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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

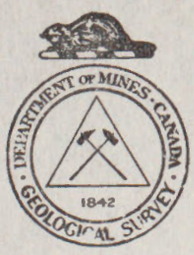
PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF MILTON No. 292 SASKATCHEWAN

BY

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

Water Supply Paper No. 206



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WATER SUPPLY PAPER NO.206

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF MILTON, NO. 292, 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 Interio.

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, be 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 Strear 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.

Porvious 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 rests 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 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 Milton, No. 292, is an area of approximately 263 square miles in western Saskatchewan. The Fourth meridian, the boundary between Saskatchewan and Alberta, forms the western boundary of the municipality. The area is composed of six full townships described as tps. 28, 29, and 30, ranges 27 and 28, and three fractional townships described as tps. 28, 29, and 30, range 29, all W. 3rd mer. The centre of the municipality lies approximately 7 1/3 miles east of the Fourth meridian and 171 miles north of the International Boundary line. The Winnipeg-Calgary branch of the Canadian National railways traverses the southern part of the municipality in a southwest to northeast direction, and on it are located the town of Alsask, the hamlet of Merid, and the village of Marengo. Government Highway No. 7 runs along the western boundary, and No. 17 runs in an east-west direction through the central part of the area.

The ground surface is rolling and in some areas it is characterized by flat lake basins. Knolls are common in some parts of the area. In the eastern part of township 28, range 27, the elevation is more than 2,500 feet above sea-level, but in many of the low, flat areas it is less than 2,200 feet above sea-level. Alsask, Merid, and Marengo are at elevations of 2,302, 2,232, and 2,238 feet above sea-level, respectively. Most of the municipality is covered by glacial till or boulder clay, but many, small, moraine-covered areas are common throughout the area. Glacial lake clays overlie the boulder clay in a number of small areas in the western half of the area. The approximate boundaries of the above deposits may be ascertained from Figure 1 of the accompanying map. The top soil in the western part of the

area is light and sandy, but in the eastern part it is heavier and in some low-lying areas it is a heavy, "alkali" clay. No general water-bearing horizons of wide areal extent are known to exist in either the glacial drift or underlying bedrock in this municipality.

Water-bearing Horizons in the Unconsolidated Deposits

The glacial lake clays that overlie the boulder clay in a number of small areas in the western part of the municipality have not proved a source of water. These lake clays attain a thickness of 30 feet in some areas. Small quantities of water are obtained, however, from deposits of sand and gravel that occur at the contact of the glacial lake clay and boulder clay. Many of the lake clays contain a considerable amount of mineral salts, and in some areas they form "alkali" flats. It is not advisable to sink wells in these areas as any water obtained will probably be too highly mineralized for farm use.

The water conditions in the moraine and glacial till-covered areas appear to be similar. A number of wells sunk near sloughs or in depressions obtain water. In years of normal rainfall the supply from these wells is usually sufficient for local needs, but during winters and drought periods the supply decreases and the wells may become totally dry. By deepening the well as the water table lowers a sufficient supply for domestic needs can in many cases be obtained throughout the year. Wells sunk near dugouts, or water impounded by a dam, have proved a source of supply in many municipalities in other parts of Saskatchewan, and they can also be used to advantage in this area. The water obtained from the shallow seepage wells is comparatively soft,

and if care is taken to see that the water is not contaminated it should be entirely satisfactory for all domestic purposes.

The upper 25 to 40 feet of the glacial drift is usually composed of light-coloured, weathered clay that contains a few scattered pockets of sand and gravel. A few wells in the municipality tap these deposits of water-bearing sand or gravel. The deposits, however, are sparsely distributed and in no part of the municipality do they appear to form a general or continuous water-bearing horizon. The occurrence of the pockets or deposits in township 30, range 27, is particularly sparse, and no wells are recorded as tapping them in this township. To save time and expense the weathered zone of the drift should be prospected by means of a small auger, as by so doing a water-bearing deposit may be encountered before a well-site is chosen. The supply obtained from this type of well varies considerably, but it is generally sufficient for domestic needs and 10 to 15 head of stock. The water varies from moderately soft to very hard, and there is also a wide variation in the amount of mineral salts contained in solution. With few exceptions, however, the water from the shallow wells is satisfactory for domestic use.

The water-bearing deposits that are located in the lower part or unweathered zone of the drift are the source of water for most of the wells in this municipality. They are tapped at depths of from 40 to 129 feet. Over most of the municipality little or no correlation in the occurrence of the deposits is evident, but in an area in the northern part of township 30, ranges 27 and 28, outlined by the "A" boundary line, the deposits appear to be fairly numerous, and in this part of the municipality little difficulty should be experienced in obtaining water. A dry hole located in sec. 14, tp. 30, range 27, may limit the extent of the horizon in that direction.

Due to the small areal extent of some of the aquifers, and also to sand plugging the casings, a number of wells yield an inadequate supply of water for local requirements, but most of the wells tapping aquifers in the lower part of the drift yield a sufficient supply for farm needs. The water is generally quite hard, although from a few wells it is recorded as being soft, and the concentration of mineral salts in solution varies widely over small areas. The water from a few wells is recorded as unsuitable for drinking due to high mineralization, but all wells are being used for stock. Dams and dugouts are used to retain surface water for stock use in some localities.

Water-bearing Horizons in the Bedrock

The Belly River formation is thought to immediately underlie the glacial drift throughout this municipality. In the southeastern part of the municipality the thickness of the glacial drift is at least 129 feet and in the southwestern corner it is at least 90 feet. In the northwestern corner of township 29, range 27, bedrock is reported to occur at an approximate depth of 100 feet and in a well in sec. 7, tp. 30, range 29, coal was reported at a depth of 40 feet.

The "B" boundary line outlines an area in which a few wells are thought to be obtaining water from an aquifer in the Belly River formation. The depths of the wells vary from 100 to 130 feet, and the aquifer or aquifers, if more than one is present, occur at elevations of 2,135 to 2,170 feet above sea-level. Three wells located in secs. 7, 10, and 17, tp. 30, range 28, which obtain water at elevations of 2,191, 2,170 and 2,170 feet, may tap the same aquifer or aquifers that occur in the outlined area. The areal extent of this water-bearing

horizon is unknown, but it may be encountered at other localities throughout the municipality. The supply of water from these wells is adequate for farm needs, but the water from two of the wells is unsatisfactory for domestic needs. Other water-bearing horizons are known to exist at greater depths in the Belly River formation in other municipalities, and it is probable that water may also be obtained at depths in the municipality of Milton, but it may be highly mineralized.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 28, Range 27

The ground surface of this township is rolling in the glacial till-covered areas, and rough and hilly in the moraine-covered areas. The elevation rises from 2,300 feet in the southeastern corner to more than 2,500 feet above sea-level in the northwestern corner. The northwestern corner and four small areas in the southern part of the township are mantled by moraine. The remainder is covered by glacial till. These deposits consist of a few feet of top-soil; weathered, light-coloured boulder clay that extends to a depth of 35 feet and contains a few scattered pockets of sand and gravel; and compact, blue boulder clay that extends to the bedrock and also contains deposits of sand and gravel.

The water supply in this township is derived from wells sunk into the glacial drift, and from a few springs. At least five wells obtain water from the pockets of sand and gravel in the weathered zone of the drift. The deposits do not form a continuous water-bearing horizon. It is advisable to locate these water-bearing pockets by means of a small test auger before digging a well. The supply from the shallow wells in this township is sufficient for local needs, and the water, although some of it is fairly highly mineralized, can be used for drinking as well as for stock.

Scattered deposits of sand in the weathered zone of the drift form the chief source of supply for wells in this township. The deposits do not form continuous water-bearing horizons. They are located at depths varying from less than 60 feet to 130 feet below the surface. It should not be difficult to obtain water from the lower part of the drift in this township as no dry holes are recorded, but since the

drift has not been very fully prospected, the water-bearing sand deposits may later prove to be more sparsely distributed than now assumed. The supply from the wells tapping the deposits varies considerably and two wells located in sections 7 and 19 do not yield a sufficient supply for local needs. The remainder of the wells, however, yield adequate supplies, and a few yield an over-sufficient amount. The water is generally quite hard and fairly highly mineralized, but that from almost all the wells is being used for drinking as well as for stock.

Township 28, Range 28

The surface of this township is rolling throughout and is fairly hilly in some areas. An "alkali" flat or depression covers a considerable area in the southern part of the township. The elevation varies from approximately 2,150 feet to 2,325 feet above sea-level. The station of Merid is at an elevation of 2,232 feet above sea-level. Most of the township is mantled by boulder clay or glacial till, but a small area in the northeastern corner, and two small areas in the southwestern corner, are covered by moraine. In a small area in the northwestern corner, and two small areas in the central part of the township, the boulder clay is overlain by glacial lake clays.

The lake clays have not been prospected for water, but it is improbable that they will prove a source of supply. Some water, however, may be obtained from deposits of sand and gravel that usually occur at the contact of the lake clays and boulder clay. The lake clays are not thought to be of very great thickness and before digging a well in them test holes should be sunk with small hand augers.

No wells have been sunk into the moraine deposits in this township, but it is improbable that the water-bearing conditions in them differ from those of the deposits of boulder clay or glacial till. The boulder clay consists of a few feet of top-soil; a light-coloured, weathered clay that may contain pockets of sand and gravel; and unweathered, blue clay that extends to the bedrock, and contains scattered deposits of sand or gravel.

A few wells tap the water-bearing sand deposits in the unweathered zone of the drift at depths of 12 to 21 feet. Sufficient information to determine the distribution of the pockets is not at hand, but it is unlikely that they are of common occurrence, and they do not form a continuous horizon. The supply of water from the shallow producing wells, although noticeably affected by drought conditions, is usually sufficient for domestic needs and a few head of stock. The water is suitable for all farm needs. It appears probable that wells sunk near depressions in the southern part of the township would obtain highly mineralized water. Test holes should be sunk before a shallow well is dug.

The water-bearing deposits in the unweathered zone of the drift are the source of supply for most of the wells in this township. The deposits are tapped at depths of 50 to 127 feet, and they are thought to occur as scattered pockets and not as continuous deposits. From the data at hand it would appear that water should be obtained in the northeastern corner of the municipality if wells are sunk to elevations of approximately 2,200 feet above sea-level. No dry holes were recorded throughout the township, and it appears that the deposits are of common occurrence. Two wells located in sections 16 and 17 yield a supply that is insufficient for local needs. The water from these wells is used only for stock,

but that from the others is being used for all household purposes.

Township 28, Range 29

This fractional township is bounded on the west by the Fourth meridian, and is approximately 16½ square miles in area. The ground surface is rolling, becoming fairly hilly in the northern part. The village of Alsask, located in section 10, is at an approximate elevation of 2,300 feet above sea-level. Most of the area is mantled by boulder clay or glacial till. Moraine covers a small area in the west-central part, and in parts of sections 34 and 35 the glacial till is overlain by glacial lake clays.

The ground water conditions of the lake clays have not been investigated, but it is improbable that they will prove a source of supply. These deposits are not thought to exceed 30 feet in thickness, and it is possible that some water may be obtained from deposits of sand at the contact of the lake clays and the underlying glacial till.

The water conditions in the areas covered by moraine and glacial till appear quite similar. Both types of deposits generally consist of a few feet of the top-soil, which is quite light and sandy in the southern part of the township. This is underlain by a zone of light-coloured, weathered boulder clay that contains scattered pockets of sand and gravel. This zone is underlain by unweathered boulder clay, which is known to extend to a depth of at least 90 feet. The weathered zone of the drift does not appear to contain many deposits of water-bearing sand or gravel, and only one well is assumed to be deriving its supply from this source, the remaining wells being dug to considerably greater depths. If only a shallow well is contemplated the prospective well-site should be prospected for water-bearing deposits by means of a small auger.

The supply from the well located in section 13 is adequate for local needs, and the water has been found quite satisfactory for domestic use. Other shallow wells may probably yield similar supplies of usable water.

Most of the wells in this township derive their supply of water from deposits of sand or gravel that occur in the unweathered zone of the drift. The wells are from 40 to 90 feet deep. The aquifers are usually composed of fine sand, and considerable trouble is experienced with it plugging the wells and shutting off the supply. The aquifer of six wells in sections 2, 3, 10, 11, 14, and 15 appears to be fairly continuous and a general water-bearing horizon of small areal extent may underlie this part of the township. It is more probable, however, that each well taps an individual pocket. The yield from the wells in sections 14 and 15 is adequate for local requirements. The other wells yield sufficient water for local needs. The water is hard and suitable for all farm needs. The town well in Alsask yields sufficient water for the population requirements, and water for fire protection is also obtained from this well.

Township 29, Range 27

With the exception of a narrow area trending in a southwest-northwest direction through the southeastern corner, which is covered by moraine, this township is mantled by boulder clay or glacial till. A few depressions and ravines occur, but the ground surface is gently undulating. Maringo, located in section 18, lies at an elevation of 2,238 feet above sea-level. From this point the elevation rises gradually towards the east.

Wells sunk in the glacial drift and into the underlying bedrock form the chief source of water supply in this township.

Undrained depressions or sloughs are probably used while they contain sufficient water. The water conditions in the moraine and boulder clay-covered areas appear to be similar.

A few wells obtain water from scattered deposits of sand or gravel that occur in the weathered zone of the glacial drift. These deposits do not form a continuous water-bearing horizon and dry holes will probably be dug before a producing well is obtained. In the vicinity of Marengo, however, the pockets appear to be fairly numerous, and it should be possible to obtain adequate supplies of water in this area with little difficulty. Throughout the remainder of the township, however, it may be difficult to locate water-bearing deposits at shallow depth Test holes should be made with a small hand auger before a well is dug. The supply from the wells that tap the shallow water-bearing deposits is not abundant, but most of the wells yield sufficient water for domestic needs and a small number of stock. The water is hard and contains mineral salts in solution, but it has been found quite satisfactory for domestic needs.

Most of the wells in this township derive their water from the deposits of sand or gravel that are located at varying depths in the unweathered boulder clay. The wells are from 50 to 109 feet deep. No general water-bearing horizon appears to be present, but some relationship is evident in the aquifers of wells on adjoining quarter-sections. No dry holes, however, are recorded in this township, and it appears that the water-bearing deposits are fairly numerous and that water should be obtained with little difficulty. The supply from some of the wells is inadequate for local needs, due in part to the fine sand of the aquifer shutting off the supply. The water is quite hard, and that from most of the wells is highly mineralized, but it is used for drinking with no apparent ill effects.

In the area outlined by the "B" boundary line, four wells are thought to be drawing their supply from an aquifer in the bedrock. The bedrock immediately underlying the drift in this area is probably the Belly River formation. The wells are sunk to depths of from 100 to 130 feet and the aquifers are tapped at elevations of 2,137 to 2,170 feet above sea-level. In the NE.$\frac{1}{4}$, section 31, and the SW.$\frac{1}{4}$, section 32, coal was reported as occurring near the base of the wells and it may form part of the aquifer. The areal extent of this water-bearing horizon in the bedrock, other than shown by the outlined area, is not known, but it appears probable that other wells sunk in the vicinity of this area will also obtain water from the same aquifer. The aquifer appears to dip towards the southeast and it may be necessary in the southern part of the township to sink wells to lower elevations than those in the above group, before water is obtained from this source. The water from the wells is under some hydrostatic pressure and the supply is more than sufficient for local needs. The water in one well is recorded as being moderately soft, whereas that from the others is hard, but it contains a relatively large amount of mineral salts in solution. It is usable for domestic purposes as well as for stock.

Township 29, Range 28

Most of the ground water in this township is obtained from wells sunk in the glacial drift. The supply is supplemented to some extent by springs and dams.

Boulder clay or glacial till covers most of the township, but a small area in the west-central part of the township is covered by moraine. In the south-central part of the township and in the northwestern corner, two depressions or lowlands occur. Lake clays overlie the glacial till in the

depression in the south part of the area and also in a small area in the central part of the township. The glacial lake deposits in this area are composed chiefly of fine silts, which are not thought to contain water. The wells located in section 20 were sunk to a depth of 60 feet before water was obtained, and it is probable that it is being derived from the underlying boulder clay. The glacial lake deposits are not thought to exceed 30 feet in thickness. In some parts, deposits of sand or gravel occurring at the contact of the lake and boulder clays may yield small supplies of water, but it is improbable that the clays themselves will yield water. The lower areas or depressions in this township, especially in the southern part, are characterized by "alkali" deposits and any water obtained from wells sunk in these areas would probably be too highly mineralized for use.

Very few wells are obtaining their water supply from the scattered water-bearing deposits in the weathered part of the glacial drift. The wells that tap these deposits are generally only 12 to 20 feet in depth. The aquifers they tap do not appear to show any relationship, and it is improbable that they form a general water-bearing horizon. Testing for shallow water-bearing deposits by means of a hand auger is recommended before a well-site is selected. The well located in section 19 yields an abundant supply of water, and a well in the NE.$\frac{1}{4}$, section 22, yields a sufficient supply for local needs. The water from both the wells has been found satisfactory for domestic needs as well as for stock.

Most of the wells in this township tap sand and gravel pockets in the unweathered zone of the drift, at depths of from 45 to 63 feet. From the data on hand the deposits do not appear to be continuous, but since no dry holes were recorded it would appear that they are of common occurrence,

and no difficulty should be experienced in obtaining water at the depths given above. Along the eastern border of the township the aquifer is formed by very fine sand and difficulty is experienced with it plugging the wells. The supply from some of the wells is insufficient for local needs. The supply from most of the wells, however, is adequate for farm requirements and the water from all but two wells is satisfactory for all domestic needs.

A spring located in the SW.$\frac{1}{4}$, section 22, is used for stock. The supply from this spring is not large and it could probably be increased by digging out and cribbing the spring. Prior to 1935 the water could be used for drinking, but it has since become contaminated and is unfit for domestic use. A dam has been erected in the SE.$\frac{1}{4}$, section 12, and surface water is retained for stock use. The topography of this township, however, is satisfactory in only a few places for the erection of dams.

Water can doubtless be obtained from the Belly River formation at an elevation of approximately 2,150 feet above sea-level. It should be satisfactory for all farm needs.

Township 29, Range 29

This fractional township is an area of approximately 16$\frac{1}{2}$ square miles. The ground surface is irregular and is characterized by many hills and small ravines. Boulders are not uncommon on the hills. Sections 10, 11, 12, 13, 24, 25, and 26 are mainly covered by moraine, and the remainder of the area is mantled by boulder clay or glacial till. The top-soil in this township is light and sandy, and it is underlain by a zone of light-coloured, weathered boulder clay that contains a few scattered deposits of sand and gravel. The weathered part of the drift is immediately underlain by unweathered,

dark-coloured, compact boulder clay that also contains scattered deposits of sand to depths of at least 102 feet.

An 8-foot well in the SE.¼, section 2, taps a water-bearing bed in the weathered zone of the drift. The yield from this well is more than adequate for local needs, and the water is used for both drinking and stock. Another well located in the NE.¼, section 12, may also be obtaining water from a deposit in the weathered clay, but it appears more probable that it is in the upper part of the unweathered zone. The supply is small and at present the water is not used.

The remaining wells in the township obtain their water from the deposits of water-bearing sand that occur in the unweathered boulder clay. These deposits are tapped at depths ranging from 50 to 102 feet. Some relationship is evident in the aquifers of wells on adjoining quarter sections, but there does not appear to be any general water-bearing horizons of considerabl areal extent. The aquifers are generally formed by a very fine sand, and in section 2 test holes in a number of sites showed the sanddeposit to be of considerable extent. The well in section 2 yields such a small supply that it was necessary to haul water for stock, but the other wells that derive water from the lower part of the drift yield adequate supplies for local requirements. The water from the well in the SW.¼, section 13, and from two wells in section 36, was recorded as soft, but that from the other wells is hard. Some of the water contains a relatively large amount of mineral salts in solution, and although it has a slight laxative effect it is being used for drinking as well as for stock.

A dam, located in section 35, collects surface water, and the supply is sufficient for stock use during part of the year.

Township 30, Range 27

The ground surface in this township varies from comparatively level to quite rolling. Most of the township is covered by glacial till or boulder clay, but a few scattered areas in the southern half of the area are mantled by moraine.

Wells have been sunk into both types of glacial deposits and into the underlying bedrock, and the water obtained is used for both domestic and stock needs. A dam in section 25 had 18 feet of water impounded at its bulkhead when visited, and the water was being used for stock. The glacial drift mantling this township consists in general of a few feet of top-soil that in the northwestern part is composed of heavy clay loam, and in the remainder of the area is a light sandy clay loam containing a few stones; a weathered zone of light-coloured clay that contains few or no deposits of sand and gravel; and an unweathered zone of boulder clay that extends to the bedrock and contains scattered deposits of sand and gravel. These deposits of water-bearing sand or gravel appear to be more numerous in the northern part of the area.

No wells that were recorded in this township are less than 47 feet deep and it appears that the weathered zone of the glacial drift contains very few deposits of sand. The deeper wells are fairly well distributed throughout the township and if the weathered zone contained water-bearing deposits at shallow depth it is improbable that the wells would have been sunk to their present depth. Small quantities of water may be obtained by direct seepage in wells dug beside undrained depressions, but the supply derived from such wells is not sufficient for local needs throughout the year. Wells dug beside dugouts or dams yield sufficient water for domestic

needs. The water from these shallow seepage wells is fairly soft and if it does not become contaminated by bacteria it should prove quite satisfactory for drinking.

The sand and gravel deposits that occur in the lower part of the drift are the aquifers for most of the wells in this township. The deposits are located at depths ranging from 47 to 90 feet. In the area outlined by the "A" boundary line they are of common occurrence and water should be obtained in this area with little difficulty. In the southern half of the township the deposits appear to be more sparsely distributed, but this part of the township has not been fully prospected. Dry holes were drilled to depths of 75 and 100 feet in sections 1 and 14. The supply from wells in the outlined area is sufficient for domestic needs and from 15 to 20 head of stock, but four wells outside the outlined area yield insufficient supplies for local needs. The water varies from moderately soft to hard, and contains a large amount of mineral salts in solution. The water from five wells is not usable for household purposes. The water is under some hydrostatic pressure.

The "B" boundary line outlines an area in which water is obtained from what is assumed to be the Belly River formation at depths of 100 and 115 feet, or at elevations of 2,150 and 2,135 feet above sea-level. The well located in the SE.$\frac{1}{4}$, section 14, may be tapping the same aquifer at a depth of 112 feet or at an elevation of 2,188 feet above sea-level. The areal extent of the bedrock aquifer is unknown, but it seems reasonable to assume that wells sunk inside the outlined area should obtain water at similar depths and elevations. The supply from the wells is adequate for local needs, but the water from the well in section 9 is used only for stock as it contains a large amount of mineral salts in solution. It appears improbable that the aquifer tapped by the 112-foot

well in section 14 extends to the north, as a dry hole was sunk to an elevation of 2,165 feet above sea-level in the NE.$\frac{1}{4}$ of the same section. The supply from the producing wells is adequate for local needs, but the water is too highly mineralized to be used for household purposes. Similar supplies can no doubt be obtained at other localities in the township.

Township 30, Range 28

The surface of this township is rolling and is characterized by many small hills and undrained depressions. Many of the depressions are "alkali" flats. The elevation of the surface varies from less than 2,200 feet above sea-level in the southwestern corner to approximately 2,330 feet above sea-level in different parts of the township. The settlement of Greene, located in section 33, is at an elevation of 2,289 feet above sea-level. A moraine-covered area, approximately one mile in width, trends from near the centre of the western boundary towards the northeastern corner. Section 31 and part of section 30 are also covered by moraine, but the remainder of the township is mantled by glacial till or boulder clay. In parts of sections 4 and 5 the glacial till is overlain by a thin veneer of glacial lake clays.

Wells have been sunk in the deposits of moraine and boulder clay, but the glacial lake clays have not been investigated for water. It is improbable that any water will be obtained from the lake clays, but some may be derived from deposits of sand or gravel that occur at the contact of the lake clay and boulder clay.

The deposits of moraine and glacial till consist of 2 to 4 feet of top-soil that in the northern part of the area is a heavy loam, but which in the southern part is light and

sandy; a weathered zone of light-coloured boulder clay in which scattered pockets of sand are encountered; and an unweathered zone of compact boulder clay that also contains deposits of sand and gravel.

The weathered zone of the glacial drift, although not extensively prospected, has proved rather unproductive and it is improbable that it contains many water-bearing deposits. Two wells 30 and 35 feet deep were reported, and although the water obtained from both is usable for domestic purposes the supply is inadequate for local needs. A 20-foot well in section 5, however, obtains a sufficient supply of usable water from a sand aquifer that is thought to be of small areal extent. Small supplies of water should be obtained from wells sunk near sloughs or depressions, but the water may be too highly mineralized for domestic use, and unless the precipitation is abundant the yield may not be sufficient for stock requirements. Before a well is dug, a water-bearing deposit should be located by a small test auger.

The water-bearing deposits of sand and gravel that occur in the lower or unweathered zone of the drift form the aquifers for most of the wells in this township. These deposits are located at depths of 50 to 100 feet. In the area outlined by the "A" boundary line the deposits appear to be numerous, and little difficulty should be experienced in obtaining water in this area, but over the remainder of the township the deposits are not as widely distributed and dry holes may be dug before a producing well is obtained. The yield from the wells is generally sufficient for local needs, but a well located in section 16 yields an inadequate supply. The water is generally under slight hydrostatic pressure, fairly hard, and quite highly mineralized, but that from most of the wells has been found satisfactory for domestic purposes.

Three wells located in the NW.¼, section 7, the SW.¼, section 10, and the SE.¼, section 17, drilled to depths of 89, 80, and 100 feet, respectively, at elevations of 2,191, 2,170, and 2,170 feet above sea-level tap aquifers that may be in the Belly River formation. In the well in section 7 a seam of coal 2 feet in thickness was reported at an elevation of 2,240 feet above sea-level. The wells in sections 10 and 17 are possibly deriving water from a common aquifer. The hydrostatic pressure raises the water approximately 45 feet higher in the well in section 7 than in the other two wells, and it may tap a different aquifer. The supply from these three wells is adequate for local needs. The water from the well in section 17 is too highly mineralized for drinking, but it is suitable for stock. Similar supplies of water should be obtained by other wells sunk to the same elevations in this township.

Township 30, Range 29

The Alberta-Saskatchewan boundary line, the Fourth meridian, forms the western boundary of this fractional township, and limits its area to 16 square miles. The ground surface is rolling and the elevation increases from 2,200 feet in the southeastern corner to approximately 2,400 feet along the western side.

Water supplies in this township are obtained from dams, springs, and wells. The water impounded by the dams is used exclusively for stock; that from the springs and wells is used for both drinking and stock. In some sections water for both domestic and stock needs is hauled.

The northern portion of the area is mantled by moraine and the southern part by boulder clay. A few wells less than 35 feet deep obtain water from the scattered deposits of sand and gravel that occur in the weathered zone of the glacial drift. The deposits are not thought to be continuous, but

producing wells have been dug in sections 12, 13, 14, and 24. The water in the wells in the SW.$\frac{1}{4}$, section 12, and the SW.$\frac{1}{4}$, section 24, is under hydrostatic pressure and rises to the surface or barely overflows it. The other wells are non-artesian. Before sinking a well the well-site should be prospected for water-bearing deposits by means of a small auger. The shallow well in the NE.$\frac{1}{4}$, section 24, is not used for domestic purposes, but the waters from the other shallow wells are used for drinking with no apparent ill effects.

The other wells in this township obtain water from the deposits of sand that occur in the unweathered zone of the glacial drift at depths ranging from 55 to 94 feet. Some evidence of continuity can be traced in the aquifers of the wells in sections 15, 22, and 27, but their areal extent cannot be determined. No dry holes have been recorded in this township and it appears that the water-bearing deposits of sand and gravel are fairly numerous, and that water should be obtained with little difficulty. Some of the wells that derive their water from this part of the drift yield an insufficient supply for local needs, but the water is not too highly mineralized to be unsuitable for domestic use, although some has a slight, laxative effect.

Springs in section 1 are used for stock, but it is not definitely known if the water is suitable for drinking. The supply from the springs can be increased by digging out and cribbing the springs.

Dams are located in sections 24 and 27, and the impounded surface water is used for stock. If the bulkhead of the dam is built sufficiently high, it should be possible to impound a supply of water that would last throughout the year.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF MILTON, NO.292, SASKATCHEWAN

Township	28	28	28	29	29	29	30	30	30	Total No. in muni-
West of 3rd meridian Range	27	28	29	27	28	29	27	28	29	cipality
Total No. of Wells in Township	21	12	8	28	17	12	31	20	19	168
No. of wells in bedrock	0	0	0	4	0	0	3	3	0	10
No. of wells in glacial drift	21	12	8	24	17	12	28	17	19	158
No. of wells in alluvium	0	0	0	0	0	0	0	0	0	0
Permanency of Water Supply										
No. with permanent supply	21	12	8	28	17	11	29	20	19	165
No. with intermittent supply	0	0	0	0	0	1	0	0	0	1
No. dry holes	0	0	0	0	0	0	2	0	0	2
Types of Wells										
No. of flowing artesian wells	0	0	0	0	0	0	0	0	2	2
No. of non-flowing artesian wells	5	5	5	17	8	6	22	16	6	90
No. of non-artesian wells	16	7	3	11	9	6	7	4	11	74
Quality of Water										
No. with hard water	20	12	7	27	17	9	28	19	19	158
No. with soft water	1	0	1	1	0	3	1	1	0	8
No. with salty water	0	0	0	0	0	0	0	0	0	0
No. with "alkaline" water	3	2	0	18	8	1	16	9	3	60
Depths of Wells										
No. from 0 to 50 feet deep	9	4	4	11	10	5	6	6	11	66
No. from 51 to 100 feet deep	11	6	4	14	7	5	23	14	8	92
No. from 101 to 150 feet deep	1	2	0	3	0	2	2	0	0	10
No. from 151 to 200 feet deep	0	0	0	0	0	0	0	0	0	0
No. from 201 to 500 feet deep	0	0	0	0	0	0	0	0	0	0
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	18	10	8	23	13	9	23	18	19	141
No. not usable for domestic purposes	3	2	0	5	4	3	6	2	0	25
No. usable for stock	21	12	8	28	16	12	28	19	19	163
No. not usable for stock	0	0	0	0	1	0	1	1	0	3
Sufficiency of Water Supply										
No. sufficient for domestic needs	21	12	8	28	17	9	28	18	19	160
No. insufficient for domestic needs	0	0	0	0	0	3	1	2	0	6
No. sufficient for stock needs	17	9	7	24	15	8	21	16	15	132
No. insufficient for stock needs	4	3	1	4	2	4	8	4	4	34

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 can be removed by boiling. Temporary hardness is due mainly to the bicarbonates of calcium and magnesium and iron, and permanent harness 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 Milton, No. 292, Saskatchewan.

LOCATION						Depth of Well, Ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS								Source of Water
No.	¼tr.	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	
1	SE.	17	30	28	3	100	1,620	1,100	900	200	48	460	220	155	775	346	1,605	394	55		379		698	79	×2 ?

Water samples indicated thus, ×2, are from bedrock, Belly River formation.
Analyses are reported in parts per million;
Hardness is the soap hardness expressed as calcium carbonate ($CaCO_3$).
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

No samples of water from the glacial drift in the municipality of Milton, No. 292, were taken by the field party for analyses. The following discussion will be based chiefly on the results of analyses of water samples taken from other municipalities, and also on the quality of the water as reported in the field.

The water from wells that are dug near undrained depressions or sloughs is generally moderately soft. It is satisfactory for stock and if not contaminated by water containing animal refuse it should be found satisfactory for domestic use. Such waters should be frequently tested for bacteria content.

The waters from wells that tap small, shallow deposits of sand and gravel in the glacial drift usually vary from comparatively soft to very hard. The amount of mineral salts in solution also varies widely. These variations are present within narrow limits and it should, therefore, not be concluded that since the water from one well in a district is too highly mineralized for use the other wells sunk in that district will also yield unusable water. Generally the water from the shallow wells is suitable for domestic purposes. The water from the springs in this municipality is used for stock and no doubt most of it would also be found suitable for drinking, although an oil-like scum, due to iron salts in solution, forms on the surface of the water in many wells.

The water obtained from wells sunk into the lower part of the drift generally contains more mineral salts in solution than that from shallow wells, but in this municipality there are only a few wells that yield water that is unsuitable for domestic purposes. No waters were recorded in this area that were so highly mineralized that they could not be used for stock.

Water from the Bedrock

One sample of water from an aquifer thought to be in the Belly River formation was collected for analysis. The results of this analysis are given on the accompanying table. The results appear to indicate that the water is more closely related to waters from drift sources than bedrock, and it is possible that most of the water may be obtained from the unconsolidated deposits. The mineral salt content in solution is not excessive and it is probably due to surface pollution that the water has an objectionable odour. Waters with much higher mineral salt contents are being used throughout Saskatchewan and although they may have a slight laxative effect on those not accustomed to their use, they should be suitable for farm needs. The well mentioned above, however, should be cleaned out and the water analysed for bacteria content.

The waters from the wells included in the area outlined by the "B" boundary line, with one exception, are recorded as being satisfactory for domestic use. It is probable that analysis of any well in this group would show the presence of Na_2CO_3 (sodium carbonate).

WELL RECORDS—Rural Municipality of MILTON NO. 292, 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	SW.	1	28	27	3	Bored	129	2,330	- 89	2,241	129	2,201	Glacial sand	Hard, clear	42	D, S	Abundant supply.
2	SE.	6	"	"	"	Bored	72	2,390	- 69	2,321	69	2,321	Glacial sand	Hard, clear, "alkaline"	41	D	Sufficient only for household.
3	NE.	7	"	"	"	Bored	58	2,280	- 56	2,224	56	2,224	Glacial sand	Hard, clear, "alkaline"	41	D, S	Insufficient; waters only 2 head stock.
4	SE.	8	"	"	"	Bored	35	2,350	- 28	2,322	28	2,322	Glacial sand	Hard, clear	42	D, S	Sufficient; waters 35 head stock.
5	SW.	12	"	"	"	Dug	14	2,330	- 11	2,319	11	2,319	Glacial fine sand	Hard, clear	42	D	Sufficient only for household; also a spring and 28-foot well for stock.
6	NE.	16	"	"	"	Dug	38	2,390	- 36	2,354	36	2,354	Glacial sand	Medium hard, clear	42	D, S	Sufficient supply; waters 6 head stock; also spring used for stock.
7	SE.	19	"	"	"	Bored	86	2,350	- 84	2,266	84	2,266	Glacial sand	Hard, clear	41	D, S	Insufficient; waters only 5 head stock.
8	NW.	19	"	"	"	Bored	90	2,340	- 87	2,253	87	2,253	Glacial sand	Hard, clear, iron	41	D, S	Just sufficient.
9	NW.	20	"	"	"	Bored	70	2,310	- 40	2,270	70	2,240	Glacial drift	Hard, clear, iron	41	D, S	Sufficient; will water 20 head stock or more.
10	NW.	22	"	"	"	Bored	60	2,380	- 56	2,324	56	2,324	Glacial drift	Hard, clear		D, S	Sufficient only for 4 head stock.
11	NE.	25	"	"	"	Bored	20	2,470	- 16	2,454	16	2,454	Glacial gravel	Soft, clear	42	D, S	Abundant supply for 40 head stock.
12	SE.	27	"	"	"	Bored	24	2,330	- 19	2,311	19	2,311	Glacial drift	Hard, clear	42	D, S	Sufficient for household and 12 head stock.
13	NW.	28	"	"	"	Bored	65	2,320	- 39	2,281	65	2,255	Glacial drift	Hard, clear	41	D, S	Sufficient for house and 100 head stock; also 60-foot well with 7-foot water for stock.
14	NE.	34	"	"	"	Dug	100	2,345	- 70	2,275	70	2,275	Glacial sand	Hard, clear, iron	43	D, S	Sufficient; large supply.
15	NW.	34	"	"	"	Bored	98	2,335	- 28	2,307	98	2,237	Glacial fine	Hard, clear, iron	42	D, S	Abundant supply; another similar well, also several other wells, fair yield.
16	SE.	36	"	"	"	Bored	20	2,390	- 9	2,381	9	2,381	Glacial sand	Hard, clear, iron, "alkaline"	41	D, S	Sufficient for household and over 20 head stock.
1	SW.	2	28	28	3	Dug	21	2,195	- 19	2,176	19	2,176	Glacial sand	Hard, clear	42	D, S	Insufficient supply; waters 2 head stock.
2	NW.	3	"	"	"	Dug	16	2,210	- 13	2,197	13	2,197	Glacial sand and gravel	Hard, clear, "alkaline"	42	D, S	Sufficient for household and 90 head stock.
3	SE.	16	"	"	"	Bored	80	2,210	- 65	2,145	80	2,130	Glacial drift	Hard, clear, iron, "alkaline"		S	Insufficient; waters only 5 head stock.
4	SE.	17	"	"	"	Bored	128	2,230	- 38	2,192	128	2,102	Glacial sand	Hard, clear, iron	42	D, S	Abundant supply; sufficient for 50 head stock.
5	NW.	17	"	"	"	Bored	105	2,260	-100	2,160	100	2,160	Glacial sand	Hard, clear, iron		S	Insufficient; not enough for 11 head stock.
6	NE.	20	"	"	"	Bored	50	2,240	- 35	2,205	50	2,190	Glacial sand	Hard, clear, iron	43	D, S	Sufficient; supplies 50 head stock.
7	SW.	22	"	"	"	Dug	12	2,225	- 8	2,217	8	2,217	Glacial sand	Medium hard clear, lime	41	D, S	Sufficient; supplies 4 head stock.
8	SE.	24	"	"	"	Bored	75	2,300	- 70	2,230	70	2,230	Glacial sand	Hard, clear	42	D, S	Sufficient supply.
9	NW.	24	"	"	"	Bored	100	2,300	- 96	2,204	96	2,204	Glacial white sand	Hard, clear	42	D, S	Sufficient supply; waters 4 head stock.
10	SW.	26	"	"	"	Bored	56	2,265	- 51	2,214	51	2,214	Glacial sand	Hard, clear, iron	42	D, S	Supplies household and 15 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.

WELL RECORDS—Rural Municipality of MILTON NO. 292, 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
11	SW.	34	28	28	3	Bored	75	2,260	- 40	2,220	75	2,185	Glacial sand	Hard, clear, iron	41	D, S	Sufficient; waters 25 head stock.
12	SW.	35	"	"	"	Bored	100	2,300	- 95	2,205	100	2,200	Glacial sand	Hard, clear	42	D, S	Sufficient for household and 35 head stock.
1	NW.	2	28	29	3	Bored	40	2,297	- 22	2,275	40	2,257	Glacial sand	Hard, clear	42	D, S	Abundant supply.
2	NE.	3	"	"	"	Dug	48	2,300	- 40	2,260	48	2,252	Glacial gravel	Fairly soft, clear	41	D, S	Sufficient supply; never pumped dry.
3	SE.	10	"	"	"	Bored	67	2,313	- 54	2,259	67	2,246	Glacial fine sand	Hard, clear	42	D, S, M	Abundant supply; supplies most residents of Alsask.
4	SW.	11	"	"	"	Bored	80	2,320	- 73	2,247	80	2,240	Glacial sand	Hard, clear, iron	42	D, S	Supplies house and 12 head stock.
5	SW.	13	"	"	"	Dug	28	2,290	- 20	2,270	28	2,262	Glacial fine sand	Hard, clear	41	D, S	Supplies house and 30 head stock.
6	SW.	14	"	"	"	Bored	90	2,320	- 83	2,237	83	2,237	Glacial fine sand	Hard, clear	42	D, S	Insufficient; waters only 6 head stock.
7	SE.	15	"	"	"	Bored	90	2,320	- 85	2,235	85	2,235	Glacial sand	Hard, clear	42	D, S	Just sufficient for house and 6 head stock.
8	NW.	26	"	"	"	Dug	40	2,330	- 37	2,293	37	2,293	Glacial fine sand	Hard, clear, iron	42	D, S	Sufficient supply; waters 20 head stock.
1	NW.	1	29	27	3	Bored	36	2,360	- 16	2,344	36	2,324	Glacial drift	Hard, iron, "alkaline"	48	D, S	Sufficient supply; waters 15 head stock.
2	SE.	2	"	"	"	Bored	75	2,380	- 73	2,307	73	2,307	Glacial fine sand	Hard, clear, "alkaline"	48	D, S	Abundant supply.
3	SW.	2	"	"	"	Bored	70	2,330	- 45	2,285	70	2,260	Glacial drift	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 25 head stock.
4	SE.	4	"	"	"	Bored	109	2,290	- 47	2,243	109	2,181	Glacial gravel	Hard, clear, "alkaline", red sediment	48	D, S	Sufficient for household and 100 head stock.
5	NE.	9	"	"	"	Bored	72	2,270	- 27	2,243	72	2,198	Glacial drift	Hard, clear, "alkaline", iron	48	S	Waters 25 to 35 head stock.
6	SE.	10	"	"	"	Bored	62	2,320	- 48	2,272	62	2,258	Glacial drift	Hard, clear, iron	48	D, S	Sufficient; waters 12 head stock.
7	SW.	10	"	"	"	Bored	90	2,300	- 80	2,220	90	2,210	Glacial fine	Hard, clear, iron, "alkaline", red sediment	48	D, S	Sufficient; waters 8 head stock.
8	SE.	12	"	"	"	Bored	39	2,340	- 15	2,325	39	2,301	Glacial gravel	Hard, clear, iron	48	D, S	Sufficient, supplies 40 head stock.
9	NE.	12	"	"	"	Bored	39	2,340	- 24	2,316			Glacial sand	Hard, clear, iron	48	D	Sufficient and used only for house.
10	NW.	12	"	"	"	Bored	78	2,360	- 53	2,307	78	2,282	Glacial drift	Hard, cloudy, iron, red sediment, "alkaline"	48	D, S	Sufficient supply; waters 4 head stock.
11	NW.	13	"	"	"	Bored	70	2,320	- 60	2,260	70	2,250	Glacial drift	Hard, clear, iron, "alkaline"	48	D, S	Sufficient only for household.
12	NW.	13	"	"	"	Bored	85	2,320	- 80	2,240	80	2,240	Glacial drift	Hard, clear, "alkaline"	48	S	Waters 20 head stock.
13	NE.	14	"	"	"	Bored	51	2,240	- 40	2,200	51	2,189	Glacial gravel	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 12 head stock.
14	SE.	14	"	"	"	Bored	65	2,340	- 45	2,295	65	2,275	Glacial sand	Hard, clear	48	D, S	Sufficient; waters 9 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.

WELL RECORDS—Rural Municipality of MILTON NO. 292, 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.	16	29	27	3	Dug	35	2,270	- 31	2,239	31	2,239	Glacial drift	Hard, clear, iron, "alkaline"	48	D, S	Sufficient ; waters 10 head stock.
16	SE.	18	"	"	"	Dug	20	2,238	- 14	2,224			Glacial sand	Hard, clear, some iron	48	D, S	Sufficient; 4 barrels a day.
17	SE.	18	"	"	"	Dug	14	2,238	- 8	2,230			Glacial sand	Hard, clear, some iron	48	D, S	Sufficient supply; 6 barrels a day.
18	SE.	18	"	"	"	Dug	18	2,238	- 13	2,225			Glacial sand	Hard, clear, some iron	48	D, S	Sufficient; 8 barrels a day.
19	NW.	22	"	"	"	Bored	28	2,250	- 26	2,224	26	2,224	Glacial fine sand	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 18 head stock.
20	SE.	24	"	"	"	Bored	40	2,300	- 35	2,265			Glacial drift	Hard, clear, "alkaline", iron	48	D, S	Insufficient; waters 10 head stock; a second well for stock during summer.
21	SE.	28	"	"	"	Bored	70	2,300	- 65	2,235			Glacial sand	Hard, clear, "alkaline"	48	S	Insufficient; waters 4 head stock; hauls water for house use.
22	NW.	28	"	"	"	Bored	70	2,250	- 50	2,200	70	2,180	Glacial fine sand	Hard, clear, iron, "alkaline"	48	D, S	Insufficient; waters 16 head stock.
23	SW.	30	"	"	"	Bored	45	2,260	- 43	2,217	45	2,215	Glacial fine sand	Hard, clear	48	D, S	Sufficient; waters 15 head stock.
24	NE.	31	"	"	"	Bored	130	2,300	- 70	2,230	130	2,170	Belly River ?	Hard, iron, "alkaline"	48	D, S	Sufficient; waters 60 head stock.
25	NW.	32	"	"	"	Bored	75	2,250	- 65	2,185	75	2,175	Belly River ?	Hard, cloudy, "alkaline" iron	48	S	Waters 7 head stock.
26	SW.	32	"	"	"	Bored	100	2,250	- 50	2,200	100	2,150	Belly River ?	Soft, iron, red sediment	48	D, S	Sufficient; waters 40 head stock.
27	SW.	33	"	"	"	Bored	113	2,250	- 73	2,177	113	2,137	Belly River ?	Hard, clear, iron, "alkaline"	48	D, S	Sufficient; waters 30 head stock.
1	NE.	1	29	28	3	Bored	63	2,250	- 38	2,212	63	2,187	Glacial sand	Hard, clear, "alkaline"	48	D, S	Sufficient for house and 10 head stock.
2	SW.	4	"	"	"	Dug	45	2,340	- 30	2,310	45	2,295	Glacial drift	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 30 head stock.
3	SE.	7	"	"	"	Dug	65	2,300	- 60	2,240	60	2,240	Glacial sand	Hard, clear	48	D, S	Insufficient; 3 barrels a day.
4	SE.	12	"	"	"	Bored	50	2,210	- 20	2,190	50	2,160	Glacial sand	Hard, clear, iron	48	D, S	Sufficient; waters 20 head stock; also a dam nearby.
5	NE.	12	"	"	"	Bored	45	2,250	- 43	2,207	43	2,207	Glacial fine sand	Hard, clear, "alkaline" iron	48	S	Insufficient supply; waters 2 head stock.
6	NE.	19	"	"	"	Dug	12	2,300	- 6	2,294			Glacial sand	Hard, clear	48	D, S	Abundant supply.
7	SW.	20	"	"	"	Bored	60	2,350	- 48	2,302	60	2,290	Glacial drift	Hard, clear, iron	48	D, S	
8	SE.	20	"	"	"	Bored	60	2,300	- 45	2,255	60	2,240	Glacial drift	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 20 head stock.
9	SW.	22	"	"	"	Bored	45	2,200	- 35	2,165			Glacial drift	Hard, cloudy, "alkaline" iron	48	D, S	Sufficient for local needs; laxative; spring also waters stock.
10	NE.	22	"	"	"	Dug	16	2,260	- 8	2,252			Glacial fine sand	Hard, clear, iron	48	D, S	Sufficient; waters 35 head stock; second 10-foot well unused.

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 MILTON NO. 292, 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
11	NE.	24	29	28	3	Bored	50	2,260	- 48	2,212	48	2,212	Glacial fine sand	Hard, clear	48	D, S	Sufficient; waters 15 head stock.
12	SE.	25	"	"	"	Bored	60	2,280	- 59	2,221	59	2,221	Glacial fine sand	Hard, clear, "alkaline"	48	D, S	Well abandoned due to quicksand filling in.
13	NE.	25	"	"	"	Bored	59	2,280	- 29	2,251	59	2,221	Glacial fine sand	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 15 head stock.
14	SE.	28	"	"	"	Dug	55	2,240	- 40	2,200	55	2,185	Glacial sand	Hard, clear, iron, red sediment	38	D, S	Abundant supply.
15	NE.	36	"	"	"	Bored	48	2,280	- 39	2,241	48	2,193	Glacial drift	Hard, clear, "alkaline"	48	S	Sufficient; waters 20 head stock; hauls drinking water.
1	SE.	2	29	29	3	Dug	8	2,320	- 3	2,317	3	2,317	Glacial drift	Hard, clear, iron	48	D, S	Sufficient supply; waters 60 head stock.
2	SW.	2	"	"	"	Bored	80	2,340	- 76	2,264	76	2,264	Glacial fine sand	Hard, clear, iron, red sediment	48	D, S	Insufficient; adequate only for household; hauls water for stock; several test-holes in quicksand.
3	NE.	12	"	"	"	Dug	35	2,315	- 34	2,281	34	2,281	Glacial drift			N	Insufficient supply; intermittent.
4	SE.	12	"	"	"	Bored	102	2,310	-100	2,210	100	2,210	Glacial fine sand	Hard, clear	48	D, S	Sufficient; waters 15 head stock.
5	SW.	13	"	"	"	Bored	84	2,330	- 64	2,266	84	2,246	Glacial fine sand	Soft, clear	48	D, S	Sufficient for local needs; waters 21 head stock.
6	SE.	13	"	"	"	Bored	100	2,310	- 85	2,225	100	2,210	Glacial sand	Hard, clear, "alkaline"	46	D, S	Sufficient; waters 8 head stock; laxative.
7	NE.	14	"	"	"	Bored	75	2,330	- 15	2,315	75	2,255	Glacial sand	Hard	48	D, S	Abundant supply.
8	NW.	35	"	"	"	Bored	102	2,305	- 95	2,210	102	2,203	Glacial drift	Hard, clear	48	D, S	Sufficient; waters 30 head stock.
9	SW.	36	"	"	"	Bored	60	2,300	- 48	2,252	60	2,240	Glacial sand	Soft, iron, clear	48	D, S	Sufficient; waters 17 head stock.
10	NE.	36	"	"	"	Bored	50	2,270	- 30	2,240	50	2,220	Glacial sand	Soft, clear	48	D, S	Sufficient; waters 60 head stock.
1	NE.	1	30	27	3	Bored	60	2,270	- 40	2,230	60	2,210	Glacial gravel	Hard, clear, "alkaline"		N	No one living here.
2	SE.	1	"	"	"	Bored	48	2,280	- 43	2,237			Glacial drift	Hard, clear, iron, "alkaline"	48	D, S	Also 75-foot dry hole.
3	SW.	1	"	"	"	Bored	60	2,270	- 40	2,230	60	2,210	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient; waters 12 head stock.
4	SW.	4	"	"	"	Bored	100	2,250	- 88	2,162	100	2,150	Belly River ?	Hard, clear	48	D, S	Waters 36 head stock.
5	SW.	8	"	"	"	Bored	90	2,300	- 75	2,225	90	2,210	Glacial drift	Hard, clear, iron	48	D, S	Insufficient; waters 10 head stock.
6	SW.	8	"	"	"	Bored	60	2,300	- 45	2,255	60	2,240	Glacial drift		46	D, S	Insufficient; waters 10 head stock.
7	NE.	9	"	"	"	Bored	115	2,250	- 95	2,155	115	2,135	Belly River ?	Hard, clear, "alkaline"	44	S	Sufficient; waters 30 head stock.
8	NE.	12	"	"	"	Bored	50	2,280	- 40	2,240	50	2,230	Glacial sand	Hard, clear, "alkaline" iron	48	D, S	Insufficient; waters 5 head stock.
9	SE.	14	"	"	"	Bored	112	2,300	- 60	2,240	112	2,188	Belly River ?	Hard, "alkaline"	44	S	Sufficient; waters 20 head stock.
10	SE.	14	"	"	"	Bored	60	2,300	- 40	2,260	60	2,240	Glacial sand	Hard, clear	48	D, S	Sufficient only for house use.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of MILTON NO. 292, 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
11	NE.	14	30	27	3	Bored	65	2,265	- 45	2,220	65	2,200	Glacial sand	Hard, clear	45	D, S	Sufficient; waters 30 head stock; also 100-foot dry hole.
12	NW.	16	"	"	"	Bored	70	2,335	- 50	2,285	70	2,265	Glacial sand	Hard, clear, iron, "alkaline"	46	D, S	Abundant supply.
13	NE.	16	"	"	"	Bored	70	2,335	- 50	2,285	70	2,265	Glacial sand	Hard, clear, "alkaline" iron	45	D, S	Sufficient; waters 20 head stock.
14	NE.	17	"	"	"	Bored	60	2,300	- 52	2,248			Glacial gravel	Hard, clear, iron, "alkaline"	46	D, S	Sufficient; waters 20 head stock.
15	NE.	20	"	"	"	Dug	65	2,290	- 50	2,240	65	2,225	Glacial sand	Hard, clear, "alkaline"	46	D, S	Sufficient; waters 20 head stock.
16	NW.	20	"	"	"	Bored	65	2,290	- 45	2,245	65	2,225	Glacial drift	Hard, clear, iron, "alkaline"	46	D, S	Sufficient; waters 12 head stock.
17	SE.	25	"	"	"	Bored	47	2,280	- 32	2,248	47	2,233	Glacial drift	Hard, dark yellow colour	43	S	Insufficient; laxative; also 18-foot dam, and other wells for house use.
18	SW.	28	"	"	"	Bored	70	2,300	- 50	2,250	70	2,230	Glacial drift	Hard, clear, "alkaline" iron	46	D, S	Sufficient; waters 20 head stock.
19	SE.	29	"	"	"	Bored	85	2,300	- 70	2,230	85	2,215	Glacial drift	Hard, clear, iron, "alkaline," red sediment		D, S	Sufficient; waters 15 head stock.
20	SW.	30	"	"	"	Bored	60	2,260	- 45	2,215	60	2,200	Glacial drift	Hard, clear, iron	46	D, S	Sufficient; waters 8 head stock.
21	NE.	30	"	"	"	Bored	47	2,280	- 30	2,250	47	2,233	Glacial gravel	Hard, clear, iron	47	D, S	Sufficient; waters 30 head stock.
22	SE.	32	"	"	"	Dug	68	2,295	- 61	2,234			Glacial drift	Hard, clear	46	D	Sufficient only for house.
23	SE.	32	"	"	"	Dug	68	2,295	- 61	2,234			Glacial fine sand	Hard, clear	46	D, S	Sufficient; waters 15 head stock.
24	NE.	33	"	"	"	Bored	95	2,330	- 80	2,250			Glacial drift	Hard, clear, "alkaline" iron	46	D, S	Sufficient; waters 30 head stock.
25	NE.	34	"	"	"	Bored	60	2,300	- 50	2,250	60	2,240	Glacial sand	Hard, clear, "alkaline" iron		S	Sufficient; waters 18 head stock.
26	NW.	36	"	"	"	Bored	80	2,300	- 55	2,245	80	2,220	Glacial sand	Hard, clear, iron, "alkaline"	46	S	Sufficient; waters 10 head stock.
27	NE.	36	"	"	"	Bored	75	2,275	- 23	2,252	75	2,200	Glacial drift	Soft, clear	42	D, S	Sufficient; 10 barrels a day.
1	NE.	4	30	28	3	Bored	96	2,300	- 56	2,244	96	2,204	Glacial drift	Hard, clear, "alkaline" iron	45	D, S	Sufficient; waters 20 head stock.
2	SW.	6	"	"	"	Dug	20	2,270	- 17	2,253	20	2,250	Glacial fine sand	Hard, clear, "alkaline"	48	D, S	Sufficient; waters 30 head stock; laxative.
3	NW.	7	"	"	"	Bored	89	2,280	- 63	2,217	89	2,191	Belly River ?	Hard, iron, "alkaline" red sediment	45	D, S	Sufficient; waters 18 head stock; laxative.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of MILTON NO. 292, 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	SW.	10	30	28	3	Bored	80	2,250	- 70	2,180	80	2,170	Belly River ? formation	Hard,clear, "alkaline"	45	D, S	Sufficient; waters 12 head stock; laxative.
5	NE.	12	"	"	"	Dug	50	2,280	- 40	2,240	50	2,230	Glacial drift	Hard,clear, iron	48	D, S	Sufficient; waters 7 head stock.
6	NE.	16	"	"	"	Bored	75	2,280	- 65	2,215	75	2,205	Glacial drift	Soft,clear		D, S	Insufficient; waters 6 head stock; also two 35-foot wells,supplement supply but still insufficient.
7	SE.	17	"	"	"	Bored	100	2,270	- 85	2,185	100	2,170	Belly River ? formation	Hard,cloudy, "alkaline" black sediment, iron	48	S	Abundant supply; objectionable odour.
8	SE.	20	"	"	"	Bored	56	2,300	- 44	2,256	56	2,244	Glacial fine sand	Hard,iron, clear	46	D, S	Sufficient; waters 12 head stock.
9	NE.	20	"	"	"	Bored	30	2,300	- 24	2,276			Glacial fine sand	Hard,clear, "alkaline" iron	48	D, S	Insufficient; waters 6 head stock; laxative.
10	SW.	22	"	"	"	Dug	60	2,330	- 50	2,280	60	2,270	Glacial gravel	Hard,clear, "alkaline"	46	D, S	Sufficient; waters 20 head stock; second unused well with good supply.
11	NW.	23	"	"	"	Bored	100	2,300	- 80	2,220	100	2,200	Glacial sand	Hard,clear, iron,"alkaline"	44	D, S	Sufficient; waters 30 head stock.
12	NE.	24	"	"	"	Bored	56	2,280	- 46	2,234	56	2,224	Glacial sand	Hard,clear, iron	48	D, S	Sufficient; waters 6 head stock.
13	SW.	24	"	"	"	Bored	85	2,280	- 55	2,225	85	2,195	Glacial drift	Hard,clear, iron	46	D, S	Sufficient; waters 25 head stock.
14	NW.	24	"	"	"	Bored	85	2,280	- 55	2,225	85	2,195	Glacial drift	Hard,clear, iron	46	D, S	Sufficient; waters 65 head stock.
15	SE.	27	"	"	"	Bored	80	2,300	- 60	2,240	80	2,220	Glacial sand	Hard,clear, iron,red sediment	46	D, S	Ample; waters 35 head stock.
16	NE.	28	"	"	"	Bored	75	2,280	- 65	2,215	75	2,205	Glacial drift	Hard,clear, iron,"alkaline"	48	D, S	Sufficient; waters 15 head stock.
17	NW.	34	"	"	"	Bored	62	2,290	- 57	2,233	62	2,228	Glacial drift	Hard,clear	46	D, S	Sufficient; waters 8 head stock.
1	NW.	1	30	29	3	Springs											Several springs here.
2	SE.	2	"	"	"	Bored	64	2,280	- 44	2,236	64	2,216	Glacial sand	Hard,clear, "alkaline" iron	44	D, S	Sufficient; waters 17 head stock ;also a similar well, used for stock in summer.
3	SW.	12	"	"	"	Dug	20	2,290	- 15	2,275			Glacial quicksand	Hard,clear, iron,"alkaline"	46	D, S	Sufficient; waters 16 head stock during winter.
4	SW.	12	"	"	"	Dug	20	2,290	0	2,290	20	2,270	Glacial drift	Hard,clear, iron		D, S	Flowing; ample supply.
5	SW.	13	"	"	"	Bored	35	2,300	- 30	2,270			Glacial fine sand	Hard,clear	48	D, S	Insufficient; waters 20 head stock.
6	NE.	14	"	"	"	Dug	14	2,300	- 8	2,292			Glacial fine sand and gravel	Hard,clear, lime,iron	48	D, S	Sufficient; waters 9 head stock; also 18-foot well used for house.
7	SE.	15	"	"	"	Bored	90	2,370	- 85	2,285			Glacial sand	Hard,clear, iron	44	D, S	Insufficient; waters 10 head stock; laxative.

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 MILTON NO. 292, 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
8	NE.	22	30	29	3	Bored	80	2,380	- 73	2,307	80	2,300	Glacial sand	Hsrd,clear, iron	44	D, S	Sufficient; waters 20 head stock.
9	SE.	22	"	"	"	Dug	94	2,385	- 91	2,294			Glacial fine sand	Hard,clear, iron	44	D, S	Sufficient; waters 40 head stock.
10	NE.	24	"	"	"	Dug	35	2,320	- 25	2,295	35	2,285	Glacial drift	Hard,clear, "alkaline" iron	48	S	Sufficient; waters 14 head stock.
11	SW.	24	"	"	"												Flowing well.
12	SW.	25	"	"	"	Bored	85	2,320	- 25	2,295	85	2,235	Glacial sand	Hard,clear, iron	46	D, S	Sufficient; waters 35 head stock.
13	SE.	27	"	"	"	Bored	80	2,350	- 70	2,280	80	2,270	Glacial drift	Hard,clear	48	D, S	Sufficient; waters 12 head stock; also dam in pasture.
14	SE.	35	"	"	"	Bored	55	2,320	- 40	2,280			Glacial drift	Hard,iron	48	D, S	Sufficient only for house use.

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.