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Rural Water Supplies in South Dakota : Spink County

Walter V. Searigh

Cooperative Extension Service, South Dakota State College

Elmer E. Meleen

Cooperative Extension Service, South Dakota State College

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Rural Water Supplies in South Dakota

SPINK County

January, 1940
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RURAL WATER SUPPLIES
IN
SOUTH DAKOTA
SPINK COUNTY

BY
WALTER V. SEARIGHT
AND
ELMER E. MELEEN

THIS BOOK DOES
NOT CIRCULATE

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.

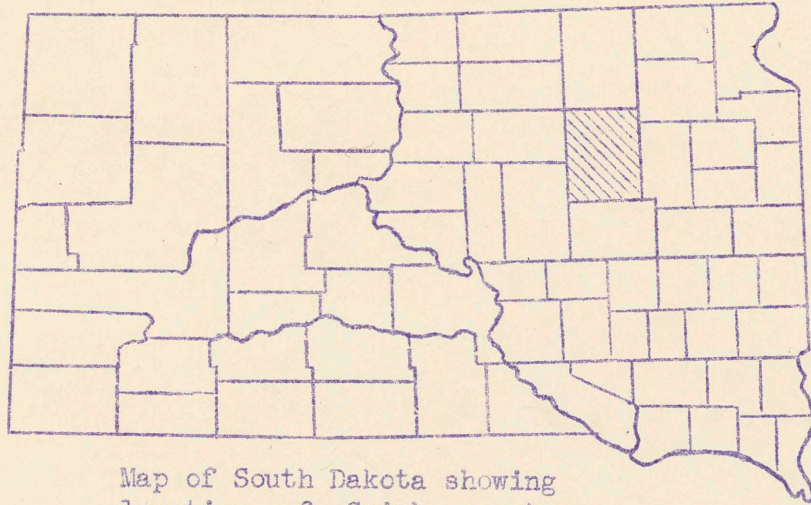
SUMMARY OF STATE SUPPLIES

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.

Spink County

Spink county lies north of the center of eastern South Dakota. It is bounded on the north by Brown county, which separates Spink county from North Dakota, on the east by Clark and Day counties, on the south by Beadle county, and on the west by Faulk and Hand counties.



Map of South Dakota showing location of Spink county

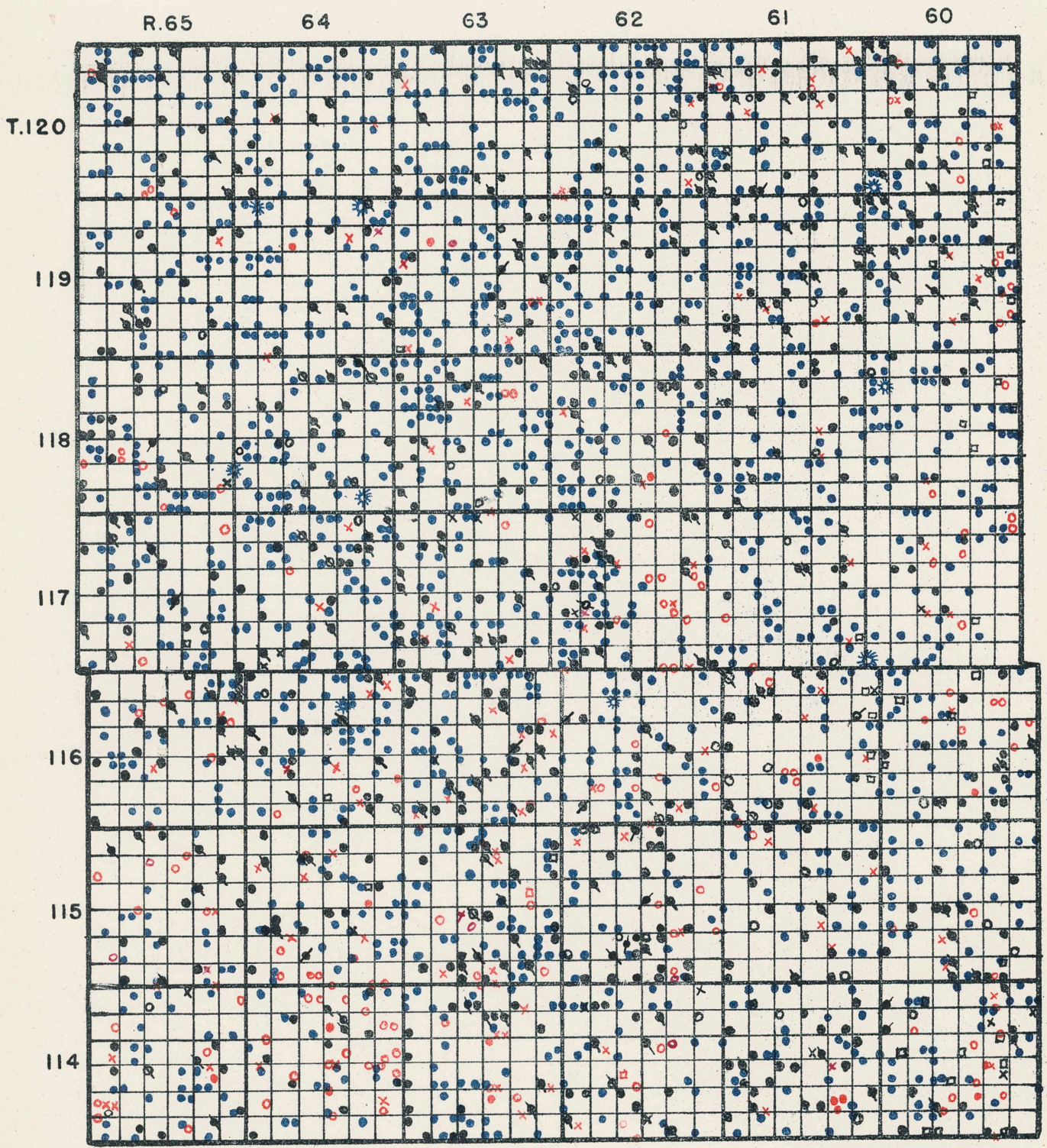
Of the total area, 967,040 acres, 90.3 per cent, 872,953 is in farms divided into 2025 farms of approximately 430 acres in each farm unit. Wheat, hay, corn, barley, sorghum forage, rye, and oats are the important crops, important in the order named. Cattle, horses and mules, hogs, chickens and sheep are raised, of value in the order named. Dairy products are important.

In farm areas where livestock, especially hogs and dairy cattle are raised, generally distributed sources of water supply are necessary. Supplies required are not great but adequate and constant supplies of suitable water at relatively low cost must be available to operate farms of these sizes and organization profitably. The well location map of Spink county shows that, in general, water supplies are generally available and are widely distributed.

On the well location map of Spink county, all flowing and all deep pumped wells which obtain water from the Dakota-Lakota sandstones and other artesian sands are shown in black as artesian wells. All other wells are

*South Dakota Agricultural Statistics, Annual Report, 1937

LOCATION OF ARTESIAN AND SHALLOW WELLS IN SPINK COUNTY



- | | |
|---|--|
| <p>ARTESIAN WELLS</p> <ul style="list-style-type: none"> ○ FLOWING WELLS—STEADY OR INCREASING ● FLOWING WELLS—DECREASED FLOW X CEASED FLOWING □ PUMPED ∖ CONTROLLED WELLS | <p>SHALLOW WELLS</p> <ul style="list-style-type: none"> ○ ADEQUATE SUPPLY ● INADEQUATE SUPPLY X DRY WELLS □ SPRINGS |
| <ul style="list-style-type: none"> ● WELLS FROM OTHER SOURCES ☀ CITY WELLS | |

shown in red and are called shallow wells regardless of depth. On all maps other than this, in all tables, and in the text of this report the term shallow wells is applied to all wells 200 feet or less in depth and all wells deeper than 200 feet are called deep wells, unless otherwise specified.

DEPTH AND DISTRIBUTION

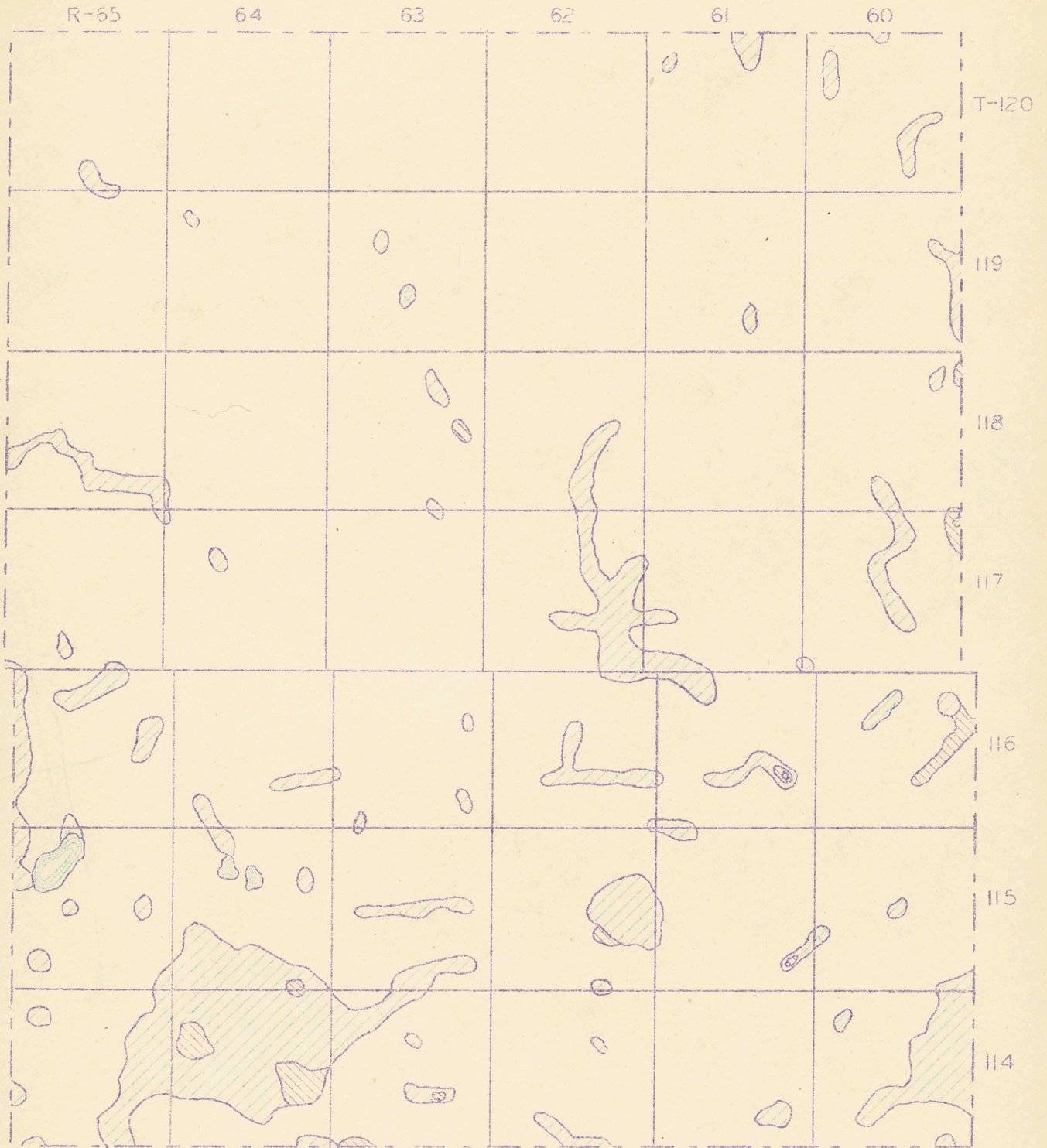
Since Spink county lies in the area of flowing wells, most of the wells of the county are deep wells, and most of these are deep flowing or flowing artesian wells. Of all the wells reported, 971, 77.3 per cent were deep flowing wells, 5.6 per cent deep pumped wells and 17.1 per cent were shallow wells. The wells reported average about 23 to each township, approximately two wells to three sections. This figure is subject to considerable correction, however, since replies were made by 42.3 per cent of the recipients of the questionnaires sent out. It is likely that the average for the county is at least one well to each section, or possibly more.

Although shallow wells supply most of the farms of South Dakota, in Spink county, because of the availability of artesian water, shallow wells are of lesser importance. As stated, they average only 17.1 per cent of the total wells reported for the county. In one township, however, nearly two thirds, 62.5 per cent, of the wells reported were shallow and in two additional townships more than one third, 34.5 and 36.8 per cent of those reported. The townships with greatest proportions of shallow wells have been tabulated as follows:

Twp.	Rge.	Number of Shallow	Per cent of Total Wells
114N	60W	10	29.4
114	64	20	62.5
114	65	7	36.8
115	64	10	34.5
116	60	8	25.8
117	62	11	30.6


On the shallow well map (p. 7) the areas supplied by shallow wells are shown in 50 foot depth intervals. The map and above table show that the most


SPINK COUNTY





SHALLOW WELLS (0-200 FT.)


DEPTHS AT WHICH SUPPLIES ARE COMMONLY OBTAINED

 0-50 FT.

 50-100 FT.

 -LAKES

 100-150 FT.

 150-200 FT.

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important area of shallow wells lies in the extreme southwestern part of the county.

Most of the wells of Spink county are deep wells, 77.3 per cent of all wells reported were deep wells, 200 feet or more in depth. Only a few of the deep wells are deep pumped wells. Approximately seven per cent, 6.7 per cent, of the deep wells reported (809) were deep pumped wells. The artesian well map shows that these wells, deep pumped, are essentially restricted to a narrow band most of which lies in Range 60W. and borders the area of flowing wells. They vary in depth from 800 to 1500 feet. The depth range falls within that of the flowing artesian wells of the county and this fact together with the geographic distribution indicates that they are artesian wells of insufficient artesian head* to flow.

Flowing deep wells are the important source of rural well water in Spink county. They occur in all parts of the county (see artesian water map of Spink county). They are more than three fourths of the wells of the county. In order to show the relative importance of deep wells, a table of the relative number of deep pumped, deep flowing, and shallow wells together with percentages of deep and shallow wells has been compiled from questionnaires and these data are tabulated on the following page.

The areal distribution of flowing wells of Spink county is shown on the artesian well map and the relation of this area to that of the artesian areas of South Dakota are shown on the artesian map of South Dakota.

The average flow per township of artesian wells was reported to vary from 1.5 to 30.5 gallons per minute. More than one third are reported to be equipped with control valves.

CHARACTER OF WELL WATERS

The character of waters from rural wells has been determined from reports by farmers. Each farmer was asked whether he considered the water from

*height of elevation to which water will rise under hydrostatic pressure

Twp.	Rge.	Deep Pumped	Deep Flowing	Total Deep	Per cent	Shallow Pumped	Total Shallow	Per cent	Total of All
114N	60W	12	12	24	70.6	10	10	29.4	34
114	61	1	24	25	89.3	3	3	10.7	28
114	62	3	15	18	81.8	4	4	18.2	22
114	63	-	19	19	79.2	5	5	20.8	24
114	64	-	12	12	37.5	20	20	62.5	32
114	65	1	11	12	63.2	7	7	36.8	19
115	60	1	20	21	87.5	3	3	12.5	24
115	61	-	18	18	94.8	1	1	5.3	19
115	62	-	22	22	81.5	5	5	18.5	27
115	63	1	24	25	80.7	6	6	19.4	31
115	64	2	17	19	65.6	10	10	34.5	29
115	65	-	15	15	71.4	6	6	28.6	21
116	60	4	19	23	74.2	8	8	25.9	31
116	61	5	18	23	79.3	6	6	20.7	29
116	62	-	15	15	75.	5	5	25.	20
116	63	1	27	28	90.3	3	3	9.7	31
116	64	2	20	22	88.	3	3	12.	25
116	65	1	18	19	76.	6	6	24.	25
117	60	2	6	8	57.1	6	6	42.9	14
117	61	1	14	15	88.2	2	2	11.8	17
117	62	2	23	25	69.4	11	11	30.6	36
117	63	2	24	26	96.3	1	1	3.7	27
117	64	2	19	21	95.5	1	1	4.6	22
117	65	1	15	16	88.9	2	2	11.1	18
118	60	-	10	10	83.3	2	2	16.7	12
118	61	1	17	18	100.	-	-	-	18
118	62	-	22	22	91.7	2	2	8.3	24
118	63	-	21	21	91.3	2	2	8.7	23
118	64	-	20	20	100.	-	-	-	20
118	65	1	18	19	76.	6	6	24.	25
119	60	4	22	26	83.9	5	5	16.1	31
119	61	-	28	28	96.6	1	1	3.5	29
119	62	-	17	17	100.	-	-	-	17
119	63	1	14	15	88.2	2	2	11.8	17
119	64	-	9	9	90.	1	1	10.	10
119	65	-	14	14	93.3	1	1	6.7	15
120	60	3	18	21	88.8	5	5	19.2	26
120	61	-	31	31	93.9	2	2	6.1	33
120	62	-	17	17	100.	-	-	-	17
120	63	-	19	19	100.	-	-	-	19
120	64	-	12	12	100.	-	-	-	12
120	65	-	15	15	83.3	3	3	16.7	18
Totals		54	751	805		166	166		971

his well to be hard, moderately hard, or soft and whether the water was satisfactory for drinking. Although chemical analyses, the most satisfactory basis for judgement of the character of water, are rarely available to farmers, usage is probably a fairly good criterion of general character and quality. Accurate information on character must await laboratory analyses of these waters.

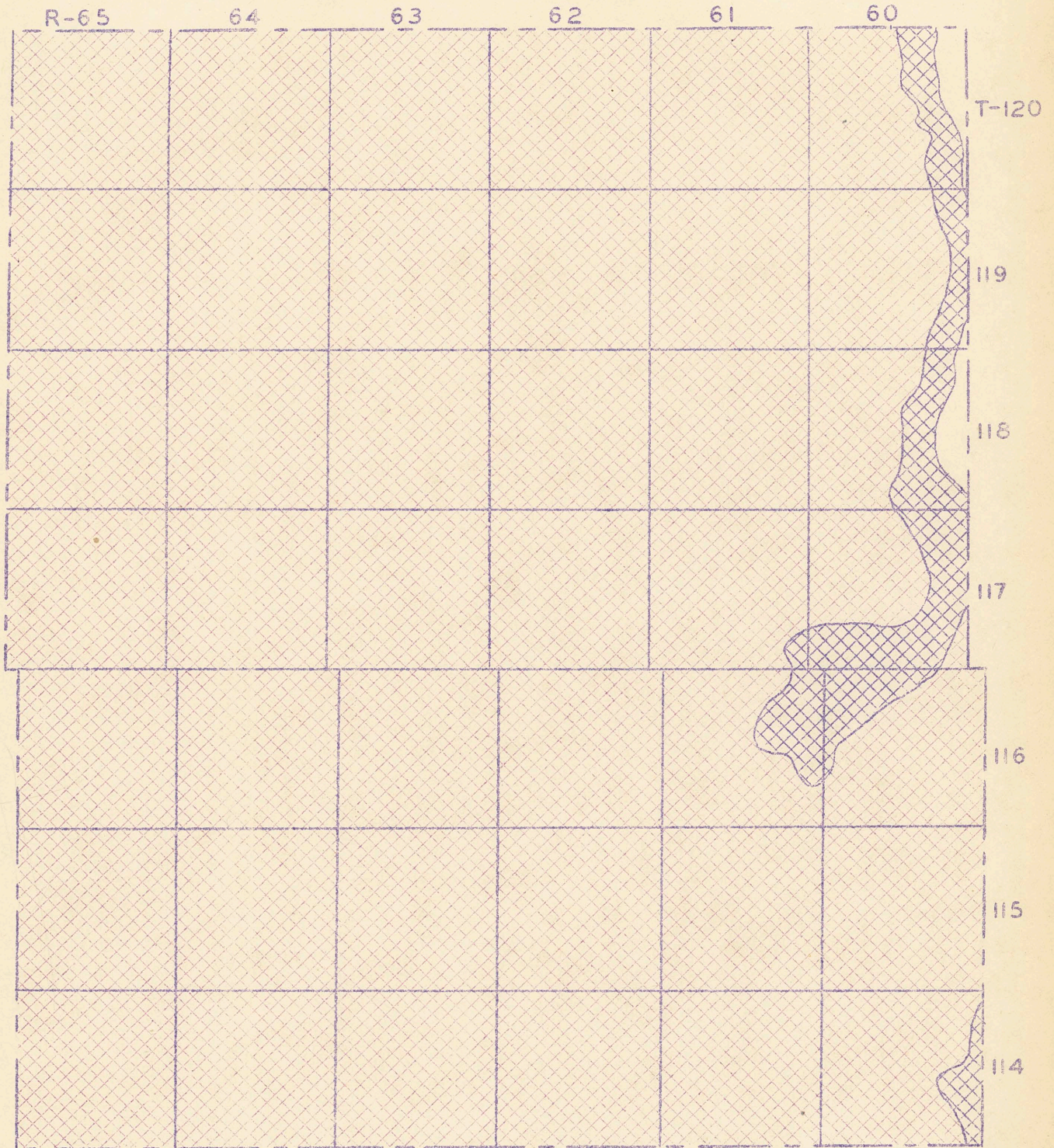
Water obtained from shallow wells, as over much of eastern South Dakota, is dominantly hard. Of those wells reported, 144, more than two thirds, 68.0 per cent, were definitely hard, 27.8 per cent were moderately hard and only 4.2 per cent were reported soft. Thus, 95.8 per cent of all shallow wells were reported to supply definitely hard or moderately hard water. Possibilities of obtaining soft water from these sources appear to be remote. There may be a tendency for shallow wells to be more commonly hard in the southern area since 70 were reported there. Thus, roughly, seven out of ten hard water wells reported were in the southern half of the county.

Of the shallow wells, somewhat more than 9 per cent were reported to be unsatisfactory for drinking, a relatively low percentage, compared to some of the nearby counties.

The deep pumped wells produce water very different in character from the shallow wells. Most deep pumped wells are sources for soft water since 80.1 per cent are reported soft, 11.5 per cent moderately hard, and only 7.7 per cent definitely hard. Thus, 91.6 per cent of the deep pumped wells are soft or only moderately hard.

The water from deep flowing artesian wells of Spink county is likewise dominantly soft. Nearly two thirds of the wells, 62.4 per cent, were reported soft, 28.8 per cent moderately hard, and 8.7 per cent were reported hard. Over most townships soft waters from deep sources predominate definitely. In nine townships, however, mostly in the southwestern part of the county, reports of moderately hard water to definitely hard water predominate. These townships are listed as follows:

ARTESIAN AREAS 1938



SPINK COUNTY



FLOWING WELLS

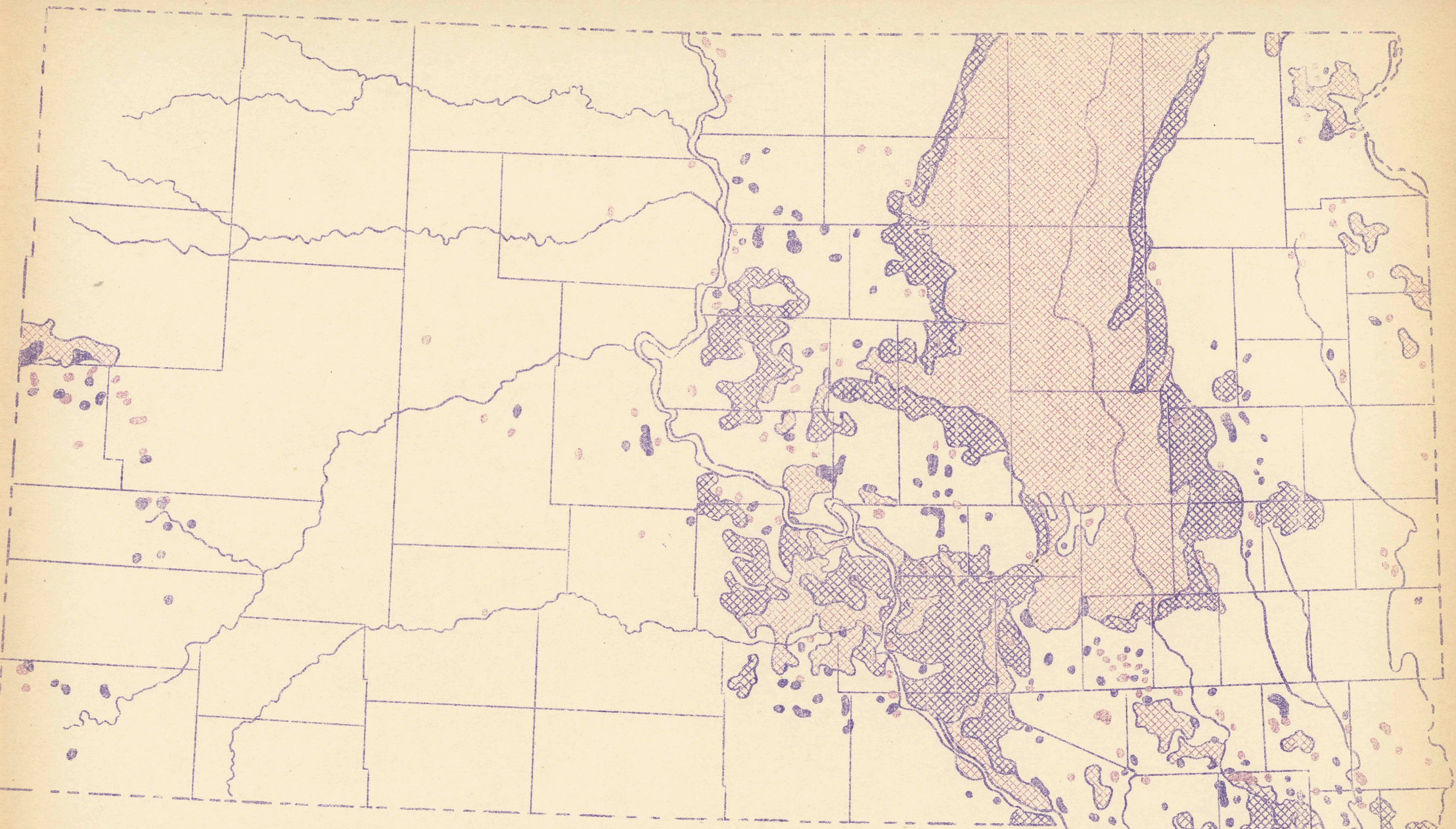


PUMPED WELLS



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ARTESIAN AREAS OF SOUTH DAKOTA

1938

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O P 665-74-3-126
WP 3636

  FLOWING WELLS
  PUMPED ARTESIAN WELLS

T.114N., R.63W.
 114 64
 114 65

T.115N., R.64W.
 115 65
 116 64

T.116N., R.65W.
 117 63
 118 63

A few, 24 or 16.7 per cent of the flowing wells, are reported unsatisfactory for drinking in Spink county. The occurrence of objectionable or injurious chemical compounds such as fluorides has not been determined although their presence in detrimental amounts in some of the rural flowing wells is suspected.

ADEQUACY OF SUPPLY

Most water supplies from wells of Spink county are adequate for current use. Changes in farm management, changes in ground water surface and the artesian head, together with numerous other factors will vary the proportion of wells which remain adequate from time to time.

Shallow wells are reported, for the most part, to be adequate for current farm use. Of 144 wells reported, however, 13.3 per cent were reported not adequate. In a very considerable area all shallow wells reported were adequate. These have been listed as follows:

Twp.	Rge.	Twp.	Rge.	Twp.	Rge.	Twp.	Rge.	Twp.	Rge.
114N	62W	115N	63W	117N	60W	117N	64W	118N	65W
115	60	115	65	117	61	117	65	119	65
115	61	116	62	117	62	118	60	120	61
115	62	116	65	117	63	118	63	120	65

Deep wells are an uncertain source of adequate supplies as in adjacent counties having similar water problems. Only 50 per cent were reported adequate for current needs. Farmers of Spink county are advised not to attempt further development of deep pumped wells without consulting with a competent and qualified agency.

Some of the flowing wells of Spink county are reported to be inadequate because of insufficient flow for current needs. Of the total reported, 12.7 per cent were inadequate. This condition is due in part to size of casing, condition of casing, and diminished or diminishing artesian head. In the sev-

en townships listed below all flowing wells were reported adequate, but elsewhere numerous wells were inadequate:

T.114N., R.61W.		T.116N., R.62W.	
114	65	117	62
115	65	119	60
119	64		

IRRIGATION

Well waters of Spink county are used to irrigate small areas such as garden plots. Thirteen shallow wells were used to irrigate a total of 3 1/4 acres, one deep pumped well was used for irrigation, and a total of 61 flowing wells were reported to be in use to irrigate approximately 14 acres.

SUPPLEMENTARY WATER SUPPLIES

Over much of eastern South Dakota, springs and cisterns are important sources of supplementary water supplies. In Spink county, however, springs are of relatively little importance since only three were reported. These were reported to be adequate for the use to which they were put.

In any area in which hard waters are obtained from wells or where well waters are inadequate or unsatisfactory for drinking, cisterns are important supplementary sources of supply. In Spink county, where many of the water supplies are soft water, cisterns are not so numerous as in nearby counties in which hard water supplies dominate. A total of 112 cisterns was reported which averages about one cistern to 8.5 wells. It is of interest that in 11 townships tabulated below cisterns outnumber the shallow wells:

Twp.	Rge.	Cisterns	Shallow Wells
114N	63W	9	5
115	61	5	1
115	65	8	6
116	63	9	3
116	64	4	3
117	64	3	1
118	62	3	2
118	63	6	2
118	64	2	0
119	61	2	1
119	62	1	0
120	61	3	2

SPINK 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	Corrode Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approximate Acres Irrigated
114	60	10	15	80	33	8	1	-	-	4	8	2	1	1/2
114	61	3	12	17	15	2	-	-	-	-	-	3	-	-
114	62	4	25	30	28	1	3	-	1	-	4	-	-	-
114	63	5	30	64	39	5	-	-	-	1	4	1	-	-
114	64	20	12	60	33	12	6	-	2	2	18	2	1	-
114	65	7	30	44	37	4	2	-	1	-	6	1	2	1 1/8
115	60	3	12	108	47	1	-	1	-	1	3	-	1	1
115	61	1	-	-	25	1	-	-	-	-	1	-	-	-
115	62	5	30	60	41	2	-	-	-	-	5	-	-	-
115	63	6	18	40	28	3	3	-	-	-	6	-	-	-
115	64	10	20	62	33	7	3	-	1	-	9	1	-	-
115	65	6	25	50	35	5	-	1	-	1	6	-	1	1/8
116	60	8	12	65	38	4	3	-	-	1	6	2	3	3/8
116	61	6	20	36	26	4	2	-	-	-	5	1	1	1/8
116	62	5	13	45	30	3	-	-	-	-	5	-	-	-
116	63	3	35	125	66	3	-	-	-	2	2	1	-	-
116	64	3	22	45	30	1	-	-	-	-	2	1	-	-
116	65	6	15	50	35	4	2	-	-	2	6	-	-	-
117	60	6	11	78	26	3	1	1	-	-	6	-	-	-
117	61	2	15	23	19	-	2	-	-	-	2	-	-	-
117	62	11	20	42	25	6	2	-	-	1	11	-	-	-
117	63	1	-	-	28	-	1	-	-	-	1	-	-	-
117	64	1	-	-	23	1	-	-	-	-	1	-	-	-
117	65	2	12	30	21	-	2	-	-	-	2	-	1	-
118	60	2	16	23	20	-	1	-	-	-	2	-	-	-
118	61	None	-	-	-	-	-	-	-	-	-	-	-	-
118	62	2	30	32	31	1	1	-	-	-	1	1	1	-
118	63	2	-	-	50	2	-	-	-	-	2	-	-	-

SPINK COUNTY
 Table 1. (Continued)
 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	Corrode Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approximate Acres Irrigated
118	64	None	-	-	-	-	-	-	-	-	-	-	-	-
118	65	6	18	30	24	4	-	1	-	1	6	-	-	-
119	60	5	18	26	21	3	2	-	-	-	4	1	-	-
119	61	1	-	-	20	-	1	-	-	-	-	1	-	-
119	62	None	-	-	-	-	-	-	-	-	-	-	-	-
119	63	2	-	-	24	1	-	-	-	-	-	2	-	-
119	64	1	-	-	22	-	-	-	-	-	-	1	-	-
119	65	1	-	-	14	1	-	-	-	-	1	-	-	-
120	60	5	14	32	22	4	1	-	-	-	4	1	-	-
120	61	2	24	45	35	-	1	1	2	-	2	-	-	-
120	62	None	-	-	-	-	-	-	-	-	-	-	-	-
120	63	None	-	-	-	-	-	-	-	-	-	-	-	-
120	64	None	-	-	-	-	-	-	-	-	-	-	-	-
120	65	3	26	32	29	2	-	1	-	-	3	-	1	-
Total		166				98	40	6	7	16	144	22	13	3 1/4

SPINK 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	Corrode Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approximate Acres Irrigated
114	60	12	850	950	895	-	-	8	-	1	7	5	-	-
114	61	1	-	-	-	-	-	-	-	-	-	1	-	-
114	62	3	880	1300	1047	1	-	-	-	-	-	3	-	-
114	65	1	-	-	940	-	-	-	-	-	-	1	-	-
115	60	1	-	-	800	-	-	1	-	-	1	-	-	-
115	63	1	-	-	980	-	-	1	-	1	-	1	-	-
115	64	2	-	-	1020	-	-	-	-	-	-	2	-	-
116	60	4	975	1040	1011	-	1	3	2	-	2	2	-	-
116	61	5	960	1080	991	-	-	4	-	1	4	1	1	1/2
116	63	1	-	-	960	-	-	-	-	-	-	1	-	-
116	64	2	-	-	900	1	-	-	-	-	-	2	-	-
116	65	1	-	-	1085	-	-	-	-	-	1	-	-	-
117	60	2	938	1000	969	-	-	2	-	-	1	1	-	-
117	61	1	-	-	990	-	-	-	-	-	1	-	-	-
117	62	2	950	1000	975	-	-	-	-	-	-	2	-	-
117	63	2	960	1035	998	-	-	-	-	-	2	-	-	-
117	64	2	-	-	980	-	-	-	-	-	-	2	-	-
117	65	1	-	-	1020	-	-	1	-	-	-	1	-	-
118	61	1	-	-	950	-	-	-	-	-	1	-	-	-
118	65	1	-	-	900	-	-	-	-	-	-	1	-	-
119	60	4	990	1100	1030	-	-	-	-	1	3	1	-	-
119	63	1	-	-	920	-	1	-	-	1	1	-	-	-
120	60	3	1100	1130	1115	-	1	1	1	-	3	-	-	-
Total		54				2	3	21	3	5	27	27	1	1/2

Note: No wells reported for this group from the following townships and ranges: T.114N., R.63, 64W; T.115N., R.61, 62, 65W; T.116N., R.62W; T.118N., R.60, 62, 63, 64W; T.119N., R.61, 62, 64, 65W; T.120N., R.61, 62, 63, 64, 65W.

SPINK 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	Corrode Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approx. Acres Irrigated	Ave. Gallon Per Min	Number Controlled
114	60	12	656	1000	874	-	-	11	2	1	9	3	-	-	3.1	6
114	61	24	600	1000	834	-	3	20	5	-	24	-	1	1/8	3.9	5
114	62	15	650	1000	897	-	3	9	2	1	14	1	-	1/8	8.1	7
114	63	19	820	1030	923	4	7	5	5	1	18	1	-	-	10.2	5
114	64	12	895	1035	941	2	8	2	5	-	10	2	1	1/8	6.8	3
114	65	11	900	1022	969	5	5	-	6	1	11	-	5	1 1/2	10.1	4
115	60	20	760	1100	925	-	-	19	2	2	16	4	2	1/4	3.6	5
115	61	18	500	1000	816	-	1	11	2	-	14	4	2	3/8	8.8	2
115	62	22	800	1100	914	-	3	17	3	1	21	1	3	1/2	8.8	5
115	63	24	800	1180	920	1	8	14	6	-	21	3	2	1/4	7.5	11
115	64	17	850	1200	961	4	7	2	3	1	12	5	2	5/8	4.3	5
115	65	15	800	1100	948	7	6	1	8	2	15	-	4	7/8	30.5	7
116	60	19	800	1125	964	1	1	14	2	2	15	4	1	1/8	2.4	4
116	61	18	700	1100	938	2	1	13	3	-	17	1	2	1/4	8.0	6
116	62	15	840	1136	923	-	2	6	2	-	15	-	2	1/8	5.3	5
116	63	27	750	1060	918	2	7	14	6	1	22	5	3	1	5.8	13
116	64	20	700	1100	938	3	11	4	6	-	15	5	1	1/4	4.6	7
116	65	18	850	1040	938	3	7	6	7	-	13	5	1	1/2	6.8	7
117	60	6	927	963	950	1	-	5	1	-	2	4	-	-	3.3	-
117	61	14	800	990	940	-	1	10	2	-	13	1	1	1/4	5.1	5
117	62	23	800	1050	967	3	9	10	2	-	23	-	1	1	4.3	10
117	63	24	800	1100	999	4	11	6	4	-	22	2	-	-	7.2	9
117	64	19	800	1044	941	4	6	8	8	-	14	5	2	1/4	3.6	6
117	65	15	900	1147	999	-	5	9	5	2	12	3	-	-	6.6	6
118	60	10	900	1100	989	1	3	5	3	-	4	6	1	1/8	1.5	1
118	61	17	900	1500	1030	-	7	8	5	-	16	1	-	-	8.8	5
118	62	22	850	1030	960	1	9	9	9	-	18	4	1	1/4	3.8	7
118	63	21	850	1080	942	5	8	3	9	-	18	3	5	1 1/2	6.6	6
118	64	20	800	1050	946	1	3	16	2	-	19	1	4	1/8	6.1	9
118	65	18	900	1120	968	1	4	11	6	-	15	3	2	1/8	3.6	5

SPINK COUNTY
Table 3. (Continued)
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	Corrode Casing	Unsuitable for Drinking	Adequate	Inadequate	Number used for Irrigation	Approx. Acres Irrigated	Ave. Gallon Per Min	Number Controlled
119	60	22	800	1200	969	-	5	15	3	-	22	-	1	1/8	6.6	13
119	61	28	800	1100	937	-	9	17	7	1	26	2	2	-	9.6	14
119	62	17	820	980	917	-	6	9	7	1	16	1	1	-	2.6	7
119	63	14	600	1100	953	-	6	6	4	-	13	1	-	-	8.9	5
119	64	9	750	1006	805	-	2	5	1	1	9	-	-	-	3.7	3
119	65	14	940	1085	991	-	4	10	3	-	13	1	-	-	4.3	4
120	60	18	900	1500	1076	1	-	13	1	1	14	4	3	1/2	3.4	7
120	61	31	840	1260	971	1	5	21	2	1	29	2	1	1/2	7.9	14
120	62	17	900	1160	1000	-	2	13	4	1	16	1	-	-	6.1	6
120	63	19	890	1150	959	-	1	17	3	-	18	1	-	-	8.0	14
120	64	12	900	1280	974	-	2	9	2	1	10	2	-	-	2.4	4
120	65	15	950	1100	997	1	3	11	2	2	12	3	2	2 1/4	3.9	7
Total		751				58	191	414	170	24	656	95	61	14		274

Spink 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.114N., R.60W. Depth not given:
Sec. 7 "I have these two wells connected up they both flow through house. I have them flowing in four places but they are reduced down to a small amount enough for our needs. But in winter time I have to turn on more. Those two wells flow through about 1400 ft. of pipe and 1000 ft. is below frost. I can cut off the old well about 6 ft. and it seemed to flow much faster. I cannot tell you how fast they flow but we do have an ample supply of water."
- T.114N., R.60W. Depth not given:
Sec. 21 "Well is artesian quit flowing, however, when pumped it furnishes an ample supply of water."
- T.114N., R.60W. Depth not given:
Sec. 33 "This artesian well quit running 7 or 8 yrs. ago, but there is a hole 20 feet deep and 4 ft. sq. around the well - the water comes 4 1/2 ft. from the top and a faucet is installed to let the water run in the hole and then pump out of the hole for the stock -drinking water is also taken from here."
- T.114N., R.61W. 1000 feet:
Sec. 15 "There is another artesian well on the farm but it never flowed but one year - it is about thirty six years old in a wet spell the water will come up to the top of the pipe but will not flow."
- T.114N., R.62W. 950 feet:
Sec. 18 "There has been three surface wells dug on this farm. No. 1 had all kinds of water at 25 ft. but water was unfit for human use - it tasted like salts or bad tasting medicine. The other three wells were dry wells."
- T.114N., R.65W. 38 feet:
Sec. 30 "The surface well is in quicksand - bottom tiling sunk 18 ft. I also have 16 ft. of wood curbing on top."
- T.115N., R.60W. 12 feet:
Sec. 35 "This well has been used only a very little since the artesian well was drilled 8 years ago, however, I am informed that the supply is unlimited as it is in a gravel vein."
- T.115N., R.60W. 1000 feet:
Sec. 14 "We have a very satisfactory well - when it was new it would flow at the rate of 60 gallons a minute - now after 20 years service its flow is 54 gallons a minute."
- T.115N., R.61W. 435 feet:
Sec. 27 "This well has flowed ever since I can remember - the pipes leading the water away from the well are now rusting through."

I think the salt water is hard on the pipes, of coarse they have been in service many years - we can't expect them to last forever."

- T.115N., R.63W. 920 feet:
Sec. 21 "I have one surface well which cannot be pumped dry. I also have two springs that would furnish enough water for 500 head of stock."
- T.115N., R.63W. 997 feet:
Sec. 31 "Stock will not drink water from shallow surface well, as water has a disagreeable taste."
- T.115N., R.64W. 912 feet:
Sec. 4 "If this well stopped flowing I know it would be hard to get water here."
- T.116N., R.60W. 1040 feet:
Sec. 9 "Impossible to get surface wells here."
- T.116N., R.60W. 1000 feet:
Sec. 23 "This well is one of the best in Spink county - I don't know age of it."
- T.116N., R.60W. 1000 feet:
Sec. 33 "I am informed that it is impossible to get surface water here - must go down 100 ft. or better."
- T.116N., R.61W. 1080 feet:
Sec. 1 "This is an old well which flows a little in winter and spring but ceases in summer. The other well has just been drilled a year ago and never did flow -we are using it now."
- T.116N., R.62W. 930 feet:
Sec. 7 "No trouble to get artesian wells here - but impossible to get surface wells."
- T.116N., R.62W. 850 feet:
Sec. 34 "We once tried to get a surface well here but failed. Our artesian is one of best around here. Lots of force and it flows over the top of our 32 ft. silo -we are satisfied with it. Its a 2 inch pipe that goes into the house - furnishes plenty of water."
- T.116N., R.63W. 960 feet:
Sec. 33 "There used to be a well here at the depth of 15 ft. which had soft water. It is my intention to make a good well here for small scale irrigating purposes. Our artesian well cannot be used successively for that purpose."
- T.116N., R.65W. 15 feet:
Sec. 4 "Well is in poor condition, water not suitable for drinking- quicksand bottom on sides hard clay in center of well."
- T.117N., R.60W. 78 feet:
Sec. 1 "There is a bed of never failing water gravel from 75 to 80 ft. The well has filled up about 10 ft. with fine sand so the water cannot enter only so fast. A shallow well 14 ft.

deep along the creek furnished water for domestic use - except in extremely dry weather."

- T.117N., R.60W. 960 feet:
Sec. 22 "I have a surface well 23 ft. deep, dug with a post auger last summer - struck water at 9 ft. went down to 23 ft. and had 16 ft. of water next morning - the soil was blue shale. I can only pump 30 gallons at a time, then I must wait 10 minutes before I can pump again. I am going to dig a 4x4 hole where this well is about 12 or 15 ft. deep this coming summer, so as to have a reservoir to hold a lot of water."
- T.117N., R.60W. 27 feet:
Sec. 27 "There is plenty of water found on farm - but fine sand causes trouble - gravel underneath."
- T.117N., R.62W. 1050 feet:
Sec. 13 "I have two surface wells both driven sandpoints. In order to get good water it is necessary to go thru 8 ft. of dirt and then 11 ft. of mire - one well is in house."
- T.117N., R.62W. 1000 feet:
Sec. 30 "Shallow wells are difficult to get but artesian wells are no problem."
- T.117N., R.65W. 1147 feet:
Sec. 18 "We have difficulty digging surface wells. The well is in fine shape and the casing is of triple strength."
- T.117N., R.65W. 1050 feet:
Sec. 29 "Before artesian well was drilled, surface wells on place were of such condition that only livestock used it - the water had a bitter taste and was not fit for human consumption."
- T.118N., R.62W. 950 feet:
Sec. 23 "There is no flowing wells in this territory, but surface wells are hard to get."
- T.118N., R.63W. 1080 feet:
Sec. 26 "The well has decreased its flow of water almost 50% since a year ago - I don't believe it will last another year."
- T.118N., R.64W. 870 feet:
Sec. 11 "The well was 1 1/4 and since it was recased it is 3/4 inch - water is 95% pure and used for everything."
- T.118N., R.65W. 21 feet:
Sec. 25 "There is an artesian well here that has not flowed for 4 years."
- T.118N., R.65W. 30 feet:
Sec. 21 "Artesian well stopped in 1935, dug shallow well water unfit to drink."
- T.119N., R.60W. 1050 feet:
Sec. 6 "No surface water on our farm."

- T.119N., R.61W. 900 feet:
Sec. 13 "There are six wells in the township that are flowing --most of the water is going to waste, I believe some of these wild wells should be stopped as they are doing more harm than good."
- T.119N., R.61W. 800 feet:
Sec. 28 "We never could get a shallow well here. We drilled one artesian well which threw so much mud and gravel and mud it was no good."
- T.119N., R.62W. 917 feet:
Sec. 9 "This was a good well at first but 3 years ago it started to get weak and finally couldn't get water to the house. At present there is only three pounds of pressure at the well. We have to carry water to the house."
- T.119N., R.63W. 24 feet:
Sec. 9 "It seems impossible to get water on the upland where buildings are located, as we cannot afford an artesian well. So we dug one on the banks of the river and haul water to the house. I plan to build a reservoir later for livestock."
- T.119N., R.63W. 1000 feet:
Sec. 18 "Impossible to find surface water after several attempts--no have an artesian well."
- T.119N., R.65W. 1011 feet:
Sec. 18 "Before days of the artesian well it was hard to get water here."
- T.119N., R.65W. 1030 feet:
Sec. 28 "There are two artesian wells on this section (soft water). They are 35 yrs. old and have never been recased nor has pressure decreased."
- T.120N., R.60W. 19 feet:
Sec. 24 "Shale seems to be the cause of not being able to get water 20 ft. below surface. After water stands a day it gets a bad smell."
- T.120N., R.61W. 800 feet:
Sec. 7 "There have been two wells drilled here - one stopped flowing and the other is in a very poor condition."
- T.120N., R.61W. 950 feet:
Sec. 23 "Always had troubled getting water until artesian came!"
- T.120N., R.63W. 913 feet:
Sec. 5 "There are 20 surface wells here 70 and 75 ft. deep both have no water. I dug one in lowland 25 ft. and found plenty of water."
- T.120N., R.64W. 960 feet:
Sec. 12 "I dug a shallow well 11 ft. deep - water was salty and not fit to use."

T.120N., R.64W. 960 feet:
Sec. 27

"In 1912 a 1 1/4 inch well drilled to a depth of 1090 ft. became filled with sand and stopped flowing. The present well was drilled in 1913 and has been a very good well - it was recased in 1931. I have had several surface wells at 30 ft. but none were good."

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