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Rural Water Supplies in South Dakota : Gregory County

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Rural Water Supplies in South Dakota

GREGORY County

January, 1940
Special Extension Circular
Number 47

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RURAL WATER SUPPLIES
IN
SOUTH DAKOTA
GREGORY COUNTY

BY
WALTER V. SEARIGHT
AND
ELMER E. MELEEN

PREPARED BY THE WORK PROJECTS ADMINISTRATION
AS A REPORT ON THE WELL SURVEY CONDUCTED
AS WORK PROJECTS ADMINISTRATION OFFICIAL PROJ-
ECT 665-74-3-126; SPONSORED BY THE EXTENSION
SERVICE AND THE EXPERIMENT STATION SOUTH DAK-
OTA STATE COLLEGE, IN COOPERATION WITH THE
STATE GEOLOGICAL SURVEY.

JANUARY 1940

FOREWORD

This study was first proposed as a project of the Mineral Resources Committee of the State Planning Board under the direction of the State Geological survey and undertaken as a Work Projects Administration project sponsored by the State Planning Board, and was continued under the Planning Board until that body was abolished July 1, 1939 by the State Legislature. At that time sponsorship was transferred to the South Dakota Agricultural Experiment Station and the State College Extension Service, South Dakota State College. Field work was begun October 1, 1938 and was practically completed by February 15, 1939. Workers were assigned in the several counties under the supervision and direction of the County Agricultural Agents and Field Supervisors who were employed by the Work Projects Administration. Questionnaires were mailed out from the offices of the County Agents and were checked and tabulated in these offices. The material was then forwarded to the central office for final tabulation and analysis under the direction of Elmer E. Meleen and Walter V. Searight.

Particular credit should be given to the individual County Agricultural Agents in the various counties of the state who arranged the contacts with the individuals from whom these data were collected, furnished a large portion of the necessary supplies for field work, and directed the workers engaged in collecting field data. Without this assistance in gathering basic data, this study could not have been conducted. The value of the report is therefore in direct proportion to the accuracy and adequacy of these basic data.

INTRODUCTION

PURPOSE

This report on rural water supplies of South Dakota has been prepared to present data recently made available on the types and the sources of water supply, exclusive of stream, lake and dam waters. The information presented is of importance to evaluate present supplies. It should also prove useful as a basis for further development of supplies where they are needed or become necessary. Further, it is hoped that the facts presented may prove of value in any program of water conservation.

SOURCES OF INFORMATION

Questionnaires were sent to all, or essentially all of the farmers of the state, asking for complete data on farm wells and supplementary supplies, with the exception of the supplies above noted. A most gratifying number returned questionnaires, actually 60.1% average for the entire state. The coverage is probably more than 60.1% since it is likely that many unanswered inquiries were those to farmers who were without wells, the type of supply emphasized in the questionnaires. The data thus obtained were supplemented with information contained in the files of the State Geological Survey, the office of the State Engineer, and reports of the United States Geological Survey. This supplementary information, together with that contained in questionnaires was used in making the well location maps included in this report.

PROCEDURE

All data from the questionnaires were tabulated and analyzed statistically by counties, which were made the areal units of study. Within the county,

Acknowledgments -- The authors wish especially to acknowledge and commend the conscientious assistance of Mr. E. L. Woodburn, Supervisor, for careful and painstaking supervision of statistical work. The authors also desire to express appreciation for the constant interest and support of this project by Mr. Bob Butts, Director of Research and Records Projects, South Dakota Work Projects Administration.

supplies were allocated as to kind on county maps. Since shallow waters are the most important source of rural supply in South Dakota, wells 200 feet deep and less were plotted on county maps from which maps indicating depths of wells by 50 foot intervals were made. Springs, shown on the well location map, and cisterns were also tabulated as important supplementary supplies, although the latter do not appear on maps or in the tables in this report.

PRESENTATION OF DATA

For convenience and utility, this report has been divided into sections, each covering one county, and each county section bound separately. Each county report contains the following material wherever possible.

1. Well Location Map: This map shows the location of all wells and springs within the county, so far as information is now available. These have been plotted in such a manner that artesian and shallow wells can be differentiated readily by the reader. Artesian wells, where they occur, are divided into flowing and pumped. Artesian wells showing decreased flow and those reported as controlled are also indicated by symbols. Shallow wells are differentiated as adequate and inadequate, and dry holes as of 1938 are located. Wells from other sources of information other than questionnaires collected by this survey are shown in blue.

2. Shallow Well Map: This map shows, as accurately as possible, in 50 foot intervals, the depths at which shallow supplies are commonly obtained. Where shallow wells are abundant, as indicated by the well location map, the map is as accurate as the information on which it is based, but where such wells are sparsely distributed errors are likely to occur. In many places reports of shallow wells are absent, in which case the area has been left blank.

3. Table of Pumped Wells, from 0 to 200 feet (inclusive) in depth: This table shows minimum, maximum, and average depths of wells within the county, as reported in the questionnaires. Tabulations are by townships. The general character of the water, hard, medium, and soft, as reported by farm-

ers, and the number of wells suitable or unsuitable for drinking are shown in this table. Further, the adequacy of supply, as indicated on the questionnaires, and use for irrigation are shown here.

4. Table of Wells greater in depth than 200 feet: Minimum, maximum, and average depths are indicated. Character, reported as hard, medium or soft is tabulated. Adequacy and use for irrigation are shown as in the preceding table.

5. Table of flowing wells: Minimum, maximum, and average depths are shown together with general character and use for irrigation. The volume of flow as reported, and the number of flowing wells reported as equipped with control valves is also included in this table.

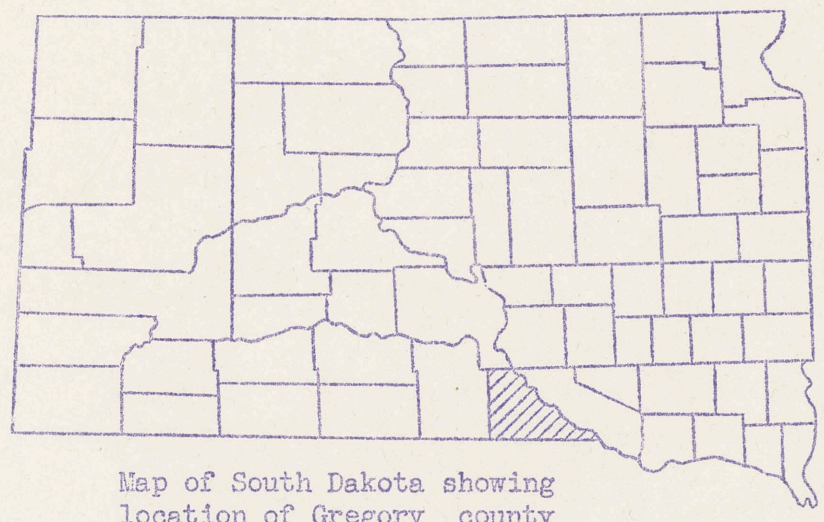
SUMMARY OF STATE SUPPLIES

In the entire state, a total of 48,479 wells were reported in response to questionnaires, returned by 60.1% of the recipients. If those who did not respond have a number of wells in proportion to those who reported, there are approximately 80,000 wells in South Dakota. There are possibly many less than this number since several counties with large numbers of wells returned over 75% of the questionnaires and since many farmers without wells did not reply because they were not requested to do so in the formal questionnaire. Of the wells reported, 16.2% are artesian, including both pumped and flowing wells. Shallow wells are 83.8% of the wells reported. Wells from shallow sources are thus obviously by far the most important means for obtaining water in rural South Dakota.

Important supplementary supplies are cisterns and springs. Roughly, there is more than one cistern to each 40 wells. Many springs are reported, however, in counties with very few wells, so that in some localities they are of considerable importance.

Gregory County

Gregory county is in the south central part of South Dakota. It is bounded on the north by Lyman county, on the east by the Missouri river, on the south by Nebraska, and on the west by Tripp county.



Map of South Dakota showing location of Gregory county

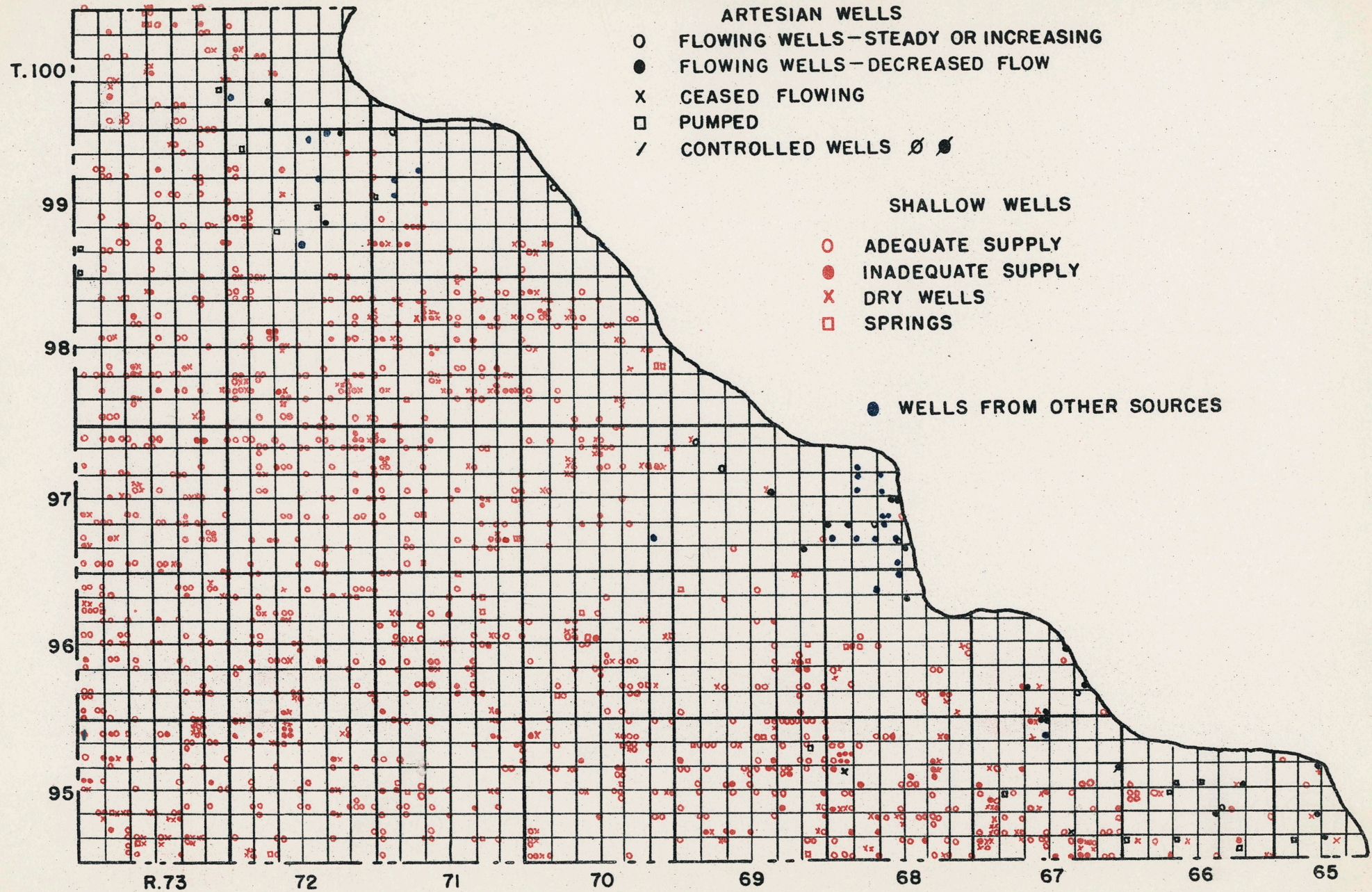
Gregory county is mainly an agricultural county, having approximately 619,648 (93.8 per cent) of a total 660,480 acres in farms, divided into 1590 farm units of approximately 389 acres each. More than half (54.8 per cent) of the acreage in farms is under cultivation. Corn, barley, wheat, oats, hay, rye, and sorghum forage are the important field crops, being produced in the order named. Livestock is also very important; cattle, hogs, sheep, and poultry are valued highest.*

Farm units devoted to livestock, especially dairy cattle and hogs require generally distributed sources of water supply. The supplies required are not great, but adequate and constant supplies of suitable water at low cost are necessary to operate farms of these sizes and organization profitably. The well location map of Gregory county indicates that, in general, such supplies are available and widely distributed.

On the well location map of Gregory county, all deep pumped and deep flowing wells obtaining water from artesian sources, mostly the Dakota-Lakota sand-

*South Dakota Agricultural Statistics, Annual Report, 1937

LOCATION OF ARTESIAN AND SHALLOW WELLS IN GREGORY COUNTY



53

stones, are shown in black as artesian wells. On this map, all other wells are shown in red and are called shallow wells regardless of depth. On all other maps, however, and in the tables and the text of this report, the term shallow wells applies to those wells of 200 feet depth or less and those greater than 200 feet deep are treated as deep wells including all artesian wells.

Questionnaires were sent to 1359 farmers and land owners of Gregory county, of whom 804 (60 per cent) responded with information on 1119 wells, 253 cisterns and 48 springs throughout the county.

DEPTH AND DISTRIBUTION

Rural water supplies of Gregory county are obtained from shallow pumped, deep pumped, and deep flowing wells which were rather widely distributed over the county. Two townships, T.98N., R.69W., and T.100N., R.71W., both fractional, did not report any wells.

Shallow wells: Approximately 95 per cent of all wells reported in Gregory county were shallow pumped wells. Of the 1066 shallow wells reported, 80 per cent were from 0 to 50 feet in depth; 18.5 per cent from 50 to 100 feet in depth; 1.5 per cent from 100 to 150 feet; and none were reported between 150 and 200 feet. The percentage of wells decreases as the depth increases because of the increased cost of construction of deeper wells. Shallower supplies are used whenever possible in Gregory county. Only five townships reported shallow wells greater than 100 feet in depth and all of these were from 100 to 139 feet in depth:

Twp.	Rge.	Number of Wells	:	Twp.	Rge.	Number of Wells
95N	72W	8	:	97N	72W	4
96	72	1	:	98	73	1
97	71	2	:			

In the following townships of the county all wells reported were shallow:

Twp.	Rge.	Total Shallow	:	Twp.	Rge.	Total Shallow	:	Twp.	Rge.	Total Shallow
95N	70W	39	:	96N	71W	45	:	97N	73W	60
95	71	41	:	96	72	48	:	98	70	27
95	72	41	:	96	73	59	:	98	71	59
95	73	60	:	97	70	28	:	98	72	66
96	70	31	:	97	71	45	:	98	73	44
			:	97	72	60	:			

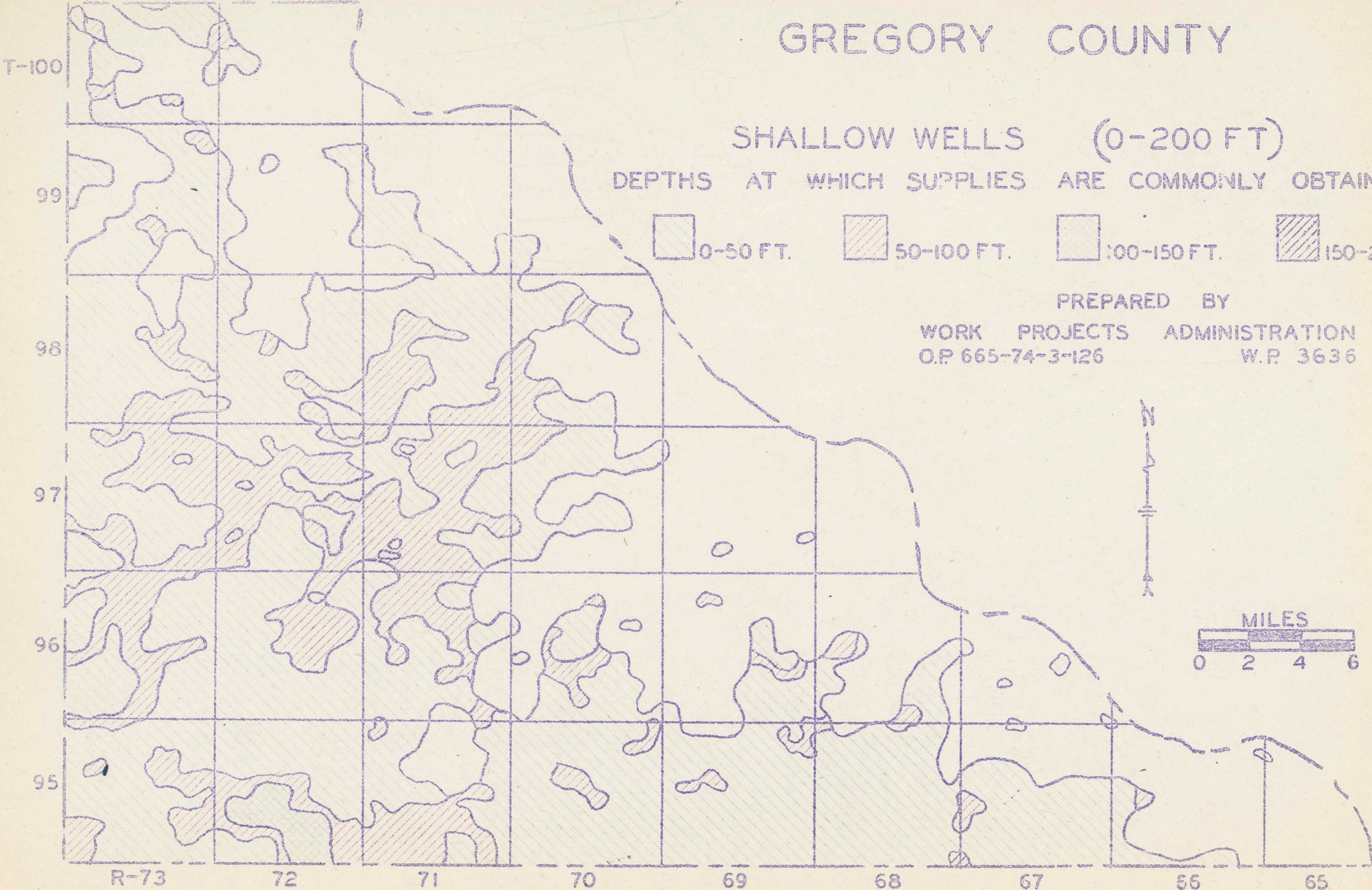
GREGORY COUNTY

SHALLOW WELLS (0-200 FT)

DEPTHS AT WHICH SUPPLIES ARE COMMONLY OBTAINED



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No shallow flowing wells were reported in Gregory county and none are known to occur.

Deep wells: Approximately five per cent (4.7) of the rural water supplies of Gregory county are obtained from deep wells (pumped and flowing.) Of the 53 deep wells reported, 29 (54.7 per cent) were flowing. Deep wells were reported from 16 of the 33 townships and range in depth from 275 to 1600 feet (see table 2.) Water, however, was not obtained at all depths between the minimum and maximum, since most of the deep wells were reported within 10 miles of the Missouri river, from depths of 550 to 1600 feet, with the exception of the following:

Twp.	Rge.	Number of Wells	Depth in feet
95N	65W	1	275
95	66	1	330
96	69	1	325
97	68	1	350

The following tabulation shows the location, number, and the minimum and maximum depths of the deep wells reported in Gregory county:

Twp.	Rge.	Number Wells	Depths		:	Twp.	Rge.	Number Wells	Depths	
			Min.	Max.					Min.	Max.
95N	65W	5	275	1000	:	97N	68W	8	350	850
95	66	10	330	1600	:	97	69	4	800	900
95	67	5	738	1178	:	99	70	1	850	
95	68	1	1180		:	99	71	2	1000	1001
95	69	1	700		:	99	72	5	860	1200
96	67	5	550	764	:	99	73	2	1280	
96	68	1	700		:	100	72	1	1200	
96	69	1	325		:	100	73	1	1350	

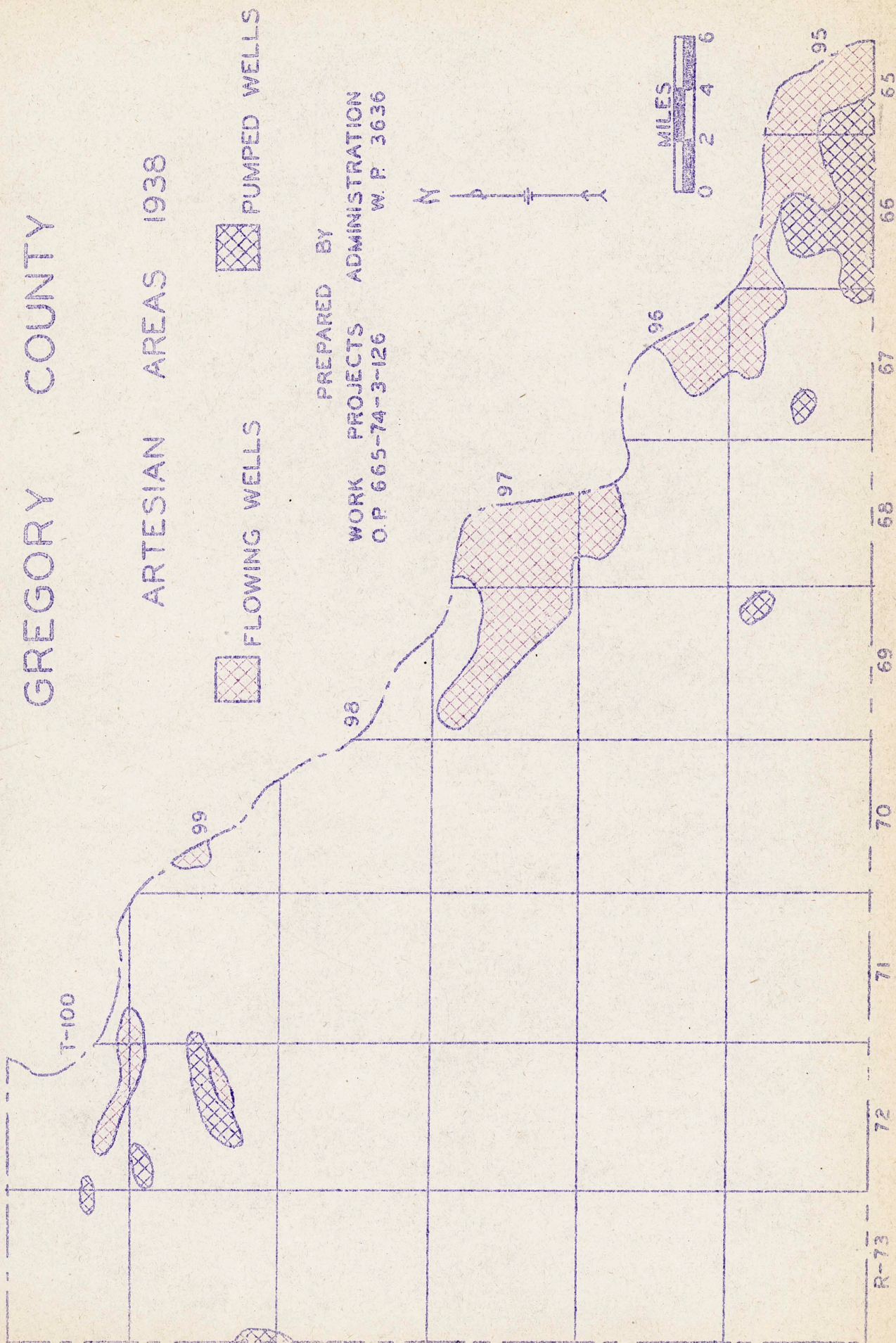
CHARACTER OF WELL WATERS

In order to determine the character of waters in the county, users were asked to indicate whether they considered supplies to be hard, moderately hard, or soft. Although chemical analyses are not commonly available to farmers, usage of the water is probably a fairly satisfactory criterion of character until laboratory analyses are available.

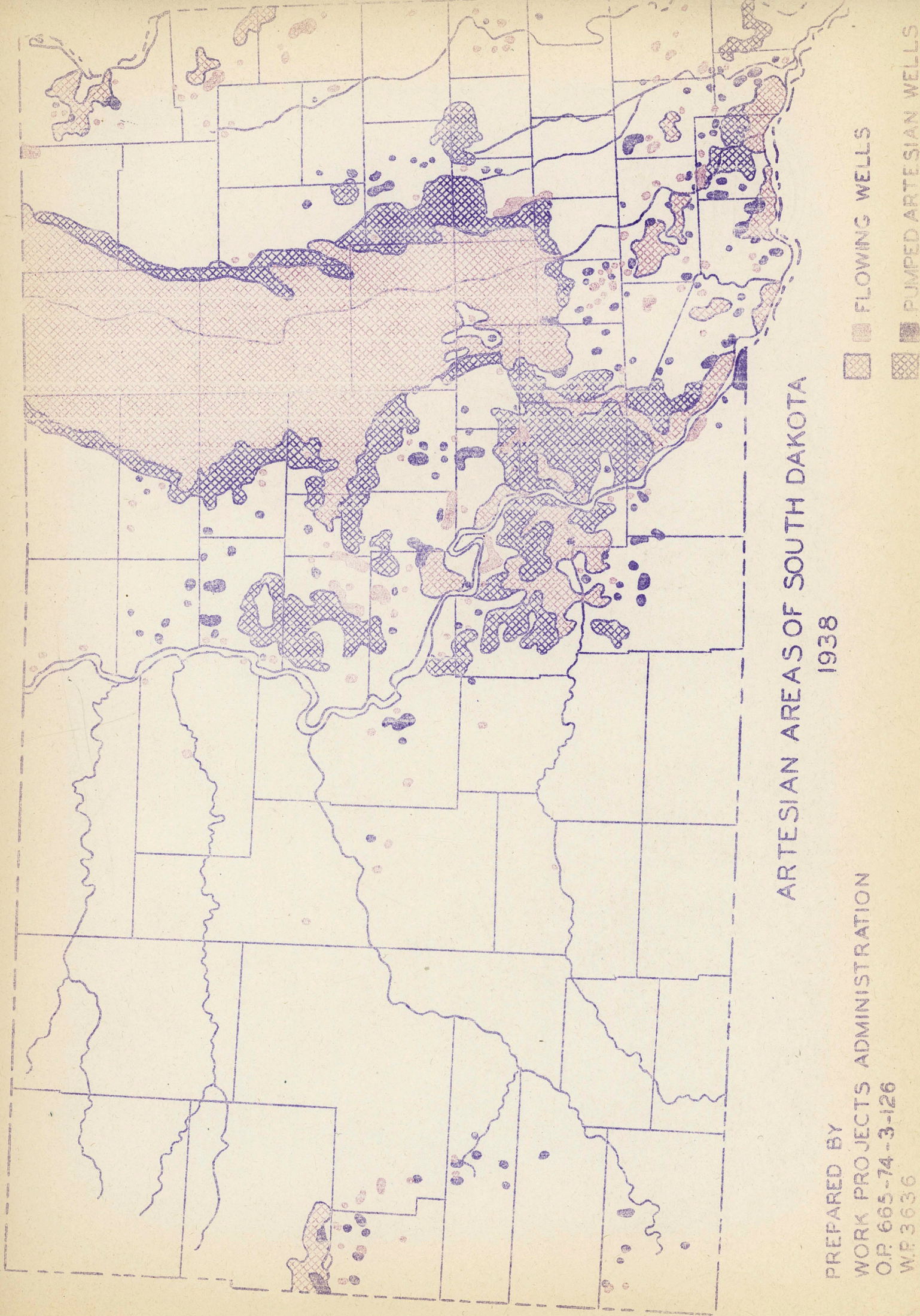
In general, well supplies in Gregory county produce hard water. Of the shallow wells reported, 29.8 per cent were reported to produce hard water;

GREGORY COUNTY

ARTESIAN AREAS 1938



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ARTESIAN AREAS OF SOUTH DAKOTA

1938

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43.9 per cent moderately hard; and 26.3 per cent soft. Thus, approximately 74 per cent of the shallow water in Gregory county was reported hard or moderately hard. Hard water wells are distributed generally over the county and exceed the soft water wells at shallow depths in every township. The soft water wells were reported from 23 of the 33 townships in the county but are not so numerous as hard water wells anywhere. The following tabulation shows the percentage of soft water wells at each depth range of the shallow supplies. This shows that as depth increased, the percentage of soft water wells also increased:

Depth	Total Wells	Soft Water Wells	Per cent Soft
0 to 50 feet	759	177	23.3
50 to 100 "	183	68	37.2
100 to 150 "	15	7	46.6
150 to 200 "	None		

Only five (10.4 per cent) of the 48 deep wells reporting on character, produced soft water; 2 (4.2 per cent) moderately hard; and 41 (85.4 per cent) hard water. None of the flowing wells reported soft water, only one as moderately hard, and the remainder (96.6 per cent) produced hard water. Of the deep pumped wells, 5 (25 per cent) reported soft water; one moderately hard; and fourteen (70 per cent) hard water. All of the deep soft water wells were reported in the southeastern part of the county.

Approximately 12 per cent of the well supplies of Gregory county were unsuitable for drinking. Waters from 136 wells were reported unsuitable, 124 of which were shallow supplies and twelve were from deep wells. A total of 105 (84.7 per cent) of the unsuitable shallow wells were from 0 to 50 feet in depth and 19 (15.3 per cent) from 50 to 100 feet. Thus, all of the unsuitable shallow wells were less than 100 feet in depth and comprised approximately 11 per cent of the total wells in the county. Slightly more than one fifth of the deep well supplies were unsuitable for drinking.

ADEQUACY OF WELL WATERS

Supplies in Gregory county were, in general, adequate for present needs. Needs

vary, however, and changes in land usage, modification of farm management, or dry cycles in this and surrounding land areas affect both the source and usage of supplies.

Approximately one fourth of all wells in the county were inadequate for current needs. Of the 289 inadequate wells reported, 281 were shallow wells; 2 were deep flowing, and 6 were deep pumped. Inadequacy in the various depth ranges of shallow wells is shown in the following tabulation:

Depth Range	Number Inadequate	Per cent of Shallow Well Inadequate
0 to 50 feet	215	76.5
50 to 100 "	63	22.4
100 to 150 "	3	1.1
150 to 200 "	None	

All townships in the county reported some inadequate supplies except T.95N.,R.65W., and T.97N.,R.68W.

More deep pumped wells were reported inadequate than flowing wells, possibly because of the cost of pumping. Two deep wells at 1280 feet in depth, in T.99N., R.73W., were reported inadequate, and in T.95N., R.66W., two deep wells, 1070 feet and 1127 feet deep were reported inadequate. In T.95N.,R.67W., and T.95N.,R.68W., there was one inadequate deep well each at 1178 feet and 1180 feet in depth, respectively. Two inadequate flowing wells were reported in T.97N.,R.69W., at depths of 800 and 900 feet.

The average approximate flow by townships in the county ranges from 18 gallons to 440 gallons per minute. One of the 29 flowing wells was reported with a control valve. Three wells reported an increasing flow, eleven decreasing, and six steady flow.

IRRIGATION

Fifty nine of the shallow wells were used for the irrigation of garden plots ranging in size from 1/8 acre to one acre, a total of 7 1/2 acres. Only one deep pumped well was used to irrigate a 1/8 acre garden plot. Ten of the flowing wells were used for irrigating plots from 1/8 to 150 acres, or a total of 335 7/8 acres. One flowing well in T.99N.,R.70W., with a flow of 440 gal-

lons per minute irrigated a 120 acre tract; and in T.97N.,R.68W., two flowing wells irrigated tracts of 60 to 150 acres or a total of 210 acres. No springs were used for irrigation.

SUPPLEMENTARY WATER SUPPLIES

Springs are a fairly important source of supplementary supplies in Gregory county, since 43 were reported. These springs were widely distributed throughout the county with the exception of townships along the Missouri river in which none were reported, excepting in T.98N.,R.70W. Thirty seven (86 per cent) of the springs reported an adequate supply for present use. In reporting character of the water, 9.1 per cent had hard water, 27.2 per cent moderately hard, and 63.7 per cent soft. Two of the springs were unsuitable for drinking in T.95N., R.73W. The following tabulation shows the location and number of springs reported in Gregory county:

Twp.	Rge.	Number of Springs	:	Twp.	Rge.	Number of Springs
95N	69W	3	:	96N	72W	1
95	70	2	:	96	73	1
95	71	3	:	97	71	6
95	72	1	:	97	73	1
95	73	4	:	98	70	3
96	68	1	:	98	71	2
96	69	3	:	98	72	1
96	70	5	:	100	73	3
96	71	3	:			

Cisterns were an important source of supplementary supplies in Gregory county with 253 (approximately two cisterns to every nine wells) reported. These cisterns are used in areas where the regular supplies are too hard for laundry purposes and in areas where regular supplies are inadequate or unsuitable. Farmers with shallow wells reported 213 cisterns, of which 171 were used for drinking and cooking and 171 for laundry purposes. Users of artesian wells reported 38 cisterns, of which 27 were used for cooking and drinking and 33 for laundry. Farmers with springs reported two cisterns, both of which were used for cooking, drinking and laundry purposes.

DRY HOLES

There were 233 dry well holes reported in Gregory county from 3 feet to 1320 feet in depth.

GREGORY COUNTY

Table 1.

DATA ON PUMPED WELLS FROM 0 TO 200 FEET (INCL.) IN DEPTH

LOCATION		Number of Wells	DEPTH OF WELLS			CHARACTER OF WATER					ADEQUACY OF SUPPLY			
Twp.	Rge.		Min.	Max.	Ave.	Hard	Med.	Soft	Corroded Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approximate Acres Irrigated
95	65	1	-	-	14	-	-	-	-	-	1	-	-	-
95	66	11	12	65	33	5	2	-	-	-	8	3	-	-
95	67	44	12	57	27	20	18	2	2	9	31	13	-	-
95	68	53	6	60	23	13	28	2	2	7	35	18	1	-
95	69	66	10	65	30	15	25	20	2	4	54	12	6	1/4
95	70	39	9	90	28	7	12	17	3	4	31	8	2	-
95	71	41	10	95	42	13	13	15	5	5	30	11	6	3/8
95	72	41	8	139	53	6	17	14	2	1	28	13	8	1/2
95	73	60	12	85	38	9	27	19	8	6	43	17	3	1 1/4
96	67	3	28	35	31	2	1	-	-	-	2	1	-	-
96	68	15	10	65	34	5	5	2	-	1	13	2	-	-
96	69	20	10	70	34	3	7	9	1	2	16	4	-	-
96	70	31	8	72	36	2	14	12	-	-	25	6	-	-
96	71	45	8	81	39	9	17	15	2	4	33	12	1	1/8
96	72	48	6	103	34	5	26	15	5	3	34	14	6	1 1/2
96	73	59	15	78	40	6	25	22	1	4	49	10	3	-
97	69	2	28	30	29	1	-	-	-	1	2	-	-	-
97	70	28	8	92	35	10	8	4	1	4	20	8	-	-
97	71	45	7	125	37	8	19	15	5	4	31	14	3	1/4
97	72	60	18	135	51	5	26	24	-	2	48	12	5	2 1/8
97	73	60	12	80	38	14	31	12	6	6	46	14	6	5/8
98	70	27	12	85	37	8	10	4	-	3	20	7	3	1/8
98	71	59	10	84	33	16	24	11	4	4	41	18	4	3/8
98	72	66	8	98	30	14	33	14	2	9	48	18	2	-
98	73	44	12	113	33	29	13	1	9	10	27	17	-	-
99	70	2	24	39	32	1	-	1	-	-	1	1	-	-
99	71	13	12	40	24	8	1	-	3	7	8	5	-	-
99	72	14	22	35	29	12	-	-	3	8	9	5	-	-
99	73	38	13	75	32	22	11	-	2	5	32	6	-	-
100	72	5	14	72	37	4	-	-	1	4	1	4	-	-
100	73	26	10	60	30	13	7	2	2	7	18	8	-	-
Totals		1066				285	420	252	71	124	785	281	59	7 1/2

NOTE: No wells reported for this group from T.97N., R.68W.

GREGORY COUNTY

Table 2.

DATA ON PUMPED WELLS OVER 200 FEET IN DEPTH

LOCATION		Number of Wells	DEPTH OF WELLS			CHARACTER OF WATER					ADEQUACY OF SUPPLY			
Twp.	Rge.		Min.	Max.	Ave.	Hard	Med.	Soft	Corroded Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approximate Acres Irrigated
95	65	4	275	1000	817	-	1	3	-	-	4	-	-	-
95	66	7	330	1300	985	6	-	1	3	2	5	2	1	1/8
95	67	2	1178	1178	1178	1	-	-	1	-	1	1	-	-
95	68	1	-	-	1180	-	-	-	1	-	-	1	-	-
95	69	1	-	-	700	-	-	-	1	-	1	-	-	-
96	69	1	-	-	325	-	-	1	-	-	1	-	-	-
97	68	1	-	-	350	1	-	-	1	-	1	-	-	-
99	71	1	-	-	1000	-	-	-	-	-	1	-	-	-
99	72	3	1100	1169	1132	3	-	-	3	2	3	-	-	-
99	73	2	1280	1280	1280	2	-	-	1	2	-	2	-	-
100	73	1	-	-	1350	1	-	-	-	-	1	-	-	-
Totals		24				14	1	5	11	6	18	6	1	1/8

No other Wells over 200 feet reported for Gregory county.

Table 3.

DATA ON FLOWING WELLS

LOCATION		Number of Wells	DEPTH OF WELLS			CHARACTER OF WATER					ADEQUACY OF SUPPLY					
Twp.	Rge.		Min.	Max.	Ave.	Hard	Med.	Soft	Corroded Casing	Unsuitable for Drinking	Adeq.	Inadeq.	Number used for Irrigation	Approx. Acres Irrigated	Ave. Gal. Per Min.	Number Controlled
95	65	1	-	-	800	1	-	-	1	-	1	-	1	1/4	50	-
95	66	3	865	1600	1122	3	-	-	3	-	3	-	2	3/8	33.33	-
95	67	3	738	860	795	3	-	-	3	1	3	-	2	4 1/2	32.50	1
96	67	5	550	764	719	4	-	-	4	1	5	-	2	3/4	18.	-
96	68	1	-	-	700	1	-	-	1	-	1	-	-	-	25.	-
97	68	7	700	850	797	6	1	-	6	1	7	-	2	210	80.17	-
97	69	4	800	900	875	4	-	-	4	-	2	2	-	-	-	-
99	70	1	-	-	850	1	-	-	-	-	1	-	1	120	440	-
99	71	1	-	-	1001	1	-	-	1	-	1	-	-	-	24	-
99	72	2	860	1200	1030	2	-	-	2	2	2	-	-	-	25	-
100	72	1	-	-	1200	1	-	-	-	1	1	-	-	-	-	-
Totals		29				27	1	-	25	6	27	2	10	325 1/8		

Gregory County Well Notes

The following are pertinent remarks quoted from questionnaires returned by farmers and are included opinions of the water situation as expressed by the individual farmers and must be so applied.

T.95N., R.65W. 585 feet:
Sec. 33 "It seems the water found at a depth of 18 ft. or deeper than common surface well water is hard and has alkali and in most cases has a disagreeable odor, both cattle and horses prefer water from drilled well."

T.95N., R.66W. 900 feet:
Sec. 23 "Water in shallow wells has always been unsatisfactory - it supplies water for stock but is not fit to drink. The artesian well was drilled in 1905 at a depth of 900 ft., it flows about 30 gals. per minute. The water corrodes the pipes and they will last about 5 yrs., however, we have soil pipes to a large reservoir and the entire flow of the well flows thru this pipe line which is 4 inches; the water is then piped to various buildings or yards about the place. This system has proven satisfactory and the overhead has been practically nothing since it was completed 12 years ago. The water is warm and excellent for stock; but hard and not satisfactory for cooking; quite satisfactory for drinking if cold."

T.95N., R.67W. 16 feet:
Sec. 4 "Water is found in quicksand and difficulty is to dig without a cave-in and hold sand out after completion."

T.95N., R.67W. 27 feet:
Sec. 34 "I have tried to test for wells but the ground seems to be underlaid with so much rock that it is almost impossible to test satisfactorily."

T.95N., R.68W. 20 feet:
Sec. 11 "There is no sub-moisture here and attempting to dig a well is useless. The water here comes through soapstone and when that dries up so does the well. I have two dams here but last summer heavy rains filled them up with mud - this event has run me short of water. I will have enough water until Jan. 1st but will have to haul till spring after that."

T.95N., R.69W. 42 feet:
Sec. 11 "Have always had trouble with quicksand coming up in bottom of well."

T.95N., R.69W. 25 feet: (Blue clay)
Sec. 25 "In boring wells here we always strike rocks, we strike water at the top of the blue clay and the deeper we go the harder it gets until it is almost like slate. We strike clay from 8 to 15 ft."

- T.95N., R.71W. 90 feet:
Sec. 32 "We are now working in a new well at present, we always had trouble with quicksand coming at the bottom."
- T.95N., R.73W. 22 feet:
Sec. 12 "In 1905 a well was dug 12 ft. supplied ample water for a number of years then failed. In 1916 we bored 10 ft. deeper and again had a good supply for a few years. This well was practically dry from 1930 to 1936, then the water began to come back again - at present it has 10 ft. of water. This well is cased 10 ft. up with wood curbing and the rest of the way up 12 ft. with cement."
- T.95N., R.73W. 8 feet:
Sec. 29 "Well is dug in quicksand. Drawn by bucket for cattle only."
- T.95N., R.73W. 54 feet:
Sec. 30 "Have difficulty with rocks and quicksand at a depth of 25 to 50 ft. also some blue shale."
- T.95N., R.73W. 18 feet:
Sec. 35 "I have dug for water and have been unable to find any - one well was dug deeper 10 yrs. ago but lasted only one year."
- T.96N., R.67W. 250 feet:
Sec. 35 "This is a good artesian well 3 inch casing."
- T.96N., R.70W. 57 feet:
Sec. 22 "Have trouble digging a well because of cave-ins unable to get curbing in. Too much sand in our well now."
- T.96N., R.72W. 15 feet:
Sec. 1 "Quicksand - too shallow."
- T.96N., R.72W. 56 feet:
Sec. 22 "Can't dig through blue shale."
- T.97N., R.70W. 21 feet:
Sec. 9 "I have had plenty of water but in the last few years the flow is lessening. I have not tried to dig another."
- T.97N., R.70W. 26 feet:
Sec. 21 "Short of water during dry spells - water is hard alkali. I have tried six different times to get a well in Whetstone Valley but was unsuccessful. We haul water 4 miles from artesian well."
- T.97N., R.71W. 115 feet:
Sec. 8 "Ground is all underlaid with blue shale - no water here."
- T.97N., R.72W. 40 feet:
Sec. 29 "This well was used for house but got to have a bad taste so do not use it no more."
- T.97N., R.73W. 32 feet:
Sec. 34 "Have dug 55 ft. and have not found water, a few months ago I discovered water had seeped into it."

- T.98N., R.71W. 25 feet:
Sec. 8 "Hard to find water vein - not enough water from wells."
- T.99N., R.71W. 70 feet:
Sec. 8 "Can't seem to strike water vein."
- T.98N., R.72W. 20 feet:
Sec. 14 "Rock and blue shale nearly impossible to cut thru - old timers say no water here any way."
- T.98N., R.72W. 21 feet:
Sec. 33 "Have another well about 10 rods NW of my old well, this well was dug in 1934 is in quicksand and only 8 ft. deep. The water is soft and of good taste, 3 ft. concrete casing and a 3 in. cylinder pump."
- T.98N., R.73W. 12 feet:
Sec. 11 "I think there is some kind of oil in the well."
- T.99N., R.71W. 1001 feet:
Sec. 6 "This artesian well stopped flowing in 1928 after several artesian wells were put down in my vicinity. As the new wells were not as deep as my well, and the water did not need to rise to as high an altitude as my well, I figured the pressure in the artesian basin had dropped. I then proceeded to lower the elevation to which the water had to rise to get a flow about 20 ft. and the result was a fair flow which increased until I now have a good flow. All wells here appear to be slipping."
- T.99N., R.72W. 35 feet:
Sec. 30 "I have two wells on place and water is not fit for stock. It is alkali. We need good water. There is a good location for a dam here."
- T.99N., R.72W. 30 feet:
Sec. 19 "It is difficult to penetrate the black stone more than 10 ft."
- T.99N., R.73W. 1280 feet:
Sec. 31 "There is a shortage of water supply."

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