dec. 1, 28.67.

(C-22-5)29cda-1. State claim 11976. O. E. Beckstrand. Records available: 1943; 1945-48. Dec. 1, 5.57.

(C-22-5)33cdd-1. State application 13367. L. A. Kimball. Records available: 1943-48. Mar. 9, 50.37; Dec. 1, 47.68.

(C-23-5)6daa-1. State claim 8201. Hatton Well Co. Records available: 1943-48. Mar. 9, 40.20; Dec. 1, 37.64.

(C-23-6)1cad-1. State application 12538. Waldo George. Records available: 1943-48. Mar. 9, 47.26; Dec. 1, 46.90.

## Kanosh District

(C-23-6)8bdb-1. State claim 16582. H. F. and C. H. Watts. Records available: 1943-48. Dec. 1, 25.92.

(C-23-6)19abb-1. Records available: 1943-48. Dec. 1, 51.78.

(C-23-6)29baa-1. State claim 6581. Records available: 1943-47. No measurements made in 1948.

(C-24-7)25. Frank Paxton. Records available: 1940-48. Dec. 2, 166.24.

## Meadow District

(C-22-5)9dbc-1. State claim 2232. R. Sweeting. Records available: 1943-48. No measurements made in 1948.

(C-22-5)17acc-1. State claim 3296. William Blake. Records available: 1935-48. Mar. 9, +30.7, flowing prior to measurement; Dec. 1, +35.7.

Millard County - Sevier Desert

(C-15-4)20dcc-1. Spencer Nielson. Records available: 1935-44. Mar. 8, 120.34; Nov. 30, 119.69.

(C-15-5)15aaa-1. I. P. Hinckley. Records available: 1936-48. Mar. 8, 98.18; July 11, 97.35; Nov. 29, 97.44.

(C-15-7)17dad-1. I. H. Losee. Records available: 1937-48. Flowing prior to measurements. Mar. 8, +2.77; Nov. 30, +2.65.

(C-15-8)23bba-1. State claim 12279. C. D. Ashby. Records available: 1938-48. Flowing prior to measurements. Mar. 8, +4.47; Nov. 30, +4.52.

(C-16-7)4abb-1. L. N. Hinckley. Records available: 1935-44. Mar. 8, +8.9; July 12, +7.7; Nov. 30, +7.05, flowing prior to measurement.

(C-16-7)7ccb-1. Millard County. Records available: 1938-48. Mar. 8, 1.75; July 12, 1.36; Nov. 30, 1.21.

(C-16-7)21acd-1. Martin Tanner. Records available: 1938-48. Mar. 8, 11.14; July 12, 11.35; Nov. 30, 10.99.

(C-16-8)3add-2. State application 13178. Parley Probst. Records available: 1945-48. Flowing prior to measurements. Mar. 8, +4.98; July 12, +6.17; Nov. 30, +5.60.

(C-16-8)15ddd-3. State claim 12335. Frank Foot. Records available: 1936-48. Mar. 8, 0.57; July 12, 0.41; Nov. 30, 0.44.

(C-16-8)21ddd-1. State claim 768. War Relocation Authority. Records available: 1942-48. Flowing prior to measurements. Mar. 8, +2.77; Nov. 30, +2.81.

(C-16-8)32baa. War Relocation Authority. Records available: 1942-48. Mar. 8, 4.12; Nov. 30, 4.26.

(C-17-6)7dbb-2. Edward M. Dalton. Records available: 1936-48. Mar. 8, +0.57; July 11, +0.63; Nov. 30, +0.33.

(C-17-6)33dcc-1. State claim 10288. Duluth Land Co. Records available: 1935-48. Mar. 9, +9.9; July 12, +9.1; Dec. 1, +9.5.

(C-17-7)20cbb-1. State claim 12287. W. J. Webb. Records available: 1936-48. Flowing prior to measurements. Mar. 9, +6.0; Nov. 30, +5.9.

(C-17-7)30aaa-1. J. G. Parry. Records available: 1935-48. Flowing prior to measurements. Mar. 9, +3.12; Nov. 30, +2.99.

(C-18-7)5aaa-2. State claim 7624. S. A. Webb. Records available: 1935-48. Mar. 9, +5.21; July 12, +4.49; Nov. 30, +5.74.

Millard County - Snake Valley 15/

(C-18-19)20dad-1. Mrs. Ward Robinson. Records available: 1937-48. Nov. 22, 28.66.

(C-18-19)20ddd-1. State claim 7420. Louise Robinson. Records available: 1937-48. Nov. 22, 27.93.

(C-20-19)7aab. G. S. Quayte. Records available: 1936-37; 1939-46. No measurements made in 1948.

(C-20-19)7bbd. Marcus Sorenson. Records available: 1936-46. No measurements made in 1948.

---

15. For other wells in this valley see page 115.

(C-22-19)6b. Cecil Rowley. Records available: 1942-48. Nov. 23, 64.51.

(C-23-19)9cdb-1. Thomas Dearden. Records available: 1936-48. Nov. 23, 14.63.

Morgan County - Morgan Valley

(A-3-2)24cba-1. State claim 12405. Hyrum Adams. Records available: 1936-40; 1942-48. Mar. 26, 16.94.

(A-4-2)8cccd-1. State claim 12133. L. H. Kobabe. Records available: 1940-48. Mar. 26, 17.36.

(A-4-2)15ccc. State claim 6594. Jake Pentz. Records available: 1936-48. Mar. 26, 21.44.

(A-4-2)17dbd-1. Heber Anderson Estate. Records available: 1936-48. Mar. 26, 20.97.

(A-4-2)26cc. State application 11666. J. C. Little. Records available: 1936-48. Mar. 26, 15.49.

(A-4-2)28baa-1. State claim 9247. Morgan County school district. Records available: 1936-48. Mar. 26, 24.93.

(A-4-2)35cdd-1. State claim 11785. Albert Wiggins. Records available: 1936-48. Mar. 26, 28.35.

(A-4-3)31bcc. Morgan County. Records available: 1937-48. Mar. 26, 24.10.

(A-4-3)31cab-1. State claim 12410. Como Springs Resort Co. Records available: 1937-48. Mar. 26, 1.99.

(A-4-4)30aac-2. State claim 5670. J. A. Millyard. Records available: 1940-48. Mar. 26, 10.95.

(A-5-1)27db. E. R. France. Records available: 1936-48. Mar. 26, 1.68.

Piute County - Grass Valley

(C-27-1)27abc-2. State claim 2905. H. B. Crandall. Records available: 1937-48. Flowing prior to measurements. Mar. 16, +3.47; Dec. 13, +4.33.

(C-30-2)33a. Records available: 1938-48. Mar. 16, 12.90; July 21, 12.39; Dec. 10, 14.32.

Piute County - Upper Sevier Valley<sup>16</sup>

(C-30-3)15bba-1. C. P. Jesse. Records available: 1935-48. Mar. 16, 24.15; July 21, 10.36; Dec. 10, 19.70.

(C-30-4)25bcc-1. State claim 8210. Drought Relief Administration. Records available: 1938-48. Mar. 16, 20.52; July 21, 16.36; Dec. 10, 19.08.

Rich County - Bear Lake Valley

(A-13-5)10bbb-1. Thomas Hodges. Records available: 1937-48. Oct. 20, 12.19.

(A-13-5)10bbb-2. Thomas Hodges. Records available: 1937-48. Oct. 20, 14.46.

---

<sup>16</sup> For other wells in this valley see page 107.

(A-13-5)2lad. Drought Relief Administration. Records available: 1936-48. Oct. 20, 6.30.

(A-13-5)22bd. Willis Bros. Records available: 1936-48. Oct. 20, 17.80.

(A-13-5)22da. Max Green. Records available: 1936-48. Oct. 20, 13.58.

(A-13-5)25db. Willis Bros. Records available: 1936-48. Oct. 20, 5.00.

(A-13-6)30bb. Rich County. Records available: 1936-48. Flowing prior to measurement. Oct. 20, +8.3.

(A-14-5)21bd. Thomas Hodges. Records available: 1936-46; 1948. Oct. 20, 10.97.

(A-14-5)21bda. J. W. Gibbons. Records available: 1936-48. Oct. 20, 14.20.

(A-14-5)21bdb. Alex Johnson. Records available: 1936-48. Oct. 20, 18.03.

(A-14-5)21cd. C. W. Pope. Records available: 1936-48. Oct. 20, 3.97.

#### Rich County - Upper Bear River Valley

(A-9-3)17ac. State claim 6837. S. Francis & Sons Co. Records available: 1938-48. Oct. 19, 6.93.

(A-10-7)20aaa-1. State claim 1886. Joseph Hatch. Records available: 1937-48. Oct. 19, 11.37.

(A-11-7)9cd-1. F. H. Jackson. Records available: 1936-48. Oct. 20, 12.78.

(A-11-7)9cd-2. F. H. Jackson. Records available: 1936-48. Oct. 20, 12.62.

(A-11-7)21bc. Loren Jackson. Records available: 1937-48. Oct. 20, 8.56.

(A-12-7)26bb-1. William Hoffman. Records available: 1936-48. Oct. 20, 8.64.

(A-12-7)26bb-2. William Hoffman. Records available: 1936-48. Oct. 20, 8.47.

#### Salt Lake County - Jordan Valley

(B-1-1)6oca-1. State claim 747. Rudy Gun Club. Records available: 1931-48. Flowing prior to measurement. Mar. 23, +19.7.

(B-1-1)26dde-2. L. T. Farnsworth. Records available: 1937-48. Flowing prior to measurement. Mar. 23, +5.36.

(B-1-1)33cda-1. State claim 8867. Salt Lake City Corporation. Records available: 1935-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	+12.8	May 24	+12.1	July 29	+10.75	Sept. 20	+12.3
Feb. 26	+12.4	June 8	+12.8	Aug. 12	+12.0	Dec. 3	+12.6

(B-1-1)36abc-1. Utah Oil Co. Records available: 1931-48. Measurements by Salt Lake City Corporation. Jan. 8, 14.60; Feb. 26, 10.97.

(B-1-2)36baa-1. E. J. Jeremy. Records available: 1931-33; 1941-48. Flowing prior to measurements. Mar. 23, +14.5; Dec. 9, +15.3.

(C-1-1)22bda-1. State claim 2199. William Gedge. Records available: 1931-48. Mar. 23, +11.0; Dec. 9, +11.5.

(C-1-1)33abb-1. W. D. Hill. Records available: 1931-48. Mar. 23, +17.3; Dec. 9, +21.4.

(C-1-2)5bbb-1. State claim 13403. Morton Salt Co. Records available: 1931-48. Mar. 23, +17.8; Dec. 9, +18.2.

(C-1-2)19dad-1. State claim 5828. Utah Copper Co. Records available: 1931-48. Flowing prior to measurement. Mar. 23, +14.0.

(C-1-2)22cbb-1. F. E. Fowler. Records available: 1931-32; 1934-48. Flowing prior to measurements. Mar. 23, +14.1; Dec. 9, +16.3.

(C-2-1)1bab-2. State claim 4058. C. S. Walters. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	+19.0	Mar. 18	+19.4	June 8	+14.3	Sept. 20	+14.9
Feb. 13	+19.2	May 20	+16.15	July 22	+14.0	Nov. 13	+19.4

(C-2-1)10bad-1. E. B. Lindsay. Records available: 1931-48. Mar. 23, 12.22; Dec. 9, 5.07.

(C-2-1)22bd. W. A. Diamond. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Jan. 8	69.35	Feb. 27	70.50	May 8	73.60	Nov. 26	65.90
24	70.90	Mar. 11	72.08	Aug. 31	65.50		

(C-2-1)24adc-1. State claim 16012. J. D. Blain. Records available: 1931-48. Mar. 23, 22.14; Dec. 9, 20.44.

(C-2-1)24ccc-2. J. R. Smith. Records available: 1931-48. Mar. 23, 1.30; Dec. 9, 0.83.

(C-3-1)25aa. Sproul Bros. Records available: 1931-48. Mar. 23, 27.24.

(C-3-1)27cdd-1. J. R. Dansie and others. Records available: 1931-48. Mar. 23, 17.65; Dec. 9, 11.25.

(D-1-1)5aad-1. Salt Lake City Corporation. Records available: 1934-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	100.42	100.12	100.00	99.99	99.85	108.90
2	100.30	100.12	99.98	99.97	99.88	108.48
3	100.44	100.16	100.02	100.00	99.82	107.52
4	100.34	100.08	100.10	99.97	99.88	106.00
5	100.43	.....	100.14	100.01	99.93	105.51
6	100.35	.....	.....	100.01	99.87	105.21
7	100.34	.....	.....	99.95	99.68	104.82
8	100.34	.....	.....	99.96	99.69	104.33
9	100.38	.....	.....	99.96	99.70	103.26
10	100.32	.....	100.02	99.85	99.70	103.12
11	100.32	100.18	100.02	99.84	99.70	102.92
12	100.39	100.19	100.02	99.86	99.90	102.68
13	100.46	100.18	100.02	99.88	99.90	102.47
14	100.36	100.15	100.02	99.92	99.90	102.16
15	100.33	100.11	100.03	99.92	99.90	101.91
16	100.32	100.18	100.03	99.92	99.90	101.70
17	100.25	100.11	99.96	99.93	99.90	101.54

(D-1-1)5aad-1--Continued.

Water level at noon, from recorder charts						
Day	Jan.	Feb.	Mar.	Apr.	May	June
18	100.24	100.04	99.96	99.93	99.91	101.33
19	100.29	100.04	99.94	99.93	101.92	101.26
20	100.31	100.05	100.03	99.93	103.03	101.20
21	100.20	100.05	100.13	99.93	103.92	101.04
22	100.14	99.93	100.01	99.86	104.76	100.84
23	100.06	99.93	99.98	99.88	105.39	100.65
24	100.06	100.06	99.90	100.00	.....	100.59
25	100.06	100.12	99.85	99.96	.....	100.48
26	100.14	100.02	100.07	99.92	106.91	100.45
27	100.14	100.00	100.08	99.94	107.25	100.48
28	100.25	100.00	100.05	99.90	107.52	100.36
29	100.22	100.00	99.95	99.85	107.25	100.22
30	100.20	.....	99.93	99.86	108.27	99.95
31	100.20	.....	99.99	.....	108.56	.....

Water level at noon, from recorder charts						
Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	99.96	.....	114.70	108.30	.....	102.50
2	99.96	.....	114.85	.....	.....	102.35
3	99.90	.....	114.95	.....	104.15	102.18
4	99.96	.....	115.10	.....	.....	102.25
5	.....	109.98	115.23	.....	.....	102.24
6	.....	109.02	115.36	107.74	.....	102.23
7	100.06	108.22	115.40	.....	.....	102.13
8	101.75	107.55	115.31	.....	.....	102.14
9	102.26	107.00	115.36	.....	.....	.....
10	103.63	107.06	115.52	.....	103.66	102.10
11	104.58	108.41	115.63	.....	.....	102.00
12	.....	109.24	115.62	.....	.....	101.97
13	.....	110.00	115.68	106.47	.....	101.96
14	106.02	110.63	115.71	.....	.....	101.90
15	106.61	111.17	115.98	.....	103.62	101.98
16	.....	111.40	116.15	.....	103.55	101.87
17	.....	111.58	116.31	.....	103.50	101.86
18	.....	111.90	116.41	.....	103.56	101.86
19	.....	112.22	116.34	.....	103.35	101.89
20	.....	112.50	.....	105.52	103.30	101.83
21	.....	112.72	.....	.....	103.31	101.83
22	.....	112.86	112.37	.....	103.27	101.84
23	.....	113.02	111.90	.....	.....	101.71
24	.....	113.24	111.35	.....	102.82	101.85
25	.....	.....	110.62	.....	102.83	101.91
26	.....	.....	110.11	.....	102.78	101.84
27	.....	.....	109.62	104.77	102.95	101.77
28	108.00	.....	109.28	.....	102.84	101.58
29	.....	.....	109.10	.....	102.72	101.71
30	.....	.....	108.90	.....	102.05	101.74
31	.....	.....	.....	.....	.....	101.66

(D-1-1)6acd-1. Royal Laundry Co. Records available: 1934-48.  
Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 11	13.80	Apr. 24	10.45	Aug. 23	12.90	Dec. 21	15.30
Mar. 2	12.05	May 29	10.05	Sept. 13	14.70		

(D-1-1)7abd-6. Salt Lake City Corporation. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Jan. 13	+7.80	Mar. 15	+7.95	May 24	+5.8	Sept. 20	+5.75
Feb. 26	+7.8	Apr. 24	+8.4	July 16	+5.15	Nov. 27	+7.1

(D-1-1)9aca-1. State claim 4836. Salt Lake City Corporation. Records available: 1934-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	141.82	141.79	141.54	140.47	138.35	137.56
2	141.80	141.78	141.34	140.51	138.34	137.54
3	141.84	141.89	141.41	140.30	138.27	137.56
4	141.78	141.82	141.51	140.30	138.17	137.56
5	141.77	141.87	141.43	140.14	138.17	137.50
6	141.74	141.91	141.35	140.14	138.01	137.54
7	141.70	142.07	141.34	140.08	137.81	137.56
8	141.76	141.80	141.29	139.98	137.98	137.43
9	141.73	141.90	141.25	139.89	137.99	137.38
10	141.68	141.88	141.37	139.79	137.95	137.30
11	141.80	141.93	141.37	139.72	137.92	137.26
12	141.88	141.89	141.15	139.75	137.89	137.23
13	141.86	141.78	141.07	139.67	137.76	137.24
14	141.88	141.82	141.05	139.67	137.86	137.13
15	141.88	141.80	141.12	139.58	137.80	137.14
16	141.93	141.68	141.01	139.48	137.72	137.08
17	141.91	141.71	141.07	139.37	137.67	137.15
18	141.98	141.67	141.04	139.42	137.69	137.01
19	142.03	141.70	140.98	139.30	137.78	137.00
20	142.08	141.75	141.08	139.16	137.66	137.05
21	142.11	141.68	141.07	139.03	137.65	136.96
22	142.01	141.48	140.90	138.92	137.68	137.00
23	142.02	141.60	140.88	138.87	137.67	137.04
24	142.10	141.76	140.79	138.84	137.66	136.99
25	142.12	141.70	140.94	138.77	137.65	136.95
26	142.21	141.59	140.94	138.62	137.57	136.91
27	142.29	141.66	140.81	138.59	137.47	137.01
28	142.28	141.57	140.67	138.51	137.52	137.00
29	141.89	141.61	140.57	138.40	137.54	136.97
30	141.91		140.52	138.44	137.50	136.87
31	141.94		140.58		137.59	

Water level at noon, from recorder charts

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	136.85	137.60	138.53	139.33	139.91	140.43
2	136.87	137.67	138.54	139.37	139.94	.....
3	136.87	137.68	138.53	139.36	139.90	.....
4	136.89	137.70	138.56	139.27	140.12	.....
5	136.92	137.84	138.64	139.39	140.09	.....
6	136.92	137.81	138.67	139.56	139.97	.....
7	136.92	137.89	138.69	139.56	140.10	.....
8	136.98	137.90	138.72	139.52	140.16	.....
9	137.01	137.96	138.77	139.54	140.10	.....
10	136.96	138.01	138.81	139.59	140.06	.....
11	136.93	138.03	138.82	139.64	140.12	.....
12	137.01	138.01	138.87	139.68	140.15	.....
13	136.96	138.06	138.90	139.68	140.20	.....
14	137.16	138.12	138.89	139.69	140.15	.....
15	137.12	138.15	138.94	139.74	140.19	.....
16	137.14	138.15	138.97	139.80	140.21	.....
17	137.13	138.18	139.03	139.79	140.27	.....
18	137.15	138.17	138.99	139.70	140.36	.....
19	137.13	138.30	139.08	139.75	140.16	.....
20	137.26	138.27	139.06	139.80	140.26	.....
21	137.26	138.26	139.08	139.86	140.28	.....
22	137.34	138.29	139.07	139.83	140.24	.....
23	137.36	138.57	139.08	139.84	140.25	.....
24	137.37	138.43	139.15	139.85	140.23	.....
25	137.44	138.30	139.30	139.89	140.29	.....
26	137.45	138.32	139.34	139.85	140.33	.....
27	137.40	138.39	139.31	139.86	140.48	.....
28	137.49	138.43	139.26	139.80	140.36	.....
29	137.56	138.43	139.26	139.87	.....	140.18
30	137.57	138.43	139.26	139.90	.....	.....
31	137.59	138.50		139.94	.....	.....



(D-1-1)19bba-1. State claim 13468. Salt Lake County Hospital. Records available: 1934-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	+13.40	Mar. 15	+14.30	July 29	+7.10	Sept. 20	+9.7
Feb. 26	+13.75	May 24	+8.50	Aug. 12	+8.0	Nov. 27	+14.5

(D-1-1)20cdc-4. Louis Lund. Records available: 1932-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level
Jan. 13	+4.20	Apr. 9	+4.00	Dec. 21	+2.8
Feb. 21	+3.70	Sept. 20	+2.00		

(D-1-1)21acc-1. State claim 33. Utah State Prison. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	74.43	Apr. 9	76.42	July 8	70.58	Sept. 16	71.88
Feb. 27	75.67	May 20	69.77	Aug. 23	70.77	Dec. 21	73.37

(D-1-1)30bbc-9. L. W. Amodt. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	+12.5	May 11	+9.6	July 29	+3.3	Sept. 20	+6.3
Feb. 26	+12.2	June 8	+4.0	Aug. 30	+2.8	Nov. 27	+13.05
Mar. 15	+12.5						

(D-1-1)31caa-2. State claim 4120. William Sorenson. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level
Jan. 9	+13.1	July 29	+6.0	Sept. 25	+6.8
May 6	+9.3	Aug. 30	+5.8		

(D-2-1)4dbd-4. Eugene Templeman. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 12	+1.70	Apr. 29	0.73	July 28	+3.50	Sept. 30	+3.60
13	+1.60	May 21	.75	Aug. 7	+4.45	Oct. 11	+3.60
24	+1.50	29	.85	14	+4.20	Nov. 1	+3.30
Feb. 20	+1.60	June 9	+1.08	23	+3.95	15	+3.20
25	+1.50	28	+2.65	31	+3.75	Dec. 3	+2.55
Mar. 16	+1.03	July 10	+2.85	Sept. 8	+3.50	21	+2.10
26	.40	20	+3.80	21	+3.65	30	+1.60
Apr. 10	.50						

(D-2-1)5aaa-1. State claim 6685. M. L. Davis. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level
Feb. 21	+2.45	July 31	1.15	Sept. 21	0.25
May 19	+2.25	Aug. 23	.90	Nov. 19	+3.00

(D-2-1)8bbb-1. State claim 218. A. B. and T. E. Hogge. Records available: 1931-48. Measurements by Salt Lake City Corporation.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	+1.08	Mar. 13	+1.00	Aug. 7	+0.30	Nov. 15	+0.27
Feb. 16	+1.65	May 17	2.59	27	4.20		

(D-2-1)15acc-1. M. A. Keyser. Records available: 1934-48.

## Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	66.30	67.76	70.28	71.55	70.40	64.18	58.80	58.87	60.89	62.84	.....	67.27
2	66.20	67.75	70.28	71.68	70.19	63.72	58.77	58.87	60.94	62.84	.....	67.21
3	66.39	68.63	70.43	71.68	69.93	63.67	58.77	58.88	60.94	62.86	64.76	67.02
4	66.37	68.63	70.58	71.68	69.63	63.16	58.77	58.91	60.94	62.83	65.07	67.35
5	66.45	68.63	70.59	71.74	69.40	62.99	58.77	59.00	61.12	62.86	65.18	67.47
6	66.46	68.69	70.59	71.82	68.99	62.83	58.79	58.98	61.12	63.16	65.11	67.53
7	66.46	69.03	70.59	71.81	68.47	62.57	58.79	58.93	61.18	63.12	65.18	67.54
8	66.61	69.11	70.59	71.81	68.43	62.38	58.74	58.90	61.30	63.12	65.34	67.77
9	66.71	69.01	70.59	71.80	68.37	62.10	58.74	58.89	61.40	63.13	65.34	67.78
10	66.71	68.90	70.98	71.80	68.18	61.69	58.74	58.95	61.48	63.15	65.38	67.67
11	66.79	69.22	70.95	71.81	68.01	61.48	58.74	59.06	61.50	63.20	65.40	67.71
12	66.90	69.30	70.95	71.95	67.86	61.27	58.73	59.10	61.50	63.42	65.65	67.74
13	67.02	69.34	70.93	71.96	67.50	61.13	58.73	59.24	61.50	63.47	65.67	67.85
14	67.07	69.40	70.71	72.02	67.33	60.78	58.87	59.32	61.50	63.42	65.68	67.92
15	67.20	69.46	70.95	72.02	67.33	60.69	58.83	59.43	61.50	63.47	65.74	68.25
16	67.20	69.50	71.01	71.99	67.07	60.54	58.78	59.55	61.87	63.57	65.89	68.25
17	67.22	69.54	70.98	71.91	66.90	60.43	58.74	59.51	62.06	63.68	66.00	68.18
18	67.24	69.55	70.94	71.91	66.75	60.33	58.70	59.51	62.06	63.65	66.25	68.41
19	67.40	69.62	70.95	71.97	66.68	60.20	58.66	59.51	62.08	63.65	66.04	68.41
20	67.54	69.68	71.18	71.93	66.60	60.06	58.66	59.65	62.08	63.72	66.11	68.29
21	67.69	69.69	71.23	71.81	66.40	59.74	58.66	59.65	62.08	63.88	66.23	68.37
22	67.70	69.65	71.32	71.75	66.37	59.66	58.73	59.68	62.18	.....	66.17	68.50
23	67.70	69.71	71.56	.....	66.22	59.46	58.73	59.72	62.24	.....	66.14	.....
24	67.72	70.14	71.56	.....	66.00	59.33	58.77	59.92	62.36	.....	66.36	.....
25	67.72	70.14	71.56	.....	65.80	59.11	58.70	60.32	62.44	.....	66.58	.....
26	67.73	70.08	71.49	.....	65.57	58.97	58.69	60.32	62.70	.....	66.67	.....
27	.....	70.13	71.49	.....	65.32	58.92	58.69	60.43	62.66	64.15	67.11	.....
28	67.66	70.18	71.66	.....	65.10	58.92	58.82	60.61	62.65	.....	67.21	.....
29	67.66	70.25	71.66	.....	64.92	58.92	58.87	60.73	62.70	.....	67.25	69.00
30	67.66	.....	71.66	.....	64.73	58.81	58.87	60.73	62.83	.....	67.24	69.04
31	67.77	.....	71.62	.....	64.49	.....	58.87	60.87	.....	.....	.....	69.04

(D-3-1)5cdd-1. Sam Jones. Records available: 1931-48. Mar. 23, 6.98; Dec. 9, 5.86.

San Juan County - San Juan River areaMoab-Spanish Valley<sup>17</sup>

(D-27-22)2dda-1. State application 13070. Records available: 1946-48. Oct. 7, 278.07.

## Church Rock Syncline

(D-28-22)1caa-1. State application 14265. State Road Commission. Records available: 1946-48. June 5, 19.67; Oct. 7, 19.18.

(D-28-23)19dcc-1. State application 13070. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48. June 5, 280.76; Oct. 7, 280.64.

(D-29-23)33dbb-1. State application 13070. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48. June 5, 30.45; Oct. 7, 30.95.

(D-30-23)10add-1. State claim 8429. State Road Commission. Records available: 1946-48. June 5, 30.79; Oct. 7, 31.67.

(D-30-24)35bac-1. State claim 8538. Molybdenum Corporation. Records available: 1946-48. June 5, 194.28.

(D-31-23)23add-1. State claim 8254. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48. June 5, 101.32; Oct. 7, 101.04.

17 For other wells in this valley see page 108.

## LaSal Valley

(D-29-24)18bab-1. State claim 89. Joseph Redd. Records available: 1946-48. June 5, 46.30; Oct. 7, 29.81.

## Sage Plain

(D-32-23)36dcc. Frank Redd. Records available: 1942-43; 1946-48. June 5, 49.26.

(D-33-24)26bdc-1. State claim 8236. H. L. Hansen. Records available: 1946-48. June 3, 81.08; Oct. 7, 81.18.

(D-34-24)25aad-1. State application 16754. C. A. Frost. Records available: 1946-48. June 4, 176.37; Oct. 7, 176.22.

(D-34-26)4dad-1. State claim 8249. State Land Board. Records available: 1946-48 June 4, 43.26; Oct. 7, 44.46.

(D-34-26)6ccb-1. State application 16702. W. C. Huffman. Records available: 1946-48. Oct. 7, 72.43.

(D-34-26)30ccb-1. State claim 8243. Clement Johnson. Records available: 1946-48. June 4, 1.23; Oct. 7, 4.62.

(D-36-21)7. Bureau of Indian Affairs, U. S. Dept. of Interior. Records available: 1946-48. Oct. 9, 16.42.

(D-36-22)27ddb-1. U. S. 119. M. F. Lyman. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	20.8	Apr. 29	18.3	July 22	17.27	Oct. 11	19.05
14	20.7	May 6	18.4	Aug. 2	17.75	18	19.01
21	20.3	13	18.9	9	17.41	25	19.03
29	20.5	20	18.0	16	17.66	Nov. 1	19.47
Feb. 16	19.9	27	18.5	23	17.80	9	19.52
23	19.4	June 3	18.15	30	17.95	15	19.32
Mar. 1	19.4	11	15.68	Sept. 7	18.10	23	19.42
8	19.8	17	14.29	13	18.50	30	18.20
22	20.3	25	14.75	20	18.49	Dec. 6	19.44
30	19.3	July 1	17.36	27	18.91	14	19.49
Apr. 8	19.5	8	17.45	Oct. 4	18.62	21	19.56
15	19.6	15	17.29	9	19.05	28	19.70
22	19.1						

(D-36-22)27ddb-2. U. S. 119a. M. F. Lyman. Records available: 1942-48.

## Water level at noon, from recorder charts

Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	52.04	52.54	52.13	52.54	52.53	.....	52.63	52.68	52.53	.....
2	.....	52.02	52.51	52.19	52.47	52.51	52.47	52.64	52.81	52.44	.....
3	.....	52.02	52.45	52.36	52.47	52.49	52.51	52.51	.....	52.10	.....
4	.....	52.31	52.49	52.29	52.40	52.51	52.59	52.44	52.49	52.25	.....
5	.....	52.42	52.54	52.35	52.44	52.56	52.54	52.46	52.17	52.55	.....
6	.....	52.25	52.44	52.42	52.48	52.54	52.52	52.46	52.42	52.56	52.84
7	.....	52.17	.....	.....	52.54	52.48	52.48	52.44	52.55	52.45	.....
8	.....	52.12	.....	.....	52.52	52.48	52.45	52.51	52.56	52.83	.....
9	52.22	51.89	52.41	52.17	52.49	52.55	52.50	52.59	52.49	.....	.....
10	51.98	52.06	52.34	52.25	52.44	52.52	52.52	52.66	52.48	.....	.....
11	51.99	52.45	52.34	52.33	52.44	52.36	52.48	52.60	52.50	.....	.....
12	52.16	52.57	52.34	52.46	52.43	52.37	52.42	52.57	52.69	.....	.....
13	52.26	52.42	52.45	52.48	52.40	52.46	52.42	52.76	52.71	.....	.....
14	52.37	52.14	52.53	52.40	52.34	52.50	52.49	52.81	52.52	.....	52.74
15	52.33	52.14	52.54	52.46	52.38	52.47	52.54	52.68	52.47	52.60	.....
16	52.54	52.36	52.51	52.47	52.38	52.47	52.58	52.62	52.52	.....	.....
17	52.52	52.22	52.38	52.43	52.33	52.47	52.52	52.73	52.76	.....	.....

(D-36-22)27ddb-2.--Continued.

Water level at noon, from recorder charts											
Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
18	52.50	52.07	52.33	52.38	52.31	52.51	52.49	52.63	52.53	.....	.....
19	.....	52.20	52.43	52.37	52.24	52.44	52.44	52.46	52.54	.....	.....
20	.....	52.09	52.42	52.39	52.24	52.46	52.55	52.51	52.52	.....	.....
21	.....	52.35	52.32	52.43	52.09	52.49	52.54	52.51	52.69	.....	.....
22	51.87	52.40	52.06	52.42	52.18	52.54	52.54	52.36	52.71	.....	.....
23	51.61	52.46	51.91	52.39	52.38	52.57	52.55	52.33	52.76	52.65	.....
24	52.22	52.33	52.04	52.40	52.44	52.55	52.49	52.33	52.65	.....	.....
25	52.34	52.15	52.17	52.40	52.44	52.56	52.39	52.41	52.53	.....	.....
26	52.29	52.49	52.20	52.40	52.37	52.58	52.42	52.66	52.41	.....	.....
27	52.09	52.55	52.33	52.39	52.50	52.48	52.55	52.72	52.23	.....	53.21
28	52.09	52.54	52.48	52.35	52.60	52.41	52.62	52.68	52.15	.....	.....
29	52.10	52.30	52.21	52.34	52.63	52.52	52.62	52.61	52.34	.....	.....
30	.....	52.20	52.40	52.62	.....	52.58	52.57	52.33	52.98	.....	.....
31	52.32	.....	52.45	.....	.....	52.60	.....	52.54	.....	.....	.....

(D-37-22)10ddc-1. State application 16124. Bureau of Land Management, U. S. Dept. of Interior. Records available: 1946-48. Oct. 8, 88.66.

(D-40-22)29bcc-1. F. A. Nielson. Records available: 1942-43; 1946-48. Oct. 8, 8.18.

Sanpete County - Central Sevier Valley<sup>18</sup>

(C-19-1)23bcc-1. State claim 1457. C. H. Beal. Records available: 1935-48. Mar. 27, 30.69; Dec. 13, 29.90; July 22, 31.80; Dec. 13, 29.97.

(C-19-1)25cd-2. W. J. Wintch and R. P. Dyreng. Records available: 1935-48. Flowing prior to measurement. Dec. 13, +0.75.

(D-20-1)5bd. Federal Land Bank. Records available: 1939-48. Mar. 16, 21.80; July 22, 14.60; Dec. 13, 18.37.

(D-20-1)20aaa-1. State claim 6356. Federal Land Bank. Records available: 1935-48. Mar. 17, 30.89; July 22, 25.82; Dec. 13, 28.49.

(D-14-2)13aa. Ernest Hansen. Records available: 1935-48. Flowing prior to measurements. Mar. 18, +19.2; July 23, +19.4; Dec. 14, +18.4.

(D-14-3)33bcc-1. State claim 3708. Joseph Cloward. Records available: 1935-48. Flowing prior to measurements. July 23, +4.63; Dec. 14, +5.1.

(D-15-3)8cda-3. State claim 13671. William Frestwick. Records available: 1937-48. Flowing prior to measurements. Mar. 18, +3.48; Dec. 14, +3.22.

(D-15-3)28aba-1. State claim 2100. Isaac Reynolds. Records available: 1937-48. Flowing prior to measurements. Mar. 18, +2.43; Dec. 13, +2.04.

(D-15-4)4dda-1. State claim 3606. Twin Creek Irrigation Co. Records available: 1935-48. Recorder removed on July 17.

Water level at noon, from recorder charts											
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Dec.			
1	18.36	19.57	21.20	22.57	22.06	17.82	13.22	.....			
2	18.40	19.60	21.25	22.60	22.09	16.82	13.34	.....			
3	18.45	19.65	21.32	22.62	22.13	15.44	13.45	.....			
4	18.48	19.71	21.38	22.64	22.00	15.27	13.58	.....			
5	18.53	19.76	21.43	22.65	21.98	15.11	13.66	.....			
6	18.55	19.83	21.49	22.65	21.96	15.18	13.75	.....			
7	18.55	19.90	21.55	22.69	21.85	15.27	13.50	.....			
8	18.57	19.97	21.60	22.70	21.68	15.20	13.60	.....			
9	18.53	20.03	21.64	22.71	21.20	14.93	13.68	.....			
10	18.55	20.08	21.68	22.71	21.28	14.69	13.76	.....			

<sup>18</sup> For other wells in this valley see page 129.

(D-15-4)4dda-1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Dec.
11	18.59	20.15	21.74	22.71	20.70	14.56	13.85	.....
12	18.66	20.20	21.79	22.73	20.63	13.44	13.90	.....
13	18.73	20.25	21.84	22.73	21.16	13.89	13.98	22.21
14	18.81	20.31	21.88	22.73	21.35	13.85	14.02	.....
15	18.88	20.38	21.93	22.73	21.43	13.86	14.05	.....
16	18.92	20.44	21.99	22.73	21.57	13.90	14.11	.....
17	18.96	20.49	22.03	22.73	21.30	13.76	14.18	.....
18	19.02	20.54	22.07	22.74	21.22	13.92	.....	.....
19	19.09	20.60	22.12	22.74	20.69	14.06	.....	.....
20	19.16	20.65	22.15	22.74	20.56	14.21	.....	.....
21	19.21	20.70	22.18	22.74	20.51	14.25	.....	.....
22	19.20	20.74	22.23	22.74	20.43	14.16	.....	.....
23	19.11	20.80	22.27	22.74	20.28	13.92	a43.50	.....
24	19.00	20.88	22.31	22.74	19.45	13.82	.....	.....
25	18.93	20.94	22.34	22.74	19.21	13.49	.....	.....
26	19.04	21.01	22.38	22.74	18.78	13.39	.....	.....
27	19.23	21.08	22.42	22.70	18.77	13.37	.....	.....
28	19.32	21.13	22.46	22.57	18.63	13.46	.....	.....
29	19.42	21.17	22.49	22.33	18.64	13.24	.....	.....
30	19.51		22.51	22.08	18.59	13.28	.....	.....
31	19.55		22.54		18.52		.....	.....

a Pumping.

## Sanpete County - Sanpete Valley

(D-15-4)6ada-1. State claims 3741 and 8279. W. H. Brinton. Records available: 1937-48. July 23, 5.10; Dec. 13, 5.17.

(D-15-4)29bac-1. State claim 8276. Drought Relief Administration. Records available: 1935-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 18	6.75	Oct. 20	3.33	Nov. 1	4.07	Nov. 14	4.51
July 23	1.02	21	3.38	2	4.12	15	4.64
Oct. 10	3.04	22	3.42	3	4.14	16	4.59
11	3.06	23	3.45	5	4.12	17	4.70
12	3.11	24	3.50	6	4.28	18	4.73
13	3.16	25	3.62	7	4.34	19	4.81
14	3.20	26	3.72	8	4.39	20	4.87
15	3.23	27	3.79	9	4.46	21	4.88
16	3.24	28	3.86	10	4.50	22	4.74
17	3.26	29	3.91	11	4.53	23	4.50
18	3.28	30	3.96	12	4.60	Dec. 13	5.82
19	3.31	31	4.01	13	4.56		

(D-16-3)4aaa-1. State claim 2252. J. F. Bagnall. Records available: 1935-48. Flowing prior to measurements. Mar. 18, +7.2; Dec. 13, +6.3.

(D-16-3)14dca-1. State claim 65. Chris Larsen. Records available: 1938-48. Mar. 18, 11.25; July 23, 10.58; Dec. 13, 11.20.

(D-16-3)15aca-1. State claim 8492. Federal Land Bank. Records available: 1937-48. Mar. 18, 28.05; July 23, 28.04; Dec. 14, 29.15.

(D-16-3)15adc-1. State application 12588. E. L. Davidson. Records available: 1938-48. Mar. 18, 47.11; July 23, 69.30, pumping; Dec. 14, 47.55.

(D-16-3)32ddc-2. State claim 11676. George Beal. Records available: 1935-48.

(D-16-3)32ddc-2--Continued.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	+16.0	+15.2	+14.8	+14.1	+15.5	+18.6	+16.7	+15.1	....	....	+16.6
2	+16.7	+16.0	+14.9	+14.7	+14.2	+15.4	+18.0	+15.8	+15.3	....	....	....
3	+16.7	+15.8	....	+14.7	....	+15.5	+16.7	+16.0	+16.1	+17.6	....	+16.6
4	+16.2	+15.9	....	+14.6	....	+15.8	+15.5	+15.5	+16.7	+17.7	....	+16.3
5	+16.3	+15.8	....	....	....	+16.1	+15.7	+15.9	+17.6	+17.4	+17.0	....
6	+16.3	+15.7	....	....	....	+16.3	+16.5	+15.3	+17.8	+17.4	+16.9	+16.8
7	+16.2	+15.6	....	+14.6	....	+16.3	....	+15.9	....	+17.5	+17.1	....
8	+16.4	+15.7	....	+14.6	....	+16.6	....	+15.3	....	+17.5	....	....
9	+16.2	+15.7	+15.0	+14.5	+14.2	+16.8	+18.1	+15.4	....	+17.4	....	+16.3
10	+16.2	+15.7	+15.3	+14.4	+14.2	+16.9	+18.2	+15.7	....	+17.5	....	+16.5
11	+16.1	+15.9	+15.4	....	+14.0	+17.0	+17.9	+16.3	....	+17.4	....	+16.4
12	+16.1	....	+15.0	....	+14.1	+17.1	+16.8	+16.9	....	....	+17.4	+16.3
13	....	....	+15.0	....	+14.3	+17.4	+15.9	+15.7	....	....	....	+16.4
14	+16.1	....	+15.0	....	+14.2	+17.5	+15.0	+14.8	....	....	....	....
15	+16.1	....	+15.0	....	+14.3	+17.6	+15.0	+14.2	+17.7	....	+17.0	....
16	+16.1	....	+15.0	....	+14.2	....	+15.0	+15.7	+16.6	+17.2	+16.8	+16.5
17	+16.1	....	+14.9	....	+14.4	....	+14.7	....	+17.1	+17.5	+16.8	+16.2
18	+16.0	....	+14.8	....	+14.3	....	....	....	+17.2	+17.4	+16.8	+16.2
19	....	....	+14.8	+14.5	+14.4	+16.3	....	....	+17.3	+17.4	....	+16.1
20	....	....	+14.8	+14.6	+14.3	+15.4	....	+14.4	+17.6	+17.2	....	+15.8
21	....	+15.3	+14.8	+14.5	+14.3	+15.8	+17.1	+15.5	+17.6	+17.5	+16.9	....
22	....	+15.2	+14.8	+14.5	+14.5	+16.3	+18.3	+16.5	+17.7	+17.5	....	....
23	+16.0	+15.6	+14.9	+14.1	+14.5	+17.0	+16.0	+17.1	....	....	+16.8	....
24	+15.8	+15.5	+14.8	+14.2	+14.6	+17.3	+15.6	+17.4	+17.7	....	+16.8	+15.8
25	....	+15.5	+14.8	+14.2	+14.7	+17.7	+15.5	+17.6	+17.8	....	+16.6	+15.4
26	+15.9	+15.2	+14.7	+14.2	+14.8	+17.6	+15.6	....	+17.8	+17.2	+16.6	....
27	....	+15.1	+14.7	+14.3	+14.9	+18.0	+15.9	....	+17.7	....	....	+16.3
28	+16.2	+15.1	+14.7	+14.4	+15.1	+18.2	+16.1	....	+17.8	....	....	+16.0
29	+15.9	+15.1	+14.7	+14.4	+15.2	+18.3	+15.5	+16.2	+17.5	....	+16.8	....
30	+15.8	....	+14.7	+14.2	....	+18.4	+15.3	+15.3	+17.6	....	....	....
31	+16.0	....	+14.8	....	....	....	+15.8	+16.0	....	....	....	....

(D-16-3)33ccb-1. State claim 7333. Chris Olsen. Records available: 1935-48. Mar. 17, 2.00; July 22, 2.83; Dec. 13, 3.56.

(D-17-2)1bca-2. State claim 11528. G. A. Anderson. Records available: 1938-48. Flowing prior to measurements. Mar. 17, +8.1; Dec. 13, +7.9.

(D-17-2)36cbd-1. G. B. Cox. Records available: 1935-48. Mar. 17, +0.9; Dec. 13, +0.70.

(D-17-3)4bcc-1. State application 11763. R. A. Olsen and others. Records available: 1936-47. Flowing.

(D-17-3)6dba-1. State claim 11431. Niels Christensen. Records available: 1935-48. Flowing prior to measurements. Mar. 17, +5.0; Dec. 13, +5.2.

(D-17-3)9cbd-1. State claims 4446 and 8260. S. E. Christensen. Records available: 1935-48. Mar. 17, 30.94; July 22, 29.50; Dec. 13, 29.70.

(D-17-3)17adb-1. State claim 8261. Drought Relief Administration. Records available: 1938-48. Dec. 13, 39.81.

(D-17-3)30dbd-1. State claim 2696. Ernest Monk. Records available: 1938-48. Flowing prior to measurement. Dec. 13, +12.1.

(D-18-2)1da. L. H. Hougard. Records available: 1935-48. Mar. 17, 78.28; July 22, 60.30; Dec. 13, 73.04.

(D-18-2)12bab-1. State claim 13390. City of Manti. Records available: 1935-48. Mar. 17, 78.21; July 22, 71.40; Dec. 13, 73.86.

(D-19-2)17aad-1. State claim 13462. W. G. Frischknecht. Records available: 1935-48. July 22, 0.42; Dec. 13, 0.25.

(D-19-2)32aac-1. State claim 11881. Mayfield Irrigation Co. Records available: 1935-48. Mar. 17, 35.71; July 22, 18.63; Dec. 13, 31.37.

#### Sevier County - Central Sevier Valley<sup>19</sup>

(C-21-1)13bda-1. State claim 5817. Federal Land Bank. Records available: 1935-48. Flowing prior to measurements. Mar. 17, +6.4; Dec. 13, +6.8.

(C-21-1)27aad-1. State claim 8407. E. A. Thorsen. Records available: 1935-48. Mar. 17, 2.96; July 22, 4.83; pumping; Dec. 12, 3.00.

(C-22-1)8bbd-1. Max Curtis. Records available: 1936-48. Mar. 17, 29.29; July 22, 29.65; Dec. 12, 29.01.

(C-23-2)15bdd-3. State claim 1989. Sevier School District. Records available: 1936-48. Mar. 17, +7.5; Dec. 12, +8.2.

(C-23-2)15ccc-6. Martha Avery. Records available: 1937-48. Mar. 17, +5.6; July 22, +2.36; Dec. 12, +5.38.

(C-23-2)15dcb-4. State claim 1969. F. M. Jackson. Records available: 1936-48. Flowing prior to measurements. Mar. 17, +8.3; July 22, +4.2; Dec. 12, +8.0.

(C-23-2)19dab-1. State claim 8447. William Hallows. Records available: 1935-48. Flowing prior to measurements. Mar. 17, +23.1; July 22, +27.5; Dec. 12, +27.5.

(C-23-2)26cdb-1. State claim 323. N. C. Johnson. Records available: 1935-48. July 22, +5.2; Dec. 12, +6.9.

(C-23-2)31deb-2. State claim 3302. Pacific National Life Insurance Co. Records available: 1935-48. Mar. 17, +7.5; July 22, +9.0; Dec. 12, +8.9.

(C-25-3)3bbd-1. Luther Winget. Records available: 1936-48. Mar. 17, 13.60; July 21, 6.63; Dec. 10, 9.24.

(C-25-4)2db. R. W. Pinney. Records available: 1939-48. Mar. 17, 48.54; July 21, 44.86; Dec. 10, 46.00.

#### Sevier County - Grass Valley

(C-26-1)23ddb-1. State claim 12620. A. E. DeLange. Records available: 1936-48. Flowing prior to measurements. Mar. 17, +13.0; Dec. 12, +12.8.

(C-26-1)25acc-1. State claim 3159. A. R. Brown. Records available: 1935-48. Flowing prior to measurements. Mar. 17, +16.1; Dec. 12, +16.3.

(D-25-1)31cba-1. Charles Burr. Records available: 1936-48. Flowing prior to measurement. Dec. 12, +2.12.

#### Summit County - Weber Canyon

(A-3-4)4. Thomas Overd. Records available: 1938-46. No measurements made in 1948.

#### Summit County - Kimball Valley

(D-1-4)31bdb-1. Theodore Johnson. Records available: 1936-48. Mar. 26, 9.36. Measurements discontinued.

(D-1-4)31dc. Records available: 1941-47. No measurements made in 1948.

<sup>19</sup> For other wells in this valley see page 126.

(D-1-5)4cd. Joe Bean. Records available: 1938-48. Mar. 26, 8.00.

Summit County - Rhodes Valley

(D-1-6)19dad-1. State claim 3699. A. W. Frazier. Records available: 1938-48. Mar. 26, 16.08.

(D-2-6)5dbb. Burton Peterson. Records available: 1938-48. Mar. 26, 8.94.

(D-2-6)8aaa. State claim 12248. Ed Rockhill. Records available: 1938-48. Mar. 26, 13.18.

(D-2-6)20ccc. State claim 12231. A. H. Padfield. Records available: 1938-48. Mar. 26, 2.91.

(D-2-6)28ccc-1. Lillian McNeil. Records available: 1938-47. No measurements made in 1948.

Tooele County - Rush Valley

(C-5-5)2bc. Alma Young. Records available: 1935-48. Mar. 24, 23.68; Dec. 20, 23.72.

(C-5-5)30becb-1. State claim 8286. Willard Sager. Records available: 1938-48. Mar. 24, 12.43.

(C-5-5)31dbd-1. Records available: 1941-48. Mar. 24, 20.71; Dec. 20, 20.69.

(C-5-5)32add-1. Records available: 1941-48. Mar. 24, 25.55; Dec. 20, 26.28.

(C-5-5)32adb-1. Stockey Bros. Records available: 1944-48. Mar. 24, 0.82; Dec. 20, 2.52.

(C-8-5)20dc. Records available: 1941-48. Mar. 24, 7.96; Dec. 20, 7.87.

(C-8-5)30ccc-1. State claim 1573. H. I. Yates. Records available: 1941-48. Mar. 24, 5.90; Dec. 20, 8.41.

(C-8-5)31add-1. D. J. Fredrickson. Records available: 1941-48. Mar. 24, 19.45; Dec. 20, 20.58.

(C-8-6)23cd. Records available: 1941-47. Flowing. No measurements made in 1948.

(C-9-5)6bca-1. State claim 8285. Drought Relief Administration. Records available: 1936-48. Mar. 24, 18.20; Dec. 20, 19.08.

Tooele County - Tooele Valley

Burmester District

(C-2-4)16aad-2. State claim 14209. Utah Wool Pulling Co. Records available: 1941-44. No measurements made in 1948.

(C-2-4)17dad-1. E. J. Jeremy. Records available: 1936-48. Flowing prior to measurement. Mar. 25, +24.6.

(C-2-5)5acc-3. A. Searle. Records available: 1941-42; 1944-48. Mar. 25, 0.77; Dec. 14, 1.14.

(C-2-5)25aab-1. State of Utah. Records available: 1936-44. No measurements made in 1948.

(C-2-5)27ccd-3. State claim 17008. Edwin Cassity. Records available: 1941-48. Mar. 25, 0.04.



(C-2-6)23ebb-1. State claim 16776. C. H. Worthington. Records available: 1941-48. Mar. 25, 2.81; Sept. 8, 2.90.

## Erda District

(C-2-4)27ccb-1. State claim 902. V. J. Crocheron. Records available: 1940-42; 1944-45; 1948. Flowing prior to measurements. Mar. 24, +9.00; Sept. 8, +3.92.

(C-2-4)31dca-1. State claim 15160. State of Utah. Records available: 1937; 1939-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 6	+7.92	July 17	+7.34	Aug. 28	+7.35	Oct. 18	+7.21
14	+7.80	24	+7.54	Sept. 4	+7.34	23	+7.26
21	+7.78	Aug. 2	+7.63	11	+7.36	30	+7.28
26	+7.70	8	+7.60	18	+7.26	Nov. 6	+7.40
July 3	+7.76	14	+7.48	25	+7.35	13	+7.81
12	+7.31	21	+7.40	Oct. 9	+7.24	20	+8.00

(C-2-4)33abb-2. State claim 806. L. T. Liddell. Records available: 1930; 1935-48.

Jan. 3	+13.10	Apr. 4	+15.12	July 3	+9.33	Oct. 2	+9.54
10	+13.29	10	+15.17	10	+9.46	9	+9.81
17	+13.46	18	+15.21	17	+9.50	16	+10.31
24	+14.54	25	+15.31	24	+9.96	24	+10.65
31	+14.50	May 1	+15.17	Aug. 2	+10.50	30	+11.69
Feb. 7	+14.54	8	+13.50	8	+10.25	Nov. 6	+12.65
14	+14.83	15	+11.83	14	+9.71	13	+13.21
21	+14.87	22	+10.79	21	+9.73	20	+13.27
28	+14.94	29	+10.63	28	+9.12	27	+13.33
Mar. 6	+15.00	June 6	+10.08	Sept. 4	+9.21	Dec. 4	+12.92
13	+15.02	13	+9.85	11	+9.29	11	+14.42
20	+15.12	19	+9.87	18	+9.54	18	+14.33
27	+15.12	26	+9.61	25	+9.52	25	+14.42

(C-2-4)33abb-4. State claim 808. L. T. Liddell. Records available: 1934-41; 1943-48.

Jan. 3	+15.31	Apr. 4	+16.31	July 3	+11.19	Oct. 2	+11.41
10	+15.43	10	+16.35	10	+10.93	9	+11.56
17	+15.62	18	+16.89	17	+10.91	18	+11.83
24	+15.70	25	+16.45	24	+11.58	24	+12.06
31	+15.26	May 1	+16.41	Aug. 2	+11.68	30	+12.77
Feb. 7	+15.77	8	+15.29	8	+11.49	Nov. 6	+13.95
14	+15.83	15	+13.77	14	+11.47	13	+14.60
21	+15.91	22	+12.27	21	+11.10	20	+14.77
28	+16.04	29	+11.99	28	+10.72	27	+14.77
Mar. 6	+16.06	June 6	+11.85	Sept. 4	+10.66	Dec. 4	+15.41
13	+16.12	13	+11.66	11	+11.06	11	+15.60
20	+16.19	19	+11.47	18	+11.16	18	+15.56
27	+16.14	26	+11.47	25	+11.35	25	+15.62

(C-2-4)33add-1. State claim 899. Ida L. Clegg. Records available: 1937-48.

## Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	33.46	32.93	32.66	32.33	.....	34.21	34.66	34.79	35.34	35.14	34.46	33.53
2	33.38	32.93	32.58	32.27	.....	34.24	34.68	34.75	35.31	35.13	34.43	33.44
3	33.49	32.98	32.64	32.28	.....	34.29	34.75	34.80	35.32	35.11	34.17	33.32
4	33.41	32.93	32.70	32.28	.....	34.26	34.78	34.86	35.32	35.09	34.24	33.34
5	33.45	32.87	32.68	32.26	.....	34.14	34.82	34.88	35.32	35.06	34.21	33.31
6	33.40	32.88	32.59	32.26	.....	34.23	34.84	34.87	35.35	35.10	34.07	33.34

(C-2-4)33add-1--Continued.

Water level at noon, from recorder charts												
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
7	33.37	32.97	32.58	32.30	32.19	34.24	34.84	34.88	35.35	35.11	34.07	33.22
8	33.39	32.97	32.53	32.29	32.48	34.29	34.87	34.89	35.37	35.07	34.11	33.30
9	33.37	32.86	32.49	32.24	32.56	34.32	34.90	34.87	35.40	35.06	34.08	33.25
10	33.28	32.83	32.60	32.20	32.60	34.32	34.89	.....	35.39	35.04	33.94	33.20
11	33.30	32.91	32.62	32.19	32.92	34.34	34.88	34.84	35.30	35.02	33.91	33.15
12	33.35	32.91	32.56	32.24	33.01	34.38	34.92	34.82	35.26	35.07	33.91	33.09
13	33.38	32.89	32.47	32.27	33.06	34.43	34.93	34.85	35.25	35.06	33.89	33.08
14	32.29	32.84	32.43	32.27	33.22	34.42	34.99	34.87	35.24	35.01	33.86	33.06
15	33.25	32.81	32.49	32.26	33.29	34.46	34.99	34.90	35.20	35.06	33.80	33.11
16	33.24	32.89	32.46	32.22	33.34	34.46	34.99	34.92	35.18	35.10	33.80	33.07
17	33.20	32.83	32.40	32.15	33.40	34.53	34.98	34.93	35.22	35.10	33.77	33.02
18	33.18	32.77	32.40	32.25	33.46	34.52	34.98	34.92	35.19	35.01	33.82	33.10
19	33.20	32.78	32.35	32.26	33.59	34.50	34.98	.....	35.17	34.99	33.66	32.09
20	33.20	32.79	32.45	32.21	33.63	34.57	35.07	35.14	35.18	34.85	33.68	31.98
21	33.18	32.74	32.49	32.16	33.64	34.43	35.09	35.08	35.16	34.86	33.72	32.00
22	33.09	32.60	32.40	.....	33.76	34.49	34.96	35.07	35.11	34.85	33.68	31.99
23	33.07	32.66	32.37	.....	33.78	34.52	34.89	35.13	35.10	34.83	33.65	31.86
24	33.05	32.78	32.34	.....	33.80	34.50	34.95	35.08	35.09	34.78	33.53	32.00
25	33.07	32.76	32.33	.....	33.80	34.50	34.87	35.12	35.10	34.76	33.56	31.90
26	33.13	32.65	32.47	.....	33.84	34.59	34.86	35.21	35.18	34.71	33.55	.....
27	33.17	32.68	32.45	.....	33.97	34.63	34.83	35.25	35.18	34.66	33.67	.....
28	33.10	32.63	32.37	.....	33.98	34.65	34.90	35.27	35.19	34.59	33.61	.....
29	33.05	32.66	32.29	.....	33.95	34.67	34.86	35.27	35.16	34.49	33.56	.....
30	33.01	.....	32.26	.....	34.08	34.63	34.86	35.27	35.14	34.47	33.47	.....
31	33.05	.....	32.36	.....	34.13	.....	34.80	35.31	.....	34.47	.....	.....

(C-2-4)33bbb-2. State claim 16796. Franklin Whitehouse. Records available: 1941-42; 1944-47. No measurements made in 1948.

## Grantsville District

(C-2-5)19dec-1. G. L. Sutton. Records available: 1937-48. Flowing prior to measurements. Mar. 25, +5.1; Dec. 14, +4.6.

(C-2-5)31bbd-3. State claim 17112. Tony Castagnoli. Records available: 1937-48. Mar. 25, +17.3.

(C-2-6)36bac-1. State application 12189. J. R. Clark. Records available: 1940-48. Mar. 25, 20.30; Dec. 14, 20.87.

(C-2-6)36cdd-1. E. C. Walk. Records available: 1936; 1940-48.

Water level at noon from recorder charts												
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	78.11	78.25	78.29	.....	75.92	75.45	76.50	.....	77.87	78.22	78.40
2	.....	78.11	78.20	78.23	.....	75.89	75.47	76.44	.....	77.87	78.23	78.35
3	.....	78.17	78.22	78.23	.....	75.88	75.49	76.47	.....	77.87	.....	78.31
4	.....	78.17	78.25	.....	.....	75.82	75.52	76.49	.....	77.87	78.27	78.37
5	.....	78.17	78.24	78.20	.....	75.80	75.56	76.54	.....	.....	78.27	.....
6	.....	78.20	78.22	78.20	.....	75.79	75.58	.....	77.43	77.95	78.25	78.49
7	.....	.....	78.22	.....	77.00	75.75	75.61	76.60	77.44	77.96	78.28	78.45
8	.....	78.26	78.21	.....	76.97	75.72	75.66	76.63	77.48	77.96	78.30	78.51
9	.....	78.23	78.21	.....	76.92	75.69	75.69	76.66	77.51	77.97	78.29	78.47
10	.....	78.24	78.29	.....	76.84	75.67	75.70	76.70	77.54	77.97	78.27	78.47
11	.....	78.31	78.30	.....	76.78	75.67	75.71	76.73	77.56	78.00	78.31	78.47
12	.....	78.32	78.30	.....	76.72	75.65	75.77	76.75	77.59	78.04	78.34	78.44
13	.....	78.35	78.29	78.07	76.64	.....	75.81	76.78	77.60	78.04	78.34	78.46
14	.....	78.33	78.27	78.07	76.60	.....	75.89	76.81	77.60	78.03	78.33	78.47
15	.....	78.31	78.30	78.05	.....	75.59	75.91	76.87	77.60	78.07	78.36	78.50
16	.....	78.36	78.30	78.01	75.50	75.55	75.94	76.89	77.63	78.10	78.34	78.47
17	.....	78.32	78.29	77.98	76.42	75.55	75.96	76.92	77.65	78.10	78.37	78.46
18	.....	78.29	78.29	78.00	76.36	75.50	75.99	76.94	77.66	78.07	78.39	78.48
19	.....	78.31	78.28	77.96	76.38	75.51	76.00	76.99	77.68	78.11	78.32	78.44
20	.....	78.34	78.32	.....	76.30	75.50	76.07	77.02	77.69	78.11	78.37	.....
21	.....	78.31	.....	77.93	76.24	75.47	76.07	77.02	77.72	78.12	78.41	78.38

(C-2-6)36cdd-1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
22	.....	78.23	78.29	77.85	76.26	.....	76.10	.....	77.72	78.13	78.40	.....
23	.....	78.28	78.30	77.83	76.20	75.53	76.12	.....	77.73	78.13	78.41	.....
24	.....	78.32	78.29	.....	76.13	75.51	76.14	.....	77.74	78.14	78.38	.....
25	.....	78.31	78.32	.....	76.12	75.48	76.18	.....	77.77	78.16	.....	.....
26	.....	78.27	78.36	.....	76.07	75.46	76.20	.....	77.81	78.14	.....	.....
27	.....	78.28	78.36	.....	76.02	75.47	76.19	.....	77.83	78.14	.....	.....
28	.....	78.25	78.35	.....	75.97	75.48	.....	.....	77.82	78.15	78.36	.....
29	.....	78.27	78.31	.....	75.97	75.48	.....	.....	77.83	78.18	78.37	.....
30	78.14	78.27	.....	.....	75.90	75.44	76.33	.....	77.84	78.19	78.33	.....
31	78.15	78.31	.....	.....	75.92	.....	76.36	.....	.....	78.19	.....	.....

(C-3-5)5bbb-1. State claim 15330. R. W. Brown. Records available: 1942-48. Flowing prior to measurements. Mar. 25, +1.38; Dec. 14, +1.44.

(C-3-5)6dda-1. State claim 9952. Federal Land Bank. Records available: 1940-48. Mar. 25, 52.96; Sept. 8, 52.04; Dec. 14, 53.46.

#### Lake Point District

(C-2-4)1bcc-1. Jesse Long. Records available: 1940-48. Mar. 23, 34.78; Sept. 8, 32.59; Dec. 14, 32.82.

(C-2-4)2aba-1. B. N. Griffith. Records available: 1936-48. State claim A-11962. Mar. 23, +7.3.

(C-2-4)3dcc-1. Nick Soter. Records available: 1941-47. No measurements made in 1948.

#### Marshall District

(C-2-5)34add-1. State application 13537. B. H. Woodward. Records available: 1941-48. Flowing prior to measurements. Mar. 25, +12.0; Dec. 14, +12.5.

(C-2-5)36caa-1. State claim 13692. J. A. and S. W. Smith. Records available: 1937-48. Mar. 25, 31.17; Sept. 8, 31.50; Dec. 14, 31.73.

#### Uintah County - Uinta Basin 20

U(B-1-1)2caa-2. Ralph Redfoot. Records available: 1936-48. Oct. 4, 24.21.

U(D-1-1)14bbc-1. State claim 1868. George Hackford. Records available: 1935-48. Oct. 4, 8.57.

U(D-1-1)23abb-1. Albert Daniels. Records available: 1935-46. No measurements made in 1948.

(D-3-21)17eda-1. State claim 6641. M. M. Bingham. Records available: 1935-48. Flowing prior to measurement. Oct. 5, +7.0.

(D-3-21)30dca-1. State claim 2629. R. G. Alexander. Records available: 1935-48. Oct. 5, +10.1. Measurements discontinued.

(D-4-21)2bod-1. Gibson Ranch Co. Records available: 1939-46; 1948. July 3, 6.53; Oct. 5, 7.53.

(D-4-21)8cdc-1. Delbert Horrocks. Unused well, diameter 36 inches, depth 22 feet. Measuring point, top of iron pumpbase, 0.5 foot above land-surface datum and 5,624.14 feet above mean sea level. Records available: 1948.

20 For other wells in this basin see pages 106-107.

(D-4-21)8cdc-1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 20	11.79	May 14	11.86	July 1	3.11	Oct. 5	7.67
Apr. 5	12.57	June 2	4.26	29	4.72	Nov. 2	8.42
14	13.02	15	3.74	Aug. 31	6.29	Dec. 1	8.27
30	13.79						

(D-4-21)9bcb-1. State application 16824. Lena McCarty. Unused well, diameter 4 inches, depth 17 feet. Measuring point, top of casing, 3.0 feet above land-surface datum and 5,559.62 feet above mean sea level. Records available: 1948.

Feb. 2	10.22	Apr. 5	9.78	June 2	2.90	Aug. 31	9.30
17	10.36	14	9.81	16	3.10	Oct. 5	9.94
Mar. 3	9.87	30	8.90	July 1	5.65	Nov. 2	10.62
20	9.92	May 14	3.97	29	8.56	Dec. 1	10.42

(D-4-21)10bbb-2. State application 17176. Marion Hall. Domestic well, diameter 8 inches, depth 39 feet. Measuring point, top of casing, 2.0 feet below land-surface datum and 5,464.69 feet above mean sea level. Records available: 1948.

Apr. 30	24.55	June 2	15.81	July 1	20.99	Aug. 31	27.24
May 14	21.40	15	17.11	30	24.20	Oct. 5	28.76

(D-4-21)11ddb-1. Clifford Hatch. Unused well, diameter 36 inches, depth 10.5 feet. Measuring point, top of 2- by 2-inch upright, southwest corner, 2.0 feet above land-surface datum and 5,341.28 feet above mean sea level. Records available: 1948. Well filled; measurements discontinued after July 29.

Date	Water level	Date	Water level	Date	Water level
Apr. 28	6.53	June 2	6.62	July 1	6.33
May 14	6.54	15	6.19	29	6.43

(D-4-21)12acc-1. Lonzo McCarl. Records available: 1939-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 3	13.80	Apr. 5	15.35	June 2	8.80	Aug. 31	5.60
17	14.25	14	15.52	15	6.58	Oct. 5	9.14
Mar. 3	14.65	30	15.54	July 1	4.90	Nov. 6	9.45
23	15.12	May 14	13.91	29	5.31	Dec. 1	11.38

(D-4-21)12bcc-3. George Swett. Domestic well, diameter 36 inches, depth 10 feet. Measuring point, top of 3- by 12-inch plank over well, 1.0 foot above land-surface datum and 5,293.90 feet above mean sea level.

Mar. 23	3.02	Apr. 30	3.92	June 16	3.40	Oct. 5	4.13
Apr. 5	3.70	May 14	3.80	July 1	3.23	Nov. 6	3.73
14	3.47	June 2	2.68	29	2.75	Dec. 1	4.18

(D-4-21)13cdd-1. Latter Day Saints Elders Farm. Unused well, diameter 36 inches, depth 10 feet. Measuring point, top of 6- by 6 railroad tie, at land-surface datum and 5,253.70 feet above mean sea level. Records available: 1948.

Mar. 3	9.20	Apr. 30	6.05	July 2	5.67	Oct. 5	8.56
23	9.25	May 14	7.26	29	6.81	Nov. 6	8.01
Apr. 5	8.27	June 2	2.15	Aug. 31	7.94	Dec. 1	7.53
14	6.84	16	4.75				

(D-4-21)15bbb-1. Dorr Finican. Domestic well, diameter 36 inches, depth 13 feet. Measuring point, top of well cover southeast corner, 1.0 foot above land-surface datum and 5,452.32 feet above mean sea level. Records available: 1948.

## (D-4-21)15bbb-1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 20	4.90	May 14	5.81	July 1	4.95	Oct. 5	11.10
Apr. 5	5.02	June 2	5.00	Aug. 29	7.72	Nov. 6	8.15
12	5.63	15	4.36	Aug. 31	9.80	Dec. 1	6.11
30	6.56						

(D-4-21)15daa-1. Arvel Allred. Domestic well, diameter 18 inches, depth 12 feet. Measuring point, top of casing, 0.5 foot above land-surface datum, and 5,363.56 feet above mean sea level. Records available: 1948.

Mar. 20	8.50	May 14	6.06	July 1	6.37	Oct. 5	9.01
Apr. 5	7.53	June 2	6.05	Aug. 29	7.39	Nov. 6	8.88
14	6.83	15	6.15	Aug. 31	9.03	Dec. 1	8.79
30	6.67						

(D-4-21)16bba-1. Wm. Schaefermeyer. Unused well, diameter 6 inches, depth 25 feet. Measuring point, top of casing high point, 5.0 feet below land-surface datum and 5,524.52 feet above mean sea level. Records available: 1948.

Apr. 29	19.30	June 2	11.22	July 1	11.92	Aug. 31	15.78
May 14	18.10	15	9.48	29	14.18	Oct. 5	17.80

(D-4-21)21dcd-1. Clifford Howe. Unused well, diameter 4 inches, depth 17 feet. Measuring point, top of casing, 1.5 feet above land-surface datum and 5,438.57 feet above mean sea level. Records available: 1948.

Apr. 30	9.60	June 15	6.36	Aug. 31	7.64	Nov. 2	8.06
May 14	9.01	July 1	6.90	Oct. 5	8.16	Dec. 1	8.72
June 7	5.30	29	7.35				

(D-4-21)22aba-1. State application 17965. Joseph K. Carroll. Stock domestic well, diameter 4 inches, depth 16 feet. Measuring point, top of casing, 1.5 feet above land-surface datum and 5,389.58 feet above mean sea level. Records available: 1948.

Apr. 28	5.88	June 15	4.38	Aug. 31	6.84	Nov. 6	6.13
May 14	5.50	July 1	4.43	Oct. 5	7.18	Dec. 1	6.02
June 2	4.06	29	6.14				

(D-4-21)22ddb-1. State claim 9906. A. T. Johnson. Unused well, diameter 8 inches, depth 29 feet. Measuring point, top of casing, 1.0 foot above land-surface datum and 5,364.76 feet above mean sea level. Records available: 1948.

## Water level at noon, from recorder charts

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	5.63	6.66	6.53	8.92	....	9.16	7.83
2	....	....	5.75	6.87	6.63	9.02	....	9.18	8.04
3	....	....	5.83	7.03	7.21	9.08	9.61	9.19	8.02
4	....	....	5.94	7.12	7.57	9.14	9.55	9.21	8.03
5	....	....	6.12	....	7.78	9.17	9.50	9.24	8.38
6	....	....	6.24	....	7.95	....	9.43	9.26	8.42
7	....	....	6.22	....	8.03	9.24	9.35	9.28	....
8	....	....	6.10	....	8.16	....	9.28	....	8.41
9	....	....	5.97	....	8.20	....	....	....	8.56
10	....	....	5.53	....	8.28	....	....	9.36	8.55
11	....	....	5.75	7.27	8.37	....	9.09	9.38	8.59
12	....	....	5.98	6.85	8.44	9.38	9.08	9.40	8.61
13	....	....	5.70	....	8.47	9.46	....	9.41	8.58
14	....	8.24	....	....	8.50	9.54	....	9.42	8.67
15	....	....	5.74	....	8.58	9.61	....	9.42	8.78
16	....	....	....	....	8.67	9.69	....	9.44	8.88
17	....	....	....	....	8.77	9.70	....	....	8.97

(D-4-21)22ddb-1--Continued.

Water level at noon, from recorder charts									
Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
18	....	....	....	....	8.78	9.72	9.06	....	9.04
19	....	....	....	....	....	9.74	9.04	....	9.11
20	....	....	....	8.51	....	9.71	9.02	....	....
21	....	....	5.36	8.18	....	9.69	9.02	9.48	9.24
22	....	....	5.36	8.26	....	....	9.01	9.31	9.27
23	....	....	5.48	8.48	....	....	9.02	....	9.31
24	....	....	....	8.66	....	....	9.06	....	9.35
25	....	....	....	8.78	....	....	....	....	9.38
26	....	....	....	7.90	....	....	9.13	....	9.41
27	....	....	6.33	6.76	....	....	9.14	....	9.44
28	....	....	6.55	6.84	....	9.79	9.14	....	9.46
29	6.78	....	6.45	6.95	8.57	9.75	9.14	....	....
30	....	....	6.43	7.03	8.67	....	9.14	....	....
31	....	....	....	6.54	8.82	....	9.15	....	....

(D-4-2)23dbb-2. State application 16752. Ella Preas. Unused well, diameter 3 inches, depth 19 feet. Measuring point, top of casing, 1.0 foot above land-surface datum and 5,320.14 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 30	8.63	June 15	7.55	July 29	8.43	Nov. 6	9.87
May 14	8.17	July 1	7.68	Aug. 30	9.10	Dec. 1	10.00
June 7	7.48	28	8.36	Oct. 6	9.70		

(D-4-21)24aad-1. H. R. Hazelbush. Domestic well, diameter 30 inches, depth 16 feet. Measuring point, top of plug in 1-inch tee of discharge pipe, 0.5 foot above land-surface datum. Records available: 1948. July 29, 10.54; Aug. 31, 11.24; Oct. 5, 12.24.

(D-4-21)24ddd-1. State application 18382. Merrill Goodrich. Unused well, diameter 6 inches, depth 25 feet. Measuring point, top of rim of casing, at land-surface datum and 5,232.73 feet above mean sea level. Records available: 1948.

Feb. 2	3.42	Apr. 5	1.66	June 2	2.80	Aug. 30	5.77
17	3.66	14	2.10	16	2.93	Oct. 6	6.00
Mar. 3	2.15	30	2.62	July 2	2.81	Nov. 2	4.70
23	1.34	May 14	2.94	29	4.92	Dec. 1	3.82

(D-4-21)25bba-1. Aubra Hodgkinson. Unused well, diameter 36 inches, depth 8 feet. Measuring point, top of wood siding, southeast corner, 0.7 foot above land-surface datum and 5,275.29 feet above mean sea level. Records available: 1948.

Mar. 3	2.51	Apr. 30	2.48	July 2	3.17	Oct. 6	4.47
23	1.94	May 14	2.02	29	4.16	Dec. 1	3.15
Apr. 14	2.26	June 7	1.93	Aug. 31	3.50		

(D-4-21)25daa-1. Glen S. Knight. Stock well, diameter 48 inches, depth 8 feet. Measuring point, bottom of flange on pump north side, 3.0 feet above land-surface datum and 5,221.56 feet above mean sea level. Records available: 1948.

Feb. 2	5.29	Apr. 5	4.39	June 2	2.18	Oct. 5	5.02
17	5.47	14	4.70	16	2.78	Nov. 2	4.13
Mar. 3	4.73	30	3.68	July 29	5.10	Dec. 1	3.76
23	4.56	May 14	3.68	Aug. 31	4.48		

(D-4-21)27aba-1. State application 16799. E. J. Westwood. Unused well, diameter 4 inches, depth 16 feet. Measuring point, top of casing, 5.0 feet above land-surface datum and 5,375.48 feet above mean sea level. Records available: 1948.

Apr. 28	5.25	June 15	4.39	Aug. 31	6.18	Nov. 2	5.79
May 14	4.98	July 1	5.27	Oct. 5	6.03	Dec. 1	5.92
June 4	4.76	29	4.67				

(D-4-21)27daa-1. John Watkins. Stock well, diameter 36 inches, depth 15 feet. Measuring point, top of board across well, north side, 1.0 foot above land-surface datum and 5,355.10 feet above mean sea level. Records available: 1948.

Feb. 2	8.92	Apr. 5	7.91	June 7	4.70	Aug. 31	9.15
17	9.44	14	7.92	16	4.12	Oct. 5	9.84
Mar. 3	9.08	30	7.39	July 3	5.40	Nov. 2	9.33
23	9.03	May 14	7.65	29	7.69	Dec. 1	9.92

(D-4-21)34ddd-1. State application 17775. Owen Nelson. Unused well, diameter 4 inches, depth 94 feet. Measuring point, top of casing, 1.0 foot above land-surface datum and 5,419.98 feet above mean sea level. Records available: 1948.

Feb. 2	13.17	Apr. 5	13.78	June 7	8.88	Aug. 31	13.96
17	14.08	14	13.63	16	9.08	Oct. 5	14.24
Mar. 3	13.91	30	12.90	July 3	10.17	Nov. 2	14.07
23	14.02	May 14	12.04	29	11.55	Dec. 1	12.94

(D-4-21)36aab-1. State application 18168. Don B. Weeks. Stock well, diameter 6 inches, depth 19 feet. Measuring point, top of 4-inch casing, 2.0 feet above land-surface datum and 5,237.81 feet above mean sea level. Records available: 1948.

Feb. 2	2.46	Apr. 30	1.28	July 15	4.27	Oct. 31	5.56
17	2.63	May 14	2.25	29	4.65	Nov. 2	5.82
Mar. 3	1.91	June 7	2.05	Oct. 5	5.71	Dec. 1	4.97
Apr. 14	1.76	16	2.81				

(D-4-22)31bcc-1. Mabel Merrill. Stock well, diameter 4 inches, depth 8 feet. Measuring point, top of casing, 3.0 feet above land-surface datum and 5,229.10 feet above mean sea level. Records available: 1948.

Apr. 28	5.08	June 16	3.18	Aug. 30	6.00	Nov. 2	6.09
May 14	4.91	July 2	3.25	Oct. 5	5.96	Dec. 1	6.48
June 2	2.08	29	4.63				

(D-4-22)32dcd-1. Standard Oil of California. Unused well, diameter 6 inches, depth 56 feet. Measuring point, top of casing, at land-surface datum and 5,097.55 feet above mean sea level. Records available: 1948.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 28	3.37	June 16	3.48	Aug. 30	3.78	Nov. 2	3.34
May 14	3.55	July 2	3.52	Oct. 5	3.04	Dec. 1	3.41
June 2	3.61	28	3.22				

(D-5-21)1add-1. Standard Oil of California. Unused well, diameter 3 inches, depth 69 feet. Measuring point, top of coupling on casing, 2.5 feet above land-surface datum and 5,264.99 feet above mean sea level. Records available: 1948.

Apr. 30	53.30	June 16	53.54	July 29	53.63	Oct. 5	53.14
May 14	53.47	July 2	53.47	Aug. 31	53.41	Nov. 2	54.58
June 7	53.72						

(D-5-21)2deb-1. State application 18686. George C. Davis. Stock well, diameter 6 inches, depth 50 feet. Measuring point, top of casing, 0.5 foot above land-surface datum and 5,410.91 feet above mean sea level. Records available: 1948.

Apr. 29	8.70	June 16	7.06	Aug. 31	6.49	Nov. 2	7.96
May 14	5.79	July 3	6.72	Oct. 5	6.62	Dec. 1	10.76
June 7	4.74	30	8.28				

(D-5-22)5cbc-1. Unused well, diameter 3 inches, depth 30 feet. Measuring point, top of casing, 0.5 foot above land-surface datum and 5,193.24 feet above mean sea level. Records available: 1948.

Apr. 30	27.53	June 16	24.18	Aug. 30	25.95	Nov. 2	27.39
May 14	27.33	July 3	23.81	Oct. 5	26.43	Dec. 1	27.91
June 2	25.72	29	25.36				

(D-5-22)6abb-1. Unused well, diameter 3 inches, depth 6.5 feet. Measuring point, top of casing, 0.5 foot above land-surface datum and 5,214.47 feet above mean sea level. Records available: 1948.

Apr. 28	2.28	June 16	1.43	Aug. 30	4.05	Nov. 2	3.57
May 14	3.19	July 15	3.67	Oct. 5	3.48	Dec. 1	3.66
June 2	.14	29	2.82				

(D-5-22)6bbd-1. Merrill Goodrich. Unused well, diameter 4 inches, depth unknown. Measuring point, top of casing, 5.0 feet above land-surface datum and 5,237.88 feet above mean sea level. Records available: 1948.

Apr. 28	4.82	June 16	2.63	Aug. 30	6.17	Nov. 2	7.44
May 14	5.83	July 15	4.32	Oct. 5	7.11	Dec. 1	7.35
June 2	.81	29	2.85				

(D-5-22)7bdc-1. State application 16709. Elijah Jackson. Unused well, diameter 4 inches, depth 21 feet. Measuring point, top of casing, 1.0 foot above land-surface datum and 5,258.57 feet above mean sea level. Records available: 1948.

Feb. 2	11.08	Apr. 5	11.11	June 7	2.88	Aug. 31	9.10
17	11.47	14	11.01	16	3.00	Oct. 4	11.44
Mar. 3	11.52	30	10.31	July 3	4.71	Nov. 2	11.53
25	11.23	May 14	9.43	29	7.55	Dec. 1	11.98

#### Utah County - Cedar Valley

(C-6-2)29cac-1. Marsh Williams. Records available: 1943-48. Flowing prior to measurement. Mar. 29, +5.0.



Utah County - Goshen Valley

(C-10-1)2aad-1. State claim 5206. Albert Morgan. Records available: 1938-48. Mar. 8, 12.75; Nov. 29, 12.90.

(D-9-1)29cdc-1. Records available: 1938-48. Mar. 8, 26.62; Nov. 29, 26.54.

Utah County - Utah Lake Valley

## North Utah Basin

(C-5-1)2daa-3. State claims 10922, 10923, and 10924. O. J. Roberts. Records available: 1940-48. Mar. 29, 14.52; Dec. 22, 14.11.

(D-5-1)8aaa-1. State claim 11095. Lehi Irrigation Co. Records available: 1940-48. Mar. 29, 26.40; Dec. 22, 28.09.

(D-5-1)9ccc-3. State claim 16332. E. N. Webb. Records available: 1935-48. Mar. 29, +11.5; Dec. 22, +9.7.

(D-5-1)9dbb-1. State claim 11083. City of Lehi. Records available: 1936-48. Mar. 29, 11.08; Dec. 22, 11.96.

(D-5-1)14adb-1. State claim 8371. Drought Relief Administration. Records available: 1937-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	50.45	50.99	.....	52.92	53.12	54.28	51.22	53.01	53.90	54.17	.....	54.23
2	50.32	51.25	51.78	52.80	53.20	54.13	51.24	53.13	53.91	54.28	54.20	54.24
3	.....	51.26	51.91	52.80	53.32	53.80	51.32	53.19	53.88	54.20	53.88	53.80
4	50.53	51.16	52.18	52.92	53.18	53.43	51.41	53.33	53.93	.....	54.21	53.87
5	50.62	51.23	52.30	52.93	53.33	53.26	.....	53.13	54.11	54.94	54.40	54.10
6	50.65	51.56	52.10	52.88	53.31	53.21	51.74	53.00	54.09	54.09	54.16	54.09
7	50.58	51.63	52.12	53.10	53.01	53.04	51.73	52.77	54.03	54.19	54.16	54.06
8	50.61	51.48	52.03	53.10	53.14	52.86	51.98	52.61	54.03	54.02	.....	.....
9	50.70	51.26	51.89	53.05	53.26	52.71	52.13	52.60	54.13	53.96	.....	54.18
10	.....	51.54	52.21	52.83	53.34	52.61	52.10	52.74	54.21	53.97	54.19	53.96
11	.....	51.70	52.48	52.83	53.50	52.49	52.16	52.88	54.10	53.91	54.15	53.83
12	51.04	51.73	52.40	53.02	53.63	52.38	52.18	53.05	54.13	54.10	54.37	53.83
13	51.25	51.67	52.28	53.12	53.49	.....	52.24	53.09	54.14	54.17	54.36	53.79
14	51.10	.....	52.01	53.11	53.50	52.03	52.31	53.20	54.08	53.97	54.29	53.68
15	50.96	51.80	52.25	53.10	53.86	51.95	52.36	53.28	54.08	54.09	54.20	53.95
16	51.00	51.77	52.43	53.06	53.78	51.97	52.32	53.33	54.10	54.14	54.27	53.92
17	50.95	51.57	52.26	52.81	53.79	52.05	52.43	53.34	54.16	54.24	54.24	53.74
18	50.89	51.71	52.28	52.94	53.73	51.77	52.42	53.36	54.09	53.96	54.53	53.97
19	50.97	51.73	52.30	53.08	54.03	51.73	52.45	53.31	54.07	53.98	54.21	53.96
20	51.06	51.72	52.44	53.00	54.21	51.84	52.70	53.55	54.17	54.00	54.20	53.60
21	51.08	.....	52.70	52.93	54.25	51.48	52.70	53.48	54.09	54.11	54.44	53.66
22	51.92	.....	52.58	52.70	54.54	51.35	52.81	53.44	54.95	54.12	54.41	53.66
23	51.84	.....	52.52	52.75	54.60	51.32	52.78	53.54	54.89	54.08	54.35	53.32
24	51.81	51.88	52.44	52.97	54.56	51.23	52.71	53.66	54.94	54.05	54.05	53.68
25	51.84	51.96	52.55	52.97	54.53	51.15	52.74	53.66	54.99	.....	54.14	53.70
26	51.11	51.70	52.92	52.95	54.55	51.04	52.72	53.54	54.27	54.05	54.07	53.64
27	51.38	51.80	52.93	53.01	54.51	51.13	52.78	53.64	54.24	53.93	54.54	53.57
28	51.28	51.74	52.80	53.12	54.47	51.21	.....	53.25	54.10	53.91	54.49	53.72
29	51.18	51.90	52.60	53.01	54.49	51.34	53.14	53.79	54.09	54.01	54.31	.....
30	51.16	.....	52.54	53.12	54.39	51.17	53.14	53.78	54.09	54.06	54.14	.....
31	51.27	.....	52.86	.....	54.39	.....	53.19	53.85	.....	54.21	.....	.....

(D-5-1)15bca-1. State claim 5061. Eugene Briggs. Records available: 1935-47. No measurements made in 1948.

(D-5-1)17adc-12. State claim 11174. H. C. Comer. Records available: 1936-48. Mar. 29, +36.9.

(D-5-1)17add-5. State claim 3628. M. S. Lott. Records available: 1935-48. Mar. 29, +28.0.

(D-5-1)20aba-1. State claim 6860. Jacob Cox. Records available: 1935-36, 1938-48. Mar. 5, +56.0; Mar. 29, +56.1; Dec. 22, +53.5.

(D-5-1)20aba-2. State claim 6861. Jacob C. Cox. Records available: 1935-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.	Oct.	Nov.	Dec.
1	+35.4	+35.5	+35.9	+36.1	+34.5	+19.1	+22.5	....	+19.3	+25.7	+31.6
2	+35.4	+35.5	+36.0	+36.2	+33.9	+20.6	+21.0	....	+19.2	+26.8	+31.9
3	+35.4	+35.5	+35.9	+36.2	+33.5	+21.3	+20.3	....	+19.3	+26.8	+31.8
4	+35.5	+35.4	+35.9	+36.1	+32.9	+22.9	+20.2	....	+20.8	+26.6	+31.8
5	+35.6	+35.5	+35.9	+36.3	+32.3	+23.9	+19.3	....	+21.4	+27.1	+31.8
6	+35.9	+35.5	+35.9	+36.4	+31.5	+23.5	+19.1	....	+21.8	+27.2	+31.3
7	+36.0	+35.3	+35.8	+36.2	+29.0	+23.1	+17.3	+15.4	+22.2	+27.2	+32.1
8	+36.0	+35.3	+35.9	+36.0	+29.2	+23.3	+16.6	+15.1	+22.6	+27.4	+32.0
9	+36.0	+35.4	+36.0	+36.0	+28.3	+23.2	+16.0	+15.1	+22.1	+27.5	+32.1
10	+35.9	....	+35.8	+36.0	+28.4	+23.0	+15.5	+14.6	+22.9	+27.6	+32.0
11	+35.9	....	+35.7	+36.0	+28.3	+22.7	+15.4	+14.6	+23.5	+27.9	+32.3
12	+35.9	....	+35.8	+36.0	+27.8	+22.3	+15.7	+14.5	+24.1	+28.0	+33.0
13	+35.8	....	+36.0	+36.0	+27.1	+22.1	+15.9	+14.6	+24.1	+28.2	+33.4
14	+35.5	....	+36.0	+36.0	+26.0	+21.8	+15.8	+15.0	+23.9	+28.7	+33.5
15	+35.4	....	+36.0	+36.0	+25.5	+21.6	+16.0	+15.2	+24.1	+28.9	+33.5
16	+35.5	....	+36.1	+36.0	+24.7	+20.7	+15.7	+15.5	+24.4	+29.0	+33.7
17	+35.7	....	+36.1	+36.0	+24.1	+20.0	+15.5	+15.6	+24.5	+28.9	+33.5
18	+35.7	....	+36.0	+35.9	+23.6	+19.0	+16.0	+15.7	+24.9	+28.8	+33.5
19	+35.8	+35.3	+36.0	+35.8	+23.6	+17.4	+16.0	+16.0	+24.8	+29.8	+33.5
20	+35.9	+35.3	+36.0	+35.9	+23.6	+17.0	+16.0	+16.5	+23.1	+29.7	+33.5
21	+35.7	+35.4	+35.9	+35.6	+22.4	+17.9	+16.0	+16.9	+25.1	+29.8	+33.5
22	+35.6	+35.7	+36.0	+35.4	+21.3	+21.1	+16.0	+16.9	+25.6	+31.5	+33.5
23	+35.7	+35.7	+36.1	+35.5	+21.0	+22.5	+16.5	+16.7	+25.6	+31.7	....
24	+35.7	+35.7	+36.1	+35.5	+21.2	+22.6	+16.5	+16.8	+25.5	+31.8	+34.0
25	+35.7	+35.8	+35.1	+35.5	+20.0	+22.8	+16.4	+17.3	+25.6	+31.8	+33.5
26	+35.6	+35.7	+36.1	+35.5	+19.7	+22.9	+16.2	+17.6	+25.7	+31.8	+33.6
27	....	+35.9	+35.9	+35.5	+19.0	+23.0	+16.1	+18.0	+25.7	+31.8	+33.8
28	....	+35.9	+35.8	+35.4	+19.5	+23.2	+15.5	+18.7	+25.6	+31.7	+33.9
29	....	+35.8	+36.0	+35.0	+19.4	+23.1	+15.3	+18.8	+25.7	+31.7	+33.7
30	....	....	+36.4	+34.6	+19.1	+22.9	+14.8	+19.1	+26.0	+31.8	+33.5
31	....	....	+36.2	....	+19.0	....	+15.3	....	+25.5	....	+33.7

(D-5-1)23dab-3. State claim 17054. City of American Fork. Records available: 1940-48. Flowing prior to measurements. May 29, +25.4; Dec. 22, +24.3.

(D-5-2)18dcd-2. A. C. Christensen. Records available: 1940-48. Flowing prior to measurements. Mar. 29, +4.98; Dec. 22, +4.17.

(D-5-2)29dba-4. State claim 13150. Mark Richens. Records available: 1935-48. Flowing prior to measurements. Mar. 29, +17.5; Dec. 22, +18.5.

(D-6-2)3bdd-1. State claim 1651. Pioneer Pumping Co. Records available: 1937-47. No measurements made in 1948.

(D-6-2)10add-1. State claim 3123. City of Orem. Records available: 1940-48. Mar. 29, 43.90; Dec. 22, 40.74.

(D-6-2)16cbc-1. Frank Burningham. Records available: 1938-44; 1946-48. Flowing prior to measurement. Mar. 29, +5.4.

(D-6-2)18add-2. State application 11747. J. L. Larson. Records available: 1938-48. Mar. 29, +23.8; Dec. 22, +20.6.

(D-6-2)24dbd-1. Isaac Boyce. Records available: 1938-48. Mar. 29, 121.22; Dec. 22, 121.32.

(D-6-2)28bad-1. State claim 2087. Henry Williamson. Records available: 1935-48. Mar. 29, 16.5.

(C-7-2)12bcb-1. State claim 105. Provo City Corporation. Records available: 1935-48. Mar. 28, +28.9.

#### South Utah Basin

(D-7-2)35ccd-1. Angus Hales. Records available: 1937-48. Flowing prior to measurements. Mar. 30, +7.6; Dec. 23, +7.0.

(D-7-2)36dcc-2. H. H. Spatford. Records available: 1938-48. Flowing prior to measurements. Mar. 30, +17.9; Dec. 23, +15.7.

(D-7-3)32bcc-1. State claim 8345. Drought Relief Administration. Records available: 1937-48. Mar. 30, +54.1; Dec. 23, +53.8.

(D-7-3)33baa-6. State claim 7006. A. W. Finley. Records available: 1936-48. Flowing prior to measurements. Mar. 30, +10.0; Dec. 23, +10.9.

(D-8-1)13aaa-1. State claim 14076. R. G. Francis. Records available: 1936-48. Flowing prior to measurements. Mar. 30, +16.4; Dec. 23, +15.3.

(D-8-1)25ccb-1. State claim 11790. F. S. Hiatt. Records available: 1938-48. Flowing prior to measurement. Mar. 30, +15.3.

(D-8-2)4eba-2. State claim 10844. Mary Barney. Records available: 1937-48. Flowing prior to measurement. Mar. 30, +35.2.

(D-8-2)7ddd-1. State claim 10762. A. H. Beers. Records available: 1938-48. Mar. 30, +19.0, flowing prior to measurement; Dec. 23, +20.5.

(D-8-2)23dbd-1. State claim 13201. Utah-Idaho Sugar Co. Records available: 1936-47. No measurements made in 1948.

(D-8-2)29add-1. State application 11860. Reed Reynolds. Records available: 1940-48. Flowing prior to measurements. Mar. 30, +11.7; Dec. 23, +12.1.

(D-8-3)4cad-1. State application 11830. Springville Canning Co. Records available: 1935-48. Flowing prior to measurements. Mar. 30, +24.3; Dec. 23, +25.5.

(D-9-1)1cbb-2. State claim 8344. Drought Relief Administration. Records available: 1940-48. Mar. 30, 1.83.

(D-9-2)5ddc-2. State claim 1139. Payson City Corporation. Records available: 1935-48. Mar. 30, +15.2.

(D-9-2)11aaa-1. State claim 3364. Salt Lake & Utah Railroad Corporation. Records available: 1935-48. Flowing prior to measurement. Mar. 30, +41.4.

(D-9-2)18bcd-1. State claim 8357. Drought Relief Administration. Records available: 1940-48. Mar. 30, 6.27.

#### Wasatch County - Heber Valley

(D-2-5)20cc. Lee Bros. Records available: 1936-48. Measurements by Provo River Water Commissioner except on Mar. 26.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	27.0	Mar. 26	26.92	June 16	27.26	Oct. 25	27.6
Feb. 20	27.0	Apr. 19	25.75	July 26	27.5	Nov. 22	27.75
Mar. 22	26.75	May 22	27.0	Aug. 14	27.24		

(D-2-5)31ada-1. State claim 11234. Harry Morris. Records available: 1936-48. Measurements by Provo River Water Commissioner except on Mar. 26.

## (D-2-5)Slada-1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	9.1	Mar. 26	9.0	July 26	8.8	Oct. 25	7.41
Feb. 20	8.84	Apr. 19	5.3	Aug. 14	10.36	Nov. 22	11.3
Mar. 22	11.6	June 16	4.9	Sept. 14	2.0		

(D-3-4)55bbe-1. State claims 8379 and 11260. Drought Relief Administration. Records available: 1938-48. Mar. 26, 2.29.

(D-3-5)29cac-1. Miles Clyde. Records available: 1936-48. Mar. 26, 9.16.

(D-4-2)12aaa-1. Hartley Carlisle. Records available: 1940-48.

Water level, from recorder charts												
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41.27	45.57	47.78	50.79	49.40	31.44	22.43	21.83	26.21	32.27	33.92	41.25
2	41.42	45.70	47.92	50.86	49.35	29.80	22.23	22.16	26.56	32.45	34.12	41.42
3	41.55	45.83	48.05	50.92	49.65	29.34	21.92	22.68	26.97	32.50	34.33	41.57
4	41.69	45.97	48.20	50.98	49.77	27.41	21.82	23.07	27.32	32.52	34.62	41.73
5	41.82	46.08	48.32	51.03	49.90	26.39	21.91	23.33	27.59	32.49	34.87	41.90
6	41.99	46.16	48.44	51.08	50.00	25.73	21.93	23.89	27.85	32.56	35.09	41.97
7	42.15	46.25	48.57	51.13	49.99	25.27	21.65	22.22	28.10	32.37	35.19	42.22
8	42.28	46.44	48.69	51.18	49.72	24.71	20.93	22.07	28.24	32.18	35.30	42.42
9	42.39	46.61	48.81	51.23	49.41	25.25	20.63	22.94	28.50	32.18	35.58	42.55
10	42.52	46.72	48.92	51.27	48.89	26.25	20.50	23.01	28.36	32.32	35.94	42.66
11	42.68	46.86	49.10	51.29	48.30	26.21	20.40	23.16	27.99	32.52	36.28	42.76
12	42.98	46.50	49.16	51.32	47.76	25.70	20.01	23.16	28.15	32.61	36.63	42.43
13	43.13	46.61	49.31	51.30	46.82	25.35	20.17	23.08	28.73	32.78	36.96	43.07
14	43.28	46.71	49.40	51.27	46.25	25.49	20.33	23.12	29.06	32.99	37.28	43.21
15	43.43	.....	49.51	51.23	45.57	25.41	20.98	23.20	29.35	33.11	37.61	43.38
16	43.57	.....	49.63	51.21	44.59	25.55	21.38	23.13	29.57	32.20	37.81	43.52
17	43.70	.....	49.74	51.19	44.54	25.47	21.74	23.26	29.72	33.40	38.06	43.61
18	43.82	47.73	49.85	51.20	44.53	25.28	21.88	23.57	29.88	33.36	38.45	43.74
19	43.97	47.79	49.93	51.16	41.39	25.11	22.00	23.76	29.98	33.34	38.71	43.88
20	44.10	47.62	50.02	51.13	40.47	24.67	22.15	24.11	30.18	33.37	38.97	43.99
21	44.16	.....	50.11	51.14	39.71	24.10	22.17	24.31	30.57	32.55	39.21	44.11
22	44.27	.....	50.17	51.15	39.93	23.44	22.39	24.23	30.87	32.57	39.45	44.23
23	44.39	.....	50.32	51.14	39.80	22.60	22.48	24.47	31.15	32.72	39.68	44.32
24	44.52	.....	50.35	51.05	38.47	22.12	22.61	24.94	31.33	33.08	39.88	44.41
25	44.62	.....	50.34	.....	37.77	21.93	22.60	25.43	31.46	33.15	40.05	44.52
26	44.77	47.21	50.40	.....	36.82	21.55	22.39	25.60	31.63	33.19	40.17	44.61
27	44.94	47.33	50.48	.....	35.99	22.17	21.98	25.79	31.72	33.10	40.47	44.72
28	45.08	47.48	50.53	.....	35.26	22.33	21.65	26.07	31.77	33.38	40.69	44.82
29	45.24	47.64	50.57	49.48	33.93	22.48	21.58	26.07	31.83	33.38	40.89	44.91
30	45.34	.....	50.62	49.32	33.05	22.50	21.70	26.12	31.98	33.60	41.08	44.99
31	45.40	.....	50.68	.....	32.48	.....	21.98	25.97	.....	33.73	.....	45.03

(D-4-4)14abb-1. Charlotte Brown. Records available: 1915-48.

Water level, from recorder charts												
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.29	18.09	18.02	18.24	16.53	7.73	7.49	12.16	13.52	14.54	15.65	16.98
2	17.31	18.13	18.07	18.21	16.74	7.74	7.31	12.07	13.84	15.26	15.51	17.09
3	17.35	18.16	18.11	18.12	16.84	6.90	7.25	12.33	13.40	14.44	15.37	17.14
4	17.39	18.17	18.17	18.07	16.66	....	7.56	11.98	....	14.68	15.44	17.21
5	17.41	18.19	18.18	18.03	16.27	....	7.75	12.18	....	15.07	15.62	....
6	17.43	18.23	18.14	17.96	15.79	....	8.21	12.66	....	15.38	15.75	....
7	17.45	18.24	18.09	18.04	15.71	....	8.07	12.68	....	14.95	15.87	....
8	17.45	18.26	18.06	18.07	16.04	....	8.53	13.02	14.82	15.46	15.95	17.41
9	17.43	18.27	18.09	18.09	16.24	....	9.04	13.15	14.62	15.65	16.00	17.44
10	17.37	18.29	18.15	18.07	16.36	4.04	9.43	12.55	14.75	15.73	16.01	17.50
11	17.32	18.31	18.30	18.04	16.27	4.25	9.66	12.20	14.64	15.82	16.03	17.53
12	17.34	18.33	18.23	18.02	16.04	4.35	9.69	12.04	14.87	15.92	16.03	17.56
13	17.41	18.34	18.26	18.01	15.76	4.14	9.35	12.16	14.44	15.90	16.02	17.57
14	17.46	18.37	18.24	18.00	15.44	4.11	9.50	11.70	14.57	15.73	16.03	17.60
15	17.49	18.37	18.25	17.98	15.11	4.42	9.47	12.10	14.78	15.61	16.05	17.66

(D-4-4)14abb-1--Continued.

## Water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	17.54	18.41	18.12	17.98	15.14	4.56	10.04	12.54	14.98	15.67	16.07	17.64
17	17.63	18.43	18.08	18.00	14.50	4.34	9.76	12.87	15.14	15.69	16.13	17.71
18	17.64	18.44	18.09	18.03	13.71	4.91	10.21	13.17	15.27	15.63	16.19	.....
19	17.70	18.25	18.08	18.04	12.46	5.52	10.50	13.40	15.36	15.66	16.25	.....
20	17.76	17.88	18.09	18.07	12.80	6.13	10.83	13.41	15.30	15.61	16.34	.....
21	17.77	17.74	18.14	18.10	12.79	6.56	11.51	13.39	14.87	15.44	16.41	.....
22	17.80	17.67	18.19	18.13	12.80	6.61	11.45	13.12	14.65	15.00	16.50	17.86
23	17.83	17.67	18.26	18.14	12.53	6.45	11.37	13.09	13.67	15.07	16.57	17.87
24	17.91	17.74	18.26	18.15	11.68	6.37	11.46	12.70	14.40	15.27	16.63	17.88
25	17.93	17.78	18.12	18.12	10.97	5.87	11.57	13.00	14.91	15.43	16.71	17.90
26	17.98	17.82	18.12	18.06	11.03	6.16	11.93	13.40	15.26	15.41	16.77	17.92
27	17.97	17.84	18.10	17.98	10.58	5.80	11.61	.....	15.44	15.36	16.83	17.93
28	17.99	17.90	18.13	17.93	8.95	6.16	11.83	.....	15.61	15.45	16.88	17.96
29	18.02	17.91	18.07	17.86	7.52	6.49	11.85	.....	15.66	15.61	16.96	17.97
30	18.04	.....	18.12	17.25	7.76	7.02	12.23	.....	15.63	15.66	.....	18.00
31	18.06	.....	18.16	.....	8.03	.....	12.27	.....	.....	.....	.....	18.02

(D-4-4)14ccc-1. State claim 8380. D. R. A. Charleston. Records available: 1935-48. Flowing from May 27-July 9.

## Water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	+3.11	+2.23	+1.89	+3.12	+5.11	.....	+6.00	+4.34	+2.49	+2.38	+1.94
2	+3.12	+2.21	+1.90	+3.25	+5.23	.....	+5.86	+4.27	+2.45	+2.45	+1.91
3	+3.02	+2.15	+1.85	+3.37	+5.52	.....	+5.76	+4.22	+2.43	+2.53	+1.92
4	+3.01	+2.13	+1.77	+3.51	+5.63	.....	+5.64	+4.19	+2.45	+2.51	+1.85
5	+2.96	+2.11	+1.77	+3.63	+5.62	.....	+5.59	+4.12	+2.44	+2.49	+1.76
6	+2.94	+2.07	+1.77	+3.74	+5.67	.....	+5.59	+4.09	+2.36	+2.56	+1.73
7	+2.93	+1.98	+1.74	+3.79	+5.85	.....	+5.59	+4.05	+2.32	+2.62	+1.70
8	+2.88	+1.96	+1.75	+3.82	+5.83	.....	+5.52	+3.96	+2.32	+2.58	.....
9	+2.85	+2.01	+1.78	+3.90	+5.84	+8.44	+5.58	+3.86	+2.30	+2.60	.....
10	+2.87	+1.99	+1.73	+4.06	+5.85	+8.42	+5.49	+3.76	+2.31	+2.66	.....
11	+2.84	+1.90	+1.73	+4.20	+5.85	+8.30	+5.40	+3.68	+2.38	+2.65	.....
12	+2.78	+1.87	+1.77	+4.25	+5.88	+8.14	+5.31	+3.61	+2.36	+2.65	.....
13	+2.73	+1.83	+1.84	+4.30	+6.02	+7.99	+5.21	+3.51	+2.46	+2.67	.....
14	+2.75	+1.83	+1.92	+4.35	+6.19	+7.82	+5.13	+3.45	+2.46	+2.71	.....
15	+2.73	+1.83	+1.92	+4.43	+6.33	+7.71	+5.07	+3.44	+2.45	+2.66	.....
16	+2.68	+1.76	+1.96	+4.44	+6.55	+7.57	+5.04	+3.38	+2.44	+2.71	+1.33
17	+2.67	+1.78	+2.05	+4.52	+6.90	+7.86	+4.98	+3.32	+2.40	.....	+1.34
18	+2.66	+1.80	+2.10	+4.51	+7.08	+7.82	+4.92	+3.28	+2.43	+2.61	+1.25
19	+2.59	+1.82	+2.17	+4.52	+7.38	+7.70	+4.84	+3.21	+2.44	+2.65	+1.22
20	+2.54	+1.92	+2.20	+4.55	+7.58	+7.55	+5.38	+3.11	+2.44	+2.59	+1.26
21	+2.52	+1.94	+2.19	+4.62	+7.78	+7.41	+5.30	+3.06	+2.44	+2.49	+1.20
22	+2.53	+2.04	+2.27	+4.73	+7.82	+7.26	+5.20	+3.02	+2.44	+2.45	+1.15
23	+2.53	+2.02	+2.32	+4.82	+7.90	+7.18	+5.10	+2.94	+2.44	+2.43	+1.18
24	+2.49	+1.92	+2.42	+4.87	+8.03	+7.07	+4.98	+2.89	+2.47	+2.43	+1.04
25	+2.46	+1.92	+2.55	+4.97	+8.24	+6.97	+4.92	+2.81	+2.45	+2.35	+1.06
26	+2.38	+1.95	+2.55	+5.05	+8.44	+6.88	+4.85	+2.70	+2.46	+2.30	+0.98
27	+2.32	+1.95	+2.63	+5.13	.....	+6.47	+4.79	+2.65	+2.48	+2.13	+1.03
28	+2.34	+1.94	+2.75	+5.21	.....	+6.42	+4.69	+2.64	+2.48	+2.11	+0.89
29	+2.30	+1.90	+2.88	+5.32	.....	+6.32	+4.62	+2.61	+2.43	+2.08	+0.85
30	+2.26	.....	+3.02	+5.42	.....	+6.21	+4.55	+2.55	+2.41	+2.04	+0.80
31	+2.21	.....	+3.03	.....	.....	+6.09	+4.44	.....	+2.39	.....	+0.82

Washington County - Esalante Valley<sup>21</sup>

(C-37-17)12ccc-1. Charles Sides. Records available: 1941-48. Mar. 11, 30.65; Dec. 8, 31.46.

(C-37-17)14ccc-1. J. C. Bosshardt. Records available: 1941-48. Mar. 11, 40.58; Dec. 8, 43.76.

<sup>21</sup> For other wells in this valley see pages 96-98, 110-112, and 115.

(C-37-17)16cbb-1. State application 14146. J. W. Holt. Records available: 1941-48. Mar. 11, 15.89; Dec. 8, 15.66.

Washington County - Virgin River Valley

(C-42-11)3ac. Drought Relief Administration. Records available: 1934-48. July 17, 18.48; Dec. 9, 18.80.

Wayne County - Fremont Valley

(D-27-2)25bd. State claim 7164. S. E. Tanner. Records available: 1936-48. Flowing prior to measurement. Dec. 12, +9.6.

(D-28-4)36cdb-1. V. A. Lee. Records available: 1936-48. Dec. 11, 14.27.

(D-29-4)15cbd-1. W. P. Coleman. Records available: 1936-48. Dec. 11, 1.86.

Weber County - East Shore area 22

(B-5-1)5daa-1. Ogden City. Records available: 1943-48. Apr. 19, 78.54; July 15, 78.20; Sept. 7, 78.35.

(B-5-2)1ddd-1. Ogden City Corporation. Records available: 1945-48. June 19, 154.97; June 25, 154.00.

(B-5-2)1ddd-2. State application 16483. Ogden City Corporation. Records available: 1946-48. June 11, 151.86; June 18, 151.70.

(B-5-2)4aaa-2. State claim 5523. Florian Prevedel. Records available: 1944-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	+2.17	Feb. 16	+3.31	May 27	+1.40	Sept. 24	+0.01
5	+2.22	20	+3.33	July 2	+2.60	30	+0.01
7	+2.32	24	+3.44	20	+1.45	Oct. 10	+0.02
9	+2.32	28	+3.40	24	+1.33	20	+0.21
12	+2.73	Mar. 3	+3.34	30	+0.91	28	+0.28
16	+2.92	6	+3.30	Aug. 7	+0.60	Nov. 4	+0.43
20	+2.78	10	+3.24	15	+0.34	11	+0.43
24	+2.19	15	+3.32	26	+0.21	17	+0.57
28	+2.69	20	+3.24	27	+0.45	24	+1.13
Feb. 1	+3.24	26	+3.31	Sept. 2	+0.12	30	+1.45
5	+3.12	30	+3.30	9	+0.05	Dec. 9	+2.27
9	+3.21	Apr. 7	+3.31	16	+0.00	16	+3.02
13	+3.25	19	+2.53				

(B-5-2)4add-1. State claim 715. James R. Rawson. Records available: 1945-48. Flowing prior to measurements. Apr. 19, +1.58; Aug. 27, +1.79; Dec. 27, +1.85.

(B-5-2)4cdd-1. State application 11889. Donas Ward. Records available: 1936-48. Flowing prior to measurements.

Date	Water level	Date	Water level	Date	Water level
Apr. 19	+32.6	July 2	+29.4	Dec. 27	+31.9
May 27	+29.0	Aug. 27	+29.5		

(B-5-2)6bdd-1. J. Virgil Stoddard. Records available: 1944-48. Flowing prior to measurements. Apr. 19, +18.2; July 2, +17.7; Aug. 27, +15.6; Dec. 27, +18.0.

(B-5-2)9baa. State application 14996. Lawrence Mayberry. Records available: 1945-48. Flowing prior to measurements.

22 For other wells in this area see pages 99, 102-106.

(B-5-2)9baa--Continued.

Date	Water level	Date	Water level	Date	Water level
Apr. 19	+17.2	July 2	+17.5	Dec. 27	+18.7
May 27	+17.7	Aug. 27	+16.3		

(B-5-2)9baa-1. State claim 15032. Kanessville Latter Day Saints Ward. Records available: 1944-48. Flowing prior to measurements.

Apr. 19	+3.62	June 11	+3.37	Oct. 26	+0.60
May 27	+3.45	Aug. 27	+61	Dec. 27	+3.12

(B-5-3)13ddc-1. State claim 1298. J. D. Hooper. Records available: 1937-48. Apr. 19, +28.9; July 2, +26.7; Aug. 27, +27.4.

(B-5-3)15dda-1. State application 11790. T. W. Read. Records available: 1936-48. Flowing prior to measurements. Apr. 19, +42.7; July 2, +43.8; Aug. 27, +42.1; Dec. 27, +42.5.

(B-6-1)4ada-1. State claim 17890. A. M. Gardner. Records available: 1943-48. Flowing prior to measurements. July 15, +11.3; Dec. 29, +13.2.

(B-6-1)6caa-1. State claim 595. Martin Harris. Records available: 1943-48. Dec. 29, +44.9.

(B-6-1)8acb-1. L. W. Winkler and Carl Nielson. Records available: 1938-48. May 6, 5.61; July 15, 4.65; Sept. 9, 5.91; Dec. 29, 5.18.

(B-6-1)8bdd-16. State claim 5438. S. T. Bybee. Records available: 1937-48. July 15, +9.8; Sept. 7, +8.3.

(B-6-1)2ladd-1. State claim 8389. Drought Relief Administration. Records available: 1938-48. Apr. 19, 48.85; July 15, 47.99; Sept. 7, 49.62; Dec. 29, 48.54.

(B-6-1)28dba-1. City of Ogden. Records available: 1943-48. Apr. 19, 102.08; measurements discontinued.

(B-6-1)29abb-1. State application 13003. Becker Products Co. Records available: 1943-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	+15.7	+14.2	+14.2	+14.4	+15.0	+15.6	+10.6	+9.8	....	+14.3	+15.5
2	....	....	+14.3	+13.9	+14.4	....	+15.1	+11.0	+9.6	+11.7	+14.5	+15.6
3	+16.1	+14.1	+14.2	+13.9	+14.4	....	+15.1	+10.3	+9.4	+12.1	+14.6	+15.7
4	+16.1	+14.1	+14.1	+14.0	+14.4	....	+15.0	+10.3	+9.7	+12.1	+14.6	+15.6
5	+16.1	+14.3	+14.1	+14.0	+14.4	....	+15.0	+10.6	....	+12.1	+14.7	+15.6
6	+16.2	+14.4	+14.1	+14.0	+14.5	....	+14.9	+11.4	....	+12.1	+14.7	+15.6
7	+16.1	+14.2	+14.1	+14.0	+14.6	....	+14.9	+11.7	+10.7	+12.2	+14.7	+15.5
8	+15.1	+14.2	+14.1	+14.0	+14.7	+14.7	+15.2	+11.7	+10.9	+12.6	+14.7	+15.5
9	+16.0	+14.7	+14.1	+14.1	+14.8	+14.8	+14.9	+11.8	+11.1	+12.5	+15.0	+15.6
10	+16.1	+14.4	+14.4	+14.1	+14.8	+14.9	+14.9	+11.6	+10.5	+12.4	+15.1	+15.6
11	+16.1	+14.5	+14.7	+14.1	+14.7	+14.9	+14.3	+11.3	+10.1	+12.6	+15.1	+15.7
12	....	+14.2	+14.3	+14.0	+14.8	+15.0	+13.8	+10.9	+9.9	+12.4	+15.2	+15.7
13	....	+14.1	+14.5	+14.1	+14.9	+14.9	+13.5	+10.6	+10.1	+12.4	+15.2	+15.7
14	+16.0	+14.3	....	+14.0	+14.8	+14.9	+13.5	+10.4	+10.4	+12.6	+15.1	+15.7
15	+16.1	+14.3	....	+14.1	+14.9	+14.9	+13.2	+10.5	+10.0	+12.6	+15.1	+15.7
16	+15.0	+14.3	+14.7	+14.2	+15.0	+14.8	+13.1	+10.7	+9.3	+13.0	+15.2	+16.0
17	+16.1	+14.5	+14.9	+14.2	+15.0	+14.8	+12.6	+9.7	+9.5	+13.3	+15.2	+16.3
18	+16.1	+14.6	+14.9	+14.2	+15.1	+14.8	+12.4	+9.7	+9.8	+13.3	+15.2	+15.9
19	....	+14.7	+15.0	+14.1	+15.1	+14.9	+12.3	+9.6	+10.2	+12.5	+15.2	+15.7
20	....	+14.7	+15.1	+14.2	+15.3	+14.9	+12.0	+9.5	+10.3	+12.5	+15.2	+15.8
21	+16.5	+14.8	+15.1	+14.3	+15.2	+14.8	+12.1	+9.4	+10.6	+12.9	+15.2	+16.3
22	+16.2	+14.9	+15.1	+14.4	+14.8	+14.8	+12.0	+9.6	+11.1	+12.5	+15.2	+16.5
23	+16.2	+15.1	+15.4	+14.3	+14.8	+14.8	+11.8	+9.6	+10.8	+12.5	+15.3	+16.5
24	+16.2	+15.1	+14.2	+14.3	+14.8	+14.9	+11.8	+9.6	+11.0	+12.4	+15.4	+15.9

(B-6-1)29abb-1--Continued.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
25	+16.2	+15.2	+14.1	+14.3	+14.7	+15.0	+11.7	+9.6	+10.9	+12.8	+15.5	+15.9
26	+16.5	+15.4	+14.0	+14.4	+14.7	+15.0	+11.2	+9.6	....	+12.9	+15.5	+16.0
27	+16.3	+15.5	+14.0	+14.4	+14.9	+15.1	+11.0	+9.4	....	+13.0	+15.3	+16.3
28	+16.6	+15.7	+14.0	+14.4	+14.8	+15.3	+10.8	+9.8	+11.4	+13.3	+15.3	....
29	+16.7	+15.8	+14.1	+14.4	+14.8	+15.3	+10.9	+10.6	+11.6	+13.7	+15.4	....
30	+16.6	....	+14.1	+14.4	+14.8	+15.4	+10.9	+10.3	+11.7	+14.0	+15.5	....
31	+16.0	....	+14.1	....	+15.1	....	+10.8	+10.2	....	+14.1	....	....

(B-6-1)29ecc. Ogden Union Railroad &amp; Depot Co. Records available: 1943-48.

Water level, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	+14.1	+14.6	+15.0	+15.3	....	+16.8	+12.0	+11.1	+13.2	+13.6	+14.8
2	....	+14.2	+14.7	+15.1	+15.3	....	+16.7	+11.8	+11.0	+13.3	+13.9	+14.6
3	....	+14.2	+14.6	+15.1	+15.4	....	+16.7	+11.6	+11.0	+13.4	+14.1	+14.6
4	....	+14.3	+14.5	+15.0	+15.4	....	+16.6	+11.4	+11.1	+13.4	+13.9	+14.9
5	....	+14.3	+14.6	+15.1	+15.4	....	+16.6	+11.8	+11.6	+13.6	+14.0	+14.8
6	....	+14.2	+14.6	+15.0	+15.5	....	+16.7	+11.9	+11.9	+13.6	+14.1	+14.6
7	....	+14.2	+14.6	+15.0	+15.7	....	+16.8	+12.8	+12.1	+13.6	+14.1	+14.6
8	....	+14.1	+14.6	+15.0	+15.5	+16.5	+16.7	+13.0	+12.0	+13.8	+14.1	+14.8
9	....	+14.2	+14.8	+15.1	+15.4	+16.5	+16.7	+13.2	+12.5	+13.9	+14.2	+14.6
10	....	+14.4	+14.6	+15.1	+15.5	+16.5	+16.7	+13.0	+12.3	+14.0	+14.3	+14.8
11	....	+14.2	+14.6	+15.1	+15.7	+16.6	+16.0	+12.4	+11.5	+14.0	+14.2	+14.9
12	....	+14.2	+14.8	+15.0	+15.8	+16.7	+15.3	+12.1	+11.4	+14.1	+14.2	+14.9
13	....	+14.2	+14.8	+15.1	+15.9	+16.6	+15.4	+11.8	+11.0	+14.1	+14.4	+14.8
14	....	+14.3	+14.9	+15.0	+15.9	+16.6	+14.5	+11.2	+11.4	+14.2	+14.5	+14.9
15	....	+14.4	+14.7	+15.0	+16.0	+16.6	+14.3	+11.1	+10.9	+14.1	+14.5	+14.8
16	....	+14.4	+14.9	+15.1	+16.1	+16.6	+14.1	+11.0	+10.5	+14.1	+14.5	+14.6
17	....	+14.3	+14.9	+15.2	+16.1	+16.4	+13.8	+11.1	+10.4	+14.0	+14.6	+14.6
18	....	+14.5	+14.8	+15.1	+16.1	+16.6	+14.2	+11.0	+11.1	+14.0	+14.4	+14.7
19	....	+14.5	+14.9	+15.1	+16.1	+16.5	+14.1	+11.0	+11.3	+13.9	+14.4	+14.8
20	....	+14.4	+14.8	+15.2	+16.1	+16.3	+13.3	....	+11.6	+13.9	+14.5	+14.9
21	....	+14.4	+14.7	+15.3	+16.3	+16.2	+13.1	....	+11.8	+13.8	+14.4	+14.4
22	....	+14.5	+14.8	+15.3	+16.1	+16.3	+13.0	....	+12.1	+13.7	+14.3	+14.4
23	....	+14.5	+15.0	+15.3	+16.2	+16.3	+12.9	....	+12.1	+13.8	+14.4	+14.5
24	....	+14.5	+15.0	+15.3	+16.3	+16.5	+12.7	+10.9	+12.2	+13.7	+14.6	+14.6
25	....	+14.4	+14.8	+15.3	+16.3	+16.7	+12.6	+10.6	+12.5	+13.6	+14.8	+14.7
26	....	+14.5	+14.8	+15.3	+16.3	+16.8	+12.5	+10.8	+12.5	+13.8	+14.5	+14.8
27	....	+14.6	+14.9	+15.4	+16.3	+16.6	+12.4	+10.6	+12.6	+13.6	+14.5	+15.0
28	+13.9	+14.6	+14.9	+15.4	+16.4	+16.7	+12.1	+11.1	+12.8	+13.1	+14.4	+15.0
29	+13.9	+14.5	+14.9	+15.4	+16.4	+16.7	+12.0	+11.6	+13.0	+13.1	+14.4	....
30	+14.1	....	+15.0	+15.4	+16.4	+16.8	+11.9	+11.7	+13.1	+13.2	+14.5	....
31	+14.0	+14.9	....	+16.4	....	+12.1	+11.7	....	+13.6	....	....	....

(B-6-1)30caa-1. State claim 1030. California Packing Corporation. Records available: 1945-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30.75	30.87	30.65	30.63	30.53	....	29.59	30.85	31.59	31.73	31.52	30.84
2	30.68	30.86	30.60	30.57	30.56	....	29.61	30.94	31.73	31.75	31.48	30.77
3	30.75	30.86	30.64	30.60	30.59	....	29.67	30.99	31.73	31.71	31.40	30.67
4	30.71	30.85	30.69	30.60	30.57	29.67	29.74	31.02	31.70	31.67	31.48	30.74
5	30.71	30.85	30.68	30.62	30.59	29.70	29.77	31.08	31.73	31.62	31.54	30.65
6	30.70	30.85	....	30.58	30.54	29.72	29.80	31.09	31.74	31.64	31.51	30.67
7	30.68	30.87	....	30.64	30.32	29.71	29.83	31.08	31.73	31.66	31.48	30.58
8	30.69	30.82	....	30.63	30.36	29.70	29.87	31.09	31.71	31.62	31.54	30.65
9	30.70	30.77	....	30.60	30.32	29.68	29.90	31.10	31.71	31.63	31.56	30.56
10	30.69	30.69	....	30.55	30.33	29.68	29.87	31.12	31.70	31.62	31.51	30.53
11	30.70	30.74	....	30.54	30.35	29.68	29.85	31.14	31.69	31.60	31.49	30.51
12	30.75	30.74	30.67	30.40	30.36	29.68	29.88	31.16	31.72	31.64	31.53	30.49
13	30.78	30.75	30.65	....	30.30	29.71	29.97	31.15	31.74	31.64	31.53	30.48
14	30.74	30.73	30.59	....	30.33	29.69	30.09	31.21	31.75	31.59	31.51	30.45



(B-6-1)30caa-1--Continued.

## Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
15	30.73	30.71	30.64	.....	30.31	29.69	30.12	31.25	31.73	31.54	31.48	30.49
16	30.73	30.76	30.63	30.61	30.29	29.67	30.13	31.28	31.76	31.55	31.48	30.48
17	30.70	30.73	30.60	30.57	30.22	29.71	30.17	31.33	31.80	31.59	31.43	30.42
18	30.66	30.67	30.59	30.59	30.17	29.68	30.21	31.35	31.84	31.53	31.47	30.47
19	30.74	30.69	30.54	30.60	30.16	29.67	30.25	31.37	31.82	31.51	31.36	30.47
20	30.76	30.70	30.59	30.59	30.16	29.69	30.38	31.42	31.82	31.53	31.30	30.39
21	30.75	30.68	30.63	30.53	30.09	29.60	30.48	31.40	31.79	.....	31.30	30.41
22	30.73	30.55	30.58	30.50	30.03	29.60	30.51	31.41	31.76	.....	31.24	30.39
23	30.68	30.57	30.57	30.51	30.06	29.61	30.52	31.45	31.74	31.57	31.19	30.34
24	30.71	30.67	30.54	30.56	30.03	29.59	30.56	31.50	31.73	31.56	31.08	.....
25	30.69	30.69	30.55	30.56	29.97	29.57	30.63	31.49	31.70	31.57	31.06	30.41
26	.....	30.62	30.65	30.54	29.92	29.54	30.67	31.50	31.78	31.52	30.97	30.41
27	.....	30.63	30.68	30.52	29.90	29.57	30.66	31.55	31.81	31.47	31.05	30.32
28	.....	30.62	30.64	30.53	29.85	29.59	30.73	31.58	31.77	31.44	30.99	30.37
29	30.39	30.66	30.60	30.47	29.84	29.61	30.78	31.64	31.76	31.46	30.93	30.39
30	30.89		30.54	30.52	29.80	29.59	30.81	31.64	31.74	31.49	30.84	30.39
31	30.92		30.64				30.82	31.58		31.52		30.32

(B-6-1)30cb-2. American Packing & Provision Co. Records available: 1937-48. Mar. 25, +6.9.

(B-6-2)8abd-1. State claim 2471. West Weber Cemetery. Records available: 1937-48. Flowing prior to measurements. May 6, +15.0; Sept. 7, +14.1; Dec. 29, +14.7.

(B-6-2)1ldad-1. State claim 5613. Jerome Wheeler. Records available: 1937-48. Flowing prior to measurements. May 6, +20.3; July 15, +22.7; Sept. 7, +19.4; Dec. 29, +21.6.

(B-6-2)12aab-3. State application 13028. Weber County School District. Records available: 1943-48. May 6, +12.1.

(B-6-2)22cdc-1. Francis Patterson. Records available: 1937-48. May 6, +0.23; July 15, 0.02; July 7, 0.50; Dec. 29, 0.23.

(B-6-2)25ccc-1. State claim 15111. G. E. Stratford. Records available: 1937-48. Flowing prior to measurement. Apr. 19, +5.6.

(B-6-2)26ada-1. State claim 1196. Amalgamated Sugar Co. Records available: 1936-48. May 6, +11.1.

(B-6-3)26bbb-1. State claim 7505. Mrs. F. G. Kelley. Records available: 1935-48. May 6, +27.2; Dec. 29, +26.5.

(B-7-1)32ada-1. State claim 14931. Joseph Folkman. Records available: 1935-48. Apr. 19, +14.5; July 15, +11.6; Dec. 29, +14.4.

(B-7-1)35baa-5. State claim 16832. J. P. Spackman. Records available: 1943-48. Flowing prior to measurements. Apr. 19, +7.4; July 15, +14.2.

(B-7-2)21dc. Annie Maw. Records available: 1936-48. May 6, +3.15.

(B-7-2)32aca-1. State application 15170. Dean Baker. Records available: 1945-48. Flowing prior to measurements. May 6, +37.3; July 15, +36.4; Sept. 7, +31.7; Dec. 29, +35.0.

(B-7-2)32dab-1. State claim 15095. Marie Olsen. Records available: 1932-48. Flowing prior to measurements. May 6, +30.4; July 15, +28.9.

(B-7-2)36cdd-1. State application 14082. J. D. Brown. Records available: 1943-48. Flowing prior to measurements. Sept. 7, +32.0; Dec. 29, +36.4.

(B-7-3)35daa-1. State claim 5489. Neal Wayment. Records available: 1936-48. May 6, +10.5; July 15, +10.5; Dec. 29, +10.5.

Weber County - Ogden Valley

(A-6-1)11dc. Bureau of Reclamation, U. S. Dept. of Interior. Records available: 1936-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	35.53	32.39	34.88	34.98	19.51	.....	24.68	.....	.....	.....	.....	30.18
2	35.16	32.34	34.97	34.75	19.36	.....	25.29	.....	.....	.....	28.03	30.20
3	.....	32.25	35.07	34.12	19.63	.....	25.62	.....	.....	.....	27.95	30.20
4	.....	32.23	35.22	.....	19.20	.....	25.75	24.01	.....	.....	27.95	30.20
5	.....	.....	35.37	.....	.....	.....	26.05	23.55	.....	31.68	27.97	30.20
6	.....	.....	35.52	31.60	.....	.....	.....	21.04	.....	31.86	27.97	30.16
7	.....	.....	35.53	31.27	.....	.....	.....	18.21	29.34	31.97	27.95	29.30
8	.....	.....	35.83	30.94	.....	.....	.....	17.64	.....	31.86	27.95	29.16
9	.....	.....	35.30	30.63	.....	.....	.....	17.52	.....	.....	30.89	29.13
10	.....	32.20	35.38	30.83	.....	.....	.....	17.70	.....	.....	31.57	29.13
11	.....	32.35	.....	28.85	16.44	.....	.....	22.32	.....	.....	31.80	29.12
12	.....	32.50	.....	28.90	.....	.....	.....	25.31	.....	.....	31.94	28.93
13	.....	32.68	.....	28.01	.....	.....	16.94	25.83	.....	30.17	31.99	28.98
14	.....	32.84	.....	27.68	.....	.....	18.22	26.18	31.98	.....	32.03	28.99
15	.....	33.02	.....	27.41	.....	.....	18.36	26.41	.....	.....	32.05	29.07
16	.....	33.22	35.63	25.74	.....	.....	18.47	26.32	.....	.....	28.96	29.19
17	.....	34.67	35.61	23.80	.....	.....	20.15	25.68	.....	.....	28.32	29.26
18	.....	35.95	35.58	22.70	17.10	.....	20.60	25.64	.....	.....	27.92	29.32
19	.....	36.43	35.53	21.79	.....	.....	20.84	25.73	.....	28.27	29.32	29.43
20	31.69	36.70	35.45	21.20	.....	.....	21.04	25.95	.....	28.04	30.10	29.40
21	31.63	36.91	35.44	20.67	.....	.....	21.20	25.92	26.61	27.86	28.70	29.48
22	31.53	36.90	35.43	19.91	.....	17.90	23.24	26.11	26.50	28.65	28.47	29.68
23	31.51	36.45	35.42	19.57	.....	.....	23.73	26.24	26.41	28.79	28.32	29.64
24	31.47	34.84	35.43	20.06	.....	.....	.....	26.37	26.60	28.83	28.21	29.72
25	31.51	34.60	35.41	20.18	.....	.....	.....	27.59	28.04	28.84	28.20	29.73
26	31.63	34.55	35.37	20.28	.....	.....	.....	27.96	.....	28.98	28.25	.....
27	31.80	34.57	35.41	20.44	.....	.....	.....	28.16	.....	29.77	29.84	.....
28	31.88	34.61	35.49	20.53	.....	.....	.....	28.36	30.89	.....	30.05	.....
29	32.03	34.67	35.41	20.17	.....	18.99	.....	28.52	.....	.....	30.13	.....
30	32.36	.....	35.25	19.84	.....	22.40	.....	28.68	.....	.....	30.18	.....
31	32.42	.....	35.31	.....	.....	.....	.....	.....	.....	.....	.....	.....

(A-6-1)12aa-1. City of Ogden. Records available: 1936-48.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	3.77	4.23	3.90	.....	.....	+6.72	+2.12	2.28	3.48	3.59	4.83
2	.....	3.77	4.20	3.73	.....	.....	+6.40	+1.97	2.48	3.50	3.59	4.89
3	.....	3.76	4.24	3.43	.....	.....	+6.16	+1.84	2.68	3.51	3.55	4.89
4	.....	3.78	4.33	3.05	+3.56	.....	+5.97	+1.79	2.78	3.63	3.60	4.89
5	.....	3.74	4.35	2.80	+3.98	.....	+5.80	+1.77	2.87	3.74	3.66	5.00
6	4.32	3.73	4.32	2.50	+4.55	.....	+5.65	+1.98	2.97	3.85	3.66	5.01
7	4.30	3.80	4.34	2.43	+4.79	.....	+5.50	+2.24	.....	3.92	3.64	5.02
8	4.29	.....	4.30	2.34	+5.06	.....	+5.33	+2.27	.....	3.92	3.70	4.96
9	4.29	.....	4.26	2.18	+5.14	.....	+5.16	+2.21	.....	3.75	3.85	5.00
10	4.23	3.70	4.33	1.98	+5.08	.....	+4.99	+2.17	.....	3.70	4.08	5.00
11	4.19	3.80	.....	1.48	+4.94	.....	+4.96	+1.85	.....	3.68	4.22	4.99
12	4.18	3.84	.....	1.34	+4.82	.....	+5.13	+1.25	.....	.....	4.35	4.99
13	.....	3.85	.....	1.22	+4.77	.....	+5.51	.....	.....	3.65	4.38	5.01
14	.....	3.89	.....	1.03	+4.86	.....	+5.66	.....	3.42	3.72	4.53	5.02
15	.....	3.50	.....	.95	+4.98	.....	+5.46	.....	3.46	3.75	4.54	5.09
16	.....	3.60	4.34	.67	.....	.....	+5.34	.....	3.59	3.78	4.36	5.12
17	.....	4.13	4.27	.29	.....	.....	+5.13	+1.19	3.74	3.74	4.14	5.12
18	.....	4.24	4.28	.01	+6.19	.....	+4.88	+1.12	3.78	3.54	4.14	5.19
19	.....	4.43	4.23	+3.39	+6.38	.....	+4.69	+0.01	3.53	3.55	4.21	5.22
20	3.90	4.48	4.24	+7.72	+6.33	.....	+4.61	.15	.....	3.53	4.31	5.19
21	3.88	4.58	4.30	+9.00	+6.24	.....	+4.30	.31	3.21	3.43	4.35	5.25
22	3.79	4.53	4.23	+1.52	+6.26	+7.25	+5.99	.44	3.14	3.44	4.35	5.26
23	3.75	4.47	4.21	+1.80	+6.89	+7.34	+3.69	.58	3.14	3.45	4.31	5.27

(A-6-1)12aa-1--Continued.

Water level at noon, from recorder charts

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
24	3.73	4.38	4.17	+1.94	+7.39	+7.54	+3.45	0.88	3.14	3.46	4.30	5.34
25	3.74	4.27	4.11	+1.97	+7.80	+7.72	+3.35	1.12	3.25	3.50	4.31	....
26	3.79	4.17	4.22	+1.97	.....	+7.61	+3.27	1.32	3.54	3.52	4.34	....
27	3.84	4.14	4.23	+1.93	.....	+7.58	+3.17	1.52	3.70	3.55	4.56	....
28	3.83	4.16	4.16	+1.88	.....	+7.54	+2.93	1.69	3.70	3.61	4.70	5.42
29	3.82	4.10	4.09	+1.93	.....	+7.46	+2.64	1.85	3.56	3.63	4.76	5.48
30	3.82		3.98	+2.18	.....	+7.15	+2.41	1.92	3.48	3.59	4.80	5.49
31	3.87		4.00		.....		+2.25	2.14		3.58		5.49

## WASHINGTON

By F. A. Watkins

### PROGRAM OF WORK

The program of periodic measurements of water levels in observation wells in the State of Washington was continued in 1948 on the State-wide net of observation wells and also in connection with the several projects involved in a general inventory of the water resources of the State. These projects were continued in cooperation with the Washington State Department of Conservation and Development, Walla Walla County, and the city of Tacoma.

Field work was continued on ground-water inventories in Walla Walla County and Whatcom County and was completed in the Wenas Creek Valley. The work in Whatcom County and the Wenas Creek Valley was carried on in cooperation with the Washington State Department of Conservation and Development, and the Walla Walla work is in cooperation with Walla Walla County, as well as the State agency. In addition, four reports on ground water were completed and released to the open file; these dealt with the Columbia Basin Project area, the Kennewick area, the Rathdrum Prairie-Spokane Valley area, and Snohomish County.

During the year 1,075 measurements were made in 101 wells distributed unevenly over 19 of the 39 counties in the State. One automatic water-stage recorder and 15 nonrecording float gages were operated throughout the year. Descriptions of two wells in Benton County are given in this report for the first time. More detailed information is given in the following table.

## Distribution of observation wells in the State of Washington, 1948

County	Number of observation wells			Number of records of water level in this report		Number of wells with water-stage recorders (R) or float gages (F)		
	Established during 1948	Discontinued in 1948	At year end	1947 and earlier	1948	Through-out 1948	Part of 1948	At year end
Adams			2	0	8	0	0	0
Benton	2		3	0	10	0	0	0
Chelan			2	0	76	1F	0	1F
Douglas			1	0	4	0	0	0
Franklin		1	4	0	15	0	0	0
Grant		1	12	0	93	1F	0	1F
King			1	0	1	0	0	0
Kitsap			1	0	6	0	0	0
Kittitas			1	0	4	0	0	0
Lewis			1	0	2	0	0	0
Lincoln			3	0	13	0	0	0
Okanogan			6	0	127	3F	0	3F
Pierce		19	19	0	227	3F, 1R	0	3F, 1R
Snohomish		1	6	0	16	0	0	0
Spokane			23	0	427	7F		7F
Thurston			4	0	7	0	0	0
Walla Walla			1	0	8	0	0	0
Whatcom			4	0	8	0	0	0
Whitman			7	0	23	0	0	0
The State	2	22	101	0	1,075	15F, 1R	0	15F, 1R

a In addition, 2 measurements were made in a water-table lake.

Areas of intensive investigation

## Tacoma area, Puget Sound subprovince

The program of water-level measurements was continued during 1948 in cooperation with the city of Tacoma, although the number of wells was reduced after June 1948. Rounds of water-level measurements were made on 35 wells, 2 rounds were made covering 5 wells, 1 round was made covering 16 wells, and, in addition, 8 rounds were made on 8 municipal wells by the city of Tacoma Water Division. Three wells equipped with float gages were read at intervals varying from weekly to semimonthly and another well was measured with a tape at weekly intervals. An automatic water-stage recorder was operated on one well throughout the year.

Ground-water levels in the Tacoma area were higher in September 1948 than they were in September 1947. In four selected wells there was an average rise of 0.62 foot.

## Snohomish County, Puget Sound subprovince

The program of water-level measurements in observation wells was continued in 1948. Three rounds of measurements were made on four wells and two rounds on two wells, one well was discontinued. In addition, a report on ground water in Snohomish County was completed for release to the open file.

Ground-water levels in Snohomish County were generally higher in September 1948 than they were in August 1947; wells tapping sub-till sand and gravels, which water level commonly shows long-time ground-water storage trends, were on the average 0.9 foot higher, while one well with confined water from sub-till sand shows a rise of 1.10 feet. A well tapping water perched in the Vashon till was 1.74 feet higher and one getting its water from outwash sands and gravels was 0.17 foot higher.

#### Columbia Basin, Columbia Plateau province

The water-level program in the Columbia Basin was continued in 1948. Four rounds of measurements were made on 18 wells, 2 wells were discontinued, and at 1 well, equipped with a float gage, weekly readings of water level were made by a local observer. The observation wells for this area are listed under Adams, Franklin, and Grant Counties.

Ground-water levels in six selected wells, which tap shallow sand and gravel, show an average rise of 3.06 feet, and water levels in five wells, which tap the deeper basalt, show an average rise of 1.19 feet.

#### Palouse River area, Columbia Plateau province

The observation-well program in Whitman County in 1948 consisted of four rounds of water-level measurements on three wells, three rounds on three wells, and two rounds on one well.

Water levels in two shallow water-table wells in October 1948 show an average rise of 1.66 feet over October 1947. Water levels in the artesian wells at Pullman continued their downward trend showing an average decline of 1.46 feet. The artesian well at Steptoe showed a rise of 5.57 feet.

#### Spokane Valley, Northern Rocky Mountains province

The program of water-level measurements in the Spokane Valley included float gages maintained in seven wells with daily to weekly readings by local observers and tape measurements made by representatives of the Geological Survey or the Washington Water Power Company.

Water levels in 8 selected wells in the area of effluent ground water that sustains the low flow of the Spokane River show an average rise of 0.15 foot, and in 4 wells in the upstream area where the river is influent show an average rise of 2.71 feet.

#### PRECIPITATION

The first of the two following tables shows seasonal distribution of precipitation at two representative stations in the State of Washington

for 50 years of record, in inches and in percentage of the whole; also for the water-year ending September 30, 1948, in percentage. The second table shows precipitation, in inches, for the water-year ending September 30, 1948, and in percentage of the 50-year average at 13 representative stations in the State. Precipitation was above normal throughout the State, ranging from 111.5 percent at Aberdeen, Grays Harbor County, to 223.7 percent at Kennewick, Benton County. Snowfall also was above normal over most of the State.

Monthly precipitation at two representative stations in the State of Washington in 1947-48, in percentage of the yearly average for the 50 years ending Sept. 30, 1940

Month	Olympia (for western Washington) 50-year average 1947-48			Waterville (for eastern Washington) 50-year average 1947-48		
	Inches	Percent	Percent	Inches	Percent	Percent
October	4.32	8.2	18.9	0.73	6.6	26.6
November	8.47	16.1	6.8	1.43	12.9	3.9
December	9.37	17.8	12.3	1.72	15.6	9.1
January	7.98	15.2	11.2	1.45	13.1	11.4
February	6.40	12.2	12.9	1.20	10.9	14.5
March	5.12	9.7	10.1	.79	7.2	6.3
	41.66	79.2	72.2	7.32	66.3	71.8
April	3.39	6.4	10.0	.69	6.2	18.4
May	2.38	4.5	11.0	.85	7.7	41.4
June	1.58	3.0	2.6	.83	7.5	44.0
July	.62	1.2	3.0	.40	3.6	8.1
August	.64	1.2	3.8	.38	3.4	16.5
September	2.35	4.5	9.2	.58	5.3	15.4
	10.96	20.8	39.6	3.73	33.7	143.8
The year	52.62	100.0	111.8	11.05	100.0	215.6

Precipitation, in inches and percentages, at 13 representative stations in the State of Washington for year ending Sept. 30, 1948

Province a/	Station and county b/	Precipitation, 1947-48	
		Inches	Percentage of 50-year average c/
Northern Coast Ranges	Port Angeles, Clallam	31.81	125.8
	Aberdeen, Grays Harbor	93.33	111.5
Puget-Willamette Trough	Olga, San Juan	38.58	130.8
	Seattle, King	46.62	142.7
	Olympia, Thurston	58.84	111.8
	Vancouver, Clark	46.09	125.8
Columbia Plateau	Ellensburg, Kittitas	13.65	152.3
	Waterville, Douglas	23.84	215.6
	Kennewick, Benton	15.50	223.7
	Walla Walla, Walla Walla	21.58	134.0
Northern Rocky Mountains	Lakeside, Chelan	18.14	170.22
	Colville, Stevens	26.14	153.9
	Spokane, Spokane	28.78	189.7

a Ground-water provinces and subprovinces are defined in Water-Supply Paper 990, pages 147-152.

b All stations on lowland or regional plateau; long-term records of precipitation are not available for mountain stations.

c Average for years ending Sept. 30, 1891, to 1940.

The following table gives the net change in water levels during the year ending September 30, 1948 in four areas of the State for which fairly long records have been obtained.

Area	Number of observation wells	Length of record (years)	Observed range, in feet	Water levels at end of Sept. 1948	
				Above (+) or below (-) year-end level of 1947 (average in feet)	Above lowest of record (average in percent of observed range)
<u>Puget-Willamette Trough</u>					
Tacoma area (Pierce County): wells tapping regional water body in glacial deposits:					
Long-term record	1	41	4.94	+0.42	39.3
Short-term record	4	9-11	3.11-6.26	+0.62	60.6
<u>Columbia Plateau</u>					
province: Columbia basin (Adams, Franklin, and Grant Counties):					
Wells in sand and gravel	6	7-10	0.5-26.18	+3.06	65.5
Wells in basalt	5	9-10	1.80-27.95	+1.19	55.3
<u>Palouse River area</u>					
(Whitman County): artesian wells in basalt:					
Moderate-term record	2	13	12.75-13.57	-1.46	3.8
Short-term record	1	9	8.69	+5.57	80.0
<u>Northern Rocky Mountains</u>					
province: Spokane Valley; (Spokane County) wells in outwash gravel:					
Intermediate-term records, influent ground water	4	20-21	13.57-20.96	+2.71	49.5
Long-term records, effluent ground water	3	32-37	16.72-21.80	-.11	30.2
Intermediate-term records, effluent ground water	5	18-21	4.78-19.80	+0.20	28.8

#### WELL-NUMBERING SYSTEM

Observation wells are listed alphabetically by counties and numerically by townships within the county. The system has been described on page 157 of Water-Supply Paper 990.



## WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Adams County

## Columbia Basin

16/29-35R1. Kathryn D. Tate. Taps water in basalt. Records available: 1940-48. Jan. 16, 280.80; Apr. 7, 282.30; Aug. 11, 284.1, Oct. 27, 286.19.

19/31-19B1. Barbara Dormaier. Taps water in basalt. Records available: 1939-48. Jan. 16, 184.39; Apr. 7, 184.40; Aug. 11, 184.36.

Benton County

## Yakima River Basin

9/27-19G1. Paul Root. Taps water from gravel in valley fill of Yakima River. Records available: 1940-48. Jan. 17, 14.15; Apr. 6, 14.49; Aug. 10, 13.59; Oct. 27, 14.14.

8/29-1D1. Garber Dairy. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 1, T. 8 N., R. 29 E., in the town of Kennewick; about 400 feet north of west Kennewick Street, on north side of shed, 35 feet west of house. Dug well, diameter 48 inches, depth 75 feet. Water from sand and gravel. Measuring point, top of concrete curb, 0.8 foot above land-surface datum which is about 402 feet above sea level. Records available: 1948. Apr. 20, 67.42; Aug. 10, 61.87; Oct. 27, 63.32.

8/30-9E1. E. Dague. SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 9, T. 3 N., R. 30 E., about 2 $\frac{1}{2}$  miles southeast of Kennewick, about 500 feet east of underpass of county road and Oregon-Washington Railroad & Navigation Co. tracks, near road at southeast corner of house and just north of large concrete weir box. Dug and drilled well, diameter of dug part 48 inches, depth 21 feet; 2 drilled holes diameter 6 and 8 inches, depth of both 33 feet. The 8-inch hole supplies a mint-rendering plant and the 6-inch supplies house. Water from sand and gravel. Measuring point, top of concrete curb, north side, 0.5 foot above land-surface datum which is about 350 feet above sea level. Records available: 1948. Apr. 21, 23.55; Aug. 10, 18.65; Oct. 27, 19.08.

Chelan County

## Wenatchee River Basin

23/19-4D1. US 69. City of Cashmere well 1. Water from gravel in terrace deposit of Wenatchee River. Records available: 1938-48. Jan. 14, 17.07. Measurements discontinued.

23/19-4E2. US 69A. City of Cashmere natatorium well. Water from sand and gravel in terrace deposit of Wenatchee River. Records available: 1945-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	18.30	Mar. 31	16.30	July 5	15.30	Oct. 10	18.28
5	18.54	Apr. 5	15.93	10	15.35	15	18.35
10	18.79	10	16.10	15	15.58	20	18.50
14	18.30	15	16.14	20	15.64	25	18.54
15	17.86	20	14.49	25	15.98	29	18.60
20	18.32	25	13.86	31	16.03	31	18.64
25	18.82	30	14.74	Aug. 5	16.07	Nov. 5	18.73
31	18.26	May 5	15.05	10	16.18	10	18.79
Feb. 5	18.36	10	14.84	15	16.68	15	18.80
10	18.38	15	14.69	20	16.90	20	18.93
15	18.29	20	13.80	25	17.09	29	19.03
20	18.69	25	13.95	31	17.04	30	19.22
25	18.79	31	14.36	Sept. 5	17.38	Dec. 5	19.16
29	18.40	June 5	14.48	10	17.60	10	19.06
Mar. 5	18.19	10	14.50	15	17.60	15	19.06
10	18.04	15	14.46	20	17.87	20	19.08
15	18.00	20	14.92	25	17.83	25	19.00
20	17.94	25	14.41	30	17.98	31	14.85
25	17.30	30	15.04	Oct. 5	18.06		

Douglas County

## Columbia Plateau

25/22-22C1. City of Waterville. Water from basalt. Records available: 1945-48. Jan. 15, 4.94; Apr. 10, 2.76; Aug. 14, 3.78; Oct. 29, 3.51.

Franklin County

## Columbia Basin

9/29-25D1. Owner unknown. Taps water in gravel of terrace deposit of the Columbia River. Records available: 1940-48. Jan. 17, 36.15; Aug. 10, 31.31; Oct. 27, 33.37.

11/30-11B1. Northern Pacific Railway Co. Taps water in glacial-outwash gravel. Records available: 1940-48. Jan. 16, 116.96; Apr. 6, 115.63; Aug. 10, 116.19; Oct. 27, 114.98.

13/30-26G2. M. M. Poe. Taps water in glacial-outwash gravel. Records available: 1940-48. Jan. 16, 28.23; Apr. 6, 28.17; Aug. 10, 30.83, nearby well pumping 400 gallons a minute; Oct. 27, 30.29, pumping.

13/32-10A1. Owner unknown. Records available: 1943-47. Measurements discontinued.

13/34-4G1. City of Kahlotus. Taps water in gravel deposit in Wash-tucna Coulee. Records available: 1938-48. Jan. 16, 51.68; Apr. 7, 51.78, pumping; Aug. 10, 53.14, pumping; Oct. 27, 52.48.

Grant County

## Columbia Basin

18/30-34M1. Owner unknown. Probably taps water in basalt. Records available: 1943-48. Jan. 16, 104.76; Apr. 7, 103.82; Aug. 11, 103.87; Oct. 27, 103.86.

19/24-7J1. E. J. Hutton. Records available: 1938-47. Measurements discontinued.

19/26-34D1. F. H. Bordwell. Water from sand in Pleistocene (?) Lake deposit. Records available: 1939-48. Jan. 15, 92.38; Apr. 10, 92.40; Aug. 14, 93.25; Oct. 27, 92.32.

19/27-16N1. M. R. Steele. Taps water in glacial-outwash gravel. Records available: 1942-48. Jan. 16, 69.76; Apr. 10, 70.50; Oct. 27, 69.44.

19/28-15L1. Owner unknown. Taps water in fluvioglacial deposit. Records available: 1939-48. Jan. 16, 59.98; Apr. 10, 59.59; Aug. 13, 58.96; Oct. 27, 58.80.

19/28-22G1. Max G. Belnap. Taps water in glacial-outwash gravel. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	25.94	Mar. 12	25.46	May 21	25.35	Aug. 7	24.57
9	25.83	19	25.44	31	25.30	14	24.60
16	25.79	27	25.45	June 4	25.31	14	24.61
16	25.78	Apr. 2	25.44	13	25.01	22	24.73
23	25.75	10	25.58	20	24.42	29	24.83
30	25.72	10	25.58	26	23.85	Sept. 5	24.87
Feb. 6	25.66	16	25.60	July 4	23.85	11	24.92
13	25.62	23	25.57	11	24.02	18	24.97
20	25.57	May 1	25.60	19	24.16	25	25.05
27	25.50	7	25.53	24	24.25	Oct. 2	25.04
Mar. 6	25.47	14	25.46	31	24.43	9	24.95

## 19/28-22G1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 16	24.87	Oct. 30	24.75	Nov. 20	24.50	Dec. 11	24.27
23	24.80	Nov. 6	24.68	27	24.42	20	24.19
28	24.79	13	24.60	Dec. 4	24.37	26	24.20

20/26-18R1. D. J. Miles. Probably taps water in basalt. Records available: 1939-48. Jan. 15, 162.73; Apr. 9, 162.58; Aug. 13, 162.68; Oct. 28, 162.61.

20/28-15F1. County of Grant. Taps water in glacial-outwash gravel and basalt. Records available: 1939-48. Aug. 13, 7.88; Oct. 27, 11.44.

21/26-3H1. Sivert Andersen. Taps water in basalt. Records available: 1939-48. Jan. 15, 133.15.

21/28-34A1. Arabella E. Bunnell. Taps water in basalt. Records available: 1939-48. Jan. 16, 96.80; Apr. 10, 96.03; Oct. 27, 94.73.

22/27-30P1. Woodsie G. Smith. Taps water in basalt. Records available: 1939-48. Jan. 15, 51.08; Apr. 9, 50.85; Aug. 13, 82.84, pumping; Oct. 28, 50.77.

22/28-6R1. Chas. A. Kennedy. Taps water in glacial-outwash gravel. Records available: 1939-48. Jan. 15, 171.10; Apr. 9, 160.32; Aug. 13, 150.82; Oct. 28, 155.37.

22/30-18M1. Owner unknown. Taps water in glacial-outwash gravel. Records available: 1939-48. Jan. 15, 17.08; Apr. 9, 17.23; Aug. 13, 17.16; Oct. 28, 17.23.

King County

Glacial plains of the Puget Trough

26/6-13N1. Jacob DeBoer. Taps water in sand of fluvio-glacial deposits. Records available: 1941-48. May 7, 39.47.

Kitsap County

Glacial plains of the Puget Trough

23/1-2C2. W. A. Hiersch. Taps water in sand in fluvio-glacial deposits of an extensive rolling upland. Records available: 1932-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 2	54.92	May 6	51.09	Oct. 15	50.35
Feb. 1	54.47	June 29	49.35	Dec. 4	51.45

Kittitas County

Yakima River subprovince

20/15-25Q1. Mr. Ackerslund. Water from alluvium of flood plain along Yakima River. Records available: 1946-48. Jan. 13, 8.48; Apr. 11, 7.80; Aug. 15, 7.02; Oct. 29, 8.35.

Lewis County

Cowlitz River Basin

11/1W-5H1. Mrs. Joseph Sommer. Taps water in compact sand in deeply weathered terrace deposit. Records available: 1942-48. May 4, 39.83; Oct. 14, 40.62.

Lincoln County

## Columbia Plateau

21/38-24G2. Owner unknown. Taps water from gravel bar on the edge of scabland channel in Cow Creek Valley. Records available: 1946-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 19	6.95	Apr. 7	7.88	Oct. 26	13.72
Mar. 22	7.62	Aug. 11	9.90		

25/37-14M1. Charles Straub, Sr. Taps water in basalt. Records available: 1941-48. Mar. 22, 22.30; Apr. 9, 22.26; Aug. 11, 19.09; Oct. 26, 20.13.

26/34-10N1. Mr. Maquette. Taps water from alluvial material near edge of scabland channel. Records available: 1946-48. Mar. 22, 3.36; Apr. 9, 3.18; Aug. 11, 5.29; Oct. 26, 6.33.

Okanogan County

## Okanogan River Valley

34/26-26Q1. City of Omak. Taps water in stream gravel of Okanogan River. Records available: 1939-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	13.90	Feb. 28	14.25	Apr. 24	13.10	Oct. 30	19.58
10	13.95	Mar. 6	14.49	May 1	12.95	Nov. 6	19.60
15	14.07	13	14.20	8	12.46	13	19.59
17	13.96	20	14.32	16	11.51	20	19.58
24	13.76	27	14.43	22	10.14	27	13.03
31	13.18	Apr. 3	14.38	29	(a)	Dec. 4	13.00
Feb. 7	12.64	10	14.22	June 6	.74	11	13.02
14	12.80	10	14.26	Aug. 14	17.98	18	13.07
21	13.20	17	14.20	Oct. 28	20.59	25	11.15

a Well covered by flood water.

34/26-28A1. Charles Byrd. Taps water in terrace gravel deposit west of Okanogan River. Records available: 1939-48. Jan. 15, 32.91; Apr. 10, 33.33; Aug. 14, 39.00, pumping; Oct. 28, 31.67.

34/26-28P1. Samuel Peterson. Taps water in terrace gravel deposit west of Okanogan River. Records available: 1939-48. Jan. 15, 12.62; Apr. 10, 14.05; Aug. 14, 10.97; Oct. 28, 11.59.

34/26-35R1. City of Omak well 4. Taps water in coarse alluvial deposit of the Okanogan River. Records available: 1944-48.

Jan. 3	26.85	Apr. 3	27.20	July 3	20.76	Oct. 9	25.10
10	26.85	10	27.34	10	20.92	16	25.14
15	26.95	10	27.33	31	23.34	23	25.23
17	27.00	17	27.75	Aug. 7	23.70	28	25.55
24	26.90	24	27.60	14	24.27	30	25.55
31	26.57	May 1	27.00	14	24.30	Nov. 6	25.55
Feb. 7	26.37	8	26.68	21	24.54	13	25.50
14	26.21	16	26.12	28	24.58	20	25.50
22	25.48	22	25.60	Sept. 4	24.40	27	25.60
28	25.43	June 6	18.14	11	24.62	Dec. 4	25.92
Mar. 6	25.49	16	17.95	18	25.10	12	25.80
13	25.42	19	18.68	25	25.21	18	26.08
20	25.44	26	19.55	Oct. 2	25.40	25	25.72
27	26.59						

36/26-13K1. Owner unknown. Taps water in fluvioglacial gravel. Records available: 1942-48. Jan. 14, 28.79; Apr. 10, 15.90; Aug. 14, 28.35; Oct. 28, 23.66.

40/27-28G1. City of Oroville well 1. Taps water in gravel of valley alluvium. Records available: 1939-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	18.03	Mar. 15	18.61	July 29	15.57	Oct. 20	16.33
12	18.10	Apr. 7	18.48	Aug. 15	15.86	28	16.57
14	18.11	10	18.44	20	15.66	Nov. 4	16.45
14	18.25	17	18.51	Sept. 10	16.00	16	16.90
27	18.18	July 12	14.68	27	16.14	Dec. 6	17.05
Feb. 27	18.50	21	15.31	Oct. 6	16.21	31	16.97

### Pierce County

#### Alluvial and glacial plains of the Puget Trough

17/2-16Q3. Roy Gonja. Regional water table. Records available: 1943-48. May 4, 30.29; Oct. 14, 36.73.

17/2-16Q4. James Gonja. Confined artesian water. Records available: 1943-48. May 4, 5.88; Oct. 14, 11.02.

18/2-34N1. Frank Betchard. Water from shallow water table along Muck Creek. Records available: 1945-48. May 4, 4.99; Oct. 14, 8.73.

18/3-14Q1. W. J. Fochs. Taps confined water beneath the Vashon till. Records available: 1940-48. May 5, 38.64. Measurements discontinued.

18/3-27E1. H. E. Bowman. Regional water table above the Vashon till. Records available: 1940-48. May 4, 14.00. Measurements discontinued.

18/4-3M1. C. F. Southard. Perched water table in or above the Vashon till. Records available: 1939-48. May 5, 1.22. Measurements discontinued.

18/4-7P1. Joe Jupiter. Regional water table below the Vashon till. Records available: 1940-48. May 5, 72.95. Measurements discontinued.

18/4-14C1. W. Rodlund. Probably in the regional zone of saturation. Records available: 1940-48. May 5, 52.20. Measurements discontinued.

19/2-10F1. Lakewood Water District. Confined water, probably non-artesian. Records available: 1940-48. One or more pumps operating in adjacent wells.

Jan. 4	a 48.17	Feb. 21	45.19	June 15	a 44.84	Sept. 3	a 45.20
9	46.77	24	45.64	19	44.23	14	46.62
15	46.67	29	44.97	July 26	a 43.81	27	46.40
24	46.55	May 6	43.38	27	a 43.91	Oct. 8	46.82
Feb. 3	a 46.18	12	43.41	25	45.41	15	47.28
10	46.07	19	43.26	Aug. 10	46.34	20	47.76
12	45.97	June 1	43.63	13	46.30	29	a 47.51
15	45.87	8	44.39	27	a 45.11	Nov. 25	a 48.05

a No pumps operating.

19/3-2Q1. I. G. Young. Local perched water table in the Vashon till. Records available: 1940-48. May 5, 0.27. Measurements discontinued.

19/3-3Q1. D. Stuart, tenant. Regional water table. Records available: 1940-48. May 5, 148.09.

19/3-9C1. N. G. Kramer. Perched water table in the Vashon till. Records available: 1940-48. May 5, 6.83. Measurements discontinued.

19/3-28F1. C. C. Modahl. Records available: 1943-47. Measurements discontinued.

19/4-4J1. R. J. Moreland. Perched water table in the Vashon till. Records available: 1937-48. May 5, 13.73. Measurements discontinued.

19/4-7A1. Ada Lilja. Perched water table in the Vashon till. Records available: 1940-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	18.77	Apr. 12	17.71	July 12	25.46	Oct. 12	33.84
12	15.88	20	17.95	19	26.81	14	33.90
19	16.61	26	18.43	26	27.73	18	33.99
28	18.18	May 3	18.20	Aug. 2	28.63	27	34.18
Feb. 2	19.04	5	18.80	9	29.50	Nov. 1	34.22
9	19.94	11	17.20	16	30.39	8	34.32
16	19.56	17	17.47	23	31.18	15	34.28
23	17.23	24	18.46	30	31.88	24	32.68
Mar. 1	14.06	June 1	19.94	Sept. 6	32.50	29	29.33
8	15.74	7	20.74	13	32.78	Dec. 7	22.52
15	17.11	14	22.08	20	33.08	13	16.31
22	17.66	21	23.44	27	33.37	21	17.23
29	15.30	28	24.31	Oct. 4	33.60	27	17.73
Apr. 5	16.79	July 5	25.24				

19/4-21G1. Leroy Powell. Perched water table, just above the Vashon till. Records available: 1937-48. May 5, 1.75. Measurements discontinued.

19/4-24A3. Birchall A. Baker. Confined water. Records available: 1941-48. May 5, 14.25. Measurements discontinued.

19/5-19M1. C. J. Lawson. Regional water table. Records available: 1940-48. May 5, 1.85. Measurements discontinued.

20/2-10F1. C. L. Stout. Probably semiperched water table below the Vashon till. Records available: 1941-48. May 6, 100.81; Oct. 15, 102.42.

20/2-13H1. City of Tacoma well 4-A. Confined nonartesian water in large part. Records available: 1930, 1932, 1934-48.

Mar. 5	13.85	Apr. 30	13.40	Oct. 1	13.62	Dec. 27	13.44
31	13.28	Aug. 30	14.39	Nov. 1	13.93		

20/2-13J1. City of Tacoma well 6-A. Confined, nonartesian water in large part. Records available: 1939-48.

Jan. 30	34.26	Mar. 31	33.47	Aug. 28	34.14	Nov. 1	34.05
Mar. 5	34.12	Apr. 30	33.65	Oct. 1	32.79	Dec. 27	33.50

20/2-15L2. C. H. Erickson. Records available: 1943-47. Measurements discontinued.

20/2-26J1. James Holroyd. Records available: 1943-47. Measurements discontinued.

20/3-18D1. City of Tacoma well 2-A. Confined nonartesian water in large part. Records available: 1930-48.

Jan. 30	27.03	Mar. 31	26.06	June 30	26.51	Nov. 1	26.51
Mar. 5	27.44	Apr. 30	25.82	Oct. 1	26.90	Dec. 27	25.63

20/3-19P1. City of Tacoma well 1-A. Confined nonartesian water in large part. Records available: 1930-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	30.15	Mar. 31	29.53	Aug. 30	30.68	Nov. 1	30.51
Mar. 5	30.04	Apr. 30	29.65	Oct. 1	30.73	Dec. 27	29.44

20/3-19P4. City of Tacoma well 11. Confined nonartesian water in large part. Records available: 1907-09; 1925-31; 1937-40; 1944-48.

Jan. 5	a 33.21	Mar. 15	32.58	May 10	a 33.99	Aug. 1	33.49
10	a 33.25	20	32.63	15	32.52	5	33.52
15	32.62	26	a 32.46	June 6	a 35.78	10	33.47
20	32.51	31	32.33	10	a 34.90	15	33.48
25	a 33.69	Apr. 1	32.25	15	33.37	17	33.48
31	32.81	5	32.22	20	a 36.16	Dec. 1	a 34.05
Feb. 3	32.68	10	32.36	25	a 34.15	5	a 34.53
16	32.72	15	32.40	29	33.58	10	a 33.01
18	32.72	21	a 32.67	July 1	a 36.01	16	32.63
25	a 34.98	27	a 32.86	5	33.48	19	32.38
29	a 34.57	30	32.42	10	33.54	21	a 34.05
Mar. 5	32.82	May 1	32.39	15	33.58	25	32.43
10	32.65	5	32.29	31	33.48	31	32.38

a Adjacent well pumping recently.

20/3-30C2. City of Tacoma well 5. Confined nonartesian water in large part. Records available: 1908-09; 1925-31; 1937-48.

Date	Water level	Date	Water level	Date	Water level
Jan. 30	36.20	Mar. 31	35.66	Nov. 4	36.72
Mar. 5	36.13	Apr. 30	35.72	Dec. 29	35.80

20/3-30C4. City of Tacoma well 8-A. Confined nonartesian water in large part. Records available: 1939-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	35.78	Mar. 31	35.26	July 30	35.39	Nov. 1	35.39
Mar. 5	35.68	Apr. 30	35.40	Oct. 1	35.39	Dec. 27	34.39

20/3-30L5. City of Tacoma well 7-A. Confined nonartesian water in large part. Records available: 1939-48.

Jan. 30	20.15	Mar. 31	19.62	July 30	20.91	Nov. 1	20.99
Mar. 5	20.08	Apr. 30	19.98	Oct. 1	20.90	Dec. 27	19.45

20/3-30N1. City of Tacoma well 3-A. Confined nonartesian water in large part. Records available: 1931-48.

Jan. 30	37.88	Mar. 31	37.18	Aug. 30	38.51	Nov. 1	38.75
Mar. 5	37.60	Apr. 30	37.46	Oct. 1	38.80	Dec. 27	37.19

20/3-32D2. John Erdahl. Regional water table below the Vashon till. Records available: 1940-48. May 5, 61.06; Oct. 15, 61.69.

20/3-34E1. Frank Reding. Perched water body just above the Vashon till. Records available: 1940-48. May 5, 2.42. Measurements discontinued.

20/3-35G1. I. S. Broxson. Regional water table below the Vashon till. Records available: 1940-48.

## 20/3-35G1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	180.75	Apr. 4	179.36	July 11	178.88	Oct. 10	179.56
11	180.80	12	179.26	20	178.96	14	179.79
18	180.80	20	179.13	25	179.01	17	179.61
25	180.78	25	179.07	Aug. 1	179.11	25	179.73
Feb. 1	180.67	May 2	179.03	8	179.11	31	179.74
8	180.50	5	179.14	15	179.17	Nov. 7	179.76
16	180.26	9	178.96	22	179.26	14	179.79
23	180.17	16	178.96	29	179.28	22	179.81
Mar. 1	180.08	23	178.90	Sept. 5	179.43	28	179.85
7	179.98	31	178.88	13	179.40	Dec. 5	179.90
14	179.91	June 7	178.85	19	179.43	12	179.92
21	179.78	12	178.83	27	179.52	20	180.00
28	179.73	July 5	178.86	Oct. 3	179.55	29	179.99

20/4-24F2. Standard Brands of California, Inc. Confined artesian water. Record available: 1937-48. May 5, +1.82. Measurements discontinued.

20/4-24F3. Standard Brands of California, Inc. Records available: 1943-47. Measurements discontinued.

20/4-36H2. Frank Chervenka. Probably confined nonartesian water. Records available: 1938-48. May 5, 5.05; Oct. 14, 6.70.

21/2-25B2. City of Tacoma. Confined water. Records available: 1938-48. May 5, 46.63. Measurements discontinued.

21/3-26N1. City of Tacoma well Tideflats 1. Confined artesian (flowing) water. Records available: 1938-48. Measurements discontinued after May 5.

Date	Time	Well		Waterway	
		Above land-surface datum	Above city datum	Above sea-level datum of 1929	Above sea-level datum of 1929
May 5	5:00 p.m.	4.55	31.39	17.43	2.89

## Stages in water-table lakes

American Lake. Murray Creek enters lake from east; no surface outlet. Small quantities of water withdrawn from lake on numerous abutting properties. Records available: 1938-48. May 6, 233.7; Oct. 15, 231.9.

Gravelly Lake. Records available: 1944-47. Measurements discontinued.

Snohomish County

## Puget Sound subprovince

27/4-30A2. Don Schaffer. Taps water from Pleistocene pre-Vashon sand beds. Records available: 1945-48. May 6, 140.20; June 24, 139.67.

28/4-13H1. A. H. Dorr. Taps water from sand and gravel interbed in Vashon till. Records available: 1945-48. May 6, 3.67; June 24, 5.44.

29/5-2F1. L. Falkner. Water from Pleistocene pre-Vashon gravel. Records available: 1944-48. May 6, 109.54; June 24, 110.10; Sept. 17, 110.14.

30/5-22A1. G. Torie. Water from Vashon outwash sand and gravel. Records available: 1944-48. May 6, 17.30; June 24, 17.70; Sept. 17, 20.97.



31/5-7B1. Peter Henning. Records available: 1945-47. Measurements discontinued.

31/5-10J3. J. W. Monigar. Water from Pleistocene pre-Vashon sand. Records available: 1945-48. May 6, 21.85; June 24, 22.96; Sept. 17, 25.89.

32/4-5Q1. Elmer Norgaard. Water from regional water table in sub-till sand and gravel. Records available: 1946-48. May 6, 128.10; June 24, 129.71; Sept. 17, 128.03.

### Spokane County

#### Columbia Plateau

24/41-10A1. Delbert Kramer. Taps water in basalt. Records available: 1942-48. Mar. 22, 29.85; Apr. 7, 29.96; Aug. 11, 29.80; Oct. 26, 30.02.

25/41-36R1. J. D. Stark. Taps water in basalt. Records available: 1942-48. Mar. 22, 19.35; Apr. 7, 20.31; Aug. 11, 21.03; Oct. 26, 23.18.

25/42-13B1. Washington Water Power Co. well 90. Empire Cold Storage Co. Taps water in fluvioglacial gravel in Spokane Valley. Records available: 1930-48. Apr. 7, 186.79; July 15, 183.64; Aug. 12, 186.41; Oct. 18, 186.14.

25/42-14L1. Riverside Park Cemetery Association. Taps water in gravel of fluvioglacial outwash in Spokane Valley. Records available: 1941-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	95.45	Apr. 5	94.36	July 2	85.99	Oct. 14	96.46
5	95.48	7	94.22	7	87.73	20	96.46
9	94.92	9	94.07	19	90.58	25	96.46
16	93.36	14	93.76	24	91.43	30	96.76
21	93.19	19	93.58	31	92.09	Nov. 1	96.62
24	93.24	24	92.70	Aug. 4	92.32	6	96.70
30	93.66	30	90.89	10	92.72	10	96.75
Feb. 4	94.00	May 4	90.05	11	94.85	17	96.97
10	94.40	10	89.03	13	93.18	22	97.15
14	94.63	15	87.97	23	94.03	27	97.19
19	94.69	20	87.13	26	94.38	30	97.14
25	94.82	25	85.53	31	94.74	Dec. 3	97.12
28	94.47	31	83.25	Sept. 2	95.03	6	97.09
Mar. 5	93.99	June 7	81.73	4	95.12	11	96.97
10	93.95	10	81.95	10	95.59	16	96.88
15	94.06	15	83.40	15	95.82	21	96.78
19	94.25	19	82.88	Oct. 4	96.30	27	96.68
24	94.49	25	84.08	6	96.35	31	96.60
31	94.50	29	84.95	9	96.31		

25/43-11G3. City of Spokane, Water Division well 3. Taps water in tongue of fluvioglacial gravel in Spokane Valley. Records available: 1938-48.

Jan. 5	24.38	Apr. 5	21.68	July 5	26.54	Oct. 4	28.68
12	26.31	12	21.38	12	25.18	11	28.88
19	25.62	19	19.93	19	27.12	18	27.44
26	23.90	26	14.91	26	27.30	25	27.38
Feb. 2	24.92	May 3	15.03	Aug. 2	25.34	Nov. 1	27.72
9	25.73	10	14.11	9	28.11	8	26.68
16	26.23	17	13.78	16	27.82	15	27.92
23	25.78	24	12.91	23	27.84	22	28.77
Mar. 1	21.38	31	9.31	30	28.69	29	27.08
8	22.08	June 7	14.71	Sept. 6	28.73	Dec. 6	27.21
15	23.92	14	14.31	13	28.13	13	26.23
22	25.63	21	17.12	20	28.93	20	26.02
29	23.28	28	19.54	27	28.41	27	26.11

25/43-11G6. City of Spokane, Water Division "Gage well"1. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1926-48. Apr. 9, 52.78; Aug. 12, 58.36.

25/43-11K1. City of Spokane, Water Division "Gage well"2. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1929-48. Apr. 9, 63.13; Aug. 12, 67.46; Oct. 26, 67.95.

25/43-14K1. Washington Water Power Co. well 3. Ohio Match Co. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1920-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 9	43.85	July 14	b 45.17	Oct. 18	b 47.85
May 25	b 35.17	Aug. 12	46.62	26	47.84

b By Washington Water Power Co.

25/43-17D1. Washington Water Power Co. well 88. New Method Laundry. Taps water in fluvioglacial gravel. Records available: 1928-48.

Apr. 7	47.03	July 15	b 47.20	Oct. 18	b 48.87
May 25	bc40.42	Aug. 12	48.19	25	48.67

b By Washington Water Power Co.

c Pump shut down.

25/44-2B1. Washington Water Power Co. well 49. Trentwood Irrigation District. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1928-48.

Apr. 8	97.39	July 13	b 93.96	Oct. 18	b 99.44
May 25	bc88.77	Aug. 12	94.46	25	105.68

b By Washington Water Power Co.

c Pump shut down.

25/44-15E1. Washington Water Power Co. well 15. Modern Electric Water Co. well 5. Taps water in fluvioglacial gravel in Spokane Valley. Records available: 1914-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	132.29	Apr. 8	130.81	July 10	129.20	Oct. 9	135.34
10	131.87	10	129.76	13	b132.33	16	135.39
17	131.56	17	129.40	17	132.14	18	b134.74
24	131.28	24	128.72	24	133.20	23	135.52
31	131.70	May 1	127.21	31	134.17	30	135.70
Feb. 7	131.76	8	126.84	Aug. 7	135.22	Nov. 6	135.93
14	131.83	17	126.03	12	136.67	13	135.97
21	131.57	25	b123.32	14	135.71	20	136.24
28	131.06	29	123.15	21	136.47	27	136.30
Mar. 6	130.72	June 5	122.82	28	137.07	Dec. 4	136.10
13	130.48	12	119.55	Sept. 4	137.89	11	135.90
20	130.69	19	120.98	11	138.64	18	135.71
27	130.22	26	123.07	25	135.16	26	135.40
Apr. 3	129.91	July 3	124.90	Oct. 2	135.21		

b By Washington Water Power Co.

25/44-19D1. Washington Water Power Co. well 5. Edgecliff Sanitarium. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1920; 1928-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 9	c76.71	July 13	b 75.43	Oct. 18	b 78.78
May 25	b 67.74	Aug. 12	c77.60	26	78.83

b By Washington Water Power Co.

c Pumping.

25/44-21J1. Washington Water Power Co. well 17. Modern Electric Water Co. well 3. Taps water in fluvio-glacial gravel in the Spokane Valley. Records available for 1912-14; 1920; 1926-48. May 25, 91.52; July 13, 99.17; Oct. 18, 100.82.

25/44-22N1. Modern Electric Water Co. well 7. Taps water in fluvio-glacial gravel in Spokane Valley. Records available: 1942-48..

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	143.42	Apr. 7	140.07	June 30	133.58	Oct. 22	143.38
14	142.93	9	141.09	July 7	139.58	26	143.14
21	141.90	14	139.29	14	141.27	29	143.37
28	142.15	21	138.43	21	142.08	Nov. 3	143.75
Feb. 4	142.51	28	137.47	28	142.94	10	143.81
11	142.75	May 5	136.76	Aug. 12	144.22	17	143.92
18	142.61	12	135.96	Sept. 4	146.28	24	143.98
25	142.53	19	135.81	11	146.76	Dec. 1	144.04
Mar. 3	141.27	26	135.03	18	147.22	8	143.43
10	141.58	June 2	134.75	25	142.94	15	142.94
17	141.58	9	138.58	Oct. 1	143.07	22	142.98
24	141.04	16	131.92	8	143.21	29	143.07
31	140.66	23	132.59	15	143.27		

25/44-23D1. Washington Water Power Co. well "L.A.L." Taps water in fluvio-glacial gravel in the Spokane Valley. Records available: 1931-48. Apr. 9, 86.36; Aug. 12, 86.58; Oct. 26, 89.06.

25/45-10C1. Washington Water Power Co. well 41. Mrs. George Clark. Taps water in fluvio-glacial gravel in the Spokane Valley. Records available: 1928-48. Apr. 8, 60.04; Aug. 12, 54.32; Oct. 25, 59.00.

25/45-16C1. Washington Water Power Co. well 38. Inland Empire Paper Co. Taps water in fluvio-glacial gravel in the Spokane Valley. Records available: 1920; 1929-48.

Jan. 4	104.79	Apr. 11	102.48	July 11	c 95.61	Oct. 2	102.09
11	103.75	18	101.78	13	b 94.77	9	102.35
18	102.79	24	100.69	18	95.95	16	102.39
25	102.75	May 2	98.42	25	96.55	18	b102.42
Feb. 1	103.02	9	97.23	Aug. 1	97.14	25	102.49
8	103.63	16	95.62	8	97.45	29	102.62
12	103.75	23	95.62	12	97.89	Nov. 7	103.01
22	104.02	25	b 93.38	15	97.92	14	103.36
29	103.52	30	c 95.61	22	98.89	21	103.63
Mar. 7	102.68	June 6	c 95.61	29	99.19	28	103.57
14	102.81	13	c 95.61	Sept. 5	100.12	Dec. 5	103.54
21	103.13	20	c 95.61	12	100.64	12	103.39
28	103.19	27	c 95.61	19	100.94	19	103.27
Apr. 4	103.65	July 4	c 95.61	26	101.71	26	103.18
8	a102.75						

b By Washington Water Power Co.

c Water level higher, tape clamp caught on well cover.

25/45-18A1. Washington Water Power Co. well 40. O. B. Nilson. Taps water in fluvio-glacial gravel in the Spokane Valley. Records available: 1928-48. May 25, 81.05, pumping; July 13, 81.09, pumping; Oct. 18, 87.81.

26/43-7Q1. C. E. Marr. Taps water in fluvio-glacial gravel. Records available: 1942-48. Apr. 7, 79.63; Aug. 12, 74.55; Oct. 18, 74.65; Oct. 25, 77.20.

26/43-16D1. Permanente Metals Corporation test well. Formerly owned by Defense Plant Corporation. Taps water in fluvio-glacial gravel. Records available: 1943-48.

Apr. 7	160.90	Apr. 21	160.5	May 5	157.9	May 19	155.4
14	160.7	28	160.7	12	160.6	26	160.5

## 26/43-16D1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 3	160.50	Aug. 4	159.30	Sept. 22	159.45	Nov. 10	160.00
9	160.2	11	159.25	29	159.55	17	160.30
16	160.0	12	159.25	Oct. 6	159.73	24	160.40
23	160.9	18	159.25	13	159.85	Dec. 1	160.41
30	159.9	25	159.20	20	159.82	8	160.51
July 7	159.5	Sept. 1	159.33	25	159.83	15	160.40
14	159.4	8	159.35	27	159.96	22	160.41
21	159.3	15	159.49	Nov. 3	159.95	29	160.51
28	159.2						

26/43-19A1. Washington Water Power Co. well "C.H.". Whitworth Water District No. 2. Taps water in fluvioglacial gravel. Records available: 1930-48.

Jan. 1	137.42	Feb. 10	136.97	Mar. 20	136.63	Apr. 25	136.39
5	137.40	15	136.90	25	136.60	May 1	136.41
10	137.36	20	136.86	Apr. 1	136.59	5	136.34
15	137.31	25	136.74	5	136.54	10	136.23
20	137.23	Mar. 1	136.71	7	136.95	15	135.00
28	137.12	5	136.67	10	136.50	Aug. 12	138.23
Feb. 1	137.05	10	136.66	15	136.51	Oct. 18	135.75
5	137.02	15	136.61	20	136.45	25	135.60

26/43-34P1. Washington Water Power Co. well 80. Great Northern Railway Co. Taps water in fluvioglacial gravel. Records available: 1928-48. Apr. 9, 176.25, pumping; Oct. 25, 171.90.

26/44-32R1. Washington Water Power Co. well 46. Hutton Settlement. Taps water in fluvioglacial gravel in the Spokane Valley. Records available: 1928-48.

Date	Water level	Date	Water level	Date	Water level
Apr. 9	97.94	July 15	93.48	Oct. 18	99.15
May 25	90.64	Aug. 12	94.60		

Thurston County

Alluvial and glacial plains of the Puget Trough

15/3W-13D1. J. T. Hagerty. Taps regional water table in outwash gravels. Records available: 1947-48. Oct. 14, 30.43.

16/1W-19G1. Town of Tenino. Taps water in gravel in fluvioglacial deposits. Records available: 1941-48. May 7, 5.35; Oct. 14, 7.12.

16/2W-29E1. U. S. Army. Water from regional water table. Records available: 1947-48. May 4, 19.80; Oct. 14, 29.68.

16/3W-29N1. Owner unknown. Water from regional water table. Records available: 1947-48. May 4, 38.01; Oct. 14, 40.19.

Walla Walla County

Walla Walla River Basin

6/35-16B1. Claude Winn. Taps water in alluvial deposit of the Little Walla Walla River. Records available: 1933-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	4.59	Apr. 6	3.88	June 19	3.98	Sept. 20	3.98
Mar. 4	4.72	May 12	3.51	July 29	4.32	Nov. 5	3.25

Whatcom County

## Alluvial and glacial plains of the Puget Trough

39/2E-25R1. J. W. Elsbree. Water from regional water table in sub-till sand and gravel zone. Records available: 1946-48. May 7, 55.77; June 25, 57.14; Sept. 17, 58.59.

40/1-4J1. City of Blaine. Taps water in fluvioglacial deposits (?). Records available: 1938-48. May 7, 67.27.

40/3-15E1. City of Lynden. Water from regional water table. Records available: 1947-48. May 7, 12.78; June 25, 13.47.

41/1-31Q1. City of Blaine. Taps artesian (flowing) water in glacial deposits. Records available: 1939-42; 1946-48. May 7, +19.00; June 25, +18.75.

Whitman County

## Palouse River Basin

14/45-4N1. Emory Crawford. Confined water (artesian) in basalt. Records available: 1932-48. Jan. 19, 48.69; Mar. 20, 48.66; July 17, 49.55; Oct. 23, 49.10.

14/45-5B1. Washington State College well 1. Confined water in basalt. Records available: 1935-48. Jan. 19, 33.54; Mar. 20, 33.11; July 17, 32.46; Oct. 23, 32.98.

14/45-5D2. Standard Lumber Co. Taps confined water (artesian) in basalt. Records available: 1933-48. Jan. 19, 4.84; Oct. 23, 6.20.

14/45-11N2. Geological Survey. Water-table well. Records available: 1937-48. Jan. 19, 3.19; Mar. 20, 2.80; July 17, 3.95; Oct. 23, 5.33.

15/46-20K1. J. D. Carson. Water-table well. Records available: 1935-48. Mar. 20, 4.08; July 17, 4.47; Oct. 23, 5.80.

18/41-1B1. Inland Empire Milling Co. Water probably from basalt bedrock. Records available: 1945-48. Jan. 19, 2.30; Mar. 22, 2.26; Oct. 23, 2.39.

18/43-35P1. G. H. Noe. Taps confined water in basalt. Records available: 1940-48. Jan. 19, 9.93; Mar. 20, 7.91; July 17, 9.28.

## WYOMING

By Frank Visher

### PROGRAM OF WORK

Periodic measurements of water level in observation wells in Wyoming were continued in 1948 in cooperation with the Wyoming State Engineer and the city of Cheyenne through the Wyoming State Planning and Water Conservation Board.

At the beginning of 1948, 124 wells were being measured and at the end of the year 116 wells were being measured. During the year, 192 water-level measurements were made. The key observation wells, as described in Water-Supply Paper 1075, page 172, were measured monthly and the other wells less frequently.

### FLUCTUATIONS OF WATER LEVEL

A general description of the two areas under study in Laramie County is given in Water-Supply Paper 990, pages 246-251. In the Cheyenne area measurements were made in February, October and November. In the Cheyenne well field water levels declined 0.5 foot due to withdrawals of ground water for municipal use by the city of Cheyenne. This decline is not serious. It represents a flattening of a curve of water-level decline since pumpage by the city began in 1941. In the Egbert-Pine Bluffs-Carpenter area measurements were made in October and November. There was a cumulative rise in water levels of 1.0 foot. Throughout the year water levels fluctuated in response to seasonal precipitation and irrigation. Precipitation averaged less than normal. The observation wells in Crook, Goshen, Natrona, and Sublette Counties penetrate alluvial deposits near the banks of streams. The water levels in them fluctuated in response to variations in the stages of the streams and to seasonal differences in precipitation.

### WELL-NUMBERING SYSTEM

An explanation of the well-numbering system used in this report may be found in Water-Supply Paper 990, pages 251-252.

## WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Crook County

54-64-7bc (U. S. 145). S. J. Brimmer. Records available: 1942-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	15.62	Apr. 30	14.87	June 24	14.81	Oct. 7	15.59
Feb. 5	15.40	May 19	15.17	Aug. 11	15.12	Nov. 9	15.40
Mar. 18	14.56	June 8	15.34	Sept. 8	15.41	Dec. 7	15.38
Apr. 6	14.35						

Goshen County

26-64-28ada (U. S. 140). National Park Service. Records available: 1942-43, 1946-48.

Jan. 6	18.30	Apr. 3	18.59	Aug. 11	17.43	Oct. 21	18.39
Feb. 5	18.20	July 3	17.89	Sept. 24	18.01	Dec. 14	18.26
Mar. 15	18.23						

Laramie County

## Cheyenne area

14-67-36ccc. Curtis Vaughn. Records available: 1941-48. Feb. 18, 56.12.

14-68-2dd. Fred Koster. Records available: 1942-47. No measurements made in 1948.

14-68-14c b (U. S. 66). City of Cheyenne. Records available: 1941-48. Feb. 19, 8.77. Published incorrectly as 14-68-14cd in previous reports.

14-68-17dcd. City of Cheyenne. Records available: 1941-48. Oct. 25, 8.68.

14-68-20abc. City of Cheyenne. Records available: 1941-48. Feb. 19, 9.69; Oct. 25, 10.70; Nov. 29, 10.01.

14-68-20bab. City of Cheyenne. Records available: 1941-48. Oct. 25, 22.77; Nov. 29, 20.73.

14-68-20bbb. City of Cheyenne. Records available: 1941-48. Oct. 25, 9.78; Nov. 29, 9.00.

14-68-23ddc. City of Cheyenne. Records available: 1940-47. No measurements made in 1948.

14-68-23ddd. City of Cheyenne. Records available: 1941-48. Feb. 17, 14.02.

14-68-25ccb. City of Cheyenne. Records available: 1945-47. No measurements made in 1948.

14-68-25dda. City of Cheyenne. Records available: 1941-48. Feb. 19, 40.44.

14-68-26bdd. City of Cheyenne. Records available: 1945-47. No measurements made in 1948.

14-68-26bcb. City of Cheyenne. Records available: 1940-48. Feb. 19, 31.08.

- 14-68-27dcc. City of Cheyenne. Records available: 1940-48.  
Feb. 18, 51.25.
- 14-68-33dcc. City of Cheyenne. Records available: 1945-48.  
Feb. 18, 140.02; Oct. 26, 157.18.
- 14-68-34aab. City of Cheyenne. Records available: 1940-48.  
Feb. 18, 43.02.
- 14-68-34dbd. City of Cheyenne. Records available: 1943-48.  
Feb. 18, 72.86; Oct. 26, 78.68, Published incorrectly as 14-68-34ccb.
- 14-68-34ddd. City of Cheyenne. Records available: 1944-48.  
Feb. 17, 86.10; Oct. 25, 84.42; Nov. 29, 87.76.
- 14-68-35cac. City of Cheyenne. Records available: 1945-48.  
Feb. 17, 76.14; Oct. 26, 77.01; Nov. 29, 76.83. Published incorrectly as 14-68-35cbc.
- 14-68-35cdd. City of Cheyenne. Records available: 1945-48.  
Feb. 17, 72.08; Oct. 26, 72.92; Nov. 29, 73.06.
- 14-68-36adb. City of Cheyenne. Records available: 1941-48.  
Feb. 18, 26.05; Oct. 26, 25.79; Nov. 29, 25.77. Published incorrectly as 14-68-36ad.
- 14-68-36ac. City of Cheyenne. Records available: 1941-48.  
Feb. 18, 25.88; Oct. 26, 20.49; Nov. 29, 32.62.
- 14-68-36bc. City of Cheyenne. Records available: 1941-48.  
Feb. 18, 33.38; Oct. 26, 34.56; Nov. 29, 34.12.
- 13-66-18ad. P. J. Black Lumber Co. Records available: 1942-47. No measurements made in 1948.
- 13-66-32ab. Dorian Lumis. Records available: 1942-47. No measurements made in 1948.
- 13-66-32cad. W. J. Merna. Records available: 1941-47. No measurements made in 1948.
- 13-67-2da. Bresnahan Estate. Records available: 1942-47. No measurements made in 1948.
- 13-67-6add. A. L. King. Records available: 1941-47. No measurements made in 1948.
- 13-67-11aaa. J. J. Brannigan. Records available: 1941-47. No measurements made in 1948.
- 13-67-13bb. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-15aa. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-15bb. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-16ab. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-19ca. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-21bd. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.
- 13-67-27bb. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.



13-67-33ac-1. Union Pacific Railroad Co. Records available: 1941-47. No measurements made in 1948.

13-68-3bba. City of Cheyenne. Records available: 1944-48. Feb. 17, 79.94; Oct. 26, 79.90; Nov. 29, 78.72.

13-68-4aad. City of Cheyenne. Records available: 1944-48. Feb. 18, 75.31; Oct. 26, 76.01; Nov. 29, 76.32.

13-68-4acd. City of Cheyenne. Records available: 1944-48. Feb. 18, 100.18; Oct. 26, 100.48; Nov. 29, 100.60.

13-68-4cbd. City of Cheyenne. Records available: 1945-48. Feb. 18, 172.01; Oct. 26, 172.38; Nov. 29, 173.66. Published incorrectly as 13-68-4cbc in previous reports.

13-68-4dcc. City of Cheyenne. Records available: 1944-48. Feb. 17, 121.09; Oct. 26, 121.80; Nov. 29, 121.00.

13-68-8cb. Bert McGee. Records available: 1942-47. No measurements made in 1948.

13-68-13cc. James Mort<sup>on</sup>. Records available: 1942-48. Feb. 17, 43.80; Oct. 26, 43.52; Nov. 29, 43.60.

13-68-14bbb. City of Cheyenne. Records available: 1945-48. Feb. 17, 85.84; Oct. 26, 85.15; Nov. 29, 86.53.

13-68-14chd. City of Cheyenne. Records available: 1945-48. Feb. 17, 46.06; Oct. 26, 46.46; Nov. 29, 46.72.

13-68-14ddd. City of Cheyenne. Records available: 1944-48. Feb. 17, 80.69. Measurements discontinued after Feb. 17, 1948.

13-68-15cbd. Mrs. A. L. Boyce. Records available: 1944-47. No measurements made in 1948.

13-68-18ab. William Conrad. Records available: 1941-47. No measurements made in 1948.

13-69-1lad. Bert McGee. Records available: 1942-47. No measurements made in 1948.

13-69-12ad. Bert McGee. Records available: 1942-47. No measurements made in 1948.

13-69-24dd. Warren Livestock Co. Records available: 1942-47. No measurements made in 1948.

13-69-34dd. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.

12-67-5ddd. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.

12-67-11ba. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.

12-68-1dc. Warren Livestock Co. Records available: 1941-47. No measurements made in 1948.

#### Egbert-Pine Bluffs-Carpenter area

15-60-8cb. Victor Sundlin. Records available: 1940-46. Measurements discontinued Dec. 31, 1947.

15-60-29bbc. W. T. Young. Records available: 1945-48. Oct. 12, 59.47; Nov. 30, 55.03. Published incorrectly as 15-60-29bbb in previous reports.

15-60-30cb. Mary A. Simpson. Records available: 1940-48. Oct. 12, 45.24; Nov. 30, 45.28.

15-60-31add. Moritz Floy. Records available: 1943-48. Oct. 12; 61.55; Nov. 30, 60.58.

15-60-32ab. W. T. Young. Records available: 1940-47. No measurements in 1948.

15-60-34ad. J. R. Wilkinson Estate. Records available: 1943-47. Measurements discontinued Dec. 31, 1947.

15-60-34bc. Glenn Macy. Records available: 1940-48. Oct. 12, 72.69.

14-60-3daa. Mrs. John Wilkinson. Records available: 1943-48. Nov. 30, 50.74.

14-60-5bcc. C. C. Gross. Records available: 1943-48. Oct. 12, 31.82.

14-60-7dda. Mrs. John Wilkinson. Records available: 1943-47. Measurements discontinued Dec. 31, 1947.

14-60-7ddd. Mrs. John Wilkinson. Records available: 1943-48. Oct. 12, 18.89. Measurements discontinued after Oct. 12, 1948.

14-60-8bcc. H. L. Wisroth. Records available: 1943-48. Oct. 12, 35.66; Nov. 30, 32.84.

14-60-8cbc. H. L. Wisroth. Records available: 1940-48. Oct. 12, 15.59; Nov. 30, 12.65.

14-60-10dcc. Mrs. Ellison. Records available: 1940-48. Oct. 12, 17.30; Nov. 30, 18.34.

14-60-11bbb. J. R. Wilkinson Estate. Records available: 1943-48. Nov. 30, 16.45.

14-60-11bcc-1. J. R. Wilkinson Estate. Records available: 1943-48. Oct. 12, 16.87.

14-60-11cbc. J. R. Wilkinson Estate. Records available: 1943-48. Oct. 12, 18.89; Nov. 30, 18.18.

14-60-14bbc. E. G. Sanders. Records available: 1943-48. Oct. 12, 33.98.

14-60-16dcc. Mrs. John Wilkinson. Records available: 1943-47. No measurements made in 1948.

14-60-18add. H. L. Wisroth. Records available: 1943-47. No measurements made in 1948.

14-60-21aaa. Carl Fornstrom. Records available: 1943-47. No measurements made in 1948.

14-60-28bb. Herbert Campbell. Records available: 1940-48. Nov. 1, 26.34; Dec. 1, 24.98.

14-60-29bbb. C. F. Paullin. Records available: 1943-47. No measurements made in 1948.

14-60-29bbc. C. F. Paullin. Records available: 1943-48. Oct. 12, 53.43.

14-61-2ca. Carl Bogie. Records available: 1940-48. Oct. 12, 26.93.

14-61-7ccc. R. W. Richer. Records available: 1943-48. Oct. 12, 31.20; Dec. 1, 32.24.

14-61-14ab. H. R. Eggers. Records available: 1940-48. Oct. 12, 57.54.

14-61-16bbb. Bruce Bell. Records available: 1943-48. Oct. 12, 43.73; Nov. 30, 42.86.

14-61-18bbc. F. J. Janesofsky. Records available: 1943-48. Oct. 12, 19.62; Dec. 1, 19.84.

14-61-21bb. C. E. Kaser. Records available: 1940-47. No measurements made in 1948.

14-61-21bcb. C. E. Kaser. Records available: 1943-47. No measurements made in 1948.

14-61-28bcb. Mary Higgison. Records available: 1943-47. No measurements made in 1948.

14-61-29bb. A. E. Cook. Records available: 1940-48. Oct. 12, 14.71; Dec. 1, 24.80.

14-62-12cc. C. E. Kaser. Records available: 1940-47. No measurements made in 1948.

14-62-22bb. J. W. Minnick. Records available: 1940-47. No measurements made in 1948.

14-62-24ad. Union Pacific Railroad Co. Records available: 1940-48. Dec. 1, 30.48.

14-62-24daa. Fred Shuetz. Records available: 1943-48. Oct. 10, 22.82; Dec. 1, 22.88.

14-62-36db. J. M. Bastain. Records available: 1940-47. No measurements made in 1948.

14-63-12cd. J. D. Johnson. Records available: 1941-47. Measurements discontinued Dec. 31, 1947.

14-63-20bc. Elmer Gibson. Records available: 1941-47. No measurements made in 1948.

14-63-34daa. Lorena F. G. Noyes. Records available: 1942-47. No measurements made in 1948.

13-60-8cb. Herbert Campbell. Records available: 1940-48. Nov. 1, 47.62.

13-60-31aa. W. T. Young, Jr. Records available: 1940-48. Nov. 1, 39.00; Dec. 1, 38.56.

13-60-31ddd. William Young. Records available: 1942-48. Nov. 1, 19.50; Dec. 1, 18.86.

13-61-3dc. Jim Dolan. Records available: 1940-48. Nov. 1, 22.48.

13-61-5dba. Mr. Kelly. Records available: 1940-47. Measurements discontinued Dec. 31, 1947.

13-61-18bc. Mr. Johnson. Records available: 1940-48. Nov. 1, 47.61; Dec. 1, 47.48.

13-61-24aa. Leona J. Whited. Records available: 1940-48. Nov. 1, 12.19; Dec. 1, 11.89.

13-61-31ddc. Max Thelan. Records available: 1942-47. Measurements discontinued Dec. 31, 1947.

13-61-34cb. H. E. Grover. Records available: 1945-48. Nov. 1, 28.93; Dec. 1, 28.91.

13-62-21ccc. Union Pacific Railroad Co. Records available: 1942-48. Nov. 1, dry at 48 feet.

13-62-30bcc. James H. Carnes. Records available: 1942-47. No measurements made in 1948.

13-62-34ccd. Jack Fee. Records available: 1945-48. Nov. 1, 55.98; Dec. 1, 56.20.

13-63-8acc. Emil Gustafson. Records available: 1942-48. Nov. 1, 66.34.

13-63-10aaa. William Dittmer. Records available: 1942-47. No measurements made in 1948.

13-63-22bba. Ralph V. Kent. Records available: 1942-48. Nov. 1, 55.95.

13-63-26ca. Ed Oline. Records available: 1942-48. Nov. 1, 49.79.

12-60-5ccd. William Young. Records available: 1942-48. Dec. 1, 24.94.

12-61-3abb. Harry Anderson. Records available: 1945-48. Nov. 1, 32.16; Dec. 1, 32.19.

12-62-9aba. D. A. Bunnell. Records available: 1942-48. Nov. 1, 48.04; Dec. 1, 48.07.

12-62-13abb. Roy D. Smith. Records available: 1942-47. No measurements made in 1948.

12-63-3baa. Roy L. Gasurant. Records available: 1942-48. Nov. 1, 42.65; Dec. 1, 42.85.

12-63-12da. Otis Breeden. Records available: 1942-48. Nov. 1, 5.42

#### Natrona County

29-86-19cc (U. S. 141). James Grieves (Dumbell Ranch). Records available: 1942-43, 1946-48.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 19	9.36	May 20	9.24	July 22	8.17	Sept. 24	7.46
Mar. 24	9.39	June 9	7.77	Aug. 10	8.22	Oct. 11	7.24
Apr. 8	9.33	10	7.69	13	8.23	Nov. 9	8.52
May 8	9.29	July 7	7.43	Sept. 8	7.21	Dec. 6	8.89

29-87-33ca (U. S. 142). State of Wyoming. Records available: 1942-43, 1946-48.

Jan. 19	6.27	May 20	5.13	July 22	5.45	Sept. 24	6.32
Mar. 11	6.21	June 9	4.39	Aug. 10	5.75	Oct. 12	6.39
24	6.04	10	4.40	13	5.85	Nov. 9	6.43
Apr. 8	5.85	July 7	4.92	Sept. 8	6.20	Dec. 6	6.41
May 8	5.40						

#### Sublette County

35-111-8db (U. S. 144). Robert Albert. Records available: 1942-48.

Jan. 14	27.40	Apr. 17	28.96	July 21	26.25	Oct. 12	26.35
Feb. 18	28.10	May 17	29.09	Aug. 21	25.71	Nov. 26	23.84
Mar. 17	28.63	June 17	29.85	Sept. 18	26.69		



