CANADA

DEPARTMENT OF MINES

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BUREAU OF ECONOMIC GEOLOGY GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF SLIDING HILLS No. 273 SASKATCHEWAN

BY

B. R. MacKay, H. N. Hainstock & P. D. Bugg Water Supply Paper No. 193

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OF SLIDING HILLS

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF SLIDING HILLS NO. 273

SASKATCHEVAN

INTRODUCTION

Lack of rainfall during the years 1930 to 1934 over a large part of the Prairie Provinces brought about an acute shortage both in the larger supplies of surface water used for irrigation and the smaller supplies of ground water required for domestic purposes and for stock. In an effort to relieve the serious situation the Geological Survey began an extensive study of the problem from the standpoint of domestic uses and stock raising. During the field season of 1935 an area of 80,000 square miles, comprising all that part of Saskatchewan south of the north boundary of township 32, was systematically examined, records of approximately 60,000 wells were obtained, and 720 samples of water were collected for analyses. The facts obtained have been classified and the information pertaining to any well is readily accessible. The examination of so large an area and the interpretation of the data collected were possible because the bedrock geology and the Pleistocene deposits had been studied previously by McLearn, Warren, Rose, Stansfield, Wickenden, Russell, and others of the Geological Survey. The Department of Natural Resources of Saskatchewan and local well drillers assisted considerably in supplying several hundred well records. The base mapsused were supplied by the Topographical Surveys Branch of the Department of the Interior.

Publication of Results

The essential information pertaining to the ground water conditions is being published in reports, one being issued for each municipality. Copies of these reports are being sent to the secretary treasurers of the municipalities and to certain Provincial and Federal Departments, where they can be consulted by residents of the municipalities or by other persons, or they may be obtained by writing direct to the Director, Bureau of Economic Geology, Department of Mines, Ottawa. Should anyone require more detailed information than that contained in the reports such additional information as the Geological Survey possesses can be obtained on application to the director. In making such request the applicant should indicate the exact location of the area by giving the quarter section, township, range, and meridian concerning which further information is desired.

The reports are written principally for farm residents, municipal bodies, and well drillers who are either planning to sink new wells or to deepen existing wells. Technical terms used in the reports are defined in the glossary.

How to Use the Report

Anyone desiring information about ground water in any particular locality should read first the part dealing with the municipality as a whole in order to understand more fully the part of the report that deals with the place in which he is interested. At the same time he should study the two figures accompanying the report. Figure 1 shows the surface and bedrock geology as related to the ground water supply, and Figure 2 shows the relief and the location and type of water wells. Relief is shown by lines of equal elevation called "contours". The elevation above sea-level is given on some or

all of the contour lines on the figure.

If one intends to sink a well and wishes to find the approximate depth to a water-bearing horizon, he must learn: (1) the elevation of the site, and (2) the probable elevation of the water-bearing bed. The elevation of the wellsite is: obtained by marking its position on the map, Figure 2, and estimating its elevation with respect to the two contour lines between which it lies and whose elevations are given on the figure. Where contour lines are not shown on the figure, the elevations of adjacent wells as indicated in the Table of Well Records accompanying each report can be used. The approximate elevation of the water-bearing horizon at the wellsite can be obtained from the Table of Well Records by noting the elevation of the water-bearing horizon in surrounding wells and by estimating from these known elevations its elevation at the If the water-bearing horizon is in bedrock the depth to water can be estimated fairly accurately in this way. If the water-bearing horizon is in unconsolidated deposits such as gravel, sand, clay, or glacial debris, however, the estimated elevation is less reliable, because the water-bearing horizon may be inclined, or may be in lenses or in sand beds which may lie at various horizons and may be of small lateral extent. In calculating the depth to water, care should be taken that the water-bearing horizons selected from the Table of Well Records be all in the same geological horizon either in the glacial drift or in the bedrock. From the data in the Table

If the wellsite is near the edge of the municipality, the map and report dealing with the adjoining municipality should be consulted in order to obtain the needed information about nearby wells.

of Well Records it is also possible to form some idea of the quality and quantity of the water likely to be found in the proposed well.

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GLOSSARY OF TERMS USED

Alkaline. The term "alkaline" has been applied rather loosely to some ground waters. In the Prairie Province a water is usually described as "alkaline" when it contains a large amount of salts, chiefly sodium sulphate and magnesium sulphate in solution. Water that tastes strongly of common salt is described as "salty". Many "alkaline" waters may be used for stock. Most of the so-called "alkaline" waters are more correctly termed "sulphate waters".

Alluvium. Deposits of earth, clay, silt, sand, gravel, and other material on the flood-plains of modern streams and in lake beds.

Aquifer or Water-bearing Horizon. A water-bearing bed, lens, or pocket in unconsolidated deposits or in bedrock.

Buried pre-Glacial Stream Channels. A channel carved into the bedrock by a stream before the advance of the continental ice-sheet, and subsequently either partly or wholly filled in by sands, gravels, and boulder clay deposited by the ice-sheet or later agencies.

Bedrock. Bedrock, as here used, refers to partly or wholly consolidated deposits of gravel, sand, silt, clay, and marl that are older than the glacial drift.

Coal Seam. The same as a coal bed. A deposit of carbonaceous material formed from the remains of plants by partial decomposition and burial.

Contour. A line on a map joining points that have the same elevation above sea-level.

Continental Ice-sheet. The great ice-sheet that covered most of the surface of Canada many thousands of years ago.

Escarpment. A cliff or a relatively steep slope separating level or gently sloping area.

Flood-plain. A flat part in a river valley ordinarily above water but covered by water when the river is in flood.

Of sand, gravel, and clay, or a mixture of these, that were deposited by the continental ice-sheet. Clay containing boulders forms part of the drift and is referred to as glacial till or boulder clay. The glacial drift occurs in several forms:

- (1) Ground Moraine. A boulder clay or till plain (includes areas where the glacial drift is very thin and the surface uneven).
- (2) Terminal Moraine or Moraine. A hilly tract of country formed by glacial drift that was laid down at the margin of the continental ice-sheet during its retreat. The surface is characterized by irregular hills and undrained basins.
- (3) Glacial Outwash. Sand and gravel plains or deltas formed by streams that issued from the continental ice-sheet.
- (4) Glacial: Lake Deposits. Sand and clay plains formed in glacial lakes during the retreat of the ice-sheet.

Ground Water. Sub-surface water, or water that occurs below the surface of the land.

Hydrostatic Pressure. The pressure that causes water in a well to rise above the point at which it is struck.

Impervious or Impermeable. Beds, such as fine clays or shale, are considered to be impervious or impermeable when they do not permit of the perceptible passage or movement of the ground water.

Pervious or Permeable. Beds are pervious when they permit of the perceptible passage or movement of ground water, as for example perous sands, gravel, and sandstone.

Pre-Glacial Land Surface. The surface of the land before it was covered by the continental ice-sheet.

Recent Deposits. Deposits that have been laid down by the agencies of water and wind since the disappearance of the continental ice-sheet.

Unconsolidated Deposits. The mantle or covering of alluvium and glacial drift consisting of loose sand, gravel, clay, and boulders that overlie the bedrock.

Water Table. The upper limit of the part of the ground wholly saturated with water. This may be very near the surface or many feet below it.

Wells. Holes sunk into the earth so as to reach a supply of water. When no water is obtained they are referred to as dry holes. Wells in which water is encountered are of three classes.

- (1) Wells in which the water is under sufficient pressure to flow above the surface of the ground. These are called Flowing Artesian Wells.
- (2) Wells in which the water is under pressure but does not rise to the surface. These wells are called Non-Flowing Artesian Wells.
- (3) Wells in which the water does not rise above the water table. These wells are called Non-Artesian Wells.

NAMES AND DESCRIPTIONS OF GEOLOGICAL FORMATIONS, REFERRED TO IN THESE REPORTS

Wood Mountain Formation. The name given to a series of gravel and sand beds which have a maximum thickness of 50 feet, and which occur as isolated patches on the higher parts of Wood mountain. This is the youngest bedrock formation and, where present, overlies the Ravenscrag formation.

Cypress Hills Formation. The name given to a series of conglomerates and sand beds which occur in the southwest corner of Saskatchewan, and rest upon the Ravenscrag or older formations. The formation is 30 to 125 feet thick.

Ravenscrag Formation. The name given to a thick series of light-coloured sandstones and shales containing one or more thick lignite coal seams. This formation is 500 to 1,000 feet thick, and covers a large part of southern Saskatchewan. The principal coal deposits of the province occur in this formation.

Whitemud Formation. The name given to a series of white, grey, and buff coloured clays and sands. The formation is 10 to 75 feet thick. At its base this formation grades in places into coarse, limy sand beds having a maximum thickness of 40 feet.

Eastend Formation. The rame given to a series of finegrained sands and silts. It has been recognized at various
localities over the southern part of the province, from the
Alberta boundary east to the escarpment of Missouri coteau.
The thickness of the formation seldom exceeds 40 feet.

Bearpaw Formation. The Bearpaw consists mostly of incoherent dark grey to dark brownish grey, partly bentonitic shales, weathering light grey, or, in places where much iron is present, buff. Beds of sand occur in places in the lower part of the formation. It forms the uppermost bedrock

formation over much of western and southwestern Saskatchewan and has a maximum thickness of 700 feet or somewhat more.

Belly River Formation. The Belly River consists mostly of non-marine sand, shale, and coal, and underlies the Bearpaw in the western part of the area. It passes eastward and northeastward into marine shale. The principal area of transition is in the western half of the area where the Belly River is mostly thinner than it is to the west and includes marine zones. In the southwestern corner of the area it has a thickness of several hundred feet.

Marine Shale Series. This series of beds consists of dark grey to dark brownish grey, plastic shales, and underlies the central and northeastern parts of Saskatchewan. It includes beds equivalent to the Bearpaw, Belly River, and older formations that underlie the western part of the area.

WATER-BEARING HORIZONS OF THE MUNICIPALITY

The rural municipality of Sliding Hills, No. 273, comprises an area of 324 square miles in southeastern Saskatchewan. The area consists of nine full townships, described as tps. 28, 29, and 30, ranges 1, 2, and 3, W. 2nd mer. A branch line of the Canadian National railways passes through the northern part of the municipality and on it are located Canora, Mikado, and Verigin, Canora being located just beyond the western border of the municipality. Another branch line of the Canadian National railway runs along the western side of the area and on it are located Denwell and Hamton. The centre of the municipality lies 10 miles east and 20 miles north of the city of Yorkton.

The ground surface of the municipality varies from very flat to undulating. The maximum elevation of 1,700 feet above sealevel is attained in the southeastern corner, from where it slopes in a westerly and northerly direction to approximately 1,600 feet in the northwestern corner and north-central part, and to 1,500 feet above sea-level in the northeastern corner. The southwestern corner of the municipality is drained by Wallace creek. This creek flows in a northwesterly direction into Whitesand river which occupies a steep-sided valley in the northwestern corner of the municipality. Kamsael: creek, an intermittent stream, drains the east-central part of the area. A number of small lakes occur in the southeastern corner of the municipality. The creeks, river, and lakes are used extensively as a source of water for steek. In periods of continued drought, however, the water may become very stagnent and may be harmful to stock.

The southeastern corner of the municipality is mantled by moraine. The southern part of the Assiniboine basin glacial lake occurs in the northeastern corner and along the north-central part of the municipality. The site of this glacial lake basin is marked by a

deposit 2 to 60 feet thick of glacial lake sands and clays, the greater part of the deposit being clay. Boulder clay or glacial till underlies the lake deposits and appears at the surface throughout most of the remainder of the township, being overlain by glacial outwash sands and gravels in small areas in township 29, ranges 1 and 2, and in township 30, range 3. Moraine covers an area of approximately 56 square miles in the southeastern part of the municipality. Tho ground surface of the glacial till-covered area is slightly rolling, but that of the moraine-covered area is very irregular with numerous knolls, northwest to southeast trending ridges, and many undrained depressions. The deposits of glacial till and moraine consist of a weathered or oxidized zone composed of several feet of sandy top soil and 5 to 30 feet of yellow boulder clay, and an unweathered zone of blue boulder clay that extends to a depth of 300 feet or to an elevation of 1,315 feet above sea-level in township 30, range 2. Scattered deposits of sand and gravel occur within the weathered and unweathered clays.

Water-bearing Horizons in the Unconsolidated Deposits

Little difficulty is generally experienced in locating water in the glacial lake sands, but along the outer edge of the basin in township 30, range 1, the deposit is too thin to contain much water. In the northeastern corner of the municipality a few wells dug into the lake sands yield sufficient water for 50 to 100 head of stock, and others yield smaller supplies. The water is moderately hard and usable for all general farm purposes.

The lake clays contain little or no water. In some cases small lenses of sand are encountered, but numerous dry holes have been dug. In the area surrounding the village of Verigin water is very hard to obtain and many of the residents are forced to haul for long distances.

An abundant supply of water is obtained from the deposits of glacial outwash sands and gravels. The water is soft and usable for

all purposes. In the NE. $\frac{1}{4}$, sec. 28, tp. 30, range 3, wells and springs yield an abundance of water that comes from the glacial outwash deposit in section 33, of the same township. The town of Canora obtains its supply of water from these wells and springs.

The main water-bearing horizon in the glacial till and moraine-covered area is located in the upper 30 feet of the drift, and is formed by scattered deposits of sand and grayel. The amount of water obtained from the individual wells depends upon the size of the deposit encountered and upon the amount of annual precipitation. In the area outlined by the "A" boundary line, the blue boulder clay usually occurs a few feet below the surface and deposits of sand and gravel are very scarce. In this outlined area a shortage of water. is experienced even for domestic purposes, and most farmers haul from Whitesand river, a distance of 2 to 5 miles. In township 29, range 3, wells in sections 10, 11, and 26 yield abundant supplies of water and they are used by many farmers. The large number of dry holes within this area indicate the numerous attempts that have been made to locate water. Outside the outlined area, shallow wells have located pockets of sand and gravel in the boulder clay and moraine. The water from wells that yield a fairly abundant supply is moderately hard and usable for all farm purposes, including irrigation. The water from wells that yield smaller supplies is more highly mineralized but is usable for domestic purposes. It is often necessary to use from two to five shallow wells to obtain sufficient water for local needs.

A few wells from 40 to 70 feet deep yield small supplies of very highly mineralized water that is derived from thin layers of sand in the blue boulder clay. The water is not used for household purposes if other water is obtainable within reasonable distance. These wells are a very poor source of water and only twenty-two are being used throughout the municipality.

In most sections outside the area outlined by the "A" boundary line, and the glacial lake clay-covered area, a sufficient supply of water is obtained from shallow wells. Within the two above-mentioned areas a shortage is experienced and there is little hope of obtaining a supply from wells, as dry holes from 10 to 300 feet deep indicate the absence of water-bearing deposits. A well in the SE. 4, sec. 19, tp. 30, range 2, did locate water at a depth of 165 feet, but the water was unfit for any farm use. The only method of obtaining an adequate and suitable supply of water in these areas is by the use of artificial reservoirs. Some of the small ravines or creeks can be dammed and the water used for stock. The excavation of dugouts is also recommended. These reservoirs should be located in depressions and should be at least 12 feet deep. Cisterns for the collection of rain water are also recommended. It is advised that this water be filtered through a sand and charcoal filter before it is used for drinking.

Water-bearing Horizons in the Bedrock

The Marine Shale series underlies the glacial drift in this part of Saskatchewan. The upper part of this shale series is a sticky, clayey shale, and it is hard to distinguish from the blue boulder clay. It is useless to drill into this shale as it is non-water bearing.

The shale beds occur below an elevation of 1,315 feet in sec. 9, to.

30, range 2, as a 300-foot dry hole is reported to be in blue boulder clay.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 28, Rango 1

With the exception of parts of sections 35 and 36, which are mantled by boulder clay, this township is covered by moraine. The surface of the moraine is characterized by small knolls and ridges, and by undrained depressions. Most of the area is weeded with small poplar and willow.

Water supplies in this township are obtained from Birch Island and other smaller lakes, many sloughs, and from at least sixty wells. The larger lakes always contain water and some farmers residing acconsiderable distance away haul water for stock use from them. The sloughs are used for stock during approximately nine months of the year. The wells are from 8 to 36 feet deep and derive water from pockets of sand and gravel that occur in the weathered or yellow clay, or from discontinuous deposits of sand and gravel that usually occur at the contact of the yellow clay and the underlying blue boulder clay. The supply from those shallow wells is usually sufficient for 10 to 30 head of stock. A few wells are intermittent and in winters and drought periods water must be hauled. The water from most of the wells is moderately hard and is usable for all domestic and general farm purposes. Some wells yield water that is slightly "alkalino", but no well yields water that is unfit for household purposes. Little difficulty should be experienced in obtaining water from the upper part of the drift in this township.

Wells sunk to depth in the blue clay should locate waterbearing deposits. The water, if obtained, will be highly mineralized and may not be usable for either domestic or stock use. It does not appear advisable, therefore, to drill deep wells. The conservation of surface water by the use of dams or dugouts is recommended.

Township 28, Range 2

The eastern half of this township is covered by moraino, the ground surface of which is very rolling and lies at an average

elovation of 1,700 feet above sea-level. The western half is mantled by glacial till or boulder clay and its ground surface is almost flat, and lies at an elevation of 1,650 feet above sea-level. A narrow, deep valley, which follows rather closely the edge of the moraine, extends from section 8 to section 32. This valley is approximately 1/8 mile wide and 75-feet deep, and contains a marsh and an intermittent stream. Most sections of the township are thickly wooded with small poplar and willow trees.

The water supply in this township is almost entirely derived from wells 8 to 35 feet deep. A few farmers use small dams or dugouts, or water their stock at sloughs when they are unable to obtain sufficient water from wells. The wells tap pockets or lenses of sand and gravel that occur within the yellow boulder clay, or discontinuous layers of sand and gravel that lie between the yellow and blue boulder clays. In many sections these deposits form an almost continuous water-bearing horizon. Many of the farmers use two or more wells, either for convenience or to obtain a sufficient supply for local needs. The water is only moderately hard, often being locally termed "soft", and it is usable for all domestic and general farm purposes. Little trouble should be experienced in obtaining water from this source, and with the exception of two wells the water supply in this township is derived from shallow wells that tap this horizon.

Two wells 45 and 75 feet doep tap bods of sand in the blue clay, from which small supplies of water are obtained. The water is highly mineralized, due to the proximity of the unwoathered blue boulder clay, but it can be used for domestic purposes. It is probable that wells sunk to various depths in the blue clay would encounter similar aquifers, but it is not advisable to drill to a great depth as the water obtained may be too highly mineralized to be used for any farm purpose.

The excavation of dugouts or the construction of small dams to collect or impound surface water for stock use is highly recommended. The slightly mineralized surface water is more beneficial to stock than that obtained from deep wells.

Township 28, Range 3

This township is mantled by glacial till or boulder clay. The ground surface is gently undulating and the elevation varies from slightly less than 1,600 feet above sea-level to approximately 1,640 feet above sea-level, the rise being towards the east. The glacial till is at loast 125 feet thick and usually consists of a thin layer of loam top soil; 4 to 20 feet of weathered yellow boulder clay that contains very few pockets of sand and gravel; and the remaining thickness of unweathered, blue boulder clay that contains very few deposits of sand. The blue boulder clay occurs near the surface in most sections, and consequently many dry holes have been sunk throughout the township.

Water supplies in this township are derived mainly from Wallace creek and its intermittent tributarios, and from a few shallow wells. Wallace creek is not a permanent stream, but when it is flowing many farmers haul water from it, in many cases for distances of 4 to 5 miles. Shallow wells dug in the bed of the creek usually yield large supplies of usable water.

have an insufficient supply of water, and water must be hauled during several months of the year. Many dry holes from 8 to 125 feet deep indicate that attempts have been made to locate water. The wells that have located water yield small supplies, sufficient only for domestic purposes and a few head of stock. The water is obtained from pockets of sand and gravel in the yellow clay. It is fairly highly mineralized but is used for all farming purposes. Prior to digging shallow wells it is advisable to locate water-bearing deposits by means of a small test auger.

Two wells in the NE. \(\frac{1}{4}\), section 13, and the SE. \(\frac{1}{4}\), section
24, tap a bed of sand in the blue clay at depths of 38 and 34 feet,
respectively. This is only a local deposit of small areal extent,
but sufficient water is obtained from the wells for local needs.

The water is under slight hydrostatic pressure, and it is being used
for domestic and stock purposes, although it is highly mineralized.

Many dry holes have been dug into the blue clay, however, and it does
not appear advisable to search for water in it, as the water that has
been obtained at depth in the blue clay in adjoining townships is
too highly mineralized for drinking and often for stock. The best
method of increasing the water supply in this township is to
conserve surface water by dams or dugouts.

Township 29, Range 1

The southwestern part of this township is covered by moraine and is characterized by many knolls, ridges, and undrained depressions. Glacial till mantles the remainder of the township, but in sections 24 to 29, and sections 31 to 36, glacial lake clays overlie the till to depths of 2 to 15 feet. In the eastern half of section 36 the lake deposits are sandy. In parts of sections 19 and 30 the glacial till is overlain by glacial outwash sand and gravel. Where the glacial till occurs at the surface the topography is slightly rolling. Several valleys from 20 to 40 feet deep carry the run-off water in a northeasterly direction. The ground surface of the glacial lake clay-covered area is very flat, and is free from rocks and boulders. The elevation in section 6 is 1,700 feet above sea-level, and from this point it decreases in a northeasterly direction to 1,535 feet above sea-level in section 36. Scattered bluffs of poplar and willow are common over the glacial till and moraine-covered areas.

Water supplies are obtained from Kamsack creek and its tributaries, sloughs, dams and dugouts, and from wells. Kamsack creek, an intermittent creek that occupies a shallow valley, flows in a north-easterly direction through the northwestern corner of the township and

then turns and flows in a southeasterly direction through the northeastern corner. It is fed by springs. Most of the sloughs and dams become dry during the autumn and winter months.

No water is obtained from wells sunk in the glacial lake clays, but several wells have encountered sand or gravel pockets in the underlying glacial till from which small supplies of water are obtained. The glacial lake sands are only a few feet thick in this township and no water is obtained from them.

A 14-foot well in the SW. 1, section 19, sunk in the deposit of glacial outwash sand and gravel, located an abundant supply of slightly mineralized water. The water can be used for all general farm purposes. The well yields sufficient water for at least 50 head of stock.

The deposits of till and moraine are similar in composition, consisting of a thin layer of sandy top-soil; 8 to 25 feet of yellow boulder clay containing scattered pockets of sand and gravel; a discontinuous layer of sand and gravel; and blue boulder clay. The blue clay probably extends to bedrock, and contains scattered deposits of sand and gravel. The main water-bearing horizon is formed by the pockets of sand and gravel that occur within the yellow boulder clay, or at the contact of the yellow and blue boulder clays. A few wells yield an abundance of slightly mineralized water that can be used for all farming purposes. Wells in sections 4, 15, 32, and 33, yield oversufficient supplies, and neighbouring farmers haul from these wells. The wells in the NE. $\frac{1}{4}$, section 4, and in the SE. $\frac{1}{4}$, section 15, are flowing artesian wells. The well in the SW. $\frac{1}{4}$, section 33, is 15 feet deep and yields sufficient water for 150 to 200 head of stock. Many people residing near Verigin, in the adjoining township, haul from this well. Most of the shallow wells, however. yield intermittent or small supplies of usable water, although it is more highly mineralized than that obtained from wells yielding abundant supplies.

Several attempts have been made to locate water at depths of 40 to 70 feet, but only two wells tapped small deposits of water-bearing sand in the blue clay. The water is highly mineralized, being "alkaline", and the supply is not large. It is not probable that large supplies of water of good quality will be found in the blue boulder clay.

In general, this township is very poorly supplied with water. The wells that yield abundant supplies are located along several ravines. Great difficulty is experienced in obtaining water in the glacial lake clay-covered area. Inadequate supplies of water are also obtained in the moraine-covered area. Deep drilled wells may possibly encounter water-bearing deposits, but the uncertainty of obtaining water, and the poor quality of water when obtained, do not warrant the expense of drilling. The best method of increasing the supply of water is by the conservation of surface water by dams or dugouts. Small dams could be constructed on Kamsack creek.

Dugouts should be at least 12 feet deep, and should be situated in depressions where the maximum amount of surface water will be collected.

Township 29, Range 2

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The southeastern corner of the township is mantled by moraine and is characterized by rock-strewn knolls, ridges, and by several undrained depressions. The remainder of the township is covered by glacial till, the ground surface of which is gently rolling. A small deposit of glacial outwash sand and gravel overlies the glacial till in parts of sections 24 and 25. The elevation decreases from 1,700 feet in the southeastern section to 1,580 feet above sea-level in the northwestern part. The deposits of moraine and glacial till are similar in composition and water conditions are practically the same in each area.

The main supply of water is derived from wells, 8 to 30 feet deep, that tap pockets or lenses of sand and gravel in the weathered

or yellow boulder clay throughout the township. A few wells located along several ravines in the township yield an abundant supply of slightly mineralized water. The water from these wells is moderately hard, and usable for all domestic purposes as well as for irrigation. The supply is usually over-sufficient and many neighbouring farmers haul from the wells. Shallow wells dug on the uplands yield small or intermittent supplies of water that is more highly mineralized but usable for all farm purposes. Farmers usually use two to five wells to supply adequate water for local needs. On those farms where water is not obtainable, ice is stored for domestic purposes or water is hauled, and the stock are watered at sloughs, dams or dugouts when these contain water, or water is hauled.

Several attempts have been made to locate water in the blue boulder clay at depths of 40 to 60 feet, but most of the holes were dry. A few wells yielded small supplies of highly mineralized water that was only sufficient for 5 or 6 head of stock. It is possible that holes drilled to greater depths in the blue clay would encounter beds of sand or gravel from which supplies of water could be obtained, but water located at depth in this municipality is usually too highly mineralized to be used. Accordingly it is not advisable to drill to depth in this township.

The only practical method of increasing the supply of water in this township is by the use of more shallow wells and by conserving surface waters. Prior to digging shallow wells the water-bearing deposits should be located by a small test auger. Artificial reservoirs should be so constructed that they will retain at least 12 feet of water.

Township 29, Range 3

This township is fairly flat, but it becomes slightly undulating, in the southeastern corner. Whitesand river, a small, shallow stream, flows through the northwestern corner of the township. It is an important source of water for many farmers in this township.

The river was dry during most of 1933 and 1934, but wells obtained water at shallow depths in the river bottoms. A long, narrow, marshy depression, 200 feet wide and 20 feet deep, occurs in the centre of the township. Wells sunk near the marsh may locate water, but it will probably be too highly mineralized to be of any use. The township is mantled by glacial till or boulder clay that consists of a few feet of leamy top-soil; 15 to 20 feet of weathered or yellow boulder clay; and unweathered, compact, blue boulder clay. A few, small, scattered deposits of sand and gravel occur at or near the base of the yellow boulder clay. No water-bearing deposits have been located in the blue clay.

No continuous water-bearing herizons occur in this township and the water supply is mainly obtained from Whitesand river and three or four wells that yield fairly abundant supplies of water. Thirty-six out of forty-nine farms have insufficient supplies of water; thirteen have no producing wells; and twenty-three have wells that yield insufficient supplies of water. Every farmer who is short of water has dug from five to thirty dry holes in attempting to locate water. The producing wells yield moderately hard water that is usable for all domestic and general farm purposes. Two or three 12-foot wells in the NE. $\frac{1}{44}$ section 10, supply most of the farmers in that locality. A 14-foot well in the SE. $\frac{1}{44}$, section 32, near Whitesand river, supplies at least fifteen farmers with water. Some farmers haul 4 or 5 miles.

Numerous dry holes have been dug in this township. The lower part of the drift may contain scattered deposits of water-bearing sand and gravel, but the uncertainty of encountering them and the highly mineralized water to be obtained, do not warrant the expenso of drilling deep wells. The use of reservoirs such as dams and dugouts for the collection and storage of surface water is highly recommended.

Township 30, Range 1

This township lies entirely within the basin of Assimboine glacial lake, and it is mantled by glacial lake clays and sands.

The glacial lake sands cover the greater part of the northeastern half of the township, and lake clays mantle the remainder of the area.

The ground surface is flat with a slight slope towards the east and northeast, the elevation decreasing from 1,600 feet in section 6, to 1,500 feet above sea-level in section 36. The area is free from stones or boulders, and there is no tree growth. Whitesand river has cut a narrow, steep valley in sections 31 to 34, and in the NE. ..., section 36. The valley is 100 feet deep in some parts of the area.

Kamsack crock and its tributaries occupy small, shallow valleys in the southern part of the township.

The lake clay deposits are from 20 to 60 feet thick, being thickest in the northeastern and eastern sections. The deposits of lake sands vary from a few feet to 20 feet in thickness and in some sections layers of yellow clay occur within the sand. The sand is underlain by black lake clay, beneath which blue boulder clay occurs at approximate depths of 60 feet.

In the lake sand-covered area few farms experience a shortage of water as wells from 12 to 35 feet deep yield abundant supplies.

The water is moderately hard and is used for all farm purposes, including irrigation.

In the lake clay-covered area great difficulty is experienced in obtaining water for domestic and stock purposes. A few wells sunk into the black lake clays tap layers of sand of small areal extent, from which small supplies of highly mineralized water are sometimes obtained. It is used for domestic purposes, and the best wells will only water from 3 to 25 head of stock. Many dry holes and intermittent seepage wells are located in this area.

of sand in the blue boulder clay that underlies the lake deposits. The

aquifers are of small areal extent, as holes dug within short distances of producing wells have failed to strike water-bearing sands. The water is very highly mineralized; that from some of the wells is not usable for domestic purposes, whereas that from others is being used as water of better quality is not available. The wells yield sufficient water for 10 to 50 head of stock and the water from a few wells is under slight hydrostatic pressure. Possibly other holes sunk to similar depths would encounter water-bearing sands, but water of good quality is not to be expected. Those farmers residing in the glacial lake clay-covered areas who are unable to obtain sufficient water from wells haul water or store ice for domestic use, and use surface water retained by dams and dugouts for stock supplies. Cisterns are used to store rain water. Water is often hauled a distance of 1 to 3 miles from Whitesand river or from a dam situated in the SE. 1. section 9. Some farmers haul from wells located in the lake sand-covered sections. A 12-foot well located in the SE. 4, section 13, supplies many farmers. This well yields sufficient water for at least 100 head of stock. Some farmers haul from a well located in the SW. $\frac{1}{4}$, sec. 33, tp. 29, range 1. This. well supplies ten or fifteen farmers with water. The town of Verigin has not an adequate supply of water, especially during periods of drought. A 65-foot well supplies sufficient water for about 200 people. Shallow seepage wells are also used.

The only method for increasing water supplies in the glacial lake clay-covered area is by the construction of dams on Kamsack creek or a few of its deeper tributaries, and by the excavation of deep dugouts to collect and retain surface water for stock use. Deep drilled wells may encounter water-bearing beds in the blue clay, but the uncertainty of obtaining water and the poor quality of water if obtained, do not warrant the expense of deep drilling.

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Township 30, Range 2

This township is flat, the elevation varying from 1,585 to 1,620 feet above sea-level. A few small lakes, sloughs, and marshes occur in the township, but they were dry during 1930 to 1955. Drainage ditches have been dug from Mikado to Whitesand river. Glacial lake sands overlie the glacial till or boulder clay in the northeastern and northwestern corners of the township. Glacial lake clays overlie the boulder clay in a narrow area along the northern and eastern boundaries of the township. Boulder clay appears at the surface throughout the remainder of the township.

The glacial lake sands are not water-bearing in this area as the deposit is only a few feet thick. The deposit of lake clay is from 2 to 30 feet thick, but it contains little or no water. A fairly abundant supply of water is encountered at the base of the glacial lake clays. In sections 12, 14, 22, 28, 33, and 34, a number of wells tap a bed of sand and gravel at depths of 9 to 30 feet. They yield an abundant supply of moderately soft water. Water is readily located in the above-mentioned sections and some farmers find it convenient to use a number of wells, even though an individual well will yield sufficient water for 50 to 300 head of stock. In some wells the water-level cannot be lowered by pumping or by bailing. water is suitable for all farm purposes including irrigation. Little difficulty is experienced in the northeastern two-thirds of the township in obtaining water. Outside of the area mentioned above shallow wells from 10 to 30 feet deep yield more highly mineralized water, but it is usable for domestic and stock purposes. The supply is not so abundant, but most of the wells yield sufficient water for 10 to 40 head of stock. These wells tap sand or gravel aquifers that occur at or near the base of the lake clays, or within the upper part of the boulder clay.

In the area outlined by the "A" boundary line, the blue clay comes to within 10 to 15 feet of the surface and water is very difficult

to obtain. A few shallow wells tap pockets of sand and gravel of small areal extent and yield small or intermittent supplies of water. The water is highly mineralized, but it is being used for household needs and all general farm purposes. Many holes from 45 to 300 feet deep have been sunk, but with the exception of one well all were dry holes. This well, located in the SE. 1/4, section 19, was drilled by the village of Mikado. It encountered an aquifer at a depth of 165 feet or at an elevation of 1,431 feet above sea-level. The water is under hydrostatic pressure and rises to a point 40 feet below the surface where it maintains a constant level. It is so highly mineralized and "alkaline", however, that stock will hardly drink it. The well is not used to any extent. The residents of Mikado haul water for domestic needs from a well in the SE. 1/4, section 30.

A few wells outside the "A" boundary line encounter beds of water-bearing sand in the blue clay at depths of 40 to 53 feet. The water is usually under slight hydrostatic pressure and the supply is sufficient for 15 to 25 head of stock. It is very hard, and "alkaline", and that from some wells is not usable for domestic purposes. An abundant supply of good water is not to be expected from deposits in the blue clay.

farmers haul water, store ice, collect and store rain water in cisterns, and use small dugouts to retain surface water for stock use. It is inadvisable to drill deep wells in any part of the township as the blue clay does not contain continuous water-bearing horizons, or yields very highly mineralized water. The use of cisterns and dugouts within the area outlined by the "A" boundary line is the best method of obtaining a water supply. Shallow wells dug beside the dugouts should yield suitable water for domestic needs.

Township 30, Range 3

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The average elevation in this township is 1,600 feet above sea-level. The ground surface is flat or slightly undulating

and it is free from rocks or boulders. Whitesand river occupies a steep valley that runs in a northerly direction from section 4, to section 28, where it turns and runs in an easterly direction through sections 34, 35, and 36. The valley is from 70 to 100 feet deep and approximately 300 feet wide at its widest part. Clumps of poplar and small willow are found along the river.

In the northeastern corner of the township a small glacial lake basin occurs and is mantled by lake clays and sands. Small deposits of glacial outwash gravels occur in parts of sections 23 and 24, and in parts of sections 33, 34, and 35. The remainder of the township is mantled by glacial till or boulder clay.

Water supplies in this township are obtained from Whitesand river, springs, dugouts or dams, and from shallow wells. Whitesand river is a small but permanent stream, and many farmers haul water from it for both stock use and domestic purposes. A spring in the SE. 1, section 34, flows throughout the year and yields soft water that can be used for all farm purposes. Springs in the NE. 4. section 28, yield an abundance of water and are the source of water for the town of Canora. The water from those springs is derived from glacial outwash deposits in sections 33 and 34. A trench, or collecting gallery, 1,000 feet long, 4 feet wide, and 14 feet deep, connects the springs. The trench is dug 2 feet into hardpan or blue boulder clay and is filled with crushed stone that is overlain by spruce wood, and covered by sandy gravel. The water filters through this tunnol by gravity to a 60,000 gallon storage tank. These aquifors yield approximately 70,000 gallons a day in years of normal precipitation, but during the drought period of 1930 to 1934 the supply decreased to 35,000 gallons a day. The town of Canora uses 60,000 gallons of water a day. To supplement the supply of water from tho springs, water is pumped from Whitesand river into a sand bed 100 foot away from the collecting gallery into which the water seeps and finally filters into the storage tank. During the months of February and March 1935, the river was so low that sufficient water could not be obtained from it. A well, 22 feet deep, 16 feet long, and 8 feet wide, dug in the glacial outwash deposits, yields approximately 18,000 gallons a day. The water in the 60,000 gallon storage tank is pumped $2\frac{1}{2}$ miles to a 160,000 gallon storage tank in Canora. The water is soft and usable for all purposes. The Canadian National railways use the water in their locomotives.

Most of the farmers in this township obtain water from shallow wells that tap pockets of sand and gravel in the yellow boulder clay. The water is moderately hard, but usable for all farm purposes. The individual wells yield sufficient water for 10 to 40 head of stock. In sections 31 and 32 some difficulty was experienced in obtaining water by wells and the present supply is obtained from the water main of the Canora water system.

In the area outlined by the "A" boundary line great difficulty is experienced in locating water. Holes from 10 to 100 feet deep have failed to encounter water-bearing sands or gravels and the residents haul water from Whitesand river.

It is not advisable to drill for water in the township as few water-bearing sands occur in the blue boulder clay. If water is encountered it is probable that it would be too highly mineralized to be of any use. In the western and northern sections shallow wells should obtain fair supplies of water. In the southeastern section, dams or dugouts are recommended as a means of retaining surface water for stock use. They should be so constructed as to contain 12 feet of water.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF SLIDING HILLS, NO. 273, SASKATCHEWAN

					and Publish related				·····	
Township	28	28	28	29	29	. 29	30	30	30	Total No.
Wost of 2nd meridian Range	1	2	3	1	2	3	1	2	3	in muni- cipality
Total No. of Wells in Township .	73	74	89	136	137	218	123	214	114	1,178
No. of wells in bedrock	0	0	0	0	0.	0	0	0	0	0
No. of wells in glacial drift	73	74	89	136	137	218	123	214	114	1,178
No. of wells in alluvium	0	0	0	ĵ.	0	0		0		0
Permanency of Water Supply							11.			
No. with permanent supply	65	6.8	34	71	65	33	76	69	43	524
No. with intermittent supply	4		13		12	-	21	11		115
No. dry holes	4		42			165				539
Types of Wells	-			ate allo		100		101	01	
No. of flowing artesian wells	0	0	. 0.	10. 2	0	0	0	0	. 0	2
No. of non-flowing artesian wells	1	2,	~	3	0	1	2	8	0	1.9
No. of non-artesian wells		69								618
Quality of Water	::	03		30	, , ,	52	30		30	O.i.O
No. with hard water	62	59	39	74	63	47	93	61	24	522
No. with soft water		12	8	21	14	6	4	19		117
No. with salty water	0	0	0	1	0		1	2	p	4
No. with "alkaline" water	10	11	4	10	11	14			L	81
Depths of Wells										
No. from O to 50 feet-deep	73	73	81	127	136	201	119	198	109	1,117
No. from 51 to 100 feet deep	0	1	6	9		14		-		54
No. from 101 to 150 feet deep	0	,0	2	0	Ó	3	0	. 0	0	5
No. from 151 to 200 feet deep	0	0	0	Ö	0	0	0	1	0	1
No. from 201 to 500 feet deep	0	. 0	0	0	0	0	0	1	0	1
No. from 501 to 1,000 feet deep	•	0	0	0	0	0	0	0	0	0
No. over 1,000 feet deep	0	0	0	0	0	0	0	0	Ō	0
How the Water is Used					m - 47 (M.) 1 (M.) 1 (M.) 1					
No. usable for domestic purposes	64	63	43	81	67	36	84	69	}	555 555
No. not usable for domestic purposes	5	8	4	14	10	17	13	11	2	04
No. usable for stock	69	69	47	93	73	50	91	77	48	617
No. not usable for stock	0	2	Ö	2	4	3	6	3	2	32
Sufficiency of Water Supply								Minnen drago		
No. sufficient for domestic needs	63	66	33	71	64	33	76	69	43	518
No. insufficient for domestic needs	6	5	14	24	13	20	21	11	7	121
No. sufficient for stock needs	57	56	25	58	52	19	51	52	3 5	405
No. insufficient for stock needs	12	15	22	37	25	34	46	28	15	234

ANALYSES AND QUALITY OF WATER General Statement

Samples of water from representative wells in surface deposits and bedrock were taken for analyses. Except as otherwise stated in the table of analyses the samples were analysed in the laboratory of the Borings Division of the Geological Survey by the usual standard methods. The quantities of the following constituents were determined; total dissolved mineral solids, calcium oxide, magnesium oxide, sodium oxide by difference, sulphate, chloride, and alkalinity. The alkalinity referred to here is the calcium carbonate equivalent of all acid used in neutralizing the carbonates of sodium, calcium, and magnesium. The results of the analyses are given in parts per million -- that is, parts by weight of the constituents in 1,000,000 parts of water; for example, 1 ounce of material dissolved in 10 gallons of water is equal to 625 parts per million. The samples were not examined for bacteria, and thus a water that may be termed suitable for use on the basis of its mineral salt content might be condemned on account of its bacteria content. Waters that are high in bacteria content have usually been polluted by surface waters.

Total Dissolved Mineral Solids

The term "total dissolved mineral solids" as here used refers to the residue remaining when a sample of water is evaporated to dryness. It is generally considered that waters that have less than 1,000 parts per million of dissolved solids are suitable for ordinary uses, but in the Prairie Provinces this figure is often exceeded. Nearly all waters that contain more than 1,000 parts per million of total solids have a taste due to the dissolved mineral matter. Residents accustomed to the waters

may use those that have much more than 1,000 parts per million of dissolved solids without any marked inconvenience, although most persons not used to highly mineralized water would find such waters highly objectionable.

Mineral Substances Present

Calcium and Magnesium

The calcium (Ca) and magnesium (Mg) content of water is dissolved from rocks and soils, but mostly from limestone, dolomite, and gypsum. The calcium and magnesium salts impart hardness to water. The magnesium salts are laxative, especially magnesium sulphate (Epsom salts, MgSO₄), and they are more detrimental to health than the lime or calcium salts. The calcium salts have no laxative or other deleterious effects. The scale found on the inside of steam boilers and tea-kettles is formed from these mineral salts.

Sodium

The salts of sodium are next in importance to those of calcium and magnesium. Of these, sodium sulphate (Glauber's salt, Na₂SO₄) is usually in excess of sodium chloride (common salt, NaCl). These sodium salts are dissolved from rocks and soils. When there is a large amount of sodium sulphate present the water is laxative and unfit for domestic use. Sodium carbonate (Na₂CO₃) "black alkali", sodium sulphate "white alkali", and sodium chloride are injurious to vegetation.

Sulphates

Sulphates (SO_4) are one of the common constituents of natural water. The sulphate salts most commonly found are sodium sulphate, magnesium sulphate, and calcium sulphate $(CaSO_4)$. When the water contains large quantities of the sulphate of sodium it is injurious to vegetation.

Chlorides

Chlorides are common constituents of all natural water and are dissolved in small quantities from rocks. They usually occur as sodium chloride and if the quantity of salt is much over 400 parts per million the water has a brackish taste.

Iron

deposits derived from them, and also from well casings, water pipes, and other fixtures. More than 0.1 part per million of iron in solution will settle as a red precipitate upon exposure to the air. A water that contains a considerable amount of iron will stain porcelain, enamelled ware, and clothing that is washed in it, and when used for drinking purposes has a tendency to cause constipation, but the iron can be almost completely removed by aeration and filtration of the water.

Hardness

Calcium and magnesium salts impert hardness to water.

Hardness of water is commonly recognized by its soap-destroying powers as shown by the difficulty of obtaining lather with soap.

The total hardness of a water is the hardness of the water in its original state. Total hardness is divided into "permanent hardness" and "temporary hardness". Permanent hardness is the hardness of the water remaining after the sample has been boiled and it represents the amount of mineral salts that cannot be removed by boiling. Temporary hardness is the difference between the total hardness and the permanent hardness and represents the amount of mineral salts that can be removed by boiling. Temporary hardness is due mainly to the bicarbonates of calcium and magnesium and iron, and permanent hardness to the sulphates and chlorides of calcium and magnesium. The permanent hardness can be partly

eliminated by adding simple chemical softeners such as ammonia or sodium carbonate, or many prepared softeners. Water that contains a large amount of sodium carbonate and small amounts of calcium and magnesium salts is soft, but if the calcium and magnesium salts are present in large amounts the water is hard. Water that has a total hardness of 300 parts per million or more is usually classed as excessively hard. Many of the Saskatchewan water samples have a total hardness greatly in excess of 300 parts per million; when the total hardness exceeded 3,000 parts per million no exact hardness determination was made. Also no determination for temporary hardness was made on waters having a total hardness less than 50 parts per million. As the determinations of the scap hardness in some cases were made after the samples had been stored for some time, the temporary hardness of some of the waters as they come from the wells probably is higher than that given in the table of analyses.

Analyses of Water Samples from the Municipality of Sliding Hills, No. 273, Saskatchewan.

Source	of. water	# J	г ж	144	Н
Ω				(2)	
CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS	NaCl	92	1913	. 19	(5)
	Na2SO4	136	173 571	(3)	(1)
	SO4 Na20 Solids CaCO3 CaSO4 M&CO3 MESO4 Na2CO3 Na2SO4 NaC1 CaCl2				(4) (3) (1) (5)
	Mg SO1	602	1,341	(2)	(†
	MgC03				
AS CAI	CASOL	326	90 1,142	(1)	(2)
TUENTS	CaCO3	225		(†)	
CONSTI	Solids	890 73 1,422 225 326	2,913	2,568 (4) (1)	1,028
11	Na ₂ 0	73	163	,	
LYSEL	SO ₁	890	2,001		-
S AW	989		450		
T.S.	ca0	260	520		***************************************
CONSTITUTENTS AS ANALYSED	Alka-	225	90	-	
COM	61.	16	101		
	Temo.	n11	nil	·e j • ·	
HARDNESS	Perm.	1,200	2,200		
HAR	Total	1,200	2,200		
Total	dis'va Total Perm. Term. Cl.Alka- GaO Mg6 solids	36 1,960 1,200 1,200 nil 16 225 260 238	3,680 2,200 2,200 nil 101 90 520 450 2,001 163 2,913	2,568	1,028
Depth Total	No. tr. Sec. Tp. Rge. Mer. well, Ft. solids		ਹ ਹ	24 29 1 2" Spring 2,568	3 1,028
	Mer.	Sug	33 28 1 2"	2=	2#
	99 64	Н	Н	Н	٦
TIOI	C. II	5 28	3 28	52	4 29
LOCATION	r.Se	NW. 5 28 1 2nd.	2	2	4 SW. 24 29 1 2"
Н	0 5	E	2 M.	3 SW.	SW

Analyses are reported in parts per million; whore numbers (1), (2), (3), (4), and (5) are used instead of parts per million, they represent the relative amounts in which the five main constituents are present in the water. Hardness is the soan hardness expressed as calcium carbonate (GaCO₂) Water samples indicated thus, m 1, are from glacial drift. Analyses Nos. 3 and 4, by Provincial Analyst, Regina.

For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

Four samples of water from the glacial drift of the municipality of Sliding Hills were analysed and the results listed in the accompanying table. Samples 11, 2, and 4 are taken from wells 3 to 36 feet deep, and sample 3 is taken from a spring. The total dissolved solid salt content varies between 1,028 and 3,680 parts per million. The quality of the water from the upper part of the drift may vary greatly within short distances. For example, sample 3 was taken from a spring and sample 4 from a well that are only 200 yards apart. The water from wells that tap small pockets of sand or gravel at shallow dopth is usually more highly mineralized than that from large doposits of water-bearing sediments. The principal mineral salts commonly found in water from the drift are magnesium sulphate, calcium sulphate, sodium sulphate, and calcium carbonato, with smaller quantities of sodium chloride and calcium chloride. Waters that contain a large amount of magnesium sulphate and sodium sulphate will act as a lexative on those not accustomed to their use. The waters that were analysed are being used without any apparent ill effects. Care should be taken to see that the water from shallow wells tapping deposits of sand and gravel that outcrop does not become contaminated by polluted surface waters. The water from wells that tap aquifors in the blue clay usually contains a large amount of mineral salts in solution. It is rarely suitable for domestic use and may even be unsatisfactory for stock.

Water from the Bedrock

No water is obtained from the Marine Shale series in this municipality. Any water that may be obtained from it in this area will be too highly mineralized for any farm purpose.

STITUTING HILLS

10.273. SASKATCHENA

		LC	CATI	ON		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI	WHICH ILL RISE	PRIN	CIPAL W	ATER-BEARING BED		TEMP. USE TO	
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WHICH WATER WATER (in F.) IS PUT	YIELD AND REMARKS
1	27.70	1	28	1	2	Dug	30	1,700	27	1,673	27	1,673	Glacial gravel	Hard, clear	D, S	Sufficient for local needs.
2	.10.7 e	2	11	61		Dug	23	1,700	- 21	1,679	. 21.	1,679	Glacial sand	Hard; clear	D, S	Sufficient for local needs.
3	82.	3	n	51	:1	Dug	18	1,700	- 15	1,685	16	1,684	Glacial gravel	Hard, clear	D, S	Sufficient for local needs.
+	S:	4	11	15	**	Dug	18	1,710	- 12	1,698	14	696	Glacial sand	Hard, clear	D, S	Sufficient for local needs; also another we
5	N.F.	ż	58	16	и	Dug	30	1,710	- 15	1,695	22	1,688	Glacial sand	Hard, clear	D, S	Sufficient for local needs.
6	Ms.	4	if	**	12	Dug	20	1,700	- 17	1,683	17.	1,683	Glacial sandy .	Hard, clear	D, 8	Sufficient for local needs.
7	SI.	5	tr		11	Dug	.22	1,710	- 2	1,708			Glacial sandy	Soft, clear	D, S	Sufficient for local needs.
. 8	17.//•	5	19	14	:	Dug	36	1,700	- 27	1,673	36	1,664		Hard, clear, iron, "alka-	D, S	Sufficient for local needs.
9	Sil.	0	11	11	ır	Dug	14	1,720	- 10	1,710	10	1,710	Glacial sand	line" Soft, clear	D, S	Sufficient for local needs.
10	SI.	9	18	11	u	Duz	15	1,700	- 10	1,690			Glacial clay	Hard, closer,	S	Constant water level; another well 17 feet doep is used for demostic needs.
11	S:/.	9	ŧŧ	15		Dug	30	1,710	- 26	1,684			Glacial clay	Hard, cloar,	S	Sufficient for stock needs; houls water for domestic needs.
12	Nw.	9	76	11	11	Dug	35	1,720	29	1,691	29	1,691	Glacial sand	Hard, cloar	D, S	Sufficient for local needs.
13	Sw.	10	10	ca		Dug	16	1,700	- 8	1,692			Glacial drift	Hard, clear	D, S	Sufficient for local needs.
14	ME.	10	11	16	**	Dug	22	1,700	- 12	1,688			Glacial sand	Hard, clear	D	Insufficient supply; stock war watered at a lake.
15	SZ.	12	11	16	#1	Dug	24	1,700	- 10	1,690	18	1,682	Glacial sand	Hard, clear,	D, S	Sufficient for local needs.
16	Sw.	12	**	11	15	Bored	26	1,700	- 16	1,684			Glacial gravel	Hard, clear	D, S	Sufficient for local needs.
17	SZ.	14	et	tī	11	Dug	15	1,690	- 13	1,677	13	1,677	Glacial sand	Hard, clear	D, S	Sufficient for local needs.
18	M.	16	19	. 11	11	Dug	24	1,700	- 20	1,680	22	1,678	Glacial sand	Hard, clear	D, 3	Sufficient for local needs.
19	S	17	11	"	и	Dug	18	1,710	- 16	1,694			Glacial clay	Hard, clear	D	Intermittent supply; another well 18 feet deep in pasture has a good supply.
20	SA.	13	it	16	**	Dug	50	1,720	- 39	1,681			Glacial drift	Hard, clear, "alkaline"	D, S	Intermittent supply; melts snow when well : dry.
21	SI.	18	18	it	п	Dug	17	1,710	- · 2	1,708			Glacial sand	Hard, clear	D, S	Sufficient for local needs.
22	SE.	20	15	14) f	Dug	25	1,700	- 21	1,679	21	1,679	Glacial gravel	Hard, clear	D, S	Sufficient for local needs.
23	Sd.	20	19	14	11	Dug	14	1,700	- 4	1,696			Glacial gravel	Hard, cloar	D, S	Sufficient for local needs; also another similar well.
24	M.	20	11	п	11	Dug	29	1,700	- 19	1,681			Glacial gravel	Hard, clear	D, S	Sufficient for local needs; also 2 shallow wells on farm.
25	SE.	21	11	11	ıt	Dug	10	1,700	- 5	1,695			Glacial clay	Hard, clear	D, S	Sufficient for local needs.
26	S.J.	21	19	11	11	Dug	18	1,700	- 14	1,686	14	1,686	Glacial gravel	Hard, clear	D, S	Sufficient for local needs.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D)*Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used (#) Sample taken for analysis.

HEIGHT TO WHICH PRINCIPAL WATER-BEARING BED LOCATION WATER WILL RISE USE TO TEMP TYPE DEPTH ALTITUDE WELL CHARACTER OF WHICH WELL YIELD AND REMARKS OF OF Above (+ OF WATER WATER WATER No. (above sea level) WELL WELL Geological Horizon Below (-1/4 Sec. Tp. Rge. Mer. Elev. Depth Elev. (in °F.) IS PUT Surface Sufficient for local needs. D. S 1,681 Glacial sand Hard, clear 1,700 - 19 28 1 25 N.I. 22 Dug Sufficient for local needs. D, 5 Hard . elear Glacial sand 1,688 28 NJ. 22 Dug 27 1,700 - 12 Dry hole; base in glacial clay; water hauled 30 1,690 23 Bored 29 SJ. from a lake. D, S Sufficient for local needs. Glacial sand Hard, clear .696 1.700 - 4 Mil. 23 Dug 11 30 Sufficient for local needs. D, S Hard, clear, 1,679 24 1,676 Glacial sand Dug 29 1,700 - 21 Sil. 24 iron, "alkaline" Sufficient for local needs. D, S Hard, clear 1.655 Glacial sand 23 1.675 - 20 1,655 20 24 Dug 32 Nie Sufficient for local needs. D. S 1,660 Hard, clear 1,641 19 1.641 Glacial sand 24 - 19 NE. 24 Borad Sufficient for local needs. D, S Glacial sand Hard, clear 1,656 1,670 - 14 1,656 14 25 Dug 24 34 D, S Sufficient for local needs. Hird, clear - 8 1.667 Glacial gravel 15 1.675 Dug Sw. 25 Sufficient for local needs. D, S Hard, clear, Glacial drift 1,660 - 15 1.645 30 36 NZe 25 Dug "alkaline" Three dry holes; base in glacial blue clay; Dug 1,675 24 37 N.J. 26 haul water from neighbours. Sufficient for local needs. D. S 1,698 Glacial gravel Soft, clear Dag 12 1,710 - 8 1.702 14 38 NEC 26 D, S Sufficient for local noods. Glacial sand Hard, cloar 1,685 24 1,700 - 15 Dug 39 Sufficient for local needs. D, S 15 1,685 Glacial sand Hard, clear Dag 1,686 20 1.700 40 27 Sil Sufficient for local needs. D. S 1.685 Hard, clear 1.685 15 Glacial sand 20 1,700 - 15 Dug SE. Sufficient for local needs. D, S Hard, clear 1,682 24 1,676 Glacial sand Dug 1,700 - 18 28 28 42 S ... Sufficient for local needs. D, S Hard, clear 1,683 1,683 Glacial sand Dug 20 1,700 - 17 17 NE. 43 28 and gravel Intermittent supply; also a shallow slough D, S Dug Glacial clay Hard, clear 1,680 30 1,700 - 20 30 44 Si. well for stock uso. Sufficient for local needs. D, S Soft, cloar Glacial sand 1,675 25 1,675 Dug 28 1,700 - 25 45 N.J. 30 Insufficient for stock needs; haul water for S 1,672 Glacial sand Hard, rusty 1,674 28 Dug - 25 46 30 1,700 30 domostic needs. iron, "alkalino" Sufficient for local needs. D, S Hard, cloar 1,700 - 10 1,690 1,688 Gincial gravel 14 31 Dug SE. Sufficient for local needs. D, S 1,677 23 1,677 Glacial sand Hard, clear 1,700 - 23 SI 27 Dur Sufficient for local noods. D, S Hard, cloar 1,690 Glacial gravel Dug 1,692 10 13 1.700 N.I. Sufficient for local noods. D, S Hard, cloar 1,691 Glacial gravel - 19 Dug 24 1,710 50 NE. 31 Sufficient for local needs, D, 8 Hard, cloar 1,680 Glacial gravol 1,680 20 Dug - 20 51 NE. 32 24 1,700 Insufficient for local needs; another well D, S Hard, clear, 1,639 Glacial clay 21 1.700 N.T.

20 feet doop. #

"alkalino"

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used

^(#) Sample taken for analysis.

		L	CATI	ON					HEIGHT TO WATER W	WHICH	PRIN	ICIPAL W	ATER-BEARING BED.		- Trian		.273, SASKATCHEWAN
WELL No.	1/4	Sec.		Rge.		OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	'Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
53	NE.	33	28	1	2	Dug	13	1,700	- 4	1,696			Glaeial sand	Soft, clear		D, S.	Sufficient for local needs.
54	SE.	34	58	**	st	Dag	18	1,700	- 10	1,690			Glacial sand	Hard, clear		3	Sufficient for local needs.
55	SH.	34	17	11	11	Dag	22	1,700	- 18	1,682	20	1,680	Glacial sand	Hard, clear		D	Sufficient for local needs.
56	Sit.	34	19	st	и	Dug	15	1,700	- 8	1,692			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
57	M.I.	34	11	11	11	Dug	13	1,710	- 6	1,704			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
53	NE.	34	11	11	11	Dug	20	1,700	- 15	1,685	15	1,685	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
59	SE.	35	11	II	15	Dug	20	1,675	- 15	1,660	19	1,656	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
60	N.V.	35	11	:6	15	Dug	24	1,660	- 14	1,646			Glacial clay	Hard, clear		D, S	Intermittent supply.
61	M.:	36	11	it	"	Dug	20	1,650	- 10	1,640			Glacial drift	Hard, clear		D, S	Sufficient for local needs.
62	HE.	36	17	ıı	11	Dug	24	1,650	- 6	1,644	18	1,632	Glacial sand	Hard, clear		D	
63	MA.	36	89	·r	11	Dug	15	1,650	- 8	1,642			Glacial sind	Hard, clear		D, S	Sufficient for local needs,
1	Mr.	1	28	2	2	Dug	19	1,700	- 13	1,687			Glacial sand	Soft, clear		D, S	Sufficient for local needs.
2	NZ.	1	14	19	ii	Dug	16	1,690	- 12	1,678			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
3	S./•	1	***	1#	и	Dug	21	1,690	- 8	1,682			Glacial gravel	Hard, clear		D, S	Sufficient for local needs:
4	NJ.	2	11	11	C1	Dug	24	1,700	- 12	1,688			Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
5	SE.	3	11	18	11	Dug	1.6	1,700	- 14	1,686	14	1,686	Glacial sand	"alkaline" Soft, clear		D, S	Sufficient for local needs.
6	N.I•	3	11	11	11	Dug	22	1,700	- 20	1,680	20	1,680	Glacial gravel	Hard, clear		D	Sufficient for domestic needs.
7	NV.	3	11	15	61	Dug	50	1,700	- 20	1,680	20	1,680	Glacial gravel	Hard, clear,		S	Insufficient for local needs.
8	NE.	3	11	26	16	Dag	25	1,700	- 12	1,688			Glacial sand	"clkalino" Hard, clear		D, S	Sufficient for local needs.
9	SE.	4	19	11	"		45	1,680	- 25	1,655	35	1,645	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
10	N.V.	4	17	tŧ	II	Dug	20	1,660	- 17	1,643	17	1,643	Glacial sand	Hard, cloar		D, S	Sufficient for local needs.
11	NE.	5	19	16	12	Dug	20	1,660	- 16	1,644	16	1,644	Glacial sand	Hard, clear,		D, S	Well is now caved in; haul water from neigh-
12	w.	6	11	11	tf	Dug	30	1,630	- 20	1,610	28	1,602		"alkaline" Hard, clear		D, S	Insufficient for local needs; also another
13	NE.	6	"	"	11	Dug	19	1,650	- 11	1,639			and gravel Glacial sand	Hard, clear		D, S	well 20 feet deep. Intermittent supply.
14	NE.	7	11	11	11	Dug	23	1,640	- 18	1,622	21	1,619	Glacial sand	Soft, cloar		D, S	Sufficient for local needs.
15	SE.	8	11	11	11	Dug	15	1,690	- 5	1,685	12	1,678	Glacial gravel	Hard, clear		D	Sufficient for local needs.
16	SE.	8	11	is	11	Dug	36	1,690	- 25	1,665			Glacial gravel	Hard, cloar,		S	Sufficient for local needs.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used. (#) Sample taken for analysis.

		LC	CATI	NC		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI		PRIN	CIPAL W	ATER-BEARING BED		TEMP.	USE TO	
No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
														•			
17	SE.	8	28	2	2	Dug	20	1,680	- 16	1,664	17	1,663	Glacial sand	Hard, clear, iron, "alka-line"		D, S	
18	NE.	8	11	11	11	Dug	18	1,690	- 16	1,674	16	1,674	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
19	SW·	10	13	18	11	Dug	13	1,680	- 7	1,673			Glacial sand and gravel	Hard, clear,		D, S	Sufficient for local needs.
20	NW.	10	15	н	11	Dug	35	1,680	- 24	1,656			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
21	NE.	10	11	18	tı	Dug	22	1,690	- 12	1,678	20	1,670	Glacial gravel	Hard, clear,		D, S	Sufficient for local needs.
22	Sw.	11	11	17	11	Dug	23	1,700	- 12	1,688			Glacial sand	Hard, "alka-		S	Sufficient for local needs.
23	NE.	11	19	11	11	Dug	16	1,710	- 11	1,699			Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
24	NE.	11	11	15	11	Bored	30	1,680	- 18	1,662			Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
25	SE.	12	11	tt	18	Dug	22	1,710	- 16	1,694			and gravel Glacial sand	iron Hard, clear		D, S	Sufficient for local needs.
26	SW.	12	11	11	11	Dug	10	1,690	- 13	1,677			Glacial sand	Sort, clear		D, S	Sufficient for local needs.
27	Su.	12	11	u	M	Dug	14	1,690	- 8	1,682	11	1,679	Glacial gravel	Hard, cloudy,		D, S	Sufficient for local needs.
23	Nv/ .	12	**	64	11	Dug	16	1,695	- 12	1,683	14	1,681	Glacial sand	iron Soft, clear		D, S	Sufficient for local needs.
29	NW.	12	et	11	"	Dug	34	1,710	- 26	1,684			Glacial drift	Hard, clear		D, S	Sufficient for local needs.
30	NE.	12	H	tt	"	Dug	75	1,640	- 25	1,615	75	1,565	Glacial gravel	Hard, clear,		N	Sufficient supply; but not used.
31	SE.	13	11	11	11	Dug	14	1,710	- 3	1,797			Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
32	SW.	13	**	11	17	Dug	15	1,700	- 8	1,692	12	1,688	Glacial s and	iron Soft, clear		D, S	Sufficient for local needs.
33	SW.	13	st	11	18	Dug	12	1,700	- 8	1,692	8	1,692	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
34	N.V.	13	11	tf	18	Dug	14	1,710	- 7	1,703	11	1,699	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
35	SE.	14	tt	11	n	Dug	32	1,700	- 22	1,678			Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
36	NE.	14	ıı	"	11	Dug	14	1,700	- 10	1,690			Glacial sand	"alkaline" Soft, clear		D, S	Sufficient for local needs.
37	NE.	15	11	If	u	Dug	35	1,700	- 25	1,675			Glacial sand	Hard, rusty,		D, S	Sufficient for local needs.
38	NW -	16	rt	t)	tt .	Dug	8	1,680	- 6	1,674	6	1,674	Glacial s and	iron Soft, clear		D, S	Sufficient for local needs.
39	NE.	16	n	11	ti	Dug	32	1,700	- 25	1,675			Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
40	SW.	17	11	N.E.	RJ.	Dug	20	1,650	0	1,650	12	1,638	Glacial s and	Hard, clear		D, S	Insufficient for local needs.
41	Nil.	17	11	н	11	Dug	24	1,660	- 10	1,650			Glacial sand	Hard, clear		D, 8	Sufficient for local needs.
42	SW.	19	11	11	11	Dug	22	1,660	- 20	1,640	20	1,640	Glacial sand	Hard, clear		D, S	Sufficient for local needs.

Note—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

NO. 273, SASKATCHEWAN HEIGHT TO WHICH LOCATION PRINCIPAL WATER-BEARING BED WATER WILL RISE TEMP. USE TO TYPE DEPTH ALTITUDE WHICH WELL CHARACTER OF WELL YIELD AND REMARKS OF OF Above (+ Below (-) No. OF WATER WATER WATER (above sea level) WELL WELL Geological Horizon 1/4 Sec. Tp. Rge. Mer. Depth Elev: Elev. (in °F:) IS PUT Surface 1,616 Glacial sand Sufficient for local needs. 28 2 S N.J. 19 Bored 1,640 1,616 24 Hard, clear This well is in process of being dug; water NE. 1,680 Glacial sand 20 1,700 20 Hard, clear N was struck at 20 feet. 45 W. 21 Dug 22 1,680 - 14 1,666 14 1.666 Glacial sand Hard, clear D. S Insufficient for local needs. Dug D. S 46 NE. 21 29 1,700 - 27 1,673 27 1,673 Glacial sand Hard, clear Sufficient for local needs. D, S Sufficient for local needs. Glacial sand SW. 22 Dug 16 1,690 1,685 10 1,680 Hard, clear D, S Dug Sufficient for local needs. N. . 22 1,700 - 25 25 Glacial sand Hard, clear 1.675 1.675 Dug SE. 24 27 1,700 1,687 Glacial drift Hard, clear D, S Sufficient for local needs. - 13 D. S Sufficient for local needs. 50 SW 24 Dug 1,684 Glacial sand Hard, clear 1,700 1,690 - 10 iron Dug D, S Sufficient for local needs. Niv . 24 24 1,700 - 14 1,686 Glacial sand Hard, clear Glacial sand D. S Sufficient for local needs. 25 Dug Soft, clear NW. 14 1,700 1,700 0 Dug 53 1,686 Glacial sandy Hard, clear D. S Sufficient for local needs. NE. 25 1,700 1,691 15 gravel D, S Sufficient for local needs. SE. 26 Dug 16 1,700 1,696 Glacial sand Hard, clear Dug D, S Sufficient for local needs. 55 NW. 26 1,700 - 28 1,672 1,672 Glacial sand Soft. clear 30 28 Dug. D. S Sufficient for local needs. 56 SE. 27 1,690 1,680 1.680 Glacial sand Hard, cloar 15 - 10 10 57 Dug S SE. 28 1,684 Glacial gravel Sufficient for local needs. 27 1,700 - 16 1,684 16 Hard, clear Dug 58 D, S Insufficient for local needs. SE' 28 20 1,700 - 10 1,690 Glacial drift Hard, clear Dug 1,660 D, S 59 SW. 29 Sufficient for local needs. 20 1,651 1.651 Glacial sand Hard, clear Dug D, S Insufficient for local needs. 60 NW. 30 18 1,650 - 15 1,635 Glacial drift Hard, clear, "alkaline" Dug D. S Intermittent supply; also several dry holes NE. 30 1,650 Glacial drift Hard, clear 16 - 14 1,636 D, S Sufficient for local needs. 62 NE. 31 Dug 26 1,660 - 20 24 1.636 Glacial sand Hard, clear 1,640 D. S 63 Insufficient for local needs. SE. Dug 32 1,650 1,643 1,643 Glacial sand Hard, cloar D. S Dug 64 SW. 32 Sufficient for local needs; a 24-foot well 15 1,660 - 11 1,649 11 1,649 Glacial sand Hard, clear violds mineralized water. 65 NE. 33 11 D, S Sufficient for local needs. Dug 27 1,648 Glacial sand 1,675 - 27 1,648 Hard, clear 30 66 38 Dug 1,662 Glacial sand D, S Intermittent supply. NW. 34 40 1,700 - 38 1,662 Hard, clear and gravel 67 NE. 35 Dug 18 1,700 - 8 Glacial drift Soft, clear D, S Sufficient for local needs. 1,692 68 D, S Sufficient for local needs. Dug 36 1,700 5 Hard, clear 10 1,695 1,695 Glacial sand D, S 69 Sufficient for local needs. 36 Dug 1,700 1,681 19 1.681 Glacial sand Hard, clear

and gravel

SEIDING HILLS

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LC	OCAT	ION		MATERIA	DEDMI		HEIGHT TO WATER W	O WHICH	PRI	NCIPAL V	VATER-BEARING BED	*	TEMP.	USE TO	
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
1	M.i.	1	28	3	2	Dug	40	1,640						•			Bry hole; base in glacial blue clay.
2	S#•	2	19	19	11	Bored	50	1,630									Dry hole; base in glacial blue clay; stock
3	Sw.	2	18	12	11	Dug	15	1,635	- 12	1,623	12	1,623	Glacial gravel	Hard, clear		D, S	watered at creek; haul drinking water. Sufficient for local needs.
4	NA .	2	**	16	11	Dug	21	1,630	- 18	1,612			Glacial gravelly clay	Hard, clear		D	Intermittent supply; another well in creek for stock use.
5	NE.	2	11	. "	++	Dug	10	1,640	0	1,640			Glacial d rift	Hard, cloudy, "alkaline"		D, 3	Intermittent supply.
6	S./•	3	£9	11	16	Dug	20	1,640	- 16	1,624	17.	1,623	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also use creek for stock.
7	N.T.	3	11	11	rt.	Dag	. 10	1,620	5	1,615	5	1,615	Glacial gravel	Hard, clear		D, S	Intermittent supply.
8	NE.	3	11	.1	11	Dug	23	1,630	17	1,613	21	1,609	Glasial sand	Hard, cloar		D, S	Insufficient for local needs.
9	SE.	4	11	11	12	Bored	80	1,620									Dry hole; base in glacial blue clay; hauls water for all requirements.
10	S*	4	19	11	18	Dug	40	1,620									Dry hole; base in glacial clay; hauls water.
11	N.V.	4	18	11	14	Bored	90	1,630									Dry hole; base in glacial blue clay; 3 other dry holes 40, 35 and 30 feet doep.
12	No.	5	18	it	11	Dug	13	1,620	- 13	1,607			Glacial drift	Hard, clear, "alkalino"		D, S	Intermittent supply.
13	SE*	6	68	H	11	Dug	14	1,620	- 7	1,613	12	1,608	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	NE.	6	11	n	it	Dug	16	1,620	- 12	1,608	12	1,608	Glacial sand	Soft, clear		D, S	Sufficient for local needs; also a similar well.
15	SE.	7	18	11	11	Dug	16	1,600	- 13	1,587	13	1,587	Glacial gravel	Hard, cloar		D, S	Sufficient for local needs.
16	Sil.	8	11	11	11	Dug	12	1,600	- 10	1,590	10	1,590	Glacial sand	Hard, cloar		D	Sufficient for domestic needs; a similar well is used for stock needs.
17	NE.	9	и		11	Dug	10	1,610	- 4	1,606			Glacial drift	Herd, clear		D	Intermittent supply; water stock at a creek.
18	Sw.	10	17	"	"	Dug	30	1,610									Dry hole; base in glacial blue clay; haul drinking water; stock watered from a shallow well near crock.
19	NW.	10	17	19	17	Dug	8	1,630	0	1,630			Glacial sand	Soft, clear		D, S	Intermittent supply.
20	Sw.	12	87	11	ıı	Borod	40	1,630									Several dry holes; base in glacial clay.
21	NE.	13	15	11	18	Borod	38	1,640	- 23	1,617	38	1,602	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
22	S.V.	14	11	**	11	Dug	30	1,630					Glacial drift	Soft, clear		D, S	Intermittent supply.
23	Sw.	15	st	"	11	Dug	8	1,640	C	1,640	5	1,635	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
24	N.T.	15	18	11	u	Dug	8	1,620	0	1,620	0	1,620		Soft, clear		D, S	Sufficient for local needs.
25		16	**		11	Dug	40	1,610									Dry hole; base in glacial clay; haul drinking water; stock watered at a creek.
26	SE.	17	11	"	"	Dug	25	1,620		7 703	20	2 50-	Glacial sand	-Hard, clear		D	Dry hole; base in glacial blue clay. — Insufficient supply; haul water for stock

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LO	OCATI	ON		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER W	WHICH ILL RISE	PRII	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO	
WELL No.	. 1/4	Sec.	Tp.	Rge.	Mer.	OF	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
												14					
28	S.i.	18	28	3	2	Dug	20	1,600					Glacial drift	Hard, clear		D, S	Intermittent supply; also 3 other similar wells.
29	NW.	18	SE	58	18	Bored	30	1,620	- 23	1,597			Glacial drift	Hard, clear,		D	Sufficient for local needs.
30	NE.	18	18	rı	*i	Dug	17	1,620	- 10	1,610	14:	1,606	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
31	SW.	19	"	15	**								Glacial drift	Hard		S	Farmer on NH. , section 18, uses this well for stock.
32	NW.	19	11	18	u	Dug	11	1,610	0	1,610	10	1,600	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
33	SE.	20	11	11	66	Dug	10	1,620	0	1,620	5	1,615	Glacial gravel	Soft, clear		D, S	Sufficient for local needs; also a 50-foot dry hole.
34	NE.	20	11	11	18	Dug	14	1,620	- 7	1,613			Glacial drift	Hard, clear,		3	Intermittent supply; haul water for domestic needs.
35	SE.	21	11	10	11	Dug	13	1,610	- 5	1,605	5	1,605	Glacial gravel	Hard, clear		D	Sufficient for domestic needs; stock watered at a creek, also a 30-foot dry hole.
36	NW.	22	11	11	11	Dug	20	1,630	- 16	1,614	16	1,614	Glacial sand	Hard, clear		D	Sufficient for domestic needs; a similar well is used for stock needs.
37	NE.	22	11	11	16	Dug	18	1,630	- 10	1,620	12	1,618	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; 2 other similar wells.
38	MM 3	23	50	11	11	Dug	18	1,630	- 10	1,620	12	1,618	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
39	SE.	24	**	11	16	Dug	34	1,640	- 20	1,620	34	1,606	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
40	NI .	24	11	**	10	Dug	17	1,650	- 9	1,641	9	1,641	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
41	NE.	25	11	11	11	Dug	25	1,640	- 21	1,619	21	1,619	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
42	SE.	26	it	"	н	Dug	36	1,640	- 24	1,616	31	1,609	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
43	SE	27	11	11	u	Dug	18	1,630	- 10	1,620	12	1,618	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
44	Sw.	27	"	10	11	Bored	40	1,620									Several dry holes; base in glacial blue clay.
45	NE.	27	11	12	ıt.	Bored	40	1,630									Dry hole; base in glacial clay; haul water.
46	NV.	28	n	11	15	Dug	23	1,620									Dry hole; base in glacial blue clay; haul water.
47	SE.	31	- 11	**	11	Dug	15	1,600	- 11	1,589	11	1,589	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
48	NW.	31	11	19	11	Dug	15	1,610	- 10	1,600	13	1,597	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
49	SW.	32	н	19	11	Dug	25	1,610									Dry holo; base in glacial clay; houl water.
50	SW.	34	11	ıf	11	Dug	33	1,620									Dry hole; base in glacial blue clay; haul water.
51	N.V.	34	14	**	H	Dug	45	1,620									Several dry holes; base in glacial blue clay; haul water a distance of $2\frac{1}{2}$ miles.
52	NE.	34	**	14	11	Borod	70	1,640									Teh dry holos; base in glacial clay; haul water a distance of 3 miles.
53	SE.	36	**	11	ts	Dug	12	1,640	- 4	1,636	4	1,636	Glacial sand	Hard, clear		D, S	Constant water level.
54	SI.	36	**	19	11	Bored	125	1,640									Dry holo; base in glacial blue clay; 2 other dry holes 115 and 12 feet deep.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		L	LOCATIO	ION		TYPE	DEPTH	A CONTRACTOR	HEIGHT TO WATER WI		PRI	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO .	
WELL No.	1/4	Sec.	. Тр.	Rge.	e. Mer.	OF	OF WELL	ALTITUDE WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
1	SE.	. 1	1 29) 1	2	Dug	16	1,600	- 10	1,590	0 10	1,590	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a spring on
2	NE.	. 2	п	11	11	Dug	40	1,630	- 24	1,606	5		Glacial drift	Hard, clear,		S	farm. Sufficient for local needs.
3	No.	. 2	2 "	1 13	à.f	Dug	4	1,635	0	1,635	1		Glacial sand	Hard, clear		D, S	Sufficient for local needs.
4	NW.	• 3	3 "	u	ii	Spring		1,630					Glacial drift	Soft, clear		D, S	Strong supply.
5	SW.	• 3	3 "	11	40	Spring		1,630					Glacial drift	Soft, clear		D, S	Strong supply.
5	NE.	. 4	4 11	11	11	Bored	37	1,635	- 25	1,610	,		Glacial sand	Hard, clear, iron, "alka-		D, 3	Intermittent supply; also all-foot flowing well.
7	NW.	4	4 11	11	11	Dug	18	1,640	- 14	1,626	6 14	1,626	Glacial sand	Hard, clear, iron, "alka-		D, S	Sufficient for local needs.
8	NW.	• 5	5 "	1 11	11	Dug	22	1,625	- 16	1,609	9 20	1,605	Glacial sand	Hard, clear		D, S	Sufficient for 40 head stock.
9	NE•	• 5	5 "	g 10	11	Dug &	35	1,630	- 16	1,614			Glacial drift	Hard, clear		D, S	Intermittent supply; also an 18-foot well with small supply; also 6 dry holes.
10	SE.	. 5	5 "	11	11	Dug	12	1,630	- 8	1,622	2 8	1,622	Glacial sand and gravel	Hard, clear		D, S	Intermittent supply; melt snow for stock in winter.
11	NE.	. 6	6 11	1 11	11	Dug	19	1,650	- 12	1,638	18	1,632		Hard, clear		D, S	Intermittent supply; also a 28-foot well, with a poor supply of salty water.
12	SE*	6	5 "	1 11	M	Dug	26	1,650					Glacial sand	Hard		D, S	Fair supply.
13	NM.	6	5 "	7 78	11	Dug	13	1,640	- 9	1,631	9	1,631	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	NE.	7	7 "	11		Dug	6	1,635	- 2	1,633	3 4	1,631	Glacial sand	Hard, clear,		D, S	Sufficient for local needs; two other wells 20 and 18 feet doop.
15	SW.	7	7 "		**	Dug	22	1,635	- 16	1,619	9 16	1,619	Glacial sand and gravel	Hard, cloar		D, S	20 and 10 1650 doop.
16	NW.	8	8 "	9 16	1 11	Dug	40	1,645	- 25	1,620	0 39	1,606		Hard, "alka- line" red sodiment		N	Unfit for use; also a number of dry holes from 17 to 25 feet deep.
17	NE.	. 8	3 "	- 11	17	Dug	36	1,645	- 7	1,638	\$		Glacial drift	Hard, cloar		N	Small supply, and not used; also a 13-foot well with good supply; also several dry hole.
18	SE.	. 8	3 "	1 11	ii	Dug	20	1,630	- 4	1,626	,		Glacial sand	Hard, clear		D, S	Sufficient for local needs.
19	NE.	. 9	11	11	11	Dug	16	1,640	- 4	1,636	6 15	1,625	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
20	Ni.	. 10	n	8 19	11	Dug	24	1,647	- 19	1,628	8 19	1,628	Glacial sandy clay	Herd, clear		D, S	Sufficient for local needs.
			11	15	"	Dug	16	1,650	0	1,650	0 4	1,646		Hard, cloar		S	Sufficient for local needs; also a 27-foot well; and a 60-foot dry hole.
22	SW.	. 10	0 ",	1	1 11	Dug	30	1,648	- 27	1,621			Glacial drift	Hard, cloar, iron		D	Intermittent supply:
23	NE•	• 11	11	11	1.0	Dug	18	1,595	- 1	1,594	4 3	1,592	Glacial sand	Soft, clear		D, S	Sufficient for local needs; also a dry holo
24	SW.	. 11	18	11	.11	Dug	18	1,640	- 12	1,628	8 12	1,628	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a dry hole 43 feet deep.
25	MJ.	. 11	. 11	**	11	Dug	8	1,600	- 4	1,596	6 4	1,596	Glacial sand	Hard		D, S	Constant water level.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LC	CATI	ON		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER W	WHICH ILL RISE	PRIN	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO	
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	. OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
26	N.I.	12	29	1	2	Dag	27	1,600	- 22	1,578			Glacial drift	Hard, clear		D	Intermittent supply; two other similar wells 60 feet deep.
27	NE.	13	it	18	11	Dug & Bored	35	1,540	- 17	1,523	35	1,505	Glacial sand	Hard, clear,		\$	Sufficient for local needs; demestic sugly obtained from ice and rain water.
28	NE.	14	11	11	ti		30	1,545	± 25	1,520	25	1,520	Glacial sand	Hard		D, S	Intermittent supply; another similar well.
29	SW.	14	11	13	11	Dug	43	1,550	- 23	1,527	43	1,507	Glacial fine	Hard, clear		D, S	Sufficient for local needs; also a 60-foot dry hole.
-30	Nã.	15	. 11	**	11	Dug	30	1,600	- 14	1,536	30	1,570		Hard, clear, iron		8	Sufficient for 75 head stock; also a 20-foot well is used for domestic needs.
31	SE.	15	ıı	66	11	Dug	18	1,600	+ 1	1,601	16	1,584	Glacial gravel	Soft, clear		D, S	Oversufficient for local needs; also a 50-foot dry hole.
32	NW.	16	11	11	11	Dug	d	1,645	- 3	1,642	3	1,642	Glacial sandy	Soft, clear		S	Sufficient for local needs; another well 12 feet doep.
33	Sw.	17	11	ti	16	Dug	14	1,640	- ძ	1,632	8	1,632	clay Glacial sand	Soft, clear		D, 8	Sufficient for local needs; another similar well.
34	SE	18	11	**	if	Dug	20	1,640	- 10	1,630	10	1,630	Glacial gravel	Hra d		D, S	Constant water level.
35	NV.	13	11	H	**	Dug	15	1,645	- 10	1,635	10	1,635	Glacial gravel	Soft, clear		D, S	Sufficient for local needs; another well 14
36	NE.	18	11	11	ıi.	Dug	22	1,645	- 3	1,637	8	1,637		Hard, cloar		D, S	feet deep has a poor supply. Sufficient for local needs.
37	S.t.	18	13	51	11	Dug	20	1,648					clay				Dry holo; base in glacial clay; 7 other dry holos 8 to 10 feet deep; also an 8-feet well with poor supply.
38	Sil.	19	tt	(1	41	Dug	14	1,645	- 9	1,636	9	1,636	Glacial gravel	Soft, cloar		D, S	Sufficient for 50 head stock.
39	SE.	19	19	11	11	Dug	22	1,640	- 17	1,623	20	1,620	Glacial sand	Hard, closr		D, S	Sufficient for local noods.
40	NJ.	20	11	11	11	Dug	1.4	1,610	- 8	1,602	3	1,602	Glacial sand	Soft, closer		D, S	Sufficient for local moods; anothwo similar
41	NE.	20	11	u	11	Dug	16	1,595	- 12	1,583	12	1,583	Glacial sand	Hard, clear		D, S	woll. Sufficient for local needs.
42	N.J.	21	11	19	11	Dugz	15	1,543	- 12	1,531	12	1,531	Glacial sand	Soft, cloar		D, S	Sufficient for 20 hand stock; neighbours
43	NE.	21	11	ıf	18	Dug	18	1,615	- 15	1,600	16	1,599	Glacial sand	Hard, clear		D, S	obtain their domestic supply from this well. Intermittent supply.
44	SE.	21	"	11	11	Dug	22	1,595	- 17	1,578	17	1,578	Glacial sand	Soft, clear		D, 3	Sufficient for local needs.
45	SE	22	11	"	ts	Dug	25	1,600	- 21	1,579	21	1,579	Glacial sand	Soft, clear		D, S	Insufficient for local needs; hauls water.
46	NE.	23	11	11	19	Dug	25	1,550	- 3	1,547			Glacial sandy	Hard, clear,		S	Intermittent supply; domostic supply hauled ,
47	SE.	23	13	PR	**	Dug	30	1,650	- 25	1,625	25	1,625	clay Glacial sand	"alkaline" Hard, clear,		D	from section 24. Sufficient only for domostic needs; another
48	SW.	2.4	11	"	11	Dug .	3	1,545	0	1,545	1	1,544	Glacial sand	limo Hard, clear		D	well 16 feet deep is used for stock. Oversufficient supply; # also a spring on
49	NJ.	25	11	12	t\$	Dug	12	1,500	- 3	1,497	11	1,489	Glacial gravel	Hard, clear		D, S	farm. # Insufficient for local needs; also enother
50	NE.	25	"	n	11	Dug	40	1,530									well 10 feet doop. Dry hole; base in glacial blue clay; several other dry holes 25 to 40 feet deep; use dugout and creek for stock and ice for domestic needs.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

Sec. To Note No			LC	CATIO	NC		. TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI		PRIN	NCIPAL WA	ATER-BEARING BED		TEMP.	USE TO	
		1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF	WELL	Below (-)	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	WATER	WATER	YIELD AND REMARKS
State Stat																		
Same					1		-											
Second Column Second Colum	52	INV .	26				Dug	. 75	1,540									glacial blue clay.
Solution	53	NE.	26	11	11	19	Dug	14	1,500	- 2	1,498	12	1,488	Glacial gravel	Hard, clear		D, S	Sufficient for 40 head stock.
55 NE. 28 " " Dug 15 1,590 -10 1,580 Ginetal drift Here, clear S. Intermittent supply; norther well 10 daop into good supply; another well 10 daop into good supply; another well 10 daop into good supply; another well 20 daop into good supply; another well 10 daop into good supply; another sinilar good supply; another sinilar good supply; another sinilar well daop into good supply; another sinilar well	54	SE•	26	11	11	15	Bored	30	1,545	- 15	1,530			Glacial drift	iron, "alka-		D, 5	Intermittent supply; also another similar well.
56 NW 29 " " Dug	55	NE.	28	Ħ	19	. 13	Dug	15	1,590	- 10	1,580			Glacial drift			3	Intermittent supply; another well 10 feet
58 NE 30	56	NW.	29	u	"	11	Dug	4	1,600	0	1,600	0	1,600	Glacial sand	Soft, clear		D, S	
Second S	57	NE.	29	11	11	11	Dug	9	1,695	- 5	1,690	5	1,690	Glacial sand	Soft, clear		D, S	Sufficient for 30 head stock; also an 11-foot
59 SE. 30		NE.	30	14		16	Dug	24		- 19			1,581	Glacial sand	Hard, clear		D	Sufficient for domestic needs; another well
60 NE. 31 " " Pug 35 1,595 - 24 1,571 24 1,575 Glacial sand for 1 or	. 59	SE.	30	11	11	u	Dug	2	1,600	0	1,600	0	1,600	Glacial gravel	Hard, clear		D, S	
61 Nr. 32 " " Dug 14 1,590 - 19 1,561 24 1,556 Clacial sand ford, clear, iron Soft, clear by 1,561 24 1,556 Clacial sand ford, clear, iron Soft, clear by 1,561 24 1,590 - 6 1,584 6 1,584 Clacial sand Soft, clear by 1,561 2 1,565 Clacial gravel Hard D, 5 Sufficient for 30 hand stock; also an wall 20 foot doep. 63 SW 32 " " Dug 15 1,555 - 9 1,546 9 1,546 Clacial gravel Soft, clear D, 5 Sufficient for 150 hand stock; also an wall 20 foot doep. 64 SW 33 " " Dug 15 1,555 - 9 1,546 9 1,546 Clacial gravel Soft, clear D, 5 Sufficient for 150 hand stock. 65 NW. 35 " " Dug 16 1,580 - 12 1,566 12 1,556 Clacial gravel Hard, clear Class Clacial gravel Soft, clear Class Clas			19.17	11	18	11	Dug	35		- 24			1,571	Glacial sand			D, S	Sufficient for local needs.
62 SE 32 " " Dug 14 1,990 - 6 1,584 6 1,586 Glacial sand Soft, clear D, S Sufficient for 30 head stock; also are wall 20 foot doop. 63 SW 32 " " Dug 8 1,590 1,555 - 9 1,546 9 1,546 Glacial gravel Seft, clear D, S Intermittent supply; 2 other similar 26 and 20 foot doop. 64 SW 33 " " Dug 15 1,555 - 9 1,546 9 1,546 Glacial gravel Seft, clear D, S Sufficient for 150 head stock. 65 NW 36 " " Dug 16 1,535 1,555 12 1,566 Glacial gravel Hard, clear Glacial gravel Hard, clear " Literation supply; 2 other similar and defect doop. 66 NW 36 " " Dug 1,535 1,535 1,535 1,560 Glacial gravel Hard, clear " Literation supply; 2 other similar and defect doop. 7 NW 1 " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local needs. 8 SE 3 " " Dug 14 1,680 - 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 9 NW 1 " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local needs. 9 NW 2 " " Dug 14 1,680 - 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 9 NW 2 " " Dug 14 1,680 - 10 1,670 Glacial sand Hard D, S Sufficient for local needs. 9 NW 2 " " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local needs. 9 NW 2 " " Dug 14 1,680 - 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 9 NW 2 " " Dug 14 1,680 - 10 1,670 Glacial sand Hard D, S Sufficient for local needs. 9 NW 1 " Dug 14 1,680 - 10 1,670 Glacial sand Hard D, S Insufficient for local needs. 10 NW 3 " " Dug 15 1,650 - 40 1,610 40 1,610 Glacial sand Hard D, S Sufficient for local needs. 11 NW 2 " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs. 12 NW 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs.	61	N/I-	32	"	11	ıt	Dug	25	1,580	- 19	1,561	24	1,556	Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
63 SW 32 Dug 8 1,590 Glacial gravel Hard D, S Intermittent supply; 2 other similar 26 may 20 feet days. Abundant supply; another well 8 feet 26 may 20 feet days. Abundant supply; another well 8 feet 26 may 20 feet days. Abundant supply; another well 8 feet 27 may 20 may	62	SE.	32	10	11	11	Dug	14	1,590	- 6	1,584	6	1,584	Glacial sand			D, 3	Sufficient for 30 head stock; also another
64 SW 33 " " Dug 15 1,555 - 9 1,546 9 1,546 Glacial gravel Seft, clear 65 NW 35 " " " Dug 16 1,580 - 12 1,568 12 1,568 Glacial gravel Hard, clear 66 NW 36 " " " Dug 15 1,535	63	sw.	32	n	11	**	Dug	8	1,590					Glacial gravel	Hard		D, S	Intermittent supply; 2 other similar wells
65 NW. 35 " " Dug 16 1,580 - 12 1,560 12 1,560 Glacial gravel? Hard, clear and d foot doop. 66 NW. 36 " " Dug 15 1,535 Glacial drift Hard, clear "clkaline" Sheilar and d foot doop. 67 NE. 36 " " Dug 1,535 Dug 32 1,660 - 20 1,660 20 1,660 Glacial gravel Hard, clear "clkaline" Nowell with an intormittent supply. Good supply; but unfit for use. 2 NE. 1 " " Dug 14 1,680 - 6 1,674 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 3 NW. 1 " " Dug 20 1,680 - 16 1,664 16 1,664 Glacial sand Hard D, S Sufficient for local needs. 4 SW. 1 " " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local needs. 5 NE. 2 " " Dug 14 1,680 - 10 1,670 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 6 NE. 3 " " Bored 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear D, S Sufficient for local needs. 7 NW. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard D, S Sufficient for local needs. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs. 9 Glacial sand Hard D, S Sufficient for local needs. 9 Sufficient for local needs.	64	sw·	33	10	11	11	Dug	15	1,555	- 9	1,546	9	1,546	Glacial gravol	Soft, clear		D, S	Abundant supply; another well 8 feet deep is
66 NW. 36 " " " Dug 15 1,535 Glacial drift Hard, clear, "clkaline" S Intermittent supply; another similar use ice for demostic needs. Pry hole; base in glacial clay; also ow well with an intermittent supply. 1 SE. 1 29 2 2 Dug 32 1,680 - 20 1,660 20 1,660 Glacial gravel Hard N Good supply; but unfit for use. 2 NE. 1 " " Dug 14 1,680 - 6 1,674 10 1,670 Glacial gravel Hard, clear D, S Sufficient for local needs. 3 NW. 1 " " Dug 20 1,680 - 16 1,664 16 1,664 Glacial sand Hard D, S Sufficient for local needs. 4 SW. 1 " " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local needs. 5 NE. 2 " " Dug 14 1,680 - 10 1,670 10 1,670 Glacial gravel Hard, clear D, S Abundant supply; another similar well deep. 6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" D, S Insufficient for local needs. 7 NW. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard D, S Insufficient for local needs. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs. 9 NR. 2 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard D, S Sufficient for local needs. 9 NR. 2 " " Dug 42 1,650 - 40 1,640 D,610 Glacial sand Hard D, S Sufficient for local needs.	65	NW.	35	n	**	17	Dug	16	1,580	- 12	1,568	12	1,568	Glacial gravel?	Hard, elear		D	Intermittent supply; 2 other similar well 6
SE 1 29 2 2 Dug 32 1,680 - 20 1,660 20 1,660 Glacial gravel Hard N Good supply; but unfit for use.	66	NW.	36	11	11	**	Dug	15	1,535					Glacial drift			8	Intermittent supply; another similar well;
1 SE. 1 29 2 2 Dug 32 1,660 - 20 1,660 20 1,660 Ghacial gravel Hard 2 NE. 1 " " Dug 14 1,680 - 6 1,674 10 1,670 Ghacial gravel Hard, clear 3 NN. 1 " " Dug 20 1,680 - 16 1,664 16 1,664 Ghacial sand Hard 5 NE. 2 " " Dug 14 1,680 - 10 1,670 6 Ghacial gravel Hard, clear 6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Ghacial sand Hard, clear, "alkaline" 7 NN. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Ghacial sand Hard, clear 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Ghacial sand Hard D Good supply; but unfit for use. N Good supply; but unfit for local needs. N Hard, clear Abundent supply; another similar well deep. D, S Insufficient for local needs. N Hard, clear Alkaline" D, S Insufficient for local needs; also so dry holes. Sufficient for local needs. Sufficient for local needs.	67	NE.	36	11	11.		Dug		1,535						"clkaline"			Dry hole; base in glacial clay; also a shall-
3 NW. 1 " " Dug 20 1,680 - 16 1,664 16 1,664 Glacial sand Hard D, S Sufficient for local noods. 4 SW. 1 " " Dug 10 1,680 - 6 1,674 6 1,674 Glacial sand Hard D, S Sufficient for local noods. 5 NE. 2 " " Dug 14 1,680 - 10 1,670 10 1,670 Glacial gravel Hard, clear D, S Abundant supply; another similar well deep. 6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" D, S Insufficient for local noods. 7 NN. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard, clear D, S Insufficient for local noods; also say dry holes. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local noods.	1	SE.	1	29	2	2	Dug	32	1,680	- 20	1,660	20	1,660	Glacial gravel	Herd		N	
4 SW. 1 " " Dug 10 1,680 - 6 1,674 6 1,670 Glacial sand Hard D, S Sufficient for local needs. 5 NE. 2 " " " Dug 14 1,680 - 10 1,670 10 1,670 Glacial gravel Hard, clear D, S Abundant supply; another similar well deep. 6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" D, S Insufficient for local needs. 7 NW. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard, clear D, S Insufficient for local needs; also sand dry holes. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs.	2	NE.	1	**	11	11	Dug	14	1,680	- 6	1,674	10	1,670	Glacial gravel	Hard, cloar		D, S	Sufficient for local needs.
5 NE. 2 " " Dug 14 1,680 - 10 1,670 10 1,670 Glacial gravel Hard, clear D, S Abundant supply; another similar well deep. 6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" D, S Insufficient for local needs; also say the same of the same	3	NA.	1	19	11	"	Dug	20	1,680	- 16	1,664	16	1,664	Glacial sand	Hard		D, S	Sufficient for local needs.
6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" D. S Insufficient for local needs; also sand Hard, clear D. S Insufficient for local needs; also sand Hard, clear D. S Insufficient for local needs; also sand Hard D. S Sufficient for local needs; also sand Hard D. S Sufficient for local needs.	4	SW.	1	11	. "	ы	Dug	10	1,680	- 6	1,674	. 6	1,674	Glacial sand	Hard		D, 3	Sufficient for local needs.
6 NE. 3 " " Borod 30 1,660 - 26 1,634 26 1,634 Glacial sand Hard, clear, "alkaline" 7 NN. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard, clear D, S Insufficient for local needs; also say dry holes. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs; also say the same of t	5	NE.	2	11	"	11	Dug	14	1,680	- 10	1,670	10	1,670	Glacial gravel	Hard, clear		D, S	Abundant supply; another similar well 12 feet
7 NW. 3 " " Dug 42 1,650 - 40 1,610 40 1,610 Glacial sand Hard, clear D, S Insufficient for local needs; also so dry holes. 8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs.	6	NE.	3	11	11	11	Borod	30	1,660	- 26	1,634	26	1,634	Glacial sand			D, S	
8 SE. 3 " " Dug 15 1,650 - 10 1,640 Glacial sand Hard D, S Sufficient for local needs.	7	Mil.	3	**	и	14	Dug	42	1,650	- 40	1,610	40	1,610	Glacial sand			D, S	Insufficient for local needs; also several dry holes.
9 NW. 4 " " Dug 10 1,648 - 3 1,645 Glacial and Hard, clear D, S Abundant supply; also a 30-foot dry	8	SE.	3	n	31	15	Dug	15	1,650	- 10	1,640			Glacial sand	Hard		D, S	
	9	M.	4	11	11	н	Dug	10	1,648	- 3	1,645	3	1,645	Glacial sand	Hard, clear		D, S	Abundant supply; also a 30-foot dry holo.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LO	CATIO	ON		TYPE	DEPTH	A + m + m + m + m + m + m + m + m + m +	HEIGHT TO WATER WI	WHICH LL RISE	PRIN	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO	
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	ALTITUDE WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
10	NE.	4	29	2	2	Dug	32	1,650					Glacial drift	Hard, clear		D	Sufficient for local needs; also a spring on farm used for stock needs.
11	SE.	4	15	11.	11	Dug	21	1,645	- 7	1,638	14	1,631	Glacial sand	Hard, clear		D, S	Sufficient for local needs; another well 15 feet deep has an intermittent supply.
12	NW.	5	11	11	11	Dug	14	1,640	- 9	1,631	9	1,631	Glacial sand	Soft, clear		D, S	Sufficient for local needs; another well 10 feet deep.
13	SE.	5	19	"	11	Dug	20	1,650	- 15	1,635	19	1,631	Glacial sand	Hard, clear		D, S	Abundant supply.
14	NE.	6	"	- 11	11	Dug	10	1,625	- 5	1,620	5	1,620	Glacial fine	Hard, clear		D, S	Abundant supply.
15	NE.	7	**	11	66	Dug	25	1,575					Sand				Dry hole; base in glacial blue clay.
16	NE.	8	15	if	14	Dug2	20	1,630	- 16	1,614	16	1,614	Glacial sand	Hard, clear		D, S	Abundant supply.
17	SE.	8	**	15	18	Dug	8 .	1,620	- 5	1,615	5	1,615	Glacial sand and gravel	Soft, clear		D, S	Oversufficient for 30 hand stock.
18	NW.	9	н	11	11	Dug	30	1,650	- 25	1,625	25	1,625		Hard, cloar		D, S	Oversufficient for local needs.
19	NE.	9	u	"	19	Dug	30	1,650	- 24	1,626	24	1,626	Glacial sand	Hard, clear		D, S	Abundant supply.
20	SE*	9	14	11	12	Dug	10	1,650	- 5	1,645	5	1,645	Glacial sand	Hard, cloar		D, S	Abundant supply.
21	NW.	10	"	**	11	Dug	24	1,648	- 4	1,644	4	1,644	Glacial sand	Hard, clear, "alkaline"		õ	Intermittent supply; another similar 20-foot well; also a 4-foot well with good supply, and a dry hale 50 foot deep.
22	SE*	10	11	"	15	Dug	12	1,650	- 8	1,642	3	1,642	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
23	SW.	11	n	11	11	Dug	12	1,660	- 8	1,652	, 8	1,652	Glacial sand	Hard, clear		D, S	Abundant supply; also a 13-foot well with intermittent supply, and a 40-foot dry hole.
24	NE.	11	11	ıı	11	Dug	20	1,660	- 5	1,655			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
25	SE.	12	11	н	ii	Dug	40	1,675	- 22	1,653	36	1,639	Glacial sand	Hard, clear		D, S	Sufficient for local needs; nother well 14 feet deep.
26	MIT.	13	н	16	u	Dug	7	1,650	- 2	1,648	2	1,648	Glacial sand	Soft, clear		D, S	Abundant supply.
27	NII.	14	"	п	11	Dug	10	1,650	- 7	1,643	7	1,643	Glacial sand	Hard, clear		D, S	Sufficient for local needs; another well 18 feet deep with intermittent supply.
28	NE.	15	'n	**	11			1,650									Soveral dry holes; base in glacial blue clay.
29	NW•	15	**	11	**	Dug	10	1,650	- 5	1,645	5	1,645	Glacial sand	Soft, clear		S	Abundant supply; also another well 27 feet deep.
30	Si.	15	11	11.	11	Borod	50	1,650									Dry hole; base in glacial blue clay; also a well 32 feet deep.
31	SE.	16	"	12	18	Dug	30	1,645									Three dry holes 20 to 30 feet deep; base in glacial clay.
32	NJ.	17	11	11	19	Dug	30	1,590	- 28	1,562	28	1,562	Glacial sand	Hard, clear		D	Intermittent supply; also a number of dry holes.
33	NW.	18	51	11	14	Dug	20	1,580									Several dry holes; base in glacial blue clay.
34	NE.	19	11	11	11	Dug	14	1,595	- 8	1,587	8	1,587	Glacial sand	Hard, clear		D, S	Sufficient for local moods.
35	SE.	19	n	11	H	Dug	17	1,590	- 12	1,578	12	1,578	Glacial sand	Hard, clear		D, S	Sufficient for local moods; several dry holes 30 to 40 feet deep.

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⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

NO.273, SASKATCHEWAN

WELL No. 14	W.		Tp.	Rge.	Mer.	TYPE OF	DEPTH	ALTITUDE	-				•	1	TEMP.		
	51	20				. WELL .	WELL	WELL (above sea level)	Above (+) Below (-) Surface.	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
	51	00												•			
37 NE	-	20	29	2	2	Dug	9	1,600	- 4	1,596	4	1,596	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a dry hole 12 feet deep.
7	E.	20	11	11	11	Dug	22	1,600	- 18	1,582	18	1,582	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
38 SW	W•	20	"	"	"	Dug	12	1,600	- 10	1,590	10	1,590	Glacial gravel	Soft, clear		D, S	Sufficient for 100 head stock.
39 NE	E.	21	11	H.	"	Dug	9	1,595	- 3	1,592	3	1,592	Glacial sand	Soft, clear		D, S	Sufficient for 50 head stock; another similar well 11 feet deep.
40 SE	E.	21	\$2	tt	11	Dug	10	1,596	- 4	1,592	4	1,592	Glacial sand	Soft, clear		D, S	Abundant supply.
41 SW	W.	21	11	11	1)	Dug	8	1,598	- 5	1,593	5	1,593	Glacial sand	Hard, clear		D, S	Abundant supply.
42 NE	E.	22	и	11	ti	Dug	12	1,620	- 8	1,612	8	1,612	Glacial sand and gravel	Hard, clear		D, S	Abundant supply; another well 32 feet deep has a poor supply.
43 SW	id .	22	11	н	11	Dug	7	1,650	- 3	1,647	3 .	1,647	Glacial gravel	Soft, clear		D, S	Abundant supply.
44 S.	·/•	23	**	"	11	Dug	9	1,640	- 7	1,633	7	1,633	Glacial sand	Hard, clear		D, S	Sufficient for local needs; two other wells
45 SW	W.	24	**	н	61	Dug	13	1,585	- 8	1,577	8	1,577	Glacial sand	Soft, clear		D, S	50 and 43 feet deep, with intermittent supply, Sufficient for local needs.
46 NE	E.	25	11	te	R	Dug	8	1,620									Dry hole; base in glacial yellow sandy clay;
47 NW	W.	26	11	н	11	Dug	14	1,590	- 11	1,579	11	1,579	Glacial sand	Hard, clear		D, S	haul water from a creek. Sufficient for 20 head stock.
48 NE	E.	27	11	W	н	Dug	20	1,580	- 14	1,566			and gravel Glacial blue	Hard, clear		S	Oversufficient for 15 head stock.
49 NI	W.	27	**	11.	*1	Dug	20	1,585	- 12	1,573	12	1,573	aand Glacial sand	Hard, clear,		D, S	Insufficient for local needs; another similar
50 SW	w•	27	41	u	н	Dug	8	1,590	- 4	1,586	4	1,586	Glacial gravel	"alkaline" Hard, clear		D, S	well 15 feet deep. Abundant supply; also 7 dry holes on farm.
51 NE	E.	28	er	"	14	Bored	30	1,600	- 15	1,585			Glacial sand !	Hard, cloudy		S	Sufficient for 30 head stock; also another
52 NW	w.	28	13	11	MA	Bored	43	1,580	- 33	1,547	33	1,547	Glacial sand	Hard, clear		D, S	well that is used for domestic needs. Sufficient for local needs; also several
53 NE	E.	29	н	н	11	Borod	60	1,580									Dry hole; base in glacial blue clay.
54 NW	W-	29	99	н	"	Dug	10	1,585	- 5	1,580	5	1,580	Glacial sand	Hard, iron,		D, S	Sufficient for local needs.
55 NE		30	11	ti	15.	Dug	24	1,585	- 16	1,569			Glacial sand	rod sodiment Hard, clear		D, S	Sufficient for 40 head stock; also another
56 NW		32	**	м	**	Dug	22	1,580									well 12 feet deep. Two dry heles; base in glacial blue clay;
57 SW		32	17	**	16	Dug	24	1,580	- 14	1,566	14	1,566	Glacial sand	Hard, clear,		N	hauls water. Unfit for use; and intermittent supply.
58 SE		32	"	11	11	Dug	38	1,580	- 30	1,550		1,542	Glacial sandy	"alkaline" Hard, clear		D, S	Insufficient for local needs; two other wells
59 NW		34	м	10	45	Dug	12	1,580	- 8	1,572		-,,,,,,	Glacial sand	Hard, clear		D, S	22 feet deep. Insufficient for local needs; also 6 dry
60 SW		34	11	15	s.t.	Dug			- 2							N N	holes. Intermittent supply.
			11	16	16		30	1,605		1,603		2 54	Glacial drift	Hard, cloudy,			
61 NE 62 SE		34	"		et	Dug	10	1,570	- 6	1,564		1,564	Glacial sand and gravel Glacial drift	Soft, clear		D, S	dry holes. Intermittent supply; also a number of dry

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^(#) Sample taken for analysis.

		LC	CATIO	ON		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI	WHICH ILL RISE	PRI	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO	
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
63	MJ.	35	29	2	2	Dug	20	1,580	- 15	1,562			Glacial drift	Hard, clear,		И	Intermittent supply; also several dry holes.
			11	11								0-		"alkaline"			
	8:7.					Dug	5	1,590	- 7	1,583	7	1,583	and gravel	Hard, clear, "alkaline"		S	Insufficient for local needs; also 7 dry holes to a depth of 36 feet.
65	SE.	36	11	11	"	Dug	12	1,595	- 7	1,588	7	1,588	Glacial sand	Hard, clear		D, 3	Abundant supply.
1	N. •	2	29	3	2	Dug	20	1,620	- 10	1,610			Glacial drift	Hard, clear,		S	Insufficient for 35 head stock; 2 other seepage wells not used; haul water 12 miles.
2	SE.	3	11	**	16	Dug	14	1,625	- 6	1,619			Glacial sund	Sort, clear		D, S	Insufficient for 23 head stock.
3	NE.	4	11	10	. 11	Dug	10	1,610	- 1	1,609	9	1,601	Glacial sand	Hard, brown		S	Intermittent supply; haul water for domestic
4	S:7*	4	11	11	11	Dug	16	1,600	0	1,600			Glacial sand	"alkaline" Hard, clear		s, I	needs; many dry holes to a drpth of 30 feet. Intermittent supply; a 30-foot well is used
5	NW.	4	н	11	11	Dug	18	1,600	- 4	1,596	8	1,592		Hard, clear		D, S	for domestic needs; 4 other similar wells. Barely sufficient for 25 head stock, many
6	SE.	5	19	11	13	Lug	14	1,610	- 7	1,603	7	1,603	and gravel Glacial gravel	Hard, cloar		S	other similar wells. Insufficient for 20 head stock; another well
7	NE.	6	11	11	18	Dug	60	1,610	- 40	1,570	55	1,555		Hard, cloudy,		S	20 feet deep is used for domostic needs. Sufficient for 16 head stock; haul water for
														iron, "alka-			domostic necds.
8	No.	6	et	11	**	Dug	14	1,590	- 10	1,580	13	1,577	Glacial sand	Soft, cloar		D, S	Sufficient only for domestic needs; houl water a distance of $1\frac{1}{4}$ miles for stock needs.
9	SW.	3	11	11	11	Dug	18	1,615									One of six dry holes; base in glacial clay;
10	SE.	9	**	11	11	Dug	12	1,610	- 9	1,601	9	1,601	Glacial sand	Hard, cloar,		D, S	hauls water a distance of 3 miles. Intermittent supply; many dry holes to a
11	SW.	10	**	11		Dug	12	1,610	- 2	1,608			Glacial sand	"alkaline" Hard, clear,		D, S	dopth of 25 foot. Sufficient for 20 head stock; also dry heles
12	NE.	10	"	11	11	Dug	12	1,610	- 3	1,607	9	1,601	Glacial gravel	"alkalino"		S	to a drpth of 30 feet. Sufficient for 31 head stock; heads drinking
														"clkaline" yellow sed-			water; also a dry male 70 foot deep.
13	NE.	11	,,	11	11	Dug	18	1,630	- 2	1,628	16	3 614	Glacial sand	imont Soft, cloudy		D, S, I	Sufficient for 15 hond stock; also dry holes
	SE.		11	11	11	Dug	40	1,625		2,020	10	2,024	diadica billa			2, 0, 1	to a depth of 20 feet.
			11	11	it							,					One of 12 dry holes; base in glacial blue clay; hauls water a distance of 2½ miles.
15						Dug	40	1,620									Sovoral dry holes; base in glacial drift.
	SE.		68	11	***	Dug	15	1,615	- 7	1,608	7	1,608	Glacial sendy clay	Hard, cloar		D, S	Sufficient for 18 hand stock.
	M/•		11	11	"	Dug	9	1,570	- 5	1,565			Glacial drift	Hard, clear,		S	Sufficient for 20 head stock; many similar w wells; hauls drinking water a distance of 25 miles.
18	N.i.	16	11	11	"			1,625									Two dry holes; base in glacial drift.
19	NE.	16	"	11	15	Dug	25	1,630									Several dry holes; base in glacial drift; hauls water and melts snow.
20	SE.	16	п	17	- 10	Dug	30	1,620									Deepest of 30 dry holes; base in glacial clay.
21	SW.	17	11	11	11	Dug	26	1,640	- 20	1,620	20	1,620	Glacial sand	Hard, clear		D, S	Insufficient for 30 hoad stock; also another well 10 feet deep; 15 dry holes 20 to 25 feet deep.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LC	CATIO	ON		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI	WHICH ILL RISE	PRIN	ICIPAL W	ATER-BEARING BED		ТЕМР.	USE TO	
WELL No.	1/4	Sec.	Tp.	Rgę.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
22	SE	18	29	3	2	Dug	24	1,610									Many dry holes; base in glacial blue clay.
		m	15	2						2 502			G2	II 1 1 1		T) G	
23	S					Dug	12	1,585	- 4	1,581			Glacial sand	Hard, clear		D, S	Sufficient for domestic needs only; haul water for stock a distance of $l^{\frac{1}{2}}$ miles.
24	SE.	19	"	11	"	Dug	9	1,605	- 6	1,599	6	1,599	Glacial gravel	Hard, clear, "alkaline"		D, S	Intermittent supply; many dry holes to a depth of 63 feet.
25	SN.	19	"	11	11	Dug	20	1,590									Ten dry holes, base in glacial clay; hauls water a distance of 2 miles.
26	NW.	20	"	11	"	Dug	20	1,630	- 14	1,616	14	1,616	Glacial gravel	Hard, clear, iron, "alka- line"		D	Intermittent supply; also 10 dry holes to a depth of 30 feet; haul water from river for stock needs.
27	SE.	20	H	11	"	Dug	39	1,635	- 30	1,605			Glacial sand	Hard, clear		N	Intermittent supply; also dry holes to a depth of 85 feet; haul water a distance of 4 miles.
28	NE.	20	н	н	11	Dug	105	1,620									Three dry holes to a depth of 105 feet, base in glacial blue clay; and numerous shallow dry holes.
29	NE.	21	Ħ	11.	H	Bored	98	1,630									Many dry holes; base in glacial blue clay;
30	NE.	24	11	11	11.	Dug	16	1,605	- 3	1,602	15	1,590	Glacial gravel	Hard, clear		D	haul water a distance of $2\frac{1}{2}$ miles. Insufficient for 27 head stock; 10 dry holes
13	SE.	25	11	11	11	Dug	12	1,590	- 10	1,580	10	1,580	Glacial sand	Hard, clear		D, S	to a depth of 20 feet. Sufficient for 17 head stock.
32	SW.	25	u	11	**	Dug	10	1,610	- 8	1,602	8	1,602	Glacial gravel	Hard, clear		D, S	Sufficient for 21 head stock.
. 33	SE.	26	н	"	"	Dug	14	1,580	- 9	1,571	9	1,571	Glacial sand	Hard, clear		s, I	Sufficient for 24 head stock; also another well for domostic needs; 5 neighbours haul
34	NE.	27	14	12.	и	Dug	7	1,625	- 5	1,620	5	1,620	Glacial gravel	Hard, clear, "alkaline"		. D	from these wells. Intermittent supply; another similar well is used for stock; many dry holes to a dopth of
35	Sw.	27	"	"	н	Dug	80	1,630									80 feet. Many dry holes 55 to 80 feet deep; base in glacial blue clay; haul water a distance of
36	8W·	27	11	61	11	Dug	40	1,625									2 miles. Many dry holes; base in glacial drift.
37	SN.	28	11	11	u	Dug	17	1,620	- 7	1,613			Clacial drift	Hard, clear		D, \$	Intermittent supply; also a dry holo 30 feet doep; haul water a distance of $1\frac{1}{2}$ miles.
38	S.i.	29	89	11	11	Dug	12	1,580	- 6	1,574	6	1,574	Glacial sand	Hard, clear,		S	Sufficient for 20 head stock; another well is used for domestic needs.
. 33	SE.	30	10	11	if	Dug	20	1,600	- 18	1,582			Glacial sand	"alkalino" Hard, clear		D	Intermittent supply; stock watered at river.
40	NE.	31	**	н	11.	ug	10	1,620	- 1	1,619	3	1,617	Glacial gravel	Hard, clear		D	Intermittent supply; many dry holes to a depth of 10 feet; stock watered at river.
41	MV.	32	11	11	11	. Dug	10	1,610	- 4	1,606			Glacial drift	Hard, clear		D	Intermittent supply; 6 dry holes to a depth of 18 feet; stock watered at river.
42	SE•		11	11	и	Dug	10	1,540	- 7	1,533		1		Soft, clear		D, S	Sufficient for 16 head stock; stock watered at river during summer.
43	NE.	33	H	"	11	Dug	4 ·	1,570	- 2	1,568	2	1,568	Glacial sand	Soft, clear		D, S	Sufficient for 16 head stock.
44	SW.		n	11	"	Dug	19	1,610	- 10	1,600		1,600	Glacial gravel	Hard, clear		D, S, I	Insufficient for 15 head stock; also several dry holes.
45	SE.	34	11	11	es	Dug	20	1,600	- 16	1,584			Glacial sand	Hard, clear	1	D, S	Sufficient for 5 head stock.

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⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

WE

LL	RECORDS—Rural	Municipality	of SLIDING HILLS
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		LOCATION		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI		PRI	NCIPAL W	ATER-BEARING BED	CHARACTER	TEMP.				
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
46	Nd.	35	29	3	2	Dug	16	1,595	- 12	1,583	13	1,582	Glacial sand	Hard, clear		D, S, I	Intermittent supply; hauls water a distance
47	SM.	35	ti	17	и	ug	11	1,600	- 8	1,592			Glacial sand	Soft		D, S	of log miles. Intermittent supply.
46	NA.	36	19	н	11	Dug	9	1,600	- 5	1,595			Glacial sand	Hard, clear		D, S, I	Sufficient for 18 head stock; neighbours
49	NE.	36	11	11	и	Dug	28	1,600									haul from this well; also several dry holes. Many dry holes; base in glacial drift; haul
1	SE.	1	30	1	2	Dug	35	1,510	- 10	1,500	10	1,500	Glacial sand	Hard, clear		D, S	water a distance of $\frac{1}{2}$ mile. Sufficient for 50 head stock.
2	SE	2	11	**	h	Dug	24	1,525	- 16	1,509			Glacial drift	Hard, clear		D, S	Insufficient for more than 4 horses; also
3	N.i •	2	11	и	ıı	Dug	22	1,525	- 16	1,509	16	1,509	Glacial sandy clay	Hard, clear		D, S	several wells with strongly mineralized water. Sufficient for 15 to 20 head stock.
4	WE.	2	11	11	11	ug	40	1,540	- 20	1,580			Glacial drift	Hard, clear,		S	Sufficient for 50 head stock; haul drinking water a distance of 2 miles.
5	NE.	4	ıı	11	H	Bored	30	1,550					Glacial drift	Hard, salty		\$	Intermittent supply.
6		6	ít	16	i.	Dug	18	1,590	- 12	1,578	12	1,578	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
7	N.J.	6	18	74	11	Dug	20	1,590	- 15	1,575			Glacial drift	Hard, clear		D, S	Intermittent supply; haul water a distance of two miles.
8		8	11	it	11	Dug	30	1,560	- 20	1,540			Glacial drift	Hard, clear		D, S	Intermittent supply; use the community dam for stock needs.
9	S.V.	9	ıı	11	11	Dug	55	1,552	- 41	1,511			Glacial drift	Hard, clear		D, S	Sufficient for 200 people in 1935; many shall- ow intermittent wells.
	SW.	9	11	"	12	Dug	30	1,552		1,527			Glacial wift	Hard, clear		D	Intermittent supply.
	SE.	9	11	11	16	Dug	30	1,550	- 26	1.524	26	1.524	Glacial sand	Hard, clear		D	Intermittent supply.
	181			18	14	Dug	35	1,548									Dry holo; base in glacial clay.
	SE.		"	11		Dug	30	1,545									Dry holo; base in glacial blue clay.
	NE.				11	Dug	20	1,520		1,520			Glacial drift	Hard, cloar		D, S	Sufficient only for domestic needs; houls water for stock needs.
15		12	"	u	17	Dug	27	1,515		1,502			Glacial drift	Hard, clear		D, S, I	Intermittent supply; 3 other similar wells 14, 26 and 35 feet deep.
16			"		a	Dug	26	1,515		1,509	19	1,496	clay	Hard, cloar		D, S	Insufficient for more than 4 horses; also 2 dry holes 20 and 17 feet deep.
17		13			11	Dug	12	1,520		1,515	5	1,515	Glacial sand	Hard, cloar		D, S, I	Sufficient for 100 head stock; another well is used for demostic needs.
18	SW.	14			"	Dug	15	1,540	- 6	1,534			Glacial drift	Hard, cloar		٥	Sufficient only for domestic needs; 4 other similar wells; also some shallow dry heles;
19	MJ•	14	11	18	st	Dug	25	1,542	- 12	1,530	19	1,523	Glacial sand	Hard, clear		D, S	hauls water a distance of 4 miles. Insufficient for local needs; also has an
20	S./.	15	11	10	11	Dug	25	1,545	0 15	1,530	20	1,525	Glacial sand	Hard, cloar		S	intermittent well. Sufficient for 80 head stock; also another
21	SE.	16	.11	н	a	Dug	30	1,550	- 27	1,523	27	1,523	Glacial drift	Hard, cloudy		D	well for demostic needs. Sufficient only for demostic needs; also
22	\$.7.	16	11	ıı	11	Dug	25	1,553	- 20	1,533			Glacial drift	Hard, cloar		D, S	some dry holes. Intermittent supply; also another well near slough.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used. (\sharp) Sample taken for analysis.

	LOCATION		TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER W		PRI	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO				
WELL No.	1/4	Sec.	Tp.	Rge.	OF OF WELL Above (+)	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS							
23	NW.	16	30	1	2	Bored	55	1,560		*			Glacial drift	Hard,clear		D, S, I	Intermittent supply; also 3 dry holes to a
24	SZ.	17	11	11	11	Dug	15	1,550	- 12	1,538			Glacial drift	Hard, clear		D, S	depth of 25 feet. Intermittent supply; haul water a distance
25	SW.	19	18	28	11	Bored	60	1,575	- 45	1,530	55	1,520	Glacial sand	Hard, elear,		D, S	of 3 miles. Insufficient for more than 10 head stock;
26	NE.	19	11	н	u	Dug	30	1,550	- 20	1,530	24	1,526	Glacial sand	Hard, clear		D, S, 2	several shallow dry holes. Sufficient for 50 head stock.
27	NE.	20	11	ıı	u	Dug	21	1,560	- 16	1,544	16	1,544	Glacial sand	Hard, clear		D, S, I	Intermittent supply.
28	SW.	21	11	11	u	Dug	20	1,560	- 10	1,550	15	1,545	Glacial gravel	Hard, clear		D, S	Sufficient for 25 head stock with aid of a similar well.
29	NE•	21	99	**	11	Dug	36	1,550	- 25	1,525	25	1,525	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.
30	NA.	22	u	11	tf.	Dug	35	1,545	- 20	1,525	30	1,515	Glacial sand	Hard, clear		D, 3, I	Sufficient for 25 head stock.
31	SW.	23	11	10	17	Dug	16	1,540	- 12	1,528	12	1,528	Glacial drift	Hard, clear		D, S	Sufficient for 25 head stock; another similar well 14 feet deep.
32	NE.	23	11	II.	п	Dug	35	1,520	- 20	1,500	29	1,491	Glacial sand	Hard, clear		D	Intermittent supply; another well in pasture is used for stock needs.
33	NE.	24	14	11	19	Dug	20	1,515	- 14	1,501	15	1,500	Glacial sand	Hard, clear		D, S, I	Sufficient for 30 head stock; also another well that is unfit for use.
34	SE*	25	11	17	"	Dug	25	1,520	- 20	1,500	20	1,500	Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock; 3 other similar wells.
35	SE.	25	11	**	**	Dug	15	1,515	- 11	1,504	11	1.504	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock.
36	NE.		11		1.5	Dug	30	1,510		1,486	24	1,486	Glacial sand	Hard, clear		D	Sufficient only for domestic needs; a pond is used for stock.
	M.		"	1.0		Dug	17	1,505	- 10	1,495	13	1,492	Glacial sand	Hard, clear		D, S	Intermittent supply.
38		26	17	"	12	Bored	40	1.525	- 15	1,510	40	1,485	Glacial sand	Hard, clear		N	Abundant supply; but unfit for use; also several shallow dry holes.
39	NW.	26	"	4	1.1	Dug	26	1,525		1,512	13	1,512	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for 16 head stock.
40	SW-	26	11		14	Bored	32	1,525		1,509	16	1,509	Glacial sand	Hard, cloudy, iron		D, S	Sufficient for 30 to 40 head stock.
41		27	SP.	14	41	Dug	20	1,540		1,532			Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock; another well 20 feet deep.
				11		Dug	35	1,500		1,477	23	1,477	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock; also another well.
	NA.	28		11	11.	Dug	26	1,553		1,533			Glacial black	Hard, clear		D, S	Sufficient for 15 head stock; also another well.
44	SE.	28	**	11	15	Dug	35	1,550		1,525	25	1,525	clay	Hard, clear		D, S, I	Sufficient for 35 head stock.
	S7.	28	**	"	"	Dug	20	1,565		1,548	17	1,548		Hard, clear		D, S, I	Sufficient for 15 head stock; another similar well.
46	SE.	29	"	15	11	Dug	14	1,560		1,553			Glacial sandy clay	Soft, clear		D, S, I	Sufficient for 25 head stock.
47	SW.	29		11	"	Dug	16	1,550		1,541	9	1,541	clay	Hard, clear		D, S, I	Sufficient for 35 head stock.
48	SE.	30		11		Dug	28	1,550		1,530	20	1,530		Hard, clear		D, S	Sufficient for 25 head stock.
49	NE.	30	"	11	"	Borod	50	1,555	- 42	1,513			Glacial drift	Hard, clear,		D, S	Insufficient for more than 10 head stock; also

another well with poor supply.

[&]quot;alkaline" another well with (D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SLIDING HILLS

	LOCATION		TVDF	DEPTH	ALTITUDE	HEIGHT TO WATER WI		PRIN	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO				
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
50	NW.	30	30	1	2	Dug	18	1,510	- 10	1,500	12	1,498	Glacial sand	Hard, clear,		n, s	Sufficient for 20 head stock; also another well.
51	S.i •	30	11	ıi	**	Dug	25	1,550	- 10	1,540			Glacial drift	Hard, clear		D, S	Sufficient for local needs; a pond is used for stock.
52	SE.	31	15	.*	11	Dug	25	1,540									Dry hole; base in glacial drift; water stock at river; haul water for domestic needs.
53	SÆ.	32	11	а	11	Dug	40	1,550	- 36	1,514			Glacial drift	Hard, clear		D	Sufficient only for domestic needs; another similar well 60 feet deep; also a few dryholes.
54	SW.	33	и	11	11	Dug	36	1,550	- 20	1,530			Glacial drift	Hard, clear		D, S	Sufficient only for domestic needs; another well is sufficient for 25 head stock.
55	SE.	33	rr	11	.1	Dug	18	1,500	- 13	1,437			Glacial drift	Hard, clear		D, S	Sufficient for 12 head stock; also another well on farm.
56	N:J•	34	11	17		Dug	15	1,500	- 12	1,430	12	1,453	Glacial fine sand	Fard, clear		D, S	Sufficient for 7 head stock.
57	Sw.	34	11	м	13	Dug	30	1,510	- 20	1,490	20	1,490		Hard, closr		D, S, I	Sufficient for 30 head stock; also some dry holes.
50	SE.	34	it	11	11	Dug	35	1,515	- 32	1,483	32	1,483	Glacial sand	Hard, clear		D, S	Sufficient for 40 herd stock; also a shallow well.
59	S.V.	35	et	11	11	μ _{ug}	18	1,525	- 8	1,517	8	1,517	Glacial s and	Hard, cloar		D, S	Sufficient for 13 head stock.
60	SE.	35	и	11	41	Dug	17	1,575	- 12	1,563	13	1,562	Glacial sand	Soft, clear		D, S, I	Sufficient for 40 head stock; two other similar wells.
61	NIG.	35	58	it	13	Lug	35	1,580	- 20	1,560			Glacial drift	Hard, clear, iron, "alka- line"		S	Intermittent supply; also another well used for domostic needs.
62	NW.	36	11	11	it	Dug	34	1,525	- 24	1,501	24	1,501	Glacial sandy	Hard, clear		D, S	Sufficient for local needs.
63	S.I.	36	11	и	H	Bored	20	1,525	- 12	1,513	12	1,513	Glacial sandy	Hard, close		D, S	Insufficient for more than 3 head stock.
. 1	NE.	1	30	2	2	Dug	22	1,600	- 12	1,588			Glacial sand	Hard, clear, iron		D, S	Insufficient for more than 20 head stock.
2	SE.	1	11	11	n	Dug	12	1,600	- 2	1,598			Glacial sand	Hard, clear		D, S	Insufficient for more than 15 head stock; many dry helps to a depth of 20 feet.
3	SW.	1	11	ii	11	ν_{u_3}	12	1,605	- 6	1,599	9	1,596	Glacial sand	Soft, cloar		D, S, I	Oversufficient for 35 head stock.
4	M.J.	1	п	11	м	Dug	20	1,605	- 17	1,538			Glacial drift	Hard, clear, iron		D, S	Intermittent supply.
5	SE.	2	11	11	11	Bored	60	1,615						11011			Dry holo; base in glacial blue clay; another dry hole 20 feet deep.
6	Sw*	2	11	11	+1	Dug	60	1,615									Many dry holes 20 to 60 feet deep; base in glacial blue clay.
7	N./ •	2	"	11	11	Borod	60	1,615									Many dry holes; base in glacial blue clay.
8	N.i.	3	ıt	11	rt	Dug	19	1,620	- 11	1,609	17	1,603	Glacial gravel	Herd, clear, iron		D, S	Oversufficient for 25 head stock; also an- other well 8 feet deep.
9	SE•	4	11	11	it	ν_{ug}	45	1,615									50 dry holes 25 to 45 feet deep; base in glacial blue clay.
10	Sw.	4	11	t)	11	Dug	45	1,610	- 35	1,575			Glacial drift	Hard, clear		D	Intermittent supply; also many dry holes.
11	NE.	5	n	11	ii	Dug & Borod	65	1,610									Dry holes 20 to 60 feet dosp; base in glacial blue clay.
12	Sa.	5	11	u	1.f	Lug	40	1,610									Many dry holes 30 to 40 fost deep; base in glacial blue clay.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

Manhagan and American	LOCATION						HEIGHT TO	O WHICH	PRII	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO			
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	OF WELL	ALTITUDE WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
13	Sii.	5	30	2	2	Dug	50	1,605									Dry holes 20 to 50 feet deep; base in glacial drift.
14	NE.	6	11	11	1	Dug	15	1,600	- 9	1,591	12	1,588	Glacial sand	Soft, clear		D, S	Oversufficient for 25 head stock.
15	SE.	6	11	11	11	Dug	40	1,600									Many dry holes 20 to 40 feet deep; base in glacial drift.
16	S.J.	6	11	11	11	Dug	18	1,600	- 10	1,590	15	1,585	Glacial sand	Hard, clour		D, S	Sufficient for 20 head stock.
17	Nilo	6	11	11	11	Dug	16	1,600	- 8	1,592	13	1,587	Glacial sand	Soft, cloar		D, S	Intermittent supply.
18	NH•	7	11	11	н	Dug	7	1,600	0	1,600			Glacial drift	Hard, clear		D, S	Intermittent supply; many dry holes to depth of 60 feet.
19	NE .	7	11	11	11	Borod	60	1,600									Many dry holos 20 to 60 foot doop; base in glacial blue clay.
20	N.7 •	9	11	11	11	Dug	12	1,615	- 3	1,607	8	1,607	Glacial sand	Herd, yellow		D, S	Oversufficient for 50 hoad stock; another well 20 feet deep; also a dry hole 300 feet deep.
21	NE.	9	17	17	if	Dug	25	1,620	- 17	1,603	21	1,599	Glacial sand	Hard, cloar,		S	Intermittent supply; many dry holes hauls water
22	N.J.	10	п	11	ıı	Dug	17	1,610	- 11	1,599	13	1,597	Glacial gravel	"alkaline" Hard, cloar,		N	a distance of 4 miles. Abundant supply, but unfit for use.
23	SJ.	10	11	it		Dug	20	1,620	- 10	1,610	17	1,603	Glacial sand	"alkaline" Hard, clour		D, S	Sufficient for 30 hand stock.
24	NiV •	12	11	11	11	Dug	20	1,600	- 10	1,590	15	1,585	Glacial sand	Hard, clear		D, S	Sufficient for 40 hand stock.
25	S.I.	12	u	11	**	Dug	16	1,600	- 10	1,590	12	1,588	Glacial s and	Hard, cloar		D, S	Sufficient for 30 head stock; also some dry
26	SE.	12	11	11		Dug	15	1,605	- 9.	1,596	9	1,596	Glacial sandy	Hard, clear		D, S	holds. Sufficient for 35 head stock; another similar
27	NE•	12	11	и	11	Dug	28	1,590	- 16	1,574	20	1,570	clay Glacial fine	Hard, cloar		D, S	well. Sufficient for 35 head stock; also a dry hole.
28	NE•	13	it	11	is	Dug	27	1,585	- 26	1,559	26	1,559	sand Glacial sand	Hard, cloar		D	Intermittent supply.
29	SE.	13	- 15	n	ti	Dug & Borod	31	1,590	- 13	1,577	31	1,559		Hard, clear		D, S	Sufficient for 40 head stock; also dry holes
30	SE.	14	-11	61	11	Dug	9	1,605	- 3	1,602	3	1,602	sand Glacial gravol	Soft, cloar		D, S, I	40 to 50 foot doop. Gvorsufficient for 300 head stock; 4 other
31	Sil.	14	tf	11	н	Dug	14	1,610	- 7	1,603	9	1,601	Glacial sand	Soft, clour		D, S	similar wolls. Oversufficient for 50 head stock.
32	NV.	15	ti.	11	11	Dug	22	1,605	- 10	1,595	18	1,587	Glacial and	Hord, clear,		D, S	Sufficient for 50 head stock; also another
33	SE.	16	11	.1	.,	Dug	25	1,600						"alkalino"			well 16 feet doop. Dry hole; base in glacial blue clay.
34	SE.	18	**	11	11	Borod	80	1,600									Dry holo; base in glacial drift; hauls water
35	NE.	18	11	u	11	Dug	44	1,600	- 40	1,560	40	1,560	Glacial s and	Hard, clear		D, S	a distance of 4 miles. Intermittent supply; many shallow dry holes,
36	NJ.	19	u	11	н	Dug	20	1,600	- 16	1,584		1,582		Soft, cloar		D, S, I	hauls water. Sufficient for 50 head stock.
37	SE.	19	11	18	11	Dug &	165	1,596	- 40	1,556			Glacial drift	Hard, cloudy,		И	Unfit for uso; many dry holes 20 to 60 feet
38	NE.	19	n	11	f.F.	Drillod Dug	18	1,600	- 5	1,595			Glacial d rift	"clkalino" Hard, cloar		D, S	doop. Intermittent supply; houl water a distance of 5 miles.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used. (\sharp) Sample taken for analysis.

	1												differently c	SLIDING HILLS NO. 273, SASKATCHEWAN				
		LO	CATI	ON		TYPE	DEDMII	A	HEIGHT TO WATER WI		PRIN	NCIPAL WA	TER-BEARING BED		TEMP.	USE TO		
WELL No.	1/4	Sec.	Tp.	Rge.	Mer.	OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS	
														•		.43		
39	S.I.	20	30	2	2	Dug &	19	1,610									Dry hole; base in glacial yellow clay; haul water from NE. 1/4, section 21.	
40	SE.	20	10	"	11	Bored	26	1,600	- 18	1,582			Glacial drift	Hard, salty,		S	Sufficient for 15 head stock; haul water for	
41	SE.	21	19	it	11	Dug	40	1,605	- 20	1,585	24	1,581	Glacial sand	Hard, clear		s .	domostic needs. Sufficient for 25 head stock; haul water for demostic needs.	
42	NE.	21	**	16	11	Dug	20	1,605	- 14	1,591	16	1,589	Glacial gravel	. Soft, clear		D, S	Sufficient for 200 head stock.	
43	N.I.	22	11	"	11	Dug	16	1,600	- 14	1,586	14	1,586	Glacial gravel	Soft, clear		D, S	Sufficient for 150 head stock.	
44	SW.	22	**	17	"	Dug	12	1,610	- 8	1,602	10	1,600	Glacial sand	Soft, cloar		D, S	Sufficient for 50 head stock.	
45	NE-	22	11	"	"	Dug	15	1,600	- 10	1,590	10	1,590	Glacial s and	Hard, cloudy		S	Intermittent supply; also many shallow dry holes.	
46	SW*	23		11	11	Dug	12	1,605	- 10	1,595	10	1,595	Glacial gravol	Soft, cloar		D, S	Oversufficient for local needs.	
47	SE*	23	11	11	10	Borod	24	1,590	- 14	1,576			Glacial sand	Hard, cloar		D, S	Sufficient for 20 head stock.	
48	SW.	24	17	"	11	Borod	45	1,585	- 10	1,575	45	1,540	Glacial sand	Hard, cloar		D, S	Sufficient for 20 head stock.	
49	SE.	24	#	11	11	Dug	35	1,590	- 20	1,570			Glacial gravel	Hard, clear,		D, S	Intermittent supply; several dry heles to a depth of 25 feet.	
50	NE.	24	tt	11	11	Borod	50	1,570					Glacial drift	Hard, cloar,		S	Insufficient for more than 15 head stock; another well for demostic needs.	
51	N.T.	25	**	"	**	Borod	38	1,565	- 13	1,552			Glacial drift	Hard, closer		D, S	Insufficient for more than 30 head stock.	
52	SE	27	H	**	**	Dug	20	1,600	- 17	1,583			Glacial drift	Hard, elear		D	Intermittent supply; slough is used for stock; haul water from section 22.	
53	Sw.	27	"	11	11	Dug	14	1,605	- 8	1,597	8	1,597	Glacial gravel	Hard, cloar		D, S	Insufficient for more than 20 head stock.	
54	NE.	28	57	18		Dug	20	1,605	- 10	1,595	15	1,590	Glacial sand	Soft, cloar		D, S	Sufficient for 60 hand stock.	
55	SE.	28	n	H	11	Dug	11	1,610	- 8	1,602	8	1,602	Glacial gravel	Hard, clear		D, S	Sufficient for 35 head stock.	
56	SW.	28	10	**	11	Dug	30	1,610	- 12	1,598	30	1,580	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock.	
57	Nv.	28	п	10	н	Dug	24	1,610	- 19	1,591			Glacial blue	Hard, cloar		D, S, I	Oversufficient for 40 head stock.	
58	SE*	30	"	17	"	Dug	17	1,610	- 11	1,599	11	1,599	Glacial gravol	Hard, cloar		D, S	Sufficient for local needs; also a number of other wells with small supply.	
59	NE.	30	**	11	u	Borod	40	1,595	- 20	1,575	40	1,555	Glacial send	Hard, cloar, salty, "alka- line"		S	Insufficient for more than 15 head stock.	
60	SW.	31	11	58	1.7	Dug	16	1,600	- 9	1,591	16	1,584	Glacial sand	Soft, cloar		D, S	Oversufficient for 25 head stock; 10 dry holes 20 to 40 feet deep.	
61	NE.	31	11	19	и	Dug	30	1,585	- 15	1,570			Glacial drift	Hard, clear		D, S	Insufficient for more than 20 head stock; another similar well.	
62	N.J.	32	"	#	11	Dug	14	1,595	- 7	1,588			Glacial drift	Hard, cloar, "alkaline"		S	Insufficient for more than 10 hond stock; also several shallow dry heles.	
63	8E.	32	n	11	It	Dug	20	1,600	- 12	1,588	16	1,584	Glacial sand	Hard, cloar		D, S	Sufficient for 25 head stock; another well 53 feet deep.	
64	N.J.	33	**	4.6	11	Dug	20	1,595	- 14	1,581	15	1,580	Glacial sand	Hard, cloar		D, S	Oversufficient for 30 head stock.	

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

B 4-4 R. 7526 WELL RECORDS—Rural Municipality of SLIDING HILLS NO.273, SASKATCHEWAN PRINCIPAL WATER-BEARING BED LOCATION TEMP USE TO TYPE DEPTH ALTITUDE CHARACTER OF WHICH WELL YIELD AND REMARKS OF OF WATER WATER Above (+) OF WATER (above sea level) WELL WELL Elev. Geological Horizon Tp. Rge. Mer. Below (-) Elev. Depth (in °F.) IS PUT Surface 1,583 D, S Sufficient for 60 to 75 head stock. 1,583 Soft.clear 1,605 - 22 22 Glacial sand 33 30 2 30 Dug D, S, I Sufficient for 15 head stock; 2 other similar Glacial sand Hard, clear 1,590 - 11 1,579 11 1,579 Dug 15 D, S 1,583 Oversufficient for 60 head stock; another Soft, clear 30 1,605 - 22 1,583 22 Glacial gravel Dug well 22 feet deep. Eight dry holes 25 to 65 feet deep; base in Bored 1,600 glacial blue clay. Oversufficient for 25 head stock. D, S, I Dug Glacial sand Soft, clear ** 11 1,579 14 1,590 - 11 1,579 D, S Sufficient for 20 head stock. - 10 1,580 10 1,580 Glacial sand Hard, clear Dug 1,590 14 D, S Insufficient for more than 1) head stock; Hard, clear, Bored 1,595 Glacial sand - 19 1,576 1,568 another similar well. iron D, S Sufficient for 35 head stock; another well 1,560 1,542 20 1,540 Glacial g ravel Hard, clear Dug 26 - 18 32 feet deep. D, S Oversufficient for 25 head stock; also an-Glacial sand Hard, clear 1,537 Dug 19 1,550 - 13 other well that is not used. D. S Sufficient for 50 head stock. 5 1,545 Glacial gravel Soft, clear 30 2 1,550 1,545 Dug 10 D, S Sufficient for 35 head stock. FK 7 1,593 Glacial sand Soft, clear 1,600 1,593 Dug 14 D, S Oversufficient for 35 head stock. 1,606 1,606 Glacial gravel Soft, clear Dug 1,610 - 4 1,600 Glacial gravel D. S Sufficient for 30 head stock. 1,610 1,600 10 Soft, clear Dug 14 - 10 - 8 1,602 10 Glacial gravel D. S Sufficient for 30 head stock with aid of an-Dug 14 1,610 1,600 Soft, clear other well 8 feet deep. Dug 1,610 D, S 1,606 Oversufficient for 40 head stock. 6 6 - 4 1,606 Glacial gravel Soft, clear D - 8 6 Dug 32 1,610 1,602 Glacial drift Hard, clear Intermittent supply; also many shallow dry

D. S 7 Sufficient for 10 head stock. SV. Dug 12 1,610 1,603 1.603 Glacial sand Soft.clear Dug D. S SE. 8 11 1,605 1,598 Glacial sand Hard, clear Intermittent supply; many dry holes 10 to 13 30 feet deep. Dug 1,600 Sufficient for local needs; yields 1,500 NE . 10 6 1,598 1,598 Glacial gravel Soft, clear gallons. Dug 1,600 Dry hole; base in glacial blue clay. SVI. 12 Twenty dry holes 10 to 42 feet deep; base NE. 13 1,605 42

Glacial drift

Glacial sand

Glacial drift

in glacial blue clay. Intermittent supply.

Sufficient only for domestic needs; another

Several dry holes; base in glacial blue clay.

well 7 feet deep.

Sufficient for 20 head stock.

Dry hole; base in glacial drift.

Several dry holes; base in glacial blue clay.

25

26

- 18

- 6

1,592

1,604

1,568.

Dug

Dug

Dug

Dug

Dug

Dug

20

12

16

1,610

1,610

1,595

1,580

1,600

1,600

WELL

65

66

67

68

69

70

71

72

73

1/4

SE.

MJ.

SW

SE.

NE.

NW.

SW.

SE.

31.

SI

NW.

NE.

SH

NJ

NE.

SE

M

NW.

11

12

13

15

16

17 18 SE

SW.

NE.

13

14

11

6

8

Sec.

34

34

34

34

35

35

35

36

4

D

D

D, S

Hard, clear

Hard, clear

Hard, clear

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.

		LOCATION			TYPE	DEPTH	ALTITUDE	HEIGHT TO WATER WI	WHICH ILL RISE	PRI	NCIPAL W	ATER-BEARING BED		TEMP.	USE TO		
WELL No.	1/4	Sec.	Tp.	Rge.	Mer	OF	OF WELL	WELL (above sea level)	Above (+) Below (-) Surface	Elev.	Depth	Elev.	Geological Horizon	CHARACTER OF WATER	OF WATER (in °F.)	WHICH WATER IS PUT	YIELD AND REMARKS
19	NJ.	16	30	3	2	Dug	14	1,560	- 11	1,549	12	1,548	Glacial gravel	Soft, clear		D, 8	Sufficient for local needs.
20	MH.	17	18	11	.,	Dug	7	1,580	- 4	1,576	4	1,576	Glacial gravel	Soft, clear		D, S	Sufficient for 30 head stock.
21	sz*	17	19	11	11	Dug	16	1,590	- 2	1,588	4	1,586	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock.
22	S.I.	17	11	.1	11	uug	14	1,605	- 1	1.,604	1	1,604	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock; also 2 other
23	NE.	18	11	ii	11	Dug	12	1,590	- 8	1,582	8	1,582	Glacial sand and gravel	Soft, clear		D, 3	wells. Sufficient for 35 head stock; also another well 14 feet deep, with intermittent supply.
24	NN.	18	11	11	11	Dug	18	1,595	- 15	1,580	15	1,580	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
25	SW.	18	11	it	11	Dug	15	1,600	- 12	1,588			Glacial drift	Hard, clear		D, S	Intermittent supply.
26	SW.	19	"	11	11	Dug	12	1,595	- 8	1,587	10	1,585	Glacial sand	Soft, clear		D, S	Oversufficient for local needs; also 16 dry noles.
27	SE.	19		11	u	Dug	12	1,590	- 1	1,589	10	1,580	Glacial send	Hard, clear		D, S	Sufficient for 15 head stock.
23	NE.	19	11	11	ii	Dug	10	1,600	- 7	1,593	7	1,593	Glacial gravel	Soft, clear		D, S	Sufficient for 30 head stock; another well
29	w.	20	11	11	11	Dug	18	1,580	- 10	1,570	15	1,565	Glacial sand	Soft, clear		D, S	16 feet deep. Sufficient for 25 head stock.
30	SW:	24	11	11	11	Bored	100	1,600								7000	Many dry holes 10 to 100 feet deep; base in
31	SE.	24	11	11	u	Dug	25	1,605	- 20	1,585			Glacial drift	Hard, clear,		D	glacial blue clay. Intermittent supply.
32	NE.	24	18		11	Dug	40	1,600	- 35	1,565			Glacial drift	"alkaline" Hard, cloudy, "alkaline"		N	Unfit for use.
33	SW.	26	11	16	16	Dug	18	1,590	- 14	1,576	14	1,576	Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock.
34	NE.	28	11	11	11	Spring		1,550	0	1,550	0	1,550	Glacial gravel	Soft, clear		D, S, I	Insufficient for the needs of the town of Canora; yields 35,000 gallons a day; also a well 22 feet deep.
35	SE.	28	11	11	н	Dug	15	1,565	-, 5	1,560			Glacial drift	Soft, clear		D, S	Sufficient only for domestic needs; another well 5 feet deep.
36	SW.	29	11	11	11	Bored	45	1,580	- 30	1,550			Glacial drift	Hard, clear		D, S	Intermittent supply; another well 55 feet deep is unfit for use.
37	NE.	30	18	11	it	Dug	12	1,590	- 8	1,582	10	1,580	Glaicla sand	Soft, clear		D, S	Sufficient for 15 head stock.
38	SE.	30	18	11	11	Dug	11	1.595	- 9	1,586	9	1,586	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
39	SW.	31	11	11	11	Dug	40	1,600									Dry hole; base in glacial blue clay.
40	SE.	31	11	11	11	Bored	99	1,600									Several dry holes; base in glacial blue clay.
41	S.I.	33	11	11	11	Dug	10	1,595	- 12	1,583	15	1,580	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
42	NE.	33	11	11	11	Dug	16	1,590	- 12	1,578	12	1,578	Glacial gravel	Soft, clear		D, S	Sufficient for 30 head stock.
43	M.	34		11	11	Dug	16	1,570	- 8	1,562	14	1,556	Glacial sand	Soft, clear		D, S	Sufficient for 20 head stock with the aid of another well.
44	SW.	34	11	11 .	H	Dug	14	1,560	- 7	1,553	7	1,553	Glacial gravel	Soft, cloar		D, S	Sufficient for local needs.
45	SE.	34	11	11	st	Dug	6	1,600	0	1,600	0	1,600	Glacial gravel	Soft, clear		D, S, I	Sufficient for local needs.
46	NE.	35	11	11	f1	Dug	20	1,550		1,534			Glacial Band	Hard, clear		D	Sufficient only for domestic needs; had water for stock from river.
47	N.i.	36	11	11	15	Dug	19	1,560		1,547	13	1,547	Glacial sand	Hard, clear		D	Sufficient only for domestic needs; stock watered at river.
	Sw.		11	11	11	Dug	18	1,570		1,557	17	1,553		Hard, cloar		D, S	Sufficient for 25 head stock.

NOTE—All depths, altitudes, heights and elevations given above are in feet.

⁽D) Domestic; (S) Stock; (I) Irrigation; (M) Municipality; (N) Not used.

^(#) Sample taken for analysis.