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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF FAIRVIEW No. 258 SASKATCHEWAN

BY

B. R. MacKay, H. N. Hainstock & G. Graham

Water Supply Paper No. 187

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF FAIRVIEW, NO. 258 SASKATCHEWAN

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 maps used 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 fine 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 well site 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 well-site 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 well-site.[1] 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

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[1] If the well-site 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.

GLOSSARY OF TERMS USED

Alkaline. The term "alkaline" has been applied rather loosely to some ground-waters. In the Prairie Provinces, 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 areas.

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

Glacial Drift. The loose, unconsolidated surface deposits 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 porous 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 name given to a series of fine-grained 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 côteau. 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 Fairview, No. 258, an area of 324 square miles in southwestern Saskatchewan, consists of nine townships, described as tps. 25, 26, and 27, ranges 16, 17, and 18, W. 3rd mer. The centre of the area is located approximately 37 miles north of South Saskatchewan river, and 73 miles east of the Saskatchewan-Alberta boundary line. The municipality is well served by railways, as a branch line of the Canadian National traverses the southern part of the area and two branch lines of the Canadian Pacific traverse the northern and eastern parts of the area. The village of Plato and the hamlets of Greenan and Wartime are located on the Canadian National and the hamlets of Totnes, Bickleigh, Chipperfield, and Gunnworth on the Canadian Pacific railway. The southern half of the municipality is also served by Provincial Highway No. 44.

The lowest elevation in the municipality, approximately 1,900 feet above sea-level, occurs in the southeastern corner of township 25, range 18, and the maximum, somewhat in excess of 2,400 feet above sea-level, occurs in the southeastern corner of township 25, range 17. The elevation throughout most of the area, however, ranges between 2,000 and 2,200 feet above sea-level, and Plato, Wartime, Totnes , and Gunnworth occur at elevations of 2,159, 2,038, 2,225, and 2,025 feet above sea-level, respectively.

The greater part of the municipality is mantled by moraine and the surface is characterized by small hills and undrained depressions. Along the western and eastern sides of the municipality the surface is covered by glacial till or boulder clay. In a small area in townships 26 and 27, range 18, the glacial till is overlain by glacial lake clay, and in a narrow belt in township 27, range 16, glacial outwash sands and gravels overlie the glacial till.

No severe shortage of water exists in this municipality, but the supply is not abundant and the water is of poor quality.

WATER-BEARING HORIZONS IN THE UNCONSOLIDATED DEPOSITS

No large bodies of surface water occur in this municipality, but a considerable amount of water is collected and retained in natural depressions or sloughs, and during the spring and early summer months stock are watered at these bodies of water. Shallow wells sunk beside the undrained depressions yield small amounts of seepage water, but most of the wells cease to yield water when the sloughs become dry.

A number of springs occur throughout the municipality and some of them yield an abundant supply and flow throughout the year. The yield from the springs may be increased by deepening and cribbing them, and the amount of water available for use may also be increased by collecting the overflow in a dugout or some type of reservoir. The water from the springs is hard and that from some is too highly mineralized for domestic purposes, but it is satisfactory for stock.

The glacial lake clay does not yield water. No wells have been dug in the glacial outwash deposits, but they should contain water at shallow depth. The deposits of moraine and boulder clay consist of approximately 30 feet of yellow boulder clay, and blue boulder clay that extends to the underlying bedrock. Most of the shallow wells in the municipality obtain water from deposits of water-bearing sand and gravel that occur at or near the base of the weathered or yellow boulder clay. These deposits are uncommon in township 25, range 18, township 26, range 18, and township 28, range 18, but in small areas in the other townships they appear to be fairly numerous. The water-bearing deposits do not form a continuous aquifer in any part of the municipality, and they should be located with a small test auger prior to digging a well. The supply obtained from the wells included in this group is sufficient for local needs, and although the water is hard and mineralized it is in most cases used for domestic needs as well as for stock.

Most of the other wells in the municipality derive water from deposits of sand and gravel that occur in the blue boulder clay at depths of 35 to 180 feet. Within very small areas some corrolation can be established in the occurrence of these deposits, but in no large area do they appear to form a general water-bearing horizon, and dry holes have been sunk in a number of the townships. The deposits appear to be fairly numerous in the northwestern parts of townships 26, ranges 16 and 17, township 27, range 16, and in parts of townships 26 and 27, range 18. The supply from most of the wells is sufficient for local requirements. The water is invariably hard, and that from some wells is too highly mineralized to be used even for stock.

In the western part of the municipality a number of wells have been drilled to depths of 135 to 260 feet, or to elevations of 1,970 to 2,040 feet above sea-level. Over most of this area the deposits appear fairly numerous, and they may possibly form a general water-bearing horizon, as no dry holes have been sunk below the depth at which the horizon is thought to occur. The deposits are assumed to occur at or near the base of the drift, and may possibly be located within the underlying bedrock formation. The supply from the wells included in this group is usually abundant, but a few wells have been partly plugged by fine sand and the available supply of water depleted. The water is invariably hard and generally highly mineralized, and with few exceptions its use is limited to stock.

A few dams were recorded in this municipality and sites exist where others could be economically constructed. Dugouts are not uncommon in the area, and they are the best method of collecting and storing surface water. The dugouts should be situated in depressions where the maximum amount of water collects, and should be at least 12 feet deep in order to retain water throughout most of the winter months. Shallow wells sunk beside the dugouts

and connected to them by a suitable filter should yield sufficient water for domestic needs. Care should be taken to see that the water is not polluted by surface refuse.

Water-bearing Horizons in the Bedrock

The glacial drift of this municipality is underlain by the Bearpaw and Belly River formations. The approximate boundary between these formations is shown on the accompanying map, the Bearpaw formation lying to the southwest of the boundary and the Belly River to the northeast. The Bearpaw formation is not thought to be of great thickness over a large part of the area, and most of the wells tapping bedrock aquifers probably obtain water from the Belly River formation. No outcrops of either formation are reported in this municipality, and no definite contacts of the bedrock and drift were established. In sec. 14, tp. 25, range 16, bedrock was reported at an approximate elevation of 1,900 feet above sea-level, but the contact is by no means definite. In the rural municipality of Lacadena, No. 228, to the south, the Bearpaw and Belly River formations outcrop along Saskatchewan river at approximate elevations of 2,000 and 1,850 feet above sea-level, respectively. The Bearpaw formation is approximately 150 feet thick in this area, and is recorded as outcropping in township 28, range 17, in the municipality of Pleasant Valley, at an elevation of 2,100 feet above sea-level. The surface of the bedrock in the municipality of Fairview is thought to be very uneven, and it is probable that the contact of the drift and bedrock ranges from an elevation of 1,850 to 2,050 feet above sea-level.

Only a few wells are thought to be obtaining water from aquifers wholly located within the bedrock. The wells previously referred to as obtaining water from the lower part of the drift may be drawing water from the bedrock.

The wells that occur in township 25, range 16, township 25, range 18, and township 26, range 16, drilled to elevations generally below 1,800 feet above sea-level, are assumed to be

drawing water from aquifers in the Belly River formation. No correlation in the occurrence of the aquifers can be established, and it is improbable that a general water-bearing horizon is present. The water-bearing sand deposits in the Belly River formation are thought to be lenticular in shape, but they appear to be fairly numerous, and no wells that were drilled into the formation in this municipality failed to encounter water. The supply from wells tapping this formation is generally sufficient for local needs, but some difficulty is experienced in preventing the fine sand of the aquifer from partly or wholly plugging the well casings and shutting off the supply of water. The water from the bedrock in this area is invariably hard and highly mineralized, although that from a few wells is used for drinking as well as for stock. It is problematical if the type and amount of water obtained from the bedrock warrant the expense of drilling deep wells.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 25, Range 16

The elevation in this township decreases from more than 2,400 feet above sea-level, in the southwestern corner, to 2,100 feet in the northwestern corner, and to less than 2,000 feet in the southeastern corner. The western two-thirds of the area is mantled by moraine and is characterized by knolls and undrained depressions, whereas the remainder is covered by boulder clay or glacial till and is much flatter.

Springs occur along the base of the hills and many of the residents use them for both domestic and stock needs. The yield from springs may be appreciably increased if they are deepened and cribbed, and the quantity of water available for use may be increased if a reservoir is excavated to collect the overflow. The springs yield a fairly large supply of water and some of them flow throughout the year. The water is hard but not excessively mineralized and that from most of the springs is used for drinking as well as for stock.

A few shallow wells 20 feet or less in depth obtain water from deposits of sand and gravel that occur in the upper part, or weathered zone, of the drift. No continuity is evident in the occurrence of these deposits, and they appear to be of scattered distribution. It is advisable to locate the deposits by means of a test auger before digging a well. Most of these wells yield a large supply of water that can be used for domestic purposes, but one well, located in section 22, yields a small supply of water that is too highly mineralized for drinking.

Wells sunk into the blue boulder clay, or lower part of the drift, have either proved unproductive or encounter only small supplies of water. This part of the drift, however, has not been extensively investigated, and more prospecting may show that water-bearing deposits are numerous in certain areas. Dry holes

were sunk to depths of 130 and 135 feet in sections 12 and 14, and two producing wells, sunk in sections 2 and 23, yielded a small supply of water that was too highly mineralized for use. The evidence at hand indicates that drilling into this part of the drift is inadvisable.

One well, located in section 14, is drilled to a depth of 327 feet, and taps an aquifer of fine sand at an elevation of 1,693 feet above sea-level. Although bedrock was reported at an approximate depth of 100 feet, the contact is thought to be at a greater depth. The Bearpaw formation is thought to have been passed through, and the aquifer is assumed to be in the Belly River formation. The areal extent of the aquifer is unknown, but it may be tapped by other wells sunk to similar depths in this vicinity. At present the well is not producing as the casing is plugged by sand. The water was hard and quite highly mineralized, but it was suitable for drinking as well as for stock.

Township 25, Range 17

The surface of the northern half of this township is gently undulating, whereas most of the southern half is rolling and hilly, especially in the southeastern corner where the elevation rises to more than 2,400 feet above sea-level. With the exception of the southwestern corner, which is covered by glacial till or boulder clay, the township is mantled by moraine.

Most of the wells in this township derive water from small deposits of sand and gravel that occur at or near the base of the weathered or yellow boulder clay, usually at depths of less than 30 feet. No continuity in the occurrence of the deposits is evident and their scattered distribution is proved by the digging of dry holes within short distances of producing wells. It is advisable to locate the water-bearing deposits by means of a test auger prior to digging a well. It may be possible to obtain small supplies of water, usually sufficient for domestic needs and a few

head of stock, from wells sunk near undrained depressions or sloughs. Such wells, however, depend almost entirely on direct seepage, and their yield varies according to the amount of rainfall; in drought periods and winters they may become dry. The shallow wells that tap sand and gravel deposits yield a supply of water that is generally sufficient for farm needs, and that from all of the recorded wells is used for drinking as well as for stock. The lower part of the drift has not proved particularly productive in this township, and only a few wells obtain water from deposits that occur at depths greater than 35 feet. Dry holes have been sunk to depths of 76 feet, and the water-bearing deposits are thought to be very scattered. The water from a well in section 20, which has not been used for a number of years, and from another in section 28, is too highly mineralized for drinking, but that from a 40-foot well, in section 36, is used for domestic purposes as well as for stock. If it is possible to obtain a sufficient supply of water at shallow depth, it is not advisable to sink wells into the lower part of the drift.

In the western part of the township water is very scarce and some residents are forced to haul water for a distance of 4 miles. In the northeastern corner the supply from deficient wells is supplemented by the use of springs. Springs are also said to occur at the base of the hills in the southeastern corner of the township.

Dugouts may prove a means of collecting and retaining surface water for stock needs in some parts of the township, but they were not successful in section 34, due to the porous nature of the soil.

Township 25, Range 18

The northern half of this township is fairly level, the elevation ranging between 2,100 and 2,200 feet above sea-level, but the elevation decreases to 1,900 feet in the southeastern corner. Half of this township and the southwestern corner of the eastern half is covered by glacial till or boulder clay and the remainder is mantled by moraine.

No shallow wells were recorded in this township, although it is probable that a few wells may obtain water by direct seepage from sloughs. The supply from such wells, however, is dependant on the amount of water in the depression, and is intermittent. In the southeastern corner of the township a number of springs yield abundant quantities of fairly good water. Water is hauled for a considerable distance from a spring in section 12. The village of Plato uses this spring almost exclusively for a domestic supply. The water from the springs located in sections 10 and 14 is used for stock, but it is not reported if its use is limited to this purpose.

Difficulty is experienced in obtaining water from the glacial drift in the western half of the township. No shallow wells were recorded, but three wells located in sections 21, 28, and 30, sunk to depths of 140, 140, and 180 feet, are thought to be drawing water from aquifers located at or near the base of the glacial drift. The wells in sections 21 and 28 are probably obtaining water from a common aquifer, and there is a possibility that the well located in section 30 may tap the same horizon, but it was necessary to drill to a depth of 348 feet in section 20 before water was encountered. The water-bearing deposits in the lower part of the drift are thought to be of scattered distribution. A dry hole was also drilled to a depth of 60 feet in section 6. The supply from the three producing wells is more than sufficient for stock needs, but the water is so highly mineralized that it is only used for stock.

The remaining wells in this township derive water from deposits of sand that are thought to occur either in the Bearpaw formation or in the upper part of the Belly River. The wells located in sections 5 and 8 may even be obtaining most of their supply from near the base of the glacial drift, but the wells in sections 7 and 20 derive water from the bedrock. No dry holes were sunk into the bedrock, and the water-bearing deposits appear to be fairly numerous. The supply from the wells is abundant and

the water from the wells located in sections 5 and 8 is used for drinking as well as for stock. The water from the well in section 20 is too highly mineralized for domestic purposes.

A dugout excavated in a shallow coulée in section 5 collects and retains sufficient water to last throughout the year. This method of collecting surface water is recommended. The dugout should be at least 12 feet deep in order to retain sufficient water throughout the year. Shallow wells sunk beside the impounded water should yield sufficient water for domestic needs.

Township 26, Range 16

The greater part of this township is mantled by boulder clay or glacial till, but areas in the northwestern corner and south-central part of the township are covered by moraine. The ground surface is gently undulating, and the elevation increases from 2,000 feet above sea-level, in the northeastern part, to 2,100 feet in the northwestern corner.

A few wells in this township obtain water from water-bearing deposits at depths of less than 25 feet. These deposits are more common in the southeastern part of the township than elsewhere, although in this area they show little or no sign of continuity. Wells that tap these deposits often yield a fairly abundant supply of water. The well in section 3 is actually a spring that has been deepened and cribbed, and it yields a large supply of water. Both this well and the well in section 24 are used by many of the residents for a domestic supply. The water from the shallow wells is generally used for domestic needs as well as for stock. Most of the water used by the hamlet of Wartime is pumped through a 6-inch pipe from a well on sec. 31, tp. 25, range 16.

With one exception the remaining wells in the township obtain water from scattered sand and gravel deposits that occur in the unweathered or blue boulder clay. These wells are from 35

to 100 feet deep. In no area do the water-bearing deposits appear to form a definite horizon, and dry holes were sunk on section 20. The supply obtained from wells in this group varies greatly, but as a rule it is more than sufficient for farm needs. The water is generally very hard and quite highly mineralized, but it is being used for domestic purposes as well as for stock.

A well located in section 13 taps a fine sand aquifer in the bedrock at a depth of 360 feet, or at an elevation of 1,690 feet above sea-level. The areal extent of this aquifer is unknown. The fine sand that forms the aquifer has clogged the sand screen and casings of the well, and the supply has been shut off. The water was used for stock only, as it was highly mineralized.

At least one dugout and one dam are being used to collect and store surface water. The use of dugouts will be found practical and advantageous in this township, but, in order to retain a sufficient supply for use throughout the winter months, these reservoirs should be at least 12 feet deep.

Township 26, Range 17

The surface of the northeastern part of the township is fairly level, whereas that of the other parts is rolling to hilly. The difference in topographic relief is only slightly more than 100 feet, the elevation increasing from less than 2,100 feet above sea-level in the northeastern corner to more than 2,200 feet above sea-level in the southwestern corner. The small lakes, shown on the accompanying map, in the east-central part of the area are dry "alkali-flats" during the greater part of the year. Parts of sections 1, 12, 13, 24, and 25 are covered by glacial till or boulder clay, but the remainder of the area is mantled by moraine.

A few wells in this township obtain water from deposits of sand and gravel that occur at shallow depth in the weathered or yellow boulder clay. These deposits are more common in the southeastern part of the township than elsewhere, but they are not numerous, and do not form a continuous water-bearing horizon.

In sections 1, 2, and 12, three wells tap aquifers at depths of less than 20 feet, and the deposits may be fairly continuous in this area. The supply obtained from the shallow wells is usually adequate for local needs. The well shown in section 10 is now filled in, but it was used by the Canadian National Railways for five years, and yielded an abundant supply. The well in section 4 is used by many residents as a source of drinking water. Most of the shallow wells, with the exception of that located in section 28, are being used for domestic purposes as well as for stock.

Water conditions in the northwestern part of the township are only fair, and most of the producing wells in this area tap scattered deposits of sand and gravel that occur in the unweathered or blue boulder clay. The wells range in depth from 40 to 160 feet, and with one exception no continuity in the deposits can be traced. The wells located in sections 28 and 30 tap black sand aquifers at elevations of 2,030 and 2,040 feet above sea-level, respectively. The similarity of these aquifers indicates the possibility of correlation over this area, but the areal extent of the water-bearing horizon is not defined. Dry holes were sunk to depths of 40 feet in sections 16 and 28, but no dry holes were sunk to greater depths. The supply from the wells that tap water-bearing deposits varies considerably, but it is rarely oversufficient for local needs. The water is generally quite hard and that from a few wells is so highly mineralized that it should not be used for drinking.

Springs occur in sections 24 and 26, and are used for stock. The yield from these springs could be increased by deepening and cribbing them, and the overflow could be collected in a dugout. Dugouts have not been used in this township, but there are a large number of depressions in which these artificial reservoirs could be excavated. The dugouts should be at least 12 feet deep. By using shallow wells for domestic needs, and deep wells and dugouts for stock use, there should not be a shortage of water in this area.

Township 26, Range 18

The surface of this township is relatively level, although it is slightly rolling in the eastern half, and the difference in relief amounts to less than 100 feet. The eastern half is covered by moraine, whereas the western half is mantled by glacial till or boulder clay. In the northwestern corner the glacial till is overlain by a thin deposit of glacial lake clay.

No shallow wells were recorded in this township and it is improbable that many water-bearing deposits of sand or gravel are to be found in the upper part of the drift. Possibly shallow wells sunk near undrained depressions or sloughs will yield small amounts of water, but their supply varies with the amount of water contained in the sloughs and they may become completely dry during winters and drought periods.

The producing wells in this township tap sand and gravel deposits that occur in the lower part of the glacial drift. The wells are drilled to depths ranging from 75 to 200 feet, and the deeper wells, especially in the western part of the township, may be drawing part of their supply from near the bedrock. From the evidence at hand, the possibilities of obtaining water at elevations ranging from 2,000 to 2,050 feet above sea-level appear fairly good, and no dry holes were recorded in this area. In sections 14 and 24 water should be obtained at slightly higher elevations, and the water will probably be of good quality. The producing wells yield supplies that are at least adequate for local requirements, and are usually more than sufficient. The water, however, is hard, and that from most of the wells, especially the deeper wells, is so highly mineralized that it is unsatisfactory for domestic use.

A number of residents in this township find it necessary to haul their drinking water, in some instances a distance of 11 miles. A few dugouts have been excavated and at least one dam has been constructed to collect and retain surface water. The conservation of surface water for stock use is highly recommended.

Township 27, Range 16

The western half of the township is quite hilly and rolling, and the elevation rises to more than 2,200 feet above sea-level in the northwestern corner. The eastern half of the township is a slightly rolling plain, the elevation of which is in the vicinity of 2,000 feet above sea-level. Long, shallow depressions are common in the eastern half. The western part of the township is mantled by moraine, and the remainder is covered by boulder clay or glacial till. In parts of sections 4, 5, 8, 9, 16, 17, 20, and 21 glacial outwash sands and gravel overlie the boulder clay.

No wells have been sunk into the outwash sands and gravels, but they should yield an abundant supply of usable water at shallow depth. A few wells at various localities in this township obtain water at shallow depth from deposits of sand and gravel that occur at or near the base of the weathered or yellow boulder clay. In no area do the deposits appear to be continuous, but they are more numerous in sections 19 and 30 where water conditions are reported to be fairly good. The supply from the shallow wells in this township varies, but during years of normal rainfall the supply from most of them is sufficient for local needs. The water is hard and that from a few of the wells is highly mineralized, but it often can be used for domestic purposes as well as for stock. A number of residents obtain drinking water from a shallow well located on the road allowance between sections 21 and 28.

Springs are not uncommon in this township and some of them have been dug and cribbed and yield fairly large quantities of water. The water from some of them is used for both domestic purposes and stock, whereas that from others is only used for stock.

Most of the wells in the township obtain water from scattered deposits of sand and gravel that occur in the blue boulder clay at depths ranging from 40 to 104 feet. Within narrow limits

the deposits appear fairly continuous, and they may be numerous, as no dry holes occur, but there is not sufficient evidence at hand to say that a general water-bearing horizon is present. The supply from a few wells is insufficient for farm needs, but most of the wells yield sufficient water for local requirements. The water is hard and that from a number of wells is too highly mineralized for domestic use, and water for drinking in many places has to be hauled a considerable distance.

Only a few dugouts were in use in 1935, but no doubt many others will be excavated if water conditions should become more severe. They should be dug in natural depressions if possible, in order to obtain the maximum amount of run-off water, and they should be at least 12 feet deep in order to retain a sufficient supply throughout the year.

Township 27, Range 17

This township is mantled by moraine and the ground surface is characterized by numerous low hills and undrained depressions. The area is poorly drained, but a few shallow coulées exist in the northern part of the township. The difference in surface relief amounts to slightly more than 100 feet, the highest part occurring along the eastern and northeastern areas at more than 2,200 feet above sea-level, and the lowest areas occurring in the northeastern and south-central areas at less than 2,100 feet above sea-level.

A fairly abundant supply of water is obtained in this township, and most of the wells derive their supply from small deposits of sand or gravel that occur at or near the base of the weathered or yellow boulder clay, usually within 30 feet of the surface. Two wells, located in sections 4 and 12, derive water at depths of 35 feet. The water-bearing deposits appear to be fairly numerous in the eastern part of the township, and no great difficulty should be experienced in obtaining water in this part of the area. A few wells are also located along the southern

boundary, but over the remainder of the township the shallow deposits are not numerous and it was necessary to sink the wells to a greater depth before water was encountered. The deposits may form a continuous horizon along the eastern boundary, but the evidence at hand is not sufficient to permit the outlining of a continuous aquifer. The supply from the wells in this group is recorded as adequate for farm needs, and although the water is hard it is not highly mineralized and is used for domestic purposes as well as for stock.

A few wells derive water from deposits in the unweathered blue boulder clay. Three wells, located in sections 2 and 3, are from 90 to 95 feet deep, and two in sections 5 and 16 are 55 and 50 feet deep, respectively. Possibly the wells in sections 2 and 3 tap a common aquifer, but its areal extent is not known. There does not appear to be any correlation in the aquifers of the wells on sections 5 and 16. Throughout the remainder of the township the deposits are scattered. A 100-foot dry hole was sunk in section 27, and it was necessary to drill to a depth of 202 feet in section 7 before an aquifer was encountered. The supply from the lower part of the drift is fairly abundant and is adequate for local requirements. The water is hard and mineralized, but, with the exception of that from the well located in section 2, it is used for drinking as well as for stock.

A well located in section 7 tapped an aquifer at a depth of 202 feet, or at an elevation of 1,979 feet above sea-level. The areal extent of this aquifer is not known, but it is not thought to be local. It is not definitely known if the aquifer is in the lower part of the drift or the upper part of the bedrock. The water is hard, and salty, and is being used for all farm needs. The supply is abundant. Wells sunk to similar elevations may encounter water in other sections of the township.

At least two dugouts are being used to conserve surface water for stock use, and the excavation of dugouts is highly recommended throughout the township.

Township 27, Range 18

The elevation in this township decreases from more than 2,200 feet along the western border to less than 2,000 feet above sea-level in a marshy area in sections 34 and 35. The ground surface is rolling. An area along the eastern boundary and another in the northwestern corner are mantled by moraine, whereas the remainder is covered by glacial till or boulder clay. Glacial lake clay overlies the glacial till in a small area in the southwestern corner of the township.

A few wells derive water from small deposits of sand and gravel in the upper part of the drift at depths in most places less than 25 feet. The deposits appear to be numerous only along a shallow ravine in sections 15, 22, and 23, and near depressions and sloughs. In other parts of the townships these deposits are sparsely distributed or non-existent. The deposits should be located by means of a small test auger before a well is sunk. The supply from shallow wells that tap water-bearing deposits is sufficient for local needs, and the water is used for drinking as well as for stock.

A spring located in section 22, locally known as "Iron spring", has a large flow and was used for stock. It was not being used, however, in 1935.

Most of the wells in the township obtain water from the lower part of the drift, at depths ranging from 100 to 260 feet. Bedrock was not definitely encountered in any of these wells and the aquifers are assumed to be in the glacial drift. In the southern half of the township the deposits appear to be fairly numerous, and other wells sunk in this area will probably encounter water at elevations ranging from 1,975 to 2,025 feet above sea-level. The supply of water from all of the wells was sufficient when first drilled, but the fine sand of the aquifers has clogged the casings in a number of them and reduced the available supply to such an extent that it is altogether inadequate for local needs. The water is very hard and highly mineralized and that from most of the wells

cannot be used for drinking or other domestic uses. A well located in section 18 has not been used for any purpose for nine years, and the water from another, located in section 24, was so salty that the well was filled in.

Dugouts are used successfully on a number of farms and they are recommended as a means of conserving surface water for stock use. They should be located in depressions and should be at least 12 feet deep. A dam in section 10 also retains a considerable amount of water.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF FAIRVIEW, NO. 258, SASKATCHEWAN

Township	25	25	25	26	26	26	27	27	27	Total No. in Municipality
West of 3rd mer.	16	17	18	16	17	18	16	17	18	
Total No. of Wells in Township	13	14	11	23	31	21	35	24	14	186
No. of wells in bedrock	1	0	3	1	0	0	0	0	0	5
No. of wells in glacial drift	12	14	8	22	31	21	35	24	14	181
No. of wells in alluvium	0	0	0	0	0	0	0	0	0	0
Permanency of Water Supply										
No. with permanent supply	12	11	10	21	22	21	34	22	14	167
No. with intermittent supply	0	0	0	0	1	0	0	0	0	1
No. dry holes	1	3	1	2	8	0	1	2	0	18
Types of Wells										
No. of flowing artesian wells	2	0	2	1	0	0	2	0	1	8
No. of non-flowing artesian wells	3	1	7	4	6	19	18	5	8	51
No. of non-artesian wells	7	10	1	16	17	2	14	17	5	89
Quality of Water										
No. with hard water	11	8	10	15	19	21	3	17	11	115
No. with soft water	1	3	0	6	4	0	31	5	3	53
No. with salty water	0	0	0	0	0	0	0	1	1	2
No. with "alkaline" water	3	1	8	5	9	10	17	1	9	63
Depths of Wells										
No. from 0 to 50 feet deep	11	10	3	15	24	0	22	17	7	109
No. from 51 to 100 feet deep	0	4	1	6	6	3	12	6	1	39
No. from 101 to 150 feet deep	1	0	2	1	0	4	1	0	2	11
No. from 151 to 200 feet deep	0	0	1	0	1	14	0	0	2	18
No. from 201 to 500 feet deep	1	0	4	1	0	0	0	1	2	9
No. from 501 to 1,000 feet deep	0	0	0	0	0	0	0	0	0	0
No. over 1,000 feet deep	0	0	0	0	0	0	0	0	0	0
How the Water is used										
No. usable for domestic purposes	8	9	4	15	20	11	23	22	8	120
No. not usable for domestic purposes	4	2	6	6	3	10	11	0	6	48
No. usable for stock	12	11	10	21	23	21	34	22	12	166
No. not usable for stock	0	0	0	0	0	0	0	0	2	2
Sufficiency of Water Supply										
No. sufficient for domestic needs	10	11	10	20	20	19	33	21	13	157
No. insufficient for domestic needs	2	0	0	1	3	2	1	1	1	11
No. sufficient for stock needs	11	11	10	15	17	20	33	16	12	145
No. insufficient for stock needs	1	0	0	6	6	1	1	6	2	23

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, $MgSO_4$), 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, Na_2SO_4) 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 (Na_2CO_3) "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

Iron (Fe) is dissolved from many rocks and the surface 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 impart 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 ban 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 soap 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 Fairview, No. 258, Saskatchewan.

LOCATION						Depth of Well, Ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS									Source of Water
No.	Qtr.	Sec.	Tp.	Rge.	Mer.			Total	Perm.	Temp.	Cl.	Alka-linity	CaO	MgO	SO_4	Na_2O	Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl	$CaCl_2$	
1	NE.	20	25	18	3	348	3,160	1,200	900	300	117	485	280	194	1,455	732	2,725	485	19		578		1,450	193		x 2
2	NW.	17	26	16	3	56	4,300	2,800	2800		133	65	460	583	2,740	515	3,866	65	1,030		1,735		916	220		x 1
3	SE.	33	26	17	3	60	986											(3)	(1)		(2)		(4)		(5)	x 1
4	SW.	34	26	17	3	85	2,200	1,600	1500	100	52	70	350	202	1,357	365	2,018	70	756		602		504	86		x 1
5	SE.	21	26	18	3	160	3,620	2,900	2700	200	62	460	590	497	1,865	124	3,009	460	806		1,480		161	102		x 1
6	NE.	28	26	18	3	115	3,366												(3)		(2)	(4)	(1)	(5)		x 1
7	SW.	11	27	16	3	56	3,020	3,000	3000		55	455	670	712	2,725	248	4,136	455	1,010		2,120		460	91		x 1
8	SE.	28	27	16	3	30	1,720	1,500	1300	200	96	370	90	306	865	300	1,652	161		175	662		496	158		x 1

Water samples indicated thus, x 1, are from glacial drift.
Water samples indicated thus, x 2, are from bedrock, Belly River formation.
Analyses are reported in parts per million; where 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 soap hardness expressed as calcium carbonate ($CaCO_3$).

Analyses Nos. 3 and 6, 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 were collected by the field party in 1935. They are samples 2, 4, 7, and 8. It has not been determined if sample 5 is from the glacial drift or from the underlying bedrock, but it is assumed to be from the drift. Samples 3 and 6 were analysed by the Provincial Analyst at Regina. It is not definitely known if these waters are from the drift or bedrock.

No samples of water were obtained from wells that derive their supply by direct seepage from surface water, but most of the water is moderately soft and not highly mineralized. It should be entirely satisfactory for stock, and if it is not contaminated by polluted surface water it should be suitable for domestic use.

No samples of water were obtained from the springs. The water from them is hard and contains a considerable amount of mineral salts in solution. The water from some of them is used for domestic purposes and that from all can be used for stock. Many residents haul water for domestic purposes from springs located in sec. 9, tp. 25, range 16, and sec. 12, tp. 25, range 18.

Sample 8 is probably derived from the glacial outwash deposits that occur at the base of the hills in township 27, range 16. The water is quite hard and contains 1,720 parts per million of total dissolved solids. Considerable $MgSO_4$ (Epsom salts) is present in solution, but no ill effects are recorded from the continued drinking of the water. The presence of 158 parts per million of NaCl (common salt) should not give the water a salty taste.

No samples of water from wells tapping the deposits of sand and gravel in the yellow boulder clay were collected and analysed, but the water from such sources is generally less hard and less highly mineralized than that obtained from the deeper wells. As a rule it is used for domestic purposes as well as for stock, and only a few residents reported that it was slightly laxative.

Samples 2, 3, 4, and 7 are from wells that tap aquifers in the blue boulder clay. Samples 2 and 7 are excessively mineralized. The presence of approximately 2,600 parts per million of combined $MgSO_4$ (Epsom salts) and Na_2SO_4 (Glauber's salt) would probable give the water a strong laxative effect, especially on those not accustomed to its use. The water represented by sample 2 is recorded as used for domestic purposes, but is not recommended for such use. Samples 3 and 4 are hard, but not so highly mineralized, and the water represented by sample 3 should be satisfactory for drinking as well as for stock. Sample 4, although not used for drinking, is much less highly mineralized than many waters that are being used for domestic purposes, but the combined total of 1,100 parts per million of Epsom salts and Glauber's salt in solution may cause the water to have a laxative effect. It should, however, be satisfactory for stock.

Samples 5 and 6 are from wells that are thought to tap aquifers near the base of the drift. Some of the water, however, may be from the underlying Bearpaw formation. The waters are excessively hard, and the hardness cannot be removed by boiling. The presence of 1,480 parts per million of $MgSO_4$ (Epsom salts) in sample 5, and the occurrence of Na_2SO_4 and $MgSO_4$ as the predominant mineral salts in sample 6, may cause the waters to be laxative, and their use may be limited to stock. The water from the deeper wells in the western part of the municipality is probably similar to that represented by samples 5 and 6.

Water from the Bedrock

Sample 1 is thought to be from an aquifer in the Belly River formation, but the aquifer may be in the lower part of the Bearpaw. The water is very hard and contains a large amount of mineral salts in solution, Na_2SO_4 (Glauber's salt), $MgSO_4$ (Epsom salts), and $CaCO_3$ (calcium carbonate) being the most abundant. The latter

salt has no ill effects except that it causes temporary hardness, but the 2,000 parts per million of Na_2SO_4 and $MgSO_4$ will probably cause the water to be laxative. The water is used for stock and no ill effects are recorded from its continued use for this purpose. The waters from a few of the bedrock wells are used for drinking as well as for stock, but these waters probably do not contain as high a mineral salt content in solution as that shown by sample 1.

WELL RECORDS—Rural Municipality of FAIRVIEW NO. 258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	SE.	2	25	16	3	Bored	90	1,950	- 82	1,868	82	1,868	Glacial sand and gravel	Hard, "alkaline"		S	Sufficient for 5 head stock; not now in use.
2	SE.	4	"	"	"	Flowing spring		2,030					Glacial drift			S	
3	NW.	9	"	"	"	Dug	20	2,220	- 14	2,206	14	2,206	Glacial sand and gravel	Hard		D, S	Sufficient supply; also flowing spring supplies several neighbours.
4	SW.	12	"	"	"	Bored	130	1,950									Dry hole; base in glacial drift.
5	NW.	14	"	"	"	Drilled	327	2,020	-227	1,793	327	1,693	Belly River	Hard		D, S	At present not used due to plugging with quicksand.
6	NE.	22	"	"	"	Dug	10	2,130	- 5	2,125	5	2,125	Glacial fine sand	Hard, "alkaline", sulphur			Scours stock; insufficient supply.
7	NE.	22	"	"	"	Bored	35	2,110	- 20	2,090	35	2,075	Glacial sand	Hard, "alkaline"		S	Too "alkaline" for use; scoured stock.
8	SE.	27	"	"	"	Dug	12	2,100					Glacial drift				Supplies water to NE.¼, section 22.
9	NW.	28	"	"	"	Spring		2,130					Glacial gravel				Good water.
10	NE.	31	"	"	"	Dug	20	2,090	- 10	2,080	20	2,070	Glacial sand	Hard		D, S	Abundant supply; 15,000 gallons an hour supplies hamlet of wartime, owned by C.N.R.
11	NW.	32	"	"	"	Bored	15	2,090	- 10	2,080	10	2,080	Glacial fine sand	Soft		D	Sufficient; yields 8 barrels an hour; also 23-foot well.
1	NE.	20	25	17	3	Bored	80	2,120					Glacial drift	Hard, "alkaline"		S	Sufficient supply; not used now.
2	SW.	22	"	"	"	Dug	12	2,115	- 8	2,107	18	2,107	Glacial sand	Soft		D, S	Sufficient; waters 12 head stock.
3	SW.	28	"	"	"	Bored	75	2,120	- 50	2,070	75	2,045	Glacial sand	Hard			Sufficient supply; also 32-foot well and a dry hole.
4	NE.	28	"	"	"	Dug	18	2,112	- 11	2,101	11	2,101	Glacial sand	Hard	42	D, S	Sufficient; not used at present.
5	SE.	34	"	"	"	Dug	16	2,150	- 12	2,138	12	2,138	Glacial sand	Hard	42	D, S	Sufficient supply.
6	SW.	34	"	"	"	Dug	18	2,190	- 12	2,178	18	2,172	Glacial sand	Hard	42	D, S	Sufficient; waters 35 head stock; five dry holes to 65 feet deep.
7	NW.	34	"	"	"	Dug	60	2,195									Dry hole; base in glacial drift.
8	SW.	36	"	"	"	Dug	20	2,140	- 18	2,122	18	2,122	Glacial drift	Soft		D, S	Barely sufficient; spring aids requirements.
9	NW.	36	"	"	"	Dug	40	2,130	- 35	2,095	35	2,095	Glacial gravel	Soft		D, S	Sufficient supply; spring in pasture; water from gravel.
1	SW.	5	25	18	3	Drilled	235	2,047	-195	1,852	235	1,812	Glacial coarse sand	Hard, slightly "alkaline"		D, S	Sufficient supply; dugout holds water all year.
2	SW.	6	"	"	"	Dug	60	2,045									Dry hole; base in glacial drift.
3	SE.	7	"	"	"	Drilled	360	2,075			360	1,715	Belly River	Hard, iron, "alkaline"			Sufficient supply.
4	NE.	8	"	"	"	Drilled	300	2,100	- 60	2,040	300	1,800	Belly River sand	Hard, slightly "alkaline"		D, S	Sufficient supply.
5	NE.	10	"	"	"	Flowing spring		1,910					Glacial drift	Hard, "alkaline"		S	Sufficient supply.
6	E½.	12	"	"	"	Flowing spring		2,130					Glacial gravel	Hard		D, S, M	Abundant supply; supplies 50 to 100 farmers of Fairview.

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.

WELL RECORDS—Rural Municipality of FAIRVIEW NO.258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
7	S½.	14	25	18	3	Spring		2,130					Glacial drift	Hard,"alkaline"		S	Sufficient supply.
8	NE.	20	"	"	"	Drilled	398	2,150	- 98	2,052	398	1,752	Belly River	Hard,iron, "alkaline"		S	Sufficient; waters 7 head stock.
9	N½.	21	"	"	"	Bored	140	2,160			140	2,020	Glacial sand	Hard,iron, "alkaline"		S	Sufficient for local needs; laxative on humans.
10	SE.	28	"	"	"	Bored	140	2,155			140	2,015	Glacial sand	Hard		S	Sufficient supply.
11	SE.	30	"	"	"	Drilled	180	2,150	- 76	2,074	180	1,970	Glacial fine sand and gravel	Hard,iron, "alkaline"		S	Sufficient for 16 head stock.
1	SE.	3	26	16	3	Dug	6	2,060	+		6	2,054	Glacial sand	Slightly hard		D, S	Sufficient supply.
2	SW.	4	"	"	"	Dug	20	2,080	- 12	2,068	12	2,068	Glacial gravel	Soft		D, S	Sufficient supply.
3	SE.	6	"	"	"	Dug	35	2,080	- 32	2,048	32	2,048	Glacial sand and gravel	Hard,"alkaline"		S	Insufficient supply.
4	SW.	6	"	"	"	Dug	40	2,100	- 37	2,063	37	2,063	Glacial sand and gravel	Soft		D, S	Sufficient supply; dugout holds water all year.
5	NW.	9	"	"	"	Dug	12	2,045	- 8	2,037	8	2,037	Glacial gravel	Hard		D, S	Sufficient supply; similar well.
6	SE.	13	"	"	"	Drilled	360	2,050			360	1,690		Hard,cloudy, "alkaline" iron		S	Insufficient; filled in with sand.
7	SW.	14	"	"	"	Bored	36	2,065	- 33	2,032	33	2,032	Glacial sand	Hard,iron, "alkaline"		D, S	Sufficient for 30 head stock; laxative.
8	SW.	16	"	"	"	Dug	20	2,045	- 10	2,035	10	2,035	Glacial sand	Hard,slightly"alkaline"		D, S	Sufficient supply.
9	NW.	17	"	"	"	Bored	56	2,030	- 36	1,994	56	1,974	Glacial drift	Hard,cloudy, "alkaline"		S	Barely sufficient.
10	N½.	20	"	"	"	Bored	75	2,080	- 70	2,010	70	2,010	Glacial sand	Hard		D, S	Sufficient for 15 head stock; two dry holes in glacial drift.
11	SE.	22	"	"	"	Bored	80	2,075	- 47	2,028	80	1,995	Glacial gravel	Hard, iron		S	Sufficient supply; drinking water hauled.
12	SE.	23	"	"	"	Dug	16	2,050	- 4	2,046	4	2,046	Glacial sand	Soft		D, S	Sufficient supply.
13	SW.	24	"	"	"	Dug	15	2,030	- 12	2,018	12	2,018	Glacial sand	Soft		D, S	Sufficient supply; neighbours haul from here.
14	NW.	28	"	"	"	Bored	46	2,100	- 32	2,068	32	2,068	Glacial sand	Hard		D, S	Insufficient supply.
15	SE.	30	"	"	"	Bored	50	2,100	- 45	2,055	45	2,055	Glacial gravel	Slightly hard		D, S	Sufficient supply.
16	NW.	30	"	"	"	Dug	40	2,100	- 36	2,064	36	2,064	Glacial gravel	Soft		D	Insufficient supply.
17	NW.	32	"	"	"	Bored	100	2,050	- 90	1,960	90	1,960	Glacial drift	Hard,"alkaline"		S	Insufficient supply; similar well.
18	SE.	34	"	"	"	Bored	60	2,020	- 50	1,970	50	1,970	Glacial sand	Soft		D, S	Sufficient supply; dam for stock in summer.
19	NE.	36	"	"	"	Bored	96	2,020	- 62	1,958	96	1,924	Glacial drift	Hard,iron, sulphur		D, S	Abundant supply.
1	NW.	1	26	17	3	Dug	18	2,110	- 13	2,097	13	2,097	Glacial gravel	Soft		D, S	Sufficient supply.
2	NE.	2	"	"	"	Dug	18	2,110	- 14	2,096	14	2,096	Glacial sand	Soft		D, S	Sufficient supply.
3	NW.	4	"	"	"	Dug	12	2,130	- 8	2,122	8	2,122	Glacial sand	Soft		D, S	Sufficient supply; neighbours haul water from here.

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.

WELL RECORDS—Rural Municipality of FAIRVIEW NO. 258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
4	NE.	4	26	17	3	Dug	45	2,130					Glacial fine sand	Hard		D, S	Insufficient supply; well caved in.
5	SW.	10	"	"	"	Dug	16	2,115	- 6	2,109	6	2,109	Glacial gravel	Soft		D, S	Had abundant supply, but was filled in during 1933.
6	E½.	12	"	"	"	Dug	30	2,105	- 25	2,080	25	2,080	Glacial gravel	Hard, cloudy, iron	43	D, S	Sufficient; waters 50 head stock.
7	SE.	14	"	"	"	Dug	32	2,105	- 16	2,89	32	2,073	Glacial drift	Hard, "alkaline"	42	D, S	Sufficient; waters 40 head stock.
8	SE.	16	"	"	"	Bored	60	2,103	- 40	2,063	60	2,043	Glacial sand and gravel	Hard, iron		D, S	Sufficient supply.
9	NW.	16	"	"	"	Dug	40	2,115									Four dry holes; bases in glacial drift; use an intermittent well.
10	SE.	18	"	"	"	Bored	45	2,152	- 30	2,122	45	2,107	Glacial sand	Hard		D, S	Sufficient supply; slough waters stock in summer.
11	NW.	19	"	"	"	Bored	90	2,200	- 85	2,115	85	2,115	Glacial drift	"Alkaline", cloudy		D	Insufficient supply; laxative.
12	SE.	24	"	"	"	Flowing well		2,110					Glacial drift	Hard, cloudy, iron	42	S	
13	NE.	24	"	"	"	Dug	28	2,120	- 25	2,095	25	2,095	Glacial fine sand	Hard, "alkaline"	42	S	Sufficient for 15 head stock; shallow well for house use.
14	NW.	26	"	"	"	Bored	40	2,115	- 30	2,085	30	2,115	Glacial sand	Hard, iron, "alkaline"		D, S	Sufficient supply; also springs with ample supply of good water.
15	SW.	28	"	"	"	Bored	100	2,130	- 95	2,035	95	2,035	Glacial black sand	Hard, iron, "alkaline", cloudy	42	D, S	Insufficient; laxative; waters 11 head stock; four dry holes to 40 feet.
16	NE.	28	"	"	"	Bored	90	2,108	- 85	2,023	85	2,023	Glacial sand	Hard, iron, slightly "alkaline"	42	D, S	Unused at present; fair supply slightly laxative.
17	N½.	30	"	"	"	Drilled	160	2,200	-140	2,060	160	2,040	Glacial fine sand	Hard, iron, "alkaline", cloudy	42	D, S	Sufficient supply.
18	SE.	33	"	"	"	Dug	60	2,126	- 36	2,090	60	2,066	Glacial sand	Hard	42	D, S	Sufficient supply.
19	SE.	34	"	"	"	Bored	45	2,130	- 40	2,090	45	2,085	Glacial sand	Hard, "alkaline"		D, S	Sufficient supply.
20	SW.	34	"	"	"	Bored	85	2,100	- 55	2,045	85	2,015	Glacial drift	Hard, iron, "alkaline", sulphur		S	Sufficient supply; 16-foot seepage well supplies house.
1	NE.	4	26	18	3	Bored	160	2,220	-150	2,070	150	2,070	Glacial sand	Hard		S	Sufficient supply; 200-foot "alkaline" well unused.
2	SE.	5	"	"	"	Bored	140	2,180	-100	2,080	140	2,040	Glacial sand	Hard, iron		D, S	Sufficient for 10 head stock.
3	SW.	6	"	"	"	Drilled	160	2,200	-140	2,060	160	2,040	Glacial? sand	Hard, iron		D, S	Limited supply.
4	NW.	6	"	"	"	Bored	200	2,180			200	1,980	Glacial? drift	Hard, iron		S	Sufficient supply; drinking water hauled.
5	NE.	8	"	"	"	Drilled	165	2,190	-105	2,085	165	2,025	Glacial? fine sand	Hard, iron, "alkaline"	42	S	Sufficient for 16 head stock.
6	SW.	14	"	"	"	Bored	85	2,180	- 81	2,099	81	2,099	Glacial fine sand	Hard	42	D, S	Sufficient supply.
7	NW.	14	"	"	"	Bored	90	2,190	- 75	2,115	90	2,100	Glacial drift	Hard	42	D, S	Sufficient supply.
8	NW.	16	"	"	"	Bored	160	2,200	-110	2,090	160	2,040	Glacial? drift	Hard		N	Well unused; no stock to water; drinking water hauled.

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.

WELL RECORDS—Rural Municipality of FAIRVIEW NO. 258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
9	NW.	18	26	18	3	Drilled	190	2,190	-110	2,080	190	2,000	Glacial ? fine sand	Hard, slightly "alkaline"	42	D, S	Sufficient supply.
10	SW.	19	"	"	"	Drilled	200	2,200	- 50	2,150	200	2,000	Glacial? drift	Hard, "alkaline"		S	Not used now; screen plugged.
11	SE.	21	"	"	"	Bored	160	2,160	- 60	2,100	160	2,000	Glacial fine sand	Hard, cloudy, "alkaline"		S	#
12	SE.	24	"	"	"	Bored	75	2,170	- 55	2,115	75	2,095	Glacial sand	Hard, iron, "alkaline", cloudy	42	D, S	Sufficient supply.
13	SW.	24	"	"	"	Bored	130	2,180	-100	2,080	130	2,050	Glacial sand and gravel	Hard		D, S	Sufficient supply.
14	NW.	25	"	"	"	Drilled	152	2,195	-127	2,068	152	2,043	Glacial sand? and gravel	Hard, iron, slightly "alkaline"	42	D, S	Sufficient for 13 head stock.
15	SW.	28	"	"	"	Drilled	176	2,180	-101	2,079	176	2,004	Glacial? sand	Hard, "alkaline"	42	S	Sufficient for stock; hauls drinking water 11 miles.
16	NE.	28	"	"	"	Bored	115	2,180	- 70	2,110	115	2,065	Glacial sand	Hard, "alkaline"		S	Sufficient supply; drinking water hauled 9 miles.
17	SE.	29	"	"	"	Bored	165	2,190	-110	2,080	165	2,025	Glacial? sand	Hard		S	Sufficient supply.
18	SE.	30	"	"	"	Drilled	200	2,200	-100	2,100	200	2,000	Glacial? sand	Hard, slightly "alkaline"	42	D, S	Sufficient supply; also has a dugout.
19	NE.	36	"	"	"	Bored	135	2,150	-110	2,040	135	2,015	Glacial? sand	Hard, iron, strongly "alkaline"		S	Sufficient; drinking water hauled.
1	NE.	1	27	16	3	Bored	70	2,060	- 55	2,005	70	1,990	Glacial sand	Hard	42	D, S	Sufficient for 30 head stock.
2	SE.	3	"	"	"	Flowing well		2,000					Glacial fine sand	Hard, sulphur, "alkaline"		S	Sufficient supply.
3	SW.	3	"	"	"	Bored	60	2,020	- 50	1,970	50	1,970	Glacial drift	Hard, "alkaline"		S	Sufficient supply.
4	NE.	4	"	"	"	Bored	104	2,080	- 70	2,010	104	1,976	Glacial drift	Hard, iron, cloudy	42	D, S	Sufficient for 12 head stock.
5	SE.	9	"	"	"	Bored	60	2,080	- 20	2,060	60	2,220	Glacial drift	Hard, "alkaline"		S	Sufficient supply; second 90-foot well.
6	SW.	10	"	"	"	Bored	70	2,050	- 55	1,995	70	1,980	Glacial drift	Hard, strongly "alkaline"	42	S	Sufficient for stock; laxative on man.
7	SW.	11	"	"	"	Bored	56	2,030	- 46	1,984	56	1,974	Glacial drift	Hard, "alkaline"		S	Sufficient supply; also springs.
8	NE.	16	"	"	"	Bored	95	2,140	- 60	2,080	95	2,045	Glacial sandy gravel	Hard, iron, "alkaline"	42	S	Sufficient for stock; too "alkaline" for humans.
9	SE.	18	"	"	"	Bored	40	2,250	- 38	2,212	40	2,210	Glacial gravel	Soft		D, S	Sufficient for house use.
10	NW.	19	"	"	"	Dug	16	2,180	- 10	2,170	10	2,170	Glacial sand	Hard	42	D, S	Sufficient supply.
11	NE.	19	"	"	"	Dug	12	2,180	- 7	2,173	7	2,173	Glacial sand	Hard	42	D, S	Sufficient supply.
12	SW.	22	"	"	"	Bored	60	2,040	- 33	2,007	60	1,980	Glacial drift	Hard, strongly "alkaline"	42	S	Sufficient for 13 head stock; laxative drinking water hauled.
13	NW.	22	"	"	"	Bored	56	2,075	- 19	2,056	56	2,019	Glacial fine gravel	Hard, iron, "alkaline"		D, S	Sufficient for 100 head stock.
14	NE.	24	"	"	"	Bored	40	2,000	- 20	1,980	40	1,960	Glacial drift	Hard, iron, "alkaline"			Insufficient; unfit for humans; drinking water hauled.

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.

WELL RECORDS—Rural Municipality of FAIRVIEW NO. 258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
15	SE.	25	27	16	3	Bored	45	2,000	- 25	1,975	45	1,955	Glacial drift	Hard, strongly "alkaline"	42	D, S	Sufficient supply; too laxative for humans; also a dugout.
16	NE.	25	"	"	"	Springs		1,940					Glacial sand and gravel	Hard, "alkaline"		S	Not suitable for humans.
17	SW.	26	"	"	"	Bored	60	2,000	- 30	1,970	60	1,940	Glacial fine sand	Hard, "alkaline"	42	S	Sufficient for 10 head stock; too laxative for humans.
18		21	"	"	"	Drilled	21	2,060	- 6	2,054	21	2,039	Glacial sand and gravel	Hard		D, S	Sufficient for local needs; supplies drinking water to neighbours.
19	SE.	27 28	"	"	"	Bored	30	2,070	- 12	2,058	30	2,040	Glacial sand	Hard, iron	42	D, S	Sufficient supply; also many springs.
20	NE.	28	"	"	"	Bored	50	2,060	- 20	2,040	50	2,010	Glacial sand	Hard, "alkaline"		D, S	Sufficient supply; also 90-foot dry hole.
21	SE.	30	"	"	"	Dug	25	2,100	- 20	2,080	20	2,080	Glacial sand	Hard	43	D, S	
22	SW.	30	"	"	"	Dug	15	2,120	- 9	2,111	9	2,111	Glacial sand	Hard, "alkaline"		S	Sufficient supply; also 14-foot well.
23	NE.	31	"	"	"	Bored	40	2,230	- 33	2,197	40	2,190	Glacial sand	Hard, "alkaline"	42	D, S	Sufficient; waters 12 head stock; owner has dugout.
24	SE.	34	"	"	"	Flowing well		2,000					Glacial sand and gravel	Hard, "alkaline"	42	S	Sufficient for stock; ample supply of "alkaline" water.
25	SE.	34	"	"	"	Bored	60	2,040	- 30	2,010	60	1,980	Glacial fine gravel	Hard, iron		D, S	Sufficient supply.
26	S½.	35	"	"	"	Bored	55	2,020	- 40	1,980	55	1,965	Glacial fine sand	Hard, "alkaline"	42	S	Sufficient for stock; hauls drinking water.
1	SE.	1	27	17	3	Bored	70	2,180	- 57	2,123	70	2,110	Glacial drift	Hard		D	Sufficient supply; 47-foot well in pasture has strong supply.
2	SW.	1	"	"	"	Dug	20	2,138	- 14	2,124	14	2,124	Glacial sand and gravel	Hard	43	D, S	Sufficient supply.
3	NW.	2	"	"	"	Bored	95	2,125	- 87	2,038	87	2,038	Glacial fine sand	Hard, "alkaline"		D	Sufficient supply.
4	NE.	2	"	"	"	Dug	15	2,150	- 10	2,140	10	2,140	Glacial sand	Soft		D, S	Sufficient supply.
5	SW.	3	"	"	"	Bored	90	2,140	- 84	2,056	84	2,056	Glacial sand	Hard, cloudy	42	D, S	Sufficient supply; also dugout.
6	NE.	3	"	"	"	Bored	90	2,130									This well is plugged with fine sand; uses an 18-foot well.
7	NW.	4	"	"	"	Dug	35	2,110	- 25	2,085	25	2,085	Glacial gravel	Soft		D	Sufficient supply; also similar 35-foot well for stock.
8	NE.	5	"	"	"	Bored	55	2,140	- 40	2,100	55	2,085	Glacial drift	Hard	42	D, S	Sufficient; waters 10 head stock.
9	NW.	7	"	"	"	Bored	202	2,180	-138	1,042	202	1,978	Glacial? gravel	Hard, salty	42	D, S	Sufficient supply.
10	SE.	12	"	"	"	Dug	35	2,187	- 28	2,159	28	2,159	Glacial sand	Hard	43	D	Sufficient; supplies two houses.
11	SW.	13	"	"	"	Dug	18	2,180	- 14	2,166	14	2,166	Glacial sand and gravel	Hard	42	D, S	Sufficient supply.
12	SW.	16	"	"	"	Bored	50	2,195	- 34	2,161	50	2,145	Glacial sand	Soft	40	D, S	Sufficient supply.
13	W½.	24	"	"	"	Dug	18	2,200	- 15	2,185	15	2,185	Glacial sand and gravel	Hard	42	D, S	Sufficient supply.
14	NE.	24	"	"	"	Dug	23	2,200	- 10	2,190	23	2,177	Glacial sand	Soft		D, S	Sufficient supply; second 20-foot well, soft water, small supply.

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.

WELL RECORDS—Rural Municipality of FAIRVIEW NO. 258, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
15	NE.	26	27	17	3	Dug	26	2,220	- 20	2,200	20	2,200	Glacial coarse gravel	Soft		D, S	Sufficient supply; two similar wells.
16	NE.	27	"	"	"	Bored	100	2,240									Dry hole; base in glacial drift hauls water.
17	NW.	32	"	"	"	Dug	18	2,200	- 15	2,185	15	2,185	Glacial sand	Hard	43	D, S	Sufficient supply; waters 8 head stock; also 22-foot dry hole.
18	NW.	36	"	"	"	Dug	12	2,200	- 8	2,192	8	2,200	Glacial sand and gravel	Hard	42	D, S	Ample supply.
1	NW.	1	27	18	3	Drilled	213	2,210	-153	2,057	213	1,997	Glacial? fine sand	Hard		S	Used to be good supply; now plugged with quicksand.
2	SW.	2	"	"	"	Drilled	170	2,200	-100	2,100	170	2,030	Glacial? sand	Hard, iron, "alkaline," sulphur		S	Now caved in; practically dry; hauls water.
3	SE.	4	"	"	"	Bored	150	2,180	-100	2,080	150	2,030	Glacial? sand	Hard, iron, "alkaline," sulphur		D, S	Barely sufficient for 15 head stock; laxative; also large dugout.
4	NW.	4	"	"	"	Bored	150	2,185	-100	2,085	150	2,035	Glacial sand	Hard, iron, sulphur, "alkaline"		S	Barely sufficient.
5	SE.	14	"	"	"	Bored	160	2,130	-110	2,020	160	1,970	Glacial fine sand	Hard, iron, "alkaline", sulphur		S	Sufficient supply.
6	NE.	15	"	"	"	Dug	25	2,140	- 15	2,125	15	2,125	Glacial gravel	Slightly hard some "alkali"		D, S	Sufficient supply.
7	NE.	18	"	"	"	Drilled	260	2,255	-200	2,055	260	1,995	Glacial fine sand	Hard, iron, "alkaline"		S	Very poor supply; dugout and cistern supply water.
8	SE.	22	"	"	"	Flowing spring		2,100					Glacial drift	Hard, iron, "alkaline"		N	Abundant supply.
9	SW.	23	"	"	"	Dug	5	2,080	0	2,080			Glacial gravel	Hard, iron, "alkaline"		D, S	Laxative.
10	SW.	24	"	"	"	Dug	100	2,050	- 90	1,960	100	1,950	Glacial sand	Hard, iron, "alkaline," salty		N	Too salty for use.
11	SW.	25	"	"	"	Dug	16	2,040	- 8	2,032	8	2,032	Glacial gravel	Soft		D, S	
12	NW.	25	"	"	"	Dug	16	2,040	- 8	2,032	8	2,032	Glacial gravel	Soft		D, S	
13	NE.	30	"	"	"	Bored	120	2,215	-110	2,105	120	2,195	Glacial fine sand	Hard, iron		S	Sufficient for stock.
14	NE.	31	"	"	"	Dug	12	2,225	0	2,225			Glacial drift	Soft		D, S	Sufficient supply; seepage from dugout holds large supply.
		31	27	20	3		252	2300	-125	2175	248 252		gravel				No other information.

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.