CANADA
DEPARTMENT OF MINES
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GEOLOGICAL SURVEY OF CANADA

WATER SUPPLY PAPER No. 164

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF LONGLAKETON NO. 219 SASKATCHEWAN

By

B. R. MacKay, H. N. Hainstock & J. A. Chalmers

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CONTENTS

Illustrations

Map of the municipality.

Figure 1. Map showing surface and bedrock geology that affect the ground water supply.

Figure 2. Map showing relief and the location and types of wells.

GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF LONGLAKETON NO. 219 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 find the approximate depth to a water-bearing horizon, he must learn: (1) the elevation of the site, and (2) the probable elevation of the water-bearing bed. The elevation of the 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 age.

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 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 Longlaketon, No. 219, is an area of approximately 380 square miles in the central part of Saskatchewan. It is bounded on the south by Qu'Appelle river and Last Mountain (Long) lake. The centre of the municipality is approximately 3 miles west and 25 miles north of the city of Regina. It consists of parts of five townships, described as townships 20, ranges 20 and 21, and townships 21, ranges 19, 20, and 21, and of seven full townships, described as townships 22, ranges 19, 20, and 21, and townships 23 and 24, ranges 19 and 20; all west of the Second meridian. The area is drained by Qu'Appelle river on the south and Loon creek in the northeastern corner. The Pheasant Hills branch of the Canadian Pacific railway running in an east-west direction crosses the central part of the municipality. The village of Earl Grey is located on this line. The Imperial section of the Canadian Pacific railway runs north through the western part of the municipality. The villages of Craven and Silton, and the hamlets of Euston, Valeport, and Gibbs are located on this line.

The greater part of the municipality is mantled by moraine. Glacial till or boulder clay covers a narrow area bordering Qu'Appelle river on the south, and an area approximately 6 miles wide that trends in a northwesterly direction across the northeastern half of the municipality. Recent silts and sands form the flood-plain of Qu'Appelle river. Scattered clumps of trees occur throughout the area mantled by moraine. The area is poorly drained and is characterized by numerous undrained depressions. The top soil in the western

part of the municipality is quite sandy.

Water-bearing Horizons in the Unconsolidated Deposits

Wells sunk into the Recent stream deposits on the flood-plains of Qu'Appelle river and Loon creek yield good supplies of water that is generally usable for domestic purposes and for stock. The wells do not exceed 18 feet in depth. The water from most of them is hard, but that from a well located in the SE. $\frac{1}{4}$, sec. 28, tp. 21, range 19, is soft. A well in section 35 of the same township yields water that is too "alkaline" for domestic use. No difficulty should be experienced in obtaining water from the Recent stream deposits.

Many wells in the municipality obtain water from aquifers that occur at depths of less than 40 feet. The supply of water obtained at this depth varies according to the size and nature of the aquifer encountered. Some of these wells have been sunk beside sloughs from which they obtain their supplies by seepage, but they often cease yielding water when the slough becomes dry. Some wells tap aquifers in the weathered or yellow boulder clay in the upper part of the blue boulder clay, or at the contact between the two boulder clays. In the northern two-thirds of the municipality a number of wells have been sunk entirely in sand or gravel. Most of these deposits are only of local extent, but an area in which the deposits appear to be fairly extensive is outlined by the "A" line on Figure 1 of the accompanying map. Most of the wells sunk in these deposits yield good supplies of moderately hard water, which is locally termed soft. The water from wells that tap small deposits of sand and gravel is more highly mineralized and that from some wells is too "alkaline" for domestic purposes and even for stock. In general, however, water

from shallow wells in this municipality is usable for farm purposes.

Wells sunk into the blue boulder clay range in depth from 45 to 350 feet. Few wells are believed to tap common aquifers, and the pockets of sand and gravel appear to be encountered at any depth in the blue boulder clay. The deepest of these wells is undoubtedly obtaining some water near the contact of the boulder clay and the Marine Shale bedrock; but the quality of water obtained indicates that it is derived mainly from an aquifer within the drift. The water from some of the wells is too "alkaline" for domestic use and that from a few is not usable for stock. The yield is usually fairly abundant although two wells in secs. 16 and 20, tp. 24, range 20, do not yield sufficient water for local needs. These wells both exceed 300 feet in depth.

Water-bearing Horizons in the Bedrock

No wells are obtaining water from aquifers in the bedrock in this municipality. The Marine Shale series is reported to outcrop in a railway cut on the east side of Last Mountain lake north of Valeport. This outcrop is at an elevation of approximately 1,600 feet above sea-level, but wells have been sunk to elevations of about 1,500 feet above sea-level at various locations in the municipality without encountering the bedrock. It is believed, therefore, that the surface of the Marine Shale is lower towards the centre of the municipality than on the southwest side. Two dry holes, located in the SW. $\frac{1}{4}$, sec. 34, tp. 20, range 21, and the NW. $\frac{1}{4}$, sec. 9, tp. 24, range 20, may have encountered the Marine Shale. The first well is drilled to a depth of 246 feet, or to an elevation of 1,564 feet above sea-level, and the second to a depth of 435 feet, or to an elevation of 1,435 feet above sea-level. Drilling into the Marine

Shale series is inadvisable as it is very doubtful if it contains water-bearing horizons. Wells tapping the Marine Shale series in the municipality to the west yield salty water that is seldom usable for any farm purpose.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 20, Range 20

Qu'Appelle river follows a meandering course across the northwestern corner of this township and flows in a northeasterly direction. It forms the southern boundary of the municipality, and only that part lying north of the river is discussed in this report. The flood-plain of the river is mantled by Recent stream deposits, but the remainder of the area is covered by boulder clay or glacial till. The elevation decreases from approximately 1,850 feet above sea-level in the northern part of the municipality to 1,600 feet and less at Qu'Appelle river.

Considerable difficulty has been experienced in locating water-bearing deposits in this area. Holes have been sunk in sections 30, 31, and 32 to a maximum depth of 100 feet without encountering water. Numerous springs, however, occur along the sides of the valley and serve as the chief source of supply to the farmers of the area. One well, located in the SW. $\frac{1}{4}$, section 33, in a tributary of Qu'Appelle river, passed through sand to a depth of 29 feet and obtains a sufficient supply of water for domestic needs. Most of the wells, however, were dug through 15 to 25 feet of yellow boulder clay into blue boulder clay. A well in the NE. $\frac{1}{4}$, section 31, encounters a gravel aquifer at a depth of 65 feet. This aquifer is located in the blue boulder clay and the water is under considerable hydrostatic pressure. It is of good quality and the supply is sufficient for local needs. It does not appear advisable to drill deep wells in this area. Extensive prospecting by means of a test auger may locate water-bearing deposits, however, and this is recommended prior to sinking a shallow well. Dugouts located in depressions to conserve surface water are recommended in this

area. No wells have been sunk in the Recent deposits, but water should be obtained from them within 30 feet of the surface.

Township 20, Range 21

Only that part of this township lying north of Qu'Appelle river, an area of approximately 10 square miles, is included in the municipality of Longlaketon. Recent stream deposits form the flood-plain of Qu'Appelle river. An area composed of section 35 and parts of sections 25, 26, 34, and 36, is mantled by moraine, and the remainder of the area is covered by glacial till or boulder clay. The sides of the valley are quite steep, and the surface of the township is deeply dissected by tributary valleys.

No wells have been dug in the Recent deposits, but water should occur in them at shallow depth. Two wells obtain water at depths of 30 and 35 feet from pockets of gravel in the weathered part of the drift. The well in the NE. $\frac{1}{4}$, section 35, obtains an abundant supply of water, but the other well located in the SE. $\frac{1}{4}$, section 26, does not yield a good supply and becomes dry in winters and drought periods. The water from both wells is usable for domestic and stock needs.

Wells sunk to depths of 44 to 65 feet obtain water from pockets of sand and gravel in the blue boulder clay. Little continuity is believed to exist in the aquifers as the wells differ considerably in depth, and dry holes have been sunk to similar depths in the vicinity of producing wells. In one well only, located in the SE. $\frac{1}{4}$, section 34, is the water under slight hydrostatic pressure. The water is hard and contains iron, but is usable for domestic purposes and for stock. The supply obtained from most of the wells is very good, but a 52-foot well in the NW. $\frac{1}{4}$, section 36, does not yield sufficient water for local requirements. This farmer also uses a 28-foot well that

yields about 3 barrels of water a day, and hauls from neighbouring wells. In those sections where an adequate supply of water cannot be obtained from wells, surface water can be conserved by the use of dugouts or dams.

Marine Shale is reported to be exposed in a cut in the Canadian Pacific railway along the east shore of Last Mountain lake, north of Valeport. This exposure occurs at an elevation of approximately 1,600 feet. One dry hole, located in the SW. $\frac{1}{4}$, section 34, is sunk to a depth of 246 feet. No information was obtained, but it is assumed that it encounters the Marine Shale as the base of the well is at an approximate elevation of 1,564 feet. It is not advisable to drill into the Marine Shale series, as any water that will be obtained from it will probably be too highly mineralized for farm use.

Township 21, Range 19

Approximately 11 square miles of this township, lying north of Qu'Appelle river, are included in the municipality of Longlaketon. The elevation decreases from 1,900 feet above sea-level in sections 33 and 34 to 1,600 feet at river-level. The township is deeply dissected by valleys and gullies that are tributary to Qu'Appelle valley. The northern part of the area is mantled by moraine. The northern slope of Qu'Appelle valley, and a tributary valley in the northwestern corner of the township, are covered by glacial till or boulder clay. The flood-plain of Qu'Appelle river is covered by Recent stream deposits. The stream deposits are thought to be fairly thick in this township.

Five wells have been dug in the stream deposits and water is obtained within 14 feet of the surface. The water is hard, and that from three wells located in sections 34, 35, and 36, is "alkaline". With the exception of the well in section 35, these shallow wells are being used for domestic purposes. The

water in the well in section 35 is under sufficient pressure to flow above the surface. Little difficulty should be experienced in obtaining moderate supplies of water from the Recent stream deposits.

Wells sunk into the deposits of moraine and glacial till encounter similar materials. In most localities a 10- to 20-foot deposit of yellow boulder clay containing pockets of sand overlies blue boulder clay, but in a well in the NW. ¼, section 28, sand underlies the top soil and overlies the blue boulder clay. The water in several of the wells that encounter sand deposits in the yellow boulder clay is under slight pressure, and in a 6-foot well in the NW. ¼, section 20, it overflows the surface. The water from all these wells is hard and that from some contains small amounts of iron, but not in sufficient quantity to render the water harmful when used for domestic purposes. With the exception of a 14-foot well in the NW. ¼, section 28, the wells yield sufficient water for local needs, many of them supplying 40 to 50 head of stock. Difficulty has been experienced in locating water in the NW. ¼, section 30, and seven holes have been sunk to a maximum depth of 100 feet without encountering water. A shallow well in the same quarter section encountered a pocket of gravel at a depth of 14 feet. Prior to sinking shallow wells in this locality, it would be advisable to locate the water-bearing deposits by means of a test auger.

One well located in the NW. ¼, section 32, obtains water from an aquifer at a depth of 90 feet. The water is hard and usable for domestic and stock needs. The supply is sufficient for more than 50 head of stock. The aquifer of this well is not continuous and drilling to depth in this area is not recommended.

Township 21, Range 20

Qu'Appelle river meanders across the southeastern corner of this township and only that part northwest of the river is included in this report. The ground surface is fairly level and the elevation varies from 1,850 to 1,900 feet above sea-level. The slopes of Qu'Appelle valley are quite steep, however, and the river lies at an approximate elevation of 1,600 feet. Two tributaries of Qu'Appelle river extend into the south-central and northeastern parts of the area. The flood-plain of the river is mantled by Recent stream deposits, and the north slope of the valley is covered by glacial till or boulder clay. The remainder of the township is covered by moraine.

The Recent deposits have not been prospected for water, but it is probable that water-bearing deposits of sand and gravel exist in these silty deposits and that they could be encountered at shallow depths. The water will be suitable for all farm needs.

Wells sunk to depths of 14 to 35 feet obtain water from scattered pockets of sand and gravel encountered in the weathered part of the moraine and glacial till. These wells are all located in the southeastern and central parts of the township, it being necessary to sink wells to greater depths in the other parts of the township. One well located in the NE. $\frac{1}{4}$, section 23, yields moderately soft water that is mainly derived by seepage from a slough. The other shallow wells yield hard water that in some instances is "alkaline", and water from a well in the SW. $\frac{1}{4}$, section 24, is unsuitable for domestic purposes. The supply obtained from these shallow wells varies considerably. Three wells, located in the NW. $\frac{1}{4}$, section 10, NW. $\frac{1}{4}$, section 15, and SW. $\frac{1}{4}$, section 22, yield inadequate supplies. A 32-foot well in the NE. $\frac{1}{4}$, section 20, yields sufficient water for 40 head of stock.

Where insufficient supplies are obtained, water is hauled springs are used, or dugouts are excavated to conserve surface water.

Approximately three-quarters of the wells in the township tap sand and gravel pockets in the blue boulder clay at depths of 45 to 102 feet. Little continuity is believed to exist in the aquifers, as dry holes have been sunk to a maximum depth of 200 feet. The water is hard and that from some of the wells is slightly "alkaline". Only one well, located in the NW. $\frac{1}{4}$, section 6, is not used for domestic purposes. In approximately two-thirds of the recorded wells of this depth the water is under hydrostatic pressure, but no flowing artesian wells are present. The supply obtained is very good and most of the wells yield sufficient water for at least 50 head of stock. The well in the SW. $\frac{1}{4}$, section 36, yields sufficient water for 200 head of stock. The supplies from three wells, located in the NW. $\frac{1}{4}$, section 9, the NE. $\frac{1}{4}$, section 32, and the NE. $\frac{1}{4}$, section 33, are adequate only for domestic purposes, and 2 to 6 head of stock.

Two wells sunk to depths of 118 and 170 feet obtain water from a sand aquifer. The sand is very fine and although it contains an abundance of water, great difficulty is experienced in keeping the sand from plugging the well casings. If the sand can be kept back, the water is under sufficient pressure to rise to a point 35 to 50 feet below the surface. The water is hard and contains iron, but is usable for domestic purposes or for stock. Similar deposits may occur in other localities in the township.

Township 21, Range 21

Only that part of this township lying to the northeast of Last Mountain lake occurs in the municipality of Longlaketon.

The maximum elevation of 1,870 feet is attained along the eastern border of the township. From here the elevation decreases gradually in a southwesterly direction to within a short distance from the lake, where it drops rapidly to lake-level at 1,606 feet above sea-level. The township, with the exception of a narrow area bordering the lake on the north and a small area in section 1 that are covered by glacial till or boulder clay, is mantled by moraine. The northwestern part of the area is deeply dissected by coulées. Clumps of trees are scattered throughout the area, the growth being particularly dense in the ravines and coulées. Much of the western and southwestern parts of this township are used for pasture land and the growing of hay.

Wells are the main source of water supply in this township. A number of wells, particularly in the southern part of the township, obtain water at depths of 17 to 38 feet below the surface. The aquifers are formed by pockets of sand and gravel that occur in the weathered zone of the drift. Two of the wells yield water under pressure and in one of these, located in the NW. $\frac{1}{4}$, section 28, the water rises a considerable distance above the surface. The water, with the exception of that from a well in the SW. $\frac{1}{4}$, section 1, is hard. That from a few wells contains small quantities of iron, but it is usable for domestic purposes or for stock. The wells yield fairly abundant supplies of water, most of them being adequate for 30 to 50 head of stock. The flowing artesian well in the NW. $\frac{1}{4}$, section 28, has a very large yield, reported at approximately 15 barrels of water an hour. Many of the people who summer at Saskatchewan beach obtain their drinking water from this well. Although the deposits of water-bearing sand or gravel encountered in these wells are not believed to be continuous they

appear to be fairly numerous, as only two dry holes, located in the SW. ¼, section 3, and the NE. ¼, section 18, sunk to depths of 72 and 58 feet, respectively, were reported.

Wells ranging in depth from 45 to 88 feet also obtain water from pockets of sand and gravel in the blue boulder clay. These wells are located almost entirely in the northeastern half of the township, and very few shallower wells have been dug in this part of the township. In this area the yellow boulder clay is absent or nearly so, and water-bearing deposits do not occur at shallow depth. The wells that tap aquifers in the blue boulder clay yield hard water that is usable for domestic purposes or for stock. The water from some of the wells contains a small amount of iron in solution. The supply of water obtained varies considerably, but most of the wells yield sufficient water for at least 20 to 50 head of stock, and five wells yield abundant supplies. The scattered distribution of the water-bearing deposits is shown by the fact that a well located in the SE. ¼, section 24, was drilled to a depth of 140 feet before it obtained water. Information regarding this well is lacking, but it is believed that the water is usable for all farm needs, and that trouble is experienced with the fine sand of the aquifer plugging the casings. A number of dry holes have also been dug to depths of 80 to 105 feet. In those sections where water cannot be located in wells, water is hauled from neighbouring wells, or sloughs are used. Many of the slough basins could be deepened to retain larger supplies of water. It should not be difficult to obtain moderate supplies of water throughout this township.

Township 22, Range 19

The maximum elevation of more than 1,900 feet above sea-level is attained in a range of hills running in a northwest-

southeast direction across the southwestern corner. From this region the surface elevation decreases rapidly to 1,850 feet in the southwestern corner, and less rapidly to approximately 1,840 feet in the northeastern corner. The southwestern part is hilly with numerous undrained depressions, typical of moraine-covered areas. The northeastern part is mantled by glacial till or boulder clay. Water supplies in this township are obtained from wells, sloughs, and dugouts, and by melting snow. Most of the wells obtain water at depths of less than 42 feet. The "A" boundary line on Figure 1 of the accompanying map outlines an area in which a number of wells obtain water from deposits of sand and gravel that appear to be continuous. The deposits outcrop at the surface over most of the area and they do not exceed 27 feet in thickness. Wells in the central and southeastern parts of this area obtain abundant supplies at depths up to 12 feet. In sections 20 and 29, however, the deposit does not yield a good supply of water, but in section 31 an abundant supply is obtained. The water from most of the wells is moderately soft and is suitable for domestic purposes and for stock. Some of the wells, however, have been dug through the gravel and sand into the underlying blue boulder clay. Water from these wells is more highly mineralized, as it comes into contact with the blue boulder clay and takes mineral salts into solution. Such is the case in two wells in the SE. $\frac{1}{4}$, section 15, and the NE. $\frac{1}{4}$, section 31. The well in section 31 is bored to a depth of 63 feet, blue boulder clay being encountered 33 feet beneath the surface.

In the area outside of the outlined zone the water-bearing deposits are not so numerous. A 9-foot well in the NE. $\frac{1}{4}$, section 35, is dug entirely in gravel and yields a good supply of soft water, but the other shallow wells usually yield small, intermittent supplies and are dug beside sloughs. Some

of them encounter small layers of sand or gravel, but many of them are in boulder clay and obtain water by seepage from the surface. The water from some of these wells is moderately soft, but that from most of them is hard and slightly "alkaline". Numerous shallow dry holes have been dug. The water in three shallow wells is under slight hydrostatic pressure. Sloughs and dugouts are used to supplement the supply from the intermittent wells, and water is hauled from wells in the outlined area.

Three wells are recorded that obtain water at depths of 70, 75, and 90 feet. They are located on sections 12, 7, and 36. Numerous dry holes have been dug to greater depths without encountering water-bearing deposits, and it appears that these wells tap isolated pockets of sand and gravel in the blue boulder clay. The supply is not abundant and the well in section 7 is the only one yielding sufficient water for local needs. The water is hard and "alkaline", and that from the well in section 36 cannot be used for any farm purpose.

Four wells, located in the NE. $\frac{1}{4}$, section 22, SE. $\frac{1}{4}$, section 28, and the SW. $\frac{1}{4}$ and SE. $\frac{1}{4}$, section 34, yield abundant supplies of water under hydrostatic pressure. These wells range in depth from 168 to 195 feet. The water is quite suitable for stock and with the exception of that from the well in the SE. $\frac{1}{4}$, section 34, is usable for domestic purposes. These wells may tap a common aquifer. Other wells to these depths in this locality should obtain water.

Township 22, Range 20

The surface of this township is characterized by prominent hills and numerous undrained depressions. The elevation decreases gradually from the central part of the area in northeast and southwest directions. The entire township, with the exception

of a small part of section 1 that is mantled by glacial till, is covered by moraine.

The water supply in this township is obtained from wells and sloughs. A group of wells ranging in depth from 6 to 40 feet obtain water from small pockets of sand and gravel located in the upper part of the drift, and by seepage from sloughs. Many of the wells are dug in slough bottoms, or at their edges. These wells yield an abundant supply of water when the slough contains water, but they cease to yield water when the slough becomes dry. The water from some of these wells is moderately soft, but that from most of them is hard, and often slightly "alkaline". Several wells have encountered fairly extensive aquifers of sand and gravel at shallow depth and the water in several of them is under slight hydrostatic pressure. Most of these wells yield sufficient water for 20 to 30 head of stock. The water obtained from most of the wells is usable for domestic purposes, and for stock, but two wells located in the SW. $\frac{1}{4}$, section 1, and the NE. $\frac{1}{4}$, section 32, yield water that cannot be used for drinking. Two wells, located in the NW. $\frac{1}{4}$ and NE. $\frac{1}{4}$, section 36, obtain water from the sand and gravel deposits that occur in the area outlined by the "A" boundary line on the accompanying map. The water from one of these wells is quite hard. It should not be difficult to obtain a moderate supply of water at shallow depth in this township.

Wells ranging in depth from 50 to 180 feet obtain water from scattered pockets of sand and gravel encountered in the blue boulder clay. The water from most of these wells is under considerable hydrostatic pressure. It is hard and frequently "alkaline", the water from several wells being too highly mineralized to be used for drinking. All the wells, however, are being used for stock. The supply obtained varies greatly, but most of

the wells yield abundant water, and only four yield inadequate supplies for local requirements. Where there is a shortage of water the farmer is obliged to use sloughs. The deposits encountered by these wells are not thought to form a continuous aquifer, as many deep holes have been drilled without encountering the aquifer. The supply and quality of water from the different wells also vary considerably.

A well located in the NW. ¼, section 34, drilled to a depth of 280 feet, yields an abundant supply of water under strong hydrostatic pressure. The water is "alkaline" and has a laxative effect on persons not accustomed to its use. It is reported to contain a small amount of iron, but is used for domestic purposes and for stock. Wells to similar depths in other localities may encounter water, but it will no doubt be highly mineralized.

Township 22, Range 21

The maximum elevation of 1,860 feet above sea-level is attained along the eastern boundary of the township, and from there the surface slopes gently towards the west. The entire township is mantled by moraine and the ground surface is very rough and is characterized by many prominent knolls and undrained depressions. Scattered clumps of trees occur throughout the area. The top soil in the eastern part of the township is fairly heavy, but in the northwestern corner it becomes very sandy.

Wells sunk to depths of from 5 to 40 feet obtain water from scattered pockets of sand and gravel that occur in the yellow or weathered clays, or in the upper part of the unweathered or blue boulder clay. Some of the sand deposits outcrop at the surface, and it is reported that deposits of this type are common in the northern half of section 30. Where this

condition prevails water may be obtained within 5 feet of the surface. Most of the shallow wells in this area yield sufficient water for 15 to 20 head of stock. A well located in the SW. ¼, section 30, yields 4,000 gallons a day. The water varies from soft to hard, being more highly mineralized when the aquifer occurs in blue boulder clay. The water from five of these shallow wells is under slight hydrostatic pressure.

Wells sunk to depths of 45 to 131 feet obtain water from pockets of sand and gravel that occur within the blue boulder clay, and the water is under considerable hydrostatic pressure. The water is not highly mineralized and all the wells are used as a source of supply for both domestic purposes and stock. It is hard, and that from some wells contains a small amount of iron. Two wells, however, located in the SW. ¼, section 6, and the SW. ¼, section 25, yield "alkaline" water that acts as a laxative. The supply from most of the wells is sufficient for at least 40 head of stock. The deepest well recordod, 131 feet is located in the NE. ¼, section 36, and it yields an intermittent supply.

The supplies of water obtained in this township are very good, and few farmers are forced to haul water, sloughs and dugouts being used to supplement the yields from wells. Dry holes have been sunk in sections 18, 22, 28, and 33, to a maximum depth of 65 feet. Although they failed to obtain water othor wells sunk quite close to them obtained good supplies. These indicate the scattered nature of the water-bearing deposits.

Township 23, Range 19

The maximum elevation in this township, 1,900 feet above sea-level, is reached in the southwestern corner. From here it gradually decreases in a northeasterly direction to approximately 1,815 feet above sea-level in the northeastern

corner. With the exception of two small areas in the southwestern and northeastern corners that are covered by moraine, the entire area is mantled by glacial till or boulder clay. Drainage is poor in the greater part of the township, and many small sloughs occur throughout the area. The soil in the low-lying areas is quite heavy, but in some areas it is quite sandy. Some of the wells in the northeastern corner have passed through 10 to 25 feet of sand or gravel. An area in which sand and gravel deposits appear to be fairly numerous occurs in parts of sections 5 and 6.

Approximately two-thirds of the wells in this township do not exceed 36 feet in depth, and obtain water from pockets of sand or gravel that occur in the upper part of the glacial drift. The water obtained varies from soft to hard, and is slightly "alkaline", but approximately one-quarter of the recorded wells yield soft water. Only one well, located in the NE. $\frac{1}{4}$, section 14, is unfit for domestic use. The supply obtained from these wells varies considerably. A 9-foot well in the NE. $\frac{1}{4}$, section 28, is recorded as producing sufficient water for 50 head of stock. Many of the wells are located beside sloughs and do not yield water when the sloughs become dry. It is advisable to locate water-bearing deposits in the upper part of the drift by using a small test auger prior to digging shallow wells.

Wells sunk to depths of 54 to 175 feet obtain water from sand and gravel pockets encountered in the blue boulder clay. The water in most of these wells is under considerable pressure. It is hard, usually contains iron, is described as "alkaline", and has a laxative effect on humans. One well located in the SE. $\frac{1}{4}$, section 17, cannot be used for humans or stock. Farmers using these deep wells frequently have a shallow seepage well for domestic purposes. The supply obtained is usually very good

and only one well, located in section 3, is reported as yielding an inadequate supply. Two wells located in the SW. $\frac{1}{4}$ and the SE. $\frac{1}{4}$, section 36, are sunk to depths of 226 and 240 feet, respectively. These wells yield an abundant supply of hard water that is under strong hydrostatic pressure. The water from both wells contains iron, and that from the well in the SW. $\frac{1}{4}$ is too "alkaline" for domestic use. The aquifers are not thought to be continuous.

There is no evidence at hand to show that continuous water-bearing horizons exist in the glacial drift in this township. Pockets of water-bearing sand or gravel occur at various elevations in the glacial drift, but water that is usable for drinking is more often obtained at shallow depth.

Township 23, Range 20

A small area in the northeastern corner is mantled by glacial till or boulder clay, but the remainder of the area is covered by moraine. The maximum elevation of 1,925 feet above sea-level is attained in the central part of the township. From here it decreases to 1,890 feet in the southwestern corner and to 1,840 feet in the northeastern corner. Scattered clumps of trees are found throughout most of the township, but the growth is less dense in the northeastern part. The moraine-covered area is characterized by prominent knolls and undrained depressions. Wells sunk to depths of 8 to 40 feet obtain water from pockets of sand and gravel that occur in the yellow boulder clay, or at the contact of the yellow and blue boulder clays. In the area outlined by the "A" boundary line Figure 1 of the accompanying map, water is obtained from beds of sand and gravel that outcrop at the surface. Wells in the outlined area in this township are usually deeper than those in township 22, range 19

and the deposit is mainly composed of sand. Most of the wells obtain soft water that is usable for all farm needs, and the supply is sufficient for local needs. The deposits do not form a continuous aquifer throughout the outlined area. A few wells outside this area, such as two located in the NE. $\frac{1}{4}$, section 13, and the SE. $\frac{1}{4}$, section 24, have been dug entirely in gravel, but most of them tap pockets of sand or gravel of small areal extent, or are dug beside sloughs and obtain their supply by seepage from the surface water. During seasons of average rainfall the supply from the shallow wells is sufficient for local needs, but in drought periods the supply diminishes and some of the wells become dry. Many of the wells also cease to yield water during the winter months. In such instances farmers are forced to haul water from wells yielding a permanent supply, or to melt snow.

A number of wells ranging in depth from 48 to 200 feet obtain water from pockets of sand and gravel encountered in the blue bouldor clay. Most of these wells, however, are sunk to depths greater than 100 feet. The deposits do not form a continuous horizon and dry holes have been sunk to a maximum depth of 250 feet, showing the scattered distribution of the deposits. The water in most of these wells is under hydrostatic pressure. It is hard, often slightly "alkaline", and slightly laxative, but with the exception of that from three wells it is used for domestic purposes and for stock. Iron salts are often found in solution in the water but these are not in sufficient quantity to render the water harmful. In those localities where the water from deep wells is unsuitable for drinking, shallow seepage wells are used, or water is hauled. Most of these deep wells yield an abundant supply of water and all of them yield a supply adequate for local needs.

A few wells are sunk to depths of 230 to 396 feet. The aquifer in the deepest of these wells is probably near the contact of the glacial drift and the underlying bedrock, but the wells appear to be obtaining their supplies from the glacial drift. The aquifers encountered are usually sand, but their areal extent is unknown. The water is frequently "alkaline", but with the exception of that from three wells is usable for domestic purposes and for stock. Iron is often present, but not in harmful amounts. The supply from these wells is usually sufficient for all farm needs.

The supply of water obtained in this township is very good. Adequate supplies for 20 to 50 head of stock can be obtained at shallow depth in most sections. Water-bearing deposits are liable to be encountered at any depth in the blue boulder clay, but pockets of water-bearing sand and gravel appear to be fairly numerous at depths greater than 100 feet. Dry holes indicate that the aquifers are not continuous.

Township 24, Range 19

The elevation of this township decreases gradually from approximately 1,835 feet in the southwestern corner to about 1,800 feet at Loon creek in the northeastern corner. In a small depression in section 18 the elevation decreases to less than 1,800 feet above sea-level. The southwestern part of the township is mantled by glacial till or boulder clay, whereas the northeastern part is covered by moraine and is characterized by knolls and undrained depressions.

Wells sunk to a maximum depth of 40 feet obtain water from pockets of sand and gravel encountered in the weathered zone of the drift. Most of these wells pass through 1 to 3 feet of top soil and 10 to 30 feet of yellow boulder clay before tapping a

sand or gravel pocket. Four wells have been dug entirely in sand, but the deposits appear to be of local distribution. These wells yield soft water, but only two of them yield supplies adequate for local needs. Three wells have been sunk in Loon Creek valley. Two of them obtain water in gravel at depths of 10 to 18 feet, and the third derives water from a sand deposit at a depth of 10 feet. The sand and gravel were probably deposited by Loon creek during Recent times. These three wells yield good supplies of water, the well in the SW. $\frac{1}{4}$, section 36, yielding sufficient water for 40 head of stock. The water is hard and contains a small amount of iron, but is usable for domestic purposes and for stock. Other shallow wells in this township obtain water from pockets of sand or gravel that occur wholly within yellow boulder clay. The water in five or six of these wells appears to be under slight hydrostatic pressure. The quality of water obtained varies from soft to hard, and that from some of the wells is "alkaline"; four wells cannot be used for domestic purposes. The yield of the wells also varies greatly. Those wells that tap extensive deposits yield fairly abundant supplies, but those that tap small aquifers or are dug beside sloughs yield small supplies. Most of the shallow wells, however, yield sufficient water for 30 or 40 head of stock. Wells sunk to depths of 46 to 190 feet obtain water from scattered pockets of sand and gravel encountered in the blue boulder clay. The water in most of these wells is under hydrostatic pressure. It is hard and in some instances is too "alkaline" for domestic use, but is usable for stock. Approximately one-half of these wells yield sufficient water for local needs, the most productive yielding enough water for 100 to 150 head of stock. The supply from the others is small, often insufficient for local needs, and some

become dry during drought periods.

Four wells have been sunk to depths of 210 to 260 feet and obtain water from pockets of sand or gravel in the lower part of the glacial drift. The water is under hydrostatic pressure; it is hard, contains iron, and that from two wells only is usable for domestic purposes. These wells yield sufficient water for local needs; and one well located in the SE. $\frac{1}{4}$, section 20, yields sufficient for 200 head of stock.

A fairly abundant supply of water can usually be obtained in this township. The aquifers, however, appear to be of local areal extent, and dry holes have been sunk to a maximum depth of 250 feet. In those areas where an adequate supply of water cannot be obtained from wells, sloughs are used or water is hauled. Surface water can be conserved in these areas by the use of dugouts.

Township 24, Range 20

This township is located on the eastern slope of Last mountain. The maximum elevation of slightly more than 1,900 feet above sea-level is attained along the western boundary. A depression covering approximately 2 square miles occurs in the southeastern part of the area, and the elevation decreases to less than 1,800 feet in this area. The western third of the township is mantled by moraine, but the eastern two-thirds is covered by glacial till. Scattered clumps of trees and undrained depressions are charactoristic of the western part, but the eastern side is gently rolling.

Approximately one-half the wells in this township obtain water at depths of less than 40 feet, and many of the wells in the western part are dug entirely in sand. Scattered deposits of sand and gravel outcrop at the surface throughout the township, and

good supplies of water have been obtained from them at depths of less than 25 feet. In many wells, however, 10 to 20 feet of yellow boulder clay is encountered before a pocket of sand or gravel is located. A few wells have been sunk beside sloughs and obtain their supplies by seepage from the impounded surface water. The quality and quantity of water derived from the shallow wells vary greatly. The wells that obtain their supply by seepage, or tap small pockets of sand and gravel, yield moderate supplies that are readily affected by drought conditions. Those that tap large deposits of sand or gravel yield fairly abundant supplies. The water from the wells yielding seepage water and from those that tap large deposits of sand is moderately hard. A few wells have been dug into the upper part of the blue boulder clay and the water is "alkaline", and unfit for domestic use. The water from most wells, however, is usable for all farm needs, and the supply is sufficient for 20 to 30 head of stock. An 8-foot well in the NW. $\frac{1}{4}$, section 8, yields sufficient water for 150 head of stock.

A number of wells sunk to depths of 48 to 132 feet tap pockets of sand and gravel in the blue boulder clay. The water is hard and in some instances slightly "alkaline", but with three exceptions it is being used for domestic purposes. The water from all the wells is usable for stock. The supplies with the exception of that from two wells, are adequate for local needs. A 60-foot well in the NE. $\frac{1}{4}$, section 5, yields sufficient water for 200 head of stock.

Four wells are drilled to depths of 255 to 350 feet. The aquifers are formed of sand, and the deepest of those wells must be obtaining water from a point near the contact of the drift and the Marine Shale series. The water obtained is highly mineralized, that from only two wells being usable for domestic purposes.

Tho water from tho well located in the NE. ¼, section 20, is not even usable for stock. A small amount of iron is present in the water from all the wells. The supply obtained is not abundant, but two of the wells yield sufficient water for local needs. Shallow wells or sloughs are used to supplement the supply.

One dry hole was drilled to a depth of 435 feet in the NW. ¼, section 9. Information is lacking as to the materials encountered in this well, but the base of the well is probably in the Marine Shale. Drilling to depths greater than 200 feet is not advisable in this township. The best source of water as regards quantity and quality will probably be encountered at depths of less than 40 feet.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF LONGLAKETON, NO. 219, SASKATCHEWAN

West of 2nd mer.	Township / Range	20 / 20	20 / 21	21 / 19	21 / 20	21 / 21	22 / 19	22 / 20	22 / 21	23 / 19	23 / 20	24 / 19	24 / 20	Total No. in Municipality
Total No. of Wells in Township		8	11	27	7o	48	133	123	67	80	139	137	123	972
No. of wells in bedrock		0	1	0	0	0	0	0	0	0	0	0	1	2
No. of wells in glacial drift		8	10	22	76	48	133	123	67	80	139	134	122	962
No. of wells in alluvium		0	0	5	0	0	0	0	0	0	0	3	0	8
Permanency of Water Supply														
No. with permanent supply		3	6	20	47	40	40	51	52	43	57	66	77	502
No. with intermittent supply		0	2	0	0	0	47	22	7	19	17	7	9	130
No. dry holes		5	3	7	29	8	46	50	8	18	65	64	37	340
Types of Wells														
No. of flowing artesian wells		0	0	2	0	1	0	0	0	0	0	0	0	3
No. of non-flowing artesian wells		1	1	4	21	12	11	20	17	16	23	18	24	168
No. of non-artesian wells		2	7	14	26	27	76	53	42	46	51	55	62	461
Quality of Water														
No. with hard water		3	7	19	45	37	73	67	56	53	62	66	71	559
No. with soft water		0	1	1	2	3	14	6	3	9	12	7	15	73
No. with salty water		0	1	0	0	0	0	0	0	0	0	0	0	1
No. with "alkaline" water		0	1	7	12	5	16	19	5	18	19	14	18	134
Depths of Wells														
No. from 0 to 50 feet deep		2	7	21	31	26	112	79	45	59	90	91	84	647
No. from 51 to 100 feet deep		6	3	3	39	20	11	28	21	10	17	29	15	202
No. from 101 to 150 feet deep		0	0	3	4	2	4	11	1	7	15	7	17	71
No. from 151 to 200 feet deep		0	0	0	2	0	6	3	0	2	7	2	2	24
No. from 201 to 500 feet deep		0	1	0	0	0	0	2	0	2	10	8	5	28
No. from 501 to 1,000 feet deep		0	0	0	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	0	0	0
How the Water is Used														
No. usable for domestic purposes		3	8	19	43	40	83	66	58	55	64	60	66	565
No. not usable for domestic purposes		0	0	1	4	0	4	7	1	7	16	13	20	67
No. usable for stock		3	8	20	45	40	86	73	59	61	73	72	84	624
No. not usable for stock		0	0	0	2	0	1	0	0	1	1	1	2	8
Sufficiency of Water Supply														
No. sufficient for domestic needs		3	6	20	47	40	36	51	51	43	57	65	77	496
No. insufficient for domestic needs		0	2	0	0	0	51	22	8	19	17	8	9	136
No. sufficient for stock needs		2	5	17	37	31	29	32	39	32	36	25	46	331
No. insufficient for stock needs		1	3	3	10	9	58	41	20	30	38	48	40	301

ANALYSES AFT 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 boilders 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 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 Longlaketon, No. 219, 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	Alkalinity	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		35	22	19	2	10	486											(3)	(1)		(2)				(4)	* 1
2	NW.	18	22	20	2	62	406											(3)	(1)		(2)				(4)	* 1
3	NW.	22	23	20	2	36	2,926											(3)	(1)		(2)				(4)	* 1

Water samples indicated thus, * 1, are from glacial drift.
Analyses are reported in parts per million; where numbers (1), (2), (3) and (4) are used instead of parts per million, they represent the relative amounts in which the five main constituents are present in the water.
Analyses Nos. 1, 2, and 3, by Provincial Analyst, Regina.
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

Three samples of water from the glacial drift have been analysed by the Provincial Analyst at Regina, and the results are listed in the accompanying table. These samples may be fairly representative of the type of water to be expected from the upper part of the drift. Samples 1 and 2 do not contain a large amount of dissolved mineral salts and are suitable for all farm needs. Sample 3 contains 2,926 parts per million of dissolved solids, and is not being used for domestic purposes. Calcium sulphate, magnesium sulphate (Epsom salts), and calcium carbonate are the most abundant mineral salts present. Shallow wells that have been sunk entirely in sand or gravel frequently yield water suitable for all farm needs. Care should be taken to see that the shallow wells do not become contaminated by polluted surface waters.

No analyses of water obtained from deposits of sand or gravel in the blue boulder clay are available. The water from these deposits is quite highly mineralized, but is suitable for stock. In some instances it is laxative and cannot be used for domestic purposes. The water from a number of the deeper wells in this municipality contains iron, but not in sufficient quantity to render its use harmful. The iron can be largely removed by aeration and filtration of the water.

Water from the Bedrock

No wells have encountered water in the bedrock in this municipality. Any water that might be obtained from the Marine Shale series in this area will probably be too highly mineralized for farm use.

WELL RECORDS[1]—Rural Municipality of LONGLAKETON NO.219, 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.	30	20	20	2	Bored	70	1,855									Dry hole; base in glacial drift; hauls water.
2	NE.	31	"	"	"	Dug	65	1,886	- 60	1,826	65	1,821	Glacial gravel	Hard, clear		D, S	Oversufficient for 30 head stock; several dry holes to 100 feet.
3	E½	32	"	"	"	Bored	100	1,855									Dry hole; base in glacial drift; hauls water.
4	SW.	33	"	"	"	Dug	29	1,642	- 26	1,616	26	1,616	Glacial sand	Hard, clear		D	Sufficient for domestic needs; also a spring for stock.
1	SE.	25	20	21	2	Bored	44	1,850	- 36	1,814	36	1,814	Glacial gravel	Hard, clear		D, S	Sufficient for 7 head stock.
2	SE.	26	"	"	"	Dug	30	1,825	- 25	1,800	25	1,800	Glacial clay	Hard, clear; salty, iron		D, S	Intermittent supply.
3	SE.	34	"	"	"	Dug	52	1,818	- 26	1,792	52	1,766	Glacial gravel	Hard, clear		D, S	
4	SW.	34	"	"	"	Drilled	246	1,810									Dry hole; probably in Marino shale; also an 8-foot dry hole and two wells 23 and 60 feet.
5	SW.	35	"	"	"	Bored	65	1,820					Glacial drift	Hard, clear, "alkaline" iron		D, S	Sufficient for 18 head stock; also several dry holes.
6	NE.	35	"	"	"	Dug	35	1,840	- 23	1,817	23	1,817	Glacial gravel	Soft, clear, iron, oily		D, S	Sufficient for 38 head stock.
7	NW.	36	"	"	"	Dug	52	1,845	- 48	1,797	48	1,797	Glacial gravel	Hard, clear, iron		D, S	Intermittent supply; also a 28-foot well.
8	SW.	36	"	"	"	Dug	45	1,850	- 40	1,810	40	1,810	Glacial sand	Hard, clear, iron		D, S	Sufficient for 12 head stock.
1	NW.	20	21	19	2	Dug	6	1,684		1,684	6	1,678	Glacial gravel	Hard, clear, iron		D, S	Flows sufficient for 50 head stock.
2	NW.	28	"	"	"	Dug	14	1,720	- 7	1,713	7	1,713	Glacial gravel				Insufficient for local needs; also a spring.
3	SE.	28	"	"	"	Dug	14	1,615	- 10	1,605	10	1,605	Recent gravel	Soft, clear		D, S	Oversufficient for 50 head stock.
4	SW.	28	"	"	"	Dug	6	1,612	- 3	1,609	3	1,609	Recent sand	Hard, clear		D, S	Waters 3 head stock.
5	NW.	30	"	"	"	Dug	15	1,825	- 10	1,815	10	1,815	Glacial gravel	Hard, clear, "alkaline"		D, S	Waters 17 head stock; seven dry holes, three over 100 feet deep.
6	SW.	31	"	"	"	Dug	14	1,850	- 7	1,843	12	1,838	Glacial gravel	Hard, clear, "alkaline"		D, S	Waters 6 head stock.
7	NW.	32	"	"	"	Bored	90	1,892	- 70	1,822	90	1,802	Glacial drift	Hard, clear, "alkaline"		D, S	Oversufficient for 50 head stock.
8	SE.	32	"	"	"		16	1,875					Glacial gravel	Hard			Large supply.
9	SW.	32	"	"	"	Dug	14	1,875	- 6	1,869	14	1,861	Glacial gravel	Hard, clear		D, S	Oversufficient for 18 head stock.
10	NE.	34	"	"	"	Dug	18	1,850	- 6	1,844	18	1,832	Glacial drift	Hard, clear		D, S	Also another well; total supply sufficient for 30 head stock.
11	SE.	34	"	"	"	Dug	16	1,705	- 14	1,691	14	1,691	Glacial sand	Hard, clear, "alkaline" iron		D	Sufficient only for domestic needs; also a spring in ravine.
12	SE.	34	"	"	"	Dug	7	1,625	- 3	1,622	3	1,622	Recent sand	Hard, clear, "alkaline"		D, S	Oversufficient for 15 head stock.
13	SE.	35	"	"	"	Dug	4	1,600		1,600	4	1,596	Recent gravel	Hard, clear, "alkaline" iron		S	Sufficient for 60 head stock; also a spring.

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 [2] Rural Municipality of LONGLAKETON NO.219, 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
14	SE.	36	21	19	2	Dug	8	1,612	- 4	1,608	4	1,608	Recent sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also a similar well.
1	NE.	4	21	20	2	Bored	96	1,855	- 90	1,765	90	1,765	Glacial sand	Hard, clear, iron		D, S	Sufficient for 12 head stock; springs used for stock.
2	SE.	6	"	"	"	Dug	59	1,850	- 51	1,799	51	1,799	Glacial gravel and stone	Hard, cloudy, "alkaline" iron		D, S	Oversufficient for 30 head stock; also two dry holes 30 and 50 feet deep.
3	NW.	6	"	"	"	Bored	45	1,840	- 15	1,825	45	1,795	Glacial sand	Hard, cloudy, "alkaline" iron		S	Sufficient for 20 head stock; several dry holes to 64 feet and 8-foot seepage well.
4	NE.	7	"	"	"	Bored	52	1,860	- 46	1,814	46	1,814	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 47 head stock; also a dry hole.
5	SW.	8	"	"	"	Bored	75	1,860	- 66	1,794	66	1,794	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient supply in normal years.
6	NW.	9	"	"	"	Bored	65	1,855	- 58	1,797	58	1,797	Glacial gravel	Hard, clear		D	Sufficient for domestic needs only; cattle water at spring.
7	NW.	10	"	"	"	Dug	35	1,860	- 30	1,830	30	1,830	Glacial sand	Hard, clear		D, S	Insufficient for local needs; dugout for stock.
8	NE.	10	"	"	"	Bored	102	1,860	- 84	1,776	102	1,758	Glacial gravel	Hard, clear, "alkaline" iron		D, S	Sufficient for 50 head stock; eleven dry holes as deep as 40 feet.
9	SE.	14	"	"	"	Bored	30	1,654	- 15	1,639	30	1,624	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 40 head stock. Not usable.
10	NW.	15	"	"	"	Bored	30	1,860	- 28	1,832	28	1,832	Glacial drift	Hard, clear,		N	Spring in ravine is used.
11	NW.	16	"	"	"	Bored	74	1,860	- 66	1,794	74	1,786	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 10 head stock.
12	NE.	16	"	"	"	Bored	76	1,870	- 68	1,802	68	1,802	Glacial sand	Hard, clear, iron		D, S	Sufficient for 10 head stock; also 70-foot dry hole.
13	SE.	16	"	"	"		200	1,860									Dry hole, base in glacial drift.
14	NE.	17	"	"	"	Bored	68	1,860	- 65	1,795	65	1,795	Glacial sand and gravel	Hard, clear, iron		D, S	Sufficient for 50 head stock.
15	SE.	18	"	"	"	Bored	67	1,850	- 63	1,787	63	1,787	Glacial sand	Hard, cloudy, "alkaline"		D, S	Oversufficient for 50 head stock.
16	SW.	18	"	"	"	Bored	62	1,852	- 39	1,813	62	1,790	Glacial gravel	Hard, clear		D, S	Sufficient for 50 head stock.
17	NE.	20	"	"	"	Dug	32	1,874	- 24	1,850	24	1,850	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.
18	NW.	21	"	"	"	Bored	100	1,880									Dry hole in glacial drift; also two dry holes to 95 feet.
19	SW.	22	"	"	"	Dug	35	1,876	- 31	1,845	31	1,845	Glacial sand	Hard		D, S	Insufficient for local needs; hauls water.
20	SE.	22	"	"	"	Dug	75	1,876	- 55	1,821	75	1,801	Glacial sand	Hard, cloudy, iron		D, S	Sufficient for 60 head stock.
21	NE.	23	"	"	"	Dug	17	1,870	- 14	1,856	14	1,856	Glacial sand	Soft, clear		D, S	Oversufficient for 15 head stock; also a 60-foot well, not used.
22	NW.	23	"	"	"	Bored	88	1,875	- 66	1,809	88	1,787	Glacial drift	Hard, clear		D, S	Oversufficient for 19 head stock; also two dry holes deepest 103 feet.
23	SW.	24	"	"	"	Bored	16	1,862					Glacial sand	Hard, clear		S	Sufficient for 12 head stock; hauls domestic supply.
24	SE.	24	"	"	"	Dug	19	1,640	- 16	1,624	16	1,624	Glacial sand	Hard, clear		D, S	Oversufficient for 60 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[3]—Rural Municipality of LONGLAKETON NO.219, 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
25	NE.	24	21	20	2	Dug	14	1,850	- 12	1,838	12	1,838	Glacial gravel	Soft,clear		D, S	Sufficient for 20 head stock.
26	SW.	25	"	"	"	Bored	93	1,874	- 63	1,811	93	1,781	Glacial sand	Hard,ciron		D, S	Oversufficient for 40 head stock.
27	SE.	26	"	"	"	Bored	60	1,874	- 50	1,824	60	1,814	Glacial sand	Hard,clear		D, S	Oversufficient for 30 head stock.
28	SW.	26	"	"	"	Bored	118	1,878	- 48	1,830	118	1,760	Glacial sand	Hard,clear, iron		D, S	Oversufficient for 150 head stock.
29	NW.	27	"	"	"	Drilled	170	1,870	- 35	1,835	170	1,700	Glacial sand	Hard,cloudy, "alkaline" iron		D, S	Oversufficient for 100 head stock; also a 62-foot well.
30	SE.	28	"	"	"	Bored	70	1,866	- 64	1,802	70	1,796	Glacial sand	Hard,clear		D, S	Oversufficient for 30 head stock; also a dry hole.
31	SW.	28	"	"	"	Bored	65	1,895	- 25	1,870	65	1,830	Glacial drift	Hard,clear		D, S	
32	SE.	30	"	"	"	Dug	78	1,870	- 74	1,796	74	1,796	Glacial sand	Hard,clear		D, S	Sufficient for 20 head stock.
33	NW.	31	"	"	"	Bored	76	1,882	- 70	1,812	76	1,806	Glacial gravel	Hard,clear, "alkaline"		D, S	Sufficient for local needs.
34	NE.	32	"	"	"	Bored	75	1,890	- 54	1,836	75	1,815	Glacial sand	Hard,"alka-line"		D, S	Insufficient for 6 head stock; four dry holes to 75 feet.
35	NW.	32	"	"	"	Bored	94	1,870	- 66	1,804	94	1,876	Glacial sand	Hard,clear, iron		D, S	Oversufficient for local needs.
36	NE.	33	"	"	"	Dug	60	1,870	- 18	1,852	60	1,810	Glacial sand	Hard,clear		D, S	Insufficient for local needs; use slough and seepage well.
37	SE.	33	"	"	"	Bored	75	1,864	- 67	1,797	67	1,797	Glacial sand and gravel	Hard,clear, "alkaline"		D, S	Sufficient for 20 head stock.
38	NW.	34	"	"	"	Bored	102	1,876	- 82	1,794	102	1,774	Glacial sand	Hard,clear		D, S	Sufficient for 40 head stock; also a 90-foot well, poor supply.
39	NE.	34	"	"	"	Bored	83	1,872	- 79	1,793	79	1,793	Glacial gravel	Hard,clear, iron		D, S	Sufficient for 15 head stock.
40	NW.	35	"	"	"	Bored	90	1,882	- 80	1,802	80	1,802	Glacial sand	Hard,clear, "alkaline" iron		D, S	Sufficient for 50 head stock.
41	SW.	35	"	"	"	Bored	65	1,865	- 53	1,812	65	1,800	Glacial sand	Hard,clear		D, S	Oversufficient for 50 head stock; also two dry holes.
42	NE.	35	"	"	"	Dug	20	1,870									Dry hole; base in glacial drift.
43	SE.	36	"	"	"	Bored	97	1,850	- 82	1,768	97	1,753	Glacial sand	Hard,clear, "alkaline" iron		D, S	Sufficient for 18 head stock.
44	SW.	36	"	"	"	Bored	83	1,870	- 31	1,839	83	1,787	Glacial sand	Hard,clear, iron		D, S	Oversufficient for local needs.
1	SW.	1	21	21	2	Bored	17	1,850	- 12	1,838	12	1,838	Glacial sand	Soft,clear		D, S	Sufficient for 30 head stock.
2	NE.	2	"	"	"	Dug	37	1,840	- 30	1,810	30	1,810	Glacial sand	Hard,clear		D, S	Sufficient for 55 head stock.
3	NE.	3	"	"	"	Dug	25	1,840	- 17	1,823	17	1,823	Glacial sandy clay	Hard,clear		D, S	Sufficient for 25 head stock.
4	SW.	3	"	"	"	Dug	72	1,825									Dry hole; base in glacial drift; numerous other dry holes.
5	NE.	4	"	"	"	Bored	38	1,820	- 36	1,784	36	1,784	Glacial sand	Hard,clear, "alkaline" iron	42	D, S	Insufficient for local needs; other similar wells.

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 LONGLAKETON NO. 219, 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
6	SE.	9	21	21	2	Bored	28	1,810	- 22	1,788	22	1,788	Glacial sand	Hard, clear	43	D, S	Sufficient for 10 head stock.
7	SE.	10	"	"	"	Dug	38	1,830	- 18	1,812	18	1,812	Glacial sand	Hard, clear	43	D, S	Sufficient for 65 head stock.
8	NE.	10	"	"	"	Dug	17	1,820	- 9	1,811	9	1,811	Glacial gravel	Hard, clear	43	D, S	Sufficient for local needs.
9	NE.	12	"	"	"	Dug	45	1,830	- 35	1,795	35	1,795	Glacial sand	Hard, clear		D, S	Sufficient for 40 head stock.
10	NW.	12	"	"	"	Dug	45	1,830	- 35	1,795	45	1,785	Glacial sand	Hard, clear	42	D, S	Sufficient for 60 head stock.
11	NE.	14	"	"	"	Bored	30	1,830	- 12	1,818	30	1,800	Glacial gravel and sand	Hard, clear	42	D, S	Sufficient for 30 head stock.
12	SW.	14	"	"	"	Bored	50	1,825	- 44	1,781	44	1,781	Glacial gravel	Hard, clear	42	D, S	Sufficient for 20 head stock,
13		15	"	"	"	Bored	48	1,800	- 38	1,762	38	1,762	Glacial drift	Iron, clear		D, S	Also a 12-foot well, small supply.
14	SE.	16	"	"	"	Dug	26	1,810	- 24	1,786	24	1,786	Glacial gravel	Hard, clear, iron	43	D, S	Sufficient for 50 head stock.
15	NE.	16	"	"	"	Dug	60	1,810	- 40	1,770	60	1,750	Glacial sand	Hard, clear, iron	42	D, S	Oversufficient for 10 head stock.
16	NW.	16	"	"	"	Dug	30	1,810	- 23	1,787	23	1,787	Glacial gravel	Hard, clear		D, S	Abundant supply; also a 35-foot well with small supply.
17	NE.	18	"	"	"	Bored	58	1,760									Dry hole; base in glacial drift.
18	SE.	23	"	"	"	Bored	80	1,840									Dry hole; base in glacial drift; uses sloughs and hauls water.
19	SW.	23	"	"	"	Dug	30	1,840	- 28	1,812	28	1,812	Glacial sand	Hard, clear	42	D, S	Yields 10 barrels a day.
20	NW.	23	"	"	"	Bored	65	1,840	- 60	1,780	60	1,780	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.
21	SE.	24	"	"	"	Bored	75	1,860	- 62	1,798	75	1,785	Glacial sand	Hard, clear	43	D, S	Sufficient for 40 head stock; also 140-foot well troubled with sand and similar 75-foot well.
22	NE.	24	"	"	"	Bored	70	1,860	- 62	1,798	62	1,798	Glacial sand and gravel	Hard, clear, iron		D, S	Insufficient for local needs.
23	NW.	24	"	"	"	Bored	105	1,850									Dry hole; base in glacial drift.
24	NW.	24	"	"	"	Bored	66	1,850	- 33	1,817	66	1,784	Glacial drift	Hard, clear		D, S	Sufficient for 10 head stock.
25	NW.	25	"	"	"	Bored	40	1,860	- 26	1,834			Glacial drift	Hard, clear, iron	42	D, S	Insufficient for local needs.
26	SE.	26	"	"	"	Bored	88	1,850	- 86	1,764	86	1,764	Glacial drift	Soft, clear	41	D, S	Insufficient for local needs; hauls water numerous 80-foot dry holes.
27	SW.	26	"	"	"	Bored	55	1,840	- 49	1,791	49	1,791	Glacial sand	Hard, clear, iron		D, S	Sufficient for 20 head stock.
28	NE.	27	"	"	"	Drilled	56	1,850	- 54	1,796	54	1,796	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
29	NW.	27	"	"	"	Bored	50	1,820	- 35	1,785	50	1,770	Glacial drift	Hard, clear	43	D, S	Sufficient for local needs.
30	SW.	28	"	"	"	Bored	32	1,800	- 26	1,774	32	1,768	Glacial sand	Hard, clear, iron	41	D, S	Oversufficient for local needs.
31	NW.	28	"	"	"	Bored	26	1,800	+ 19	1,819	26	1,774	Glacial gravel	Hard, clear, iron		D, S	Yields 10 gallons a minute.

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 LONGLAKETON NO. 219, 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
32	SW.	30	21	21	2	Dug	24	1,800	- 18	1,782	18	1,782	Glacial drift	Hard, clear	42	D, S	Almost sufficient for local needs.
33	SW.	30	"	"	"		82	1,780	- 15	1,765	79	1,701	Glacial drift				C.P.R. well; now filled in.
34	NW.	31	"	"	"	Bored	60	1,800	- 20	1,780	60	1,740	Glacial sand	Hard, clear	43	D, S	Sufficient only for 8 head stock.
35	NW.	32	"	"	"	Bored	48	1,820	- 22	1,798	48	1,772	Glacial sand	Hard, clear	43	D, S	Yields 100 barrels a day; was a 30-foot well, now filled in.
36	SE.	33	"	"	"	Bored	80	1,800	- 60	1,740	80	1,720	Glacial drift	Hard, clear, "alkaline" iron	41	D, S	Sufficient for 20 head stock.
37	SW.	35	"	"	"	Bored	54	1,850	- 51	1,799	51	1,799	Glacial gravel and sand	Hard, clear, iron		D, S	Sufficient for 20 head stock.
38	NE.	36	"	"	"	Bored	56	1,870	- 46	1,824	56	1,814	Glacial sand	Hard, clear iron		D, S	Sufficient for 35 head stock.
39	SW.	36	"	"	"	Bored	70	1,860	- 53	1,807	70	1,790	Glacial sand	Hard, cloudy "alkaline"	42	D, S	Sufficient for 20 head stock; also a 90-foot dry hole.
40	NW.	36	"	"	"	Dug	60	1,860	- 52	1,808	60	1,800	Glacial sand	Hard, clear		D, S	Sufficient for 100 head stock.
1	SE.	1	22	19	2	Dug	12	1,890	- 5	1,885	5	1,885	Glacial sand	Soft, clear		D, S	Sufficient for 80 head stock.
2	NE.	2	"	"	"	Dug	8	1,870	- 3	1,867	3	1,867	Glacial sand	Soft, clear		D, S	Sufficient for 26 head stock.
3	NE.	3	"	"	"	Dug	20	1,895	- 10	1,885			Glacial clay	Hard, clear		D	Intermittent supply; uses seepage wells and hauls water.
4	SE.	4	"	"	"	Dug	25	1,912	0	1,912			Glacial clay	Hard, clear		D, S	Intermittent supply; also a 16-foot well.
5	NE.	6	"	"	"	Dug	40	1,890	- 26	1,864	40	1,850	Glacial sand	Hard, cloudy, "alkaline"		S	Sufficient for local needs.
6	SW.	6	"	"	"	Bored	49	1,890									Dry hole; base in glacial drift; several dry holes; haul water.
7	SW.	7	"	"	"	Bored	50	1,890									Dry hole; base in glacial drift; uses spring and sloughs.
8	NW.	7	"	"	"	Dug	20	1,900					Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; several seepage wells.
9	NE.	7	"	"	"	Bored	75	1,910	- 40	1,870	75	1,835	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 20 head stock; other dry holes.
10	SE.	8	"	"	"	Dug	18	1,916	- 8	1,908			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; also three similar shallow wells.
11	NE.	9	"	"	"	Dug	35	1,925	- 8	1,917			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; also eight similar seepage wells.
12	SW.	10	"	"	"	Dug	18	1,922	- 10	1,912			Glacial clay	Hard, clear		D, S	Intermittent supply; several dry holes to 25 feet.
13	SE.	10	"	"	"	Dug	22	1,895	- 12	1,883			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; uses sloughs and hauls water.
14	NE.	10	"	"	"	Dug	8	1,890	- 5	1,885	5	1,885	Glacial gravel	Soft, clear		D, S	Oversufficient for 30 head stock.
15	SE.	11	"	"	"	Dug	9	1,880	- 6	1,874	6	1,874	Glacial gravel	Soft, clear		D, S	Oversufficient for 60 head stock.
16	NE.	12	"	"	"	Bored	205	1,880									Dry hole; base in glacial drift; also 110-foot dry hole shallow well and dugout.
17	SW.	12	"	"	"	Bored	70	1,885	- 50	1,835	70	1,815	Glacial sand	Hard, clear		D, S	Insufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of LONGLAKETON NO219, 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
18	NE.	13	22	19	2	Bored	75	1,950									Dry hole; base in glacial drift; uses seepage well, dugout, and hauls water.
19	NW.	14	"	"	"	Dug	15	1,860	0	1,860			Glacial clay	Hard,clear		D, S	Shallow wells.
20	NE.	14	"	"	"	Dug	14	1,850	0	1,850			Glacial gravel	Hard,clear, "alkaline"		D, S	Intermittent supply; hauls water.
21	SE.	15	"	"	"	Dug	15	1,890	- 8	1,882	8	1,882	Glacial gravel and stone.	Hard,clear, "alkaline"		D, S	Sufficient for 25 head stock.
22	SW.	15	"	"	"	Dug	12	1,895	- 6	1,889	6	1,889	Glacial sand	Soft,clear		D, S	Sufficient for 20 head stock.
23	NW.	15	"	"	"	Dug	8	1,885	- 4	1,881	4	1,881	Glacial sand	Soft,clear		D, S	Oversufficient for 20 head stock.
24	SW.	16	"	"	"	Bored	133	1,910									Dry hole; base in glacial drift; fifteen dry holes here; hauls water.
25	NE.	16	"	"	"	Dug	8	1,890	- 6	1,884	6	1,884	Glacial sandy gravel	Soft,clear		D, S	Sufficient for local needs; several shallow seepage wells.
26	SE.	16	"	"	"	Dug	30	1,902	- 27	1,875			Glacial clay	Soft,clear		D, S	Intermittent supply.
27	NW.	16	"	"	"	Dug	10	1,890	- 5	1,885	8	1,882	Glacial gravel	Soft,clear		D, S	Sufficient for local needs.
28	NW.	17	"	"	"	Dug	20	1,900	- 15	1,885			Glacial gravel	Hard,clear		D, S	Intermittent supply; also three similar wells.
29	W.½	17	"	"	"	Dug	20	1,900					Glacial drift	Hard,clear		D, S	Intermittent supply; four similar wells.
30	SE.	17	"	"	"	Dug	18	1,900	0	1,900			Glacial drift	Hard,clear, "alkaline"		D, S	Sufficient for 20 head stock; also two similar wells.
31	NE.	17	"	"	"	Bored	108	1,884									Dry hole; base in blue clay; several dry holes; has seepage well and dam; hauls wate
32	NW.	18	"	"	"	Dug	16	1,910	0	1,910			Glacial gravel	Hard,clear		D, S	Intermittent supply.
33	SW.	18	"	"	"	Dug	42	1,910	- 34	1,876	34	1,876	Glacial gravel	Hard,clear			Insufficient for local needs.
34	SW.	19	"	"	"	Dug	22	1,890	- 14	1,876	14	1,876	Glacial gravel	Hard,clear, "alkaline"		D, S	Intermittent supply; similar stock well.
35	NE.	19	"	"	"	Bored	120	1,900									Dry hole; base in glacial drift; use seepage well, sloughs and haul water.
36	SE.	20	"	"	"	Dug	14	1,884	- 2	1,882	2	1,882	Glacial gravel	Hard,clear		D, S	Intermittent supply.
37	SE.	21	"	"	"	Dug	8	1,885	- 2	1,883	2	1,883	Glacial gravel	Soft,clear		D, S	Oversufficient for 15 head stock.
38	SW.	21	"	"	"	Dug	12	1,880	- 8	1,872	8	1,872	Glacial sand	Soft,clear		D, S	Oversufficient for 20 head stock.
39	NW.	22	"	"	"	Dug	18	1,890									Dry hole; base in blue clay.
40	NE.	22	"	"	"	Drilled	195	1,865					Glacial sand	Hard,cloudy, "alkaline" iron		D, S	Sufficient for local needs.
41	SE.	22	"	"	"	Dug	22	1,880	- 5	1,875			Glacial clay	Hard,clear		D, S	Intermittent supply; eight dry holes to 40 feet.
42	SE.	23	"	"	"	Dug	35	1,860	- 30	1,830	30	1,830	Glacial sand	Hard,clear		D	Sufficient for domestic needs only; use slough and haul water.
43	SE.	24	"	"	"	Dug	24	1,850	- 14	1,836	24	1,826	Glacial sand	Hard,clear, "alkaline"		D, S	Sufficient for 20 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 LONGLAKETON NO. 219, 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
44	NE.	26	22	19	2	Bored	44	1,850									Dry hole; base in glacial drift; other dry holes; haul water.
45	SW.	27	"	"	"	Dug	15	1,895	- 11	1,884	11	1,884	Glacial drift	Hard, clear, "alkaline"		D, S	Intermittent supply.
46	NE.	27	"	"	"	Dug	14	1,880	- 11	1,869	11	1,869	Glacial gravel	Hard, clear, "alkaline"		D, S	Oversufficient for 21 head stock; also a 25-foot dry hole.
47	SE.	28	"	"	"	Drilled	185	1,882	-178	1,704	185	1,697	Glacial gravel	Hard, clear		D, S	Oversufficient for 50 head stock.
48	SW.	29	"	"	"	Dug	25	1,880	- 6	1,874	6	1,874	Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock; similar well and several dry holes to 50 feet.
49	SW.	30	"	"	"	Dug	14	1,870	- 12	1,858	12	1,858	Glacial sand	Hard, clear		D, S	Intermittent supply.
50	NE.	31	"	"	"	Bored	63	1,895	- 33	1,862	33	1,862	Glacial gravel	Hard, clear		D	Oversufficient for 40 head stock.
51	NW.	31	"	"	"	Dug	13	1,910	- 7	1,903	7	1,903	Glacial sand	Soft, clear		S	Oversufficient for 30 head stock.
52	NW.	32	"	"	"	Dug	24	1,890	- 12	1,878	24	1,866	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock; also 190-foot dry hole.
53	SW.	33	"	"	"	Dug	20	1,892	- 12	1,880	20	1,872	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock.
54	SE.	34	"	"	"	Bored	168	1,890	-128	1,762	168	1,722	Glacial sand	Hard, cloudy, "alkaline" iron		S	Oversufficient for 35 head stock; also a seepage well for house use.
55	SW.	34	"	"	"	Drilled	170	1,880	-157	1,723	170	1,710	Glacial drift	Hard, clear		D, S	Sufficient for local needs; shallow seepage well for house use.
56	NE.	35	"	"	"	Dug	9	1,842	- 6	1,838	6	1,836	Glacial gravel	Soft, clear		D, S	Abundant supply; similar well in NW.¼.
57	SW.	36	"	"	"	Bored	90	1,850	- 60	1,790	90	1,760	Glacial drift	Hard, clear, "alkaline" iron		N	Small supply; poor quality water.
1	SW.	1	22	20	2	Bored	69	1,850	- 27	1,823	69	1,781	Glacial sand	Hard, clear, "alkaline" iron		S	Sufficient for local needs; also a well in ravine.
2	SW.	1	"	"	"	Dug	12	1,850	- 2	1,848	12	1,838	Glacial gravel	Soft, clear		D, S	Oversufficient for 17 head stock.
3	NW.	2	"	"	"	Dug	16	1,860	- 6	1,854			Glacial gravel	Hard, clear		D, S	Oversufficient for 9 head stock.
4	SW.	2	"	"	"	Dug	24	1,870	- 12	1,858	12	1,858	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	SW.	4	"	"	"	Drilled	150	1,884	- 90	1,794	150	1,734	Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for 27 head stock; several dry holes, deepest 100 feet.
6	NW.	5	"	"	"	Drilled	138	1,865	- 78	1,787	100	1,765	Glacial sand	Hard, clear, "alkaline" iron		D, S	Oversufficient for 50 head stock; several dry holes.
7	NE.	6	"	"	"	Bored	70	1,860	- 68	1,792	68	1,792	Glacial gravel	Hard, clear, "alkaline" iron		D, S	Sufficient for 30 head stock.
8	SW.	7	"	"	"	Dug	125	1,860									Dry hole; base in glacial drift; several dry holes 48 to 125 feet deep; hauls water.
9	NW.	8	"	"	"	Bored	90	1,875	- 70	1,805	90	1,785	Glacial sand	Hard, cloudy, "alkaline" iron		S	Oversufficient for 20 head stock; four dry holes 60 to 70 feet deep.

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

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

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219, 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
10	NE.	8	22	20	2	Bored	100	1,880	- 91	1,789	100	1,780	Glacial sand	Hard, iron		D, S	Oversufficient for 8 head stock.
11	NE.	10	"	"	"	Dug	22	1,860	- 6	1,854	6	1,854	Glacial gravel	Hard, clear		D, S	Insufficient for 17 head stock; several shallow wells; hauls water.
12	SE.	10	"	"	"	Bored	110	1,860	- 80	1,780	100	1,760	Glacial sand	Hard, clear, iron, "alkaline"		S	Oversufficient for 30 head stock; 20-foot house well and four dry holes 20 to 30 feet.
13	NW.	10	"	"	"	Bored	128	1,865	- 88	1,777	128	1,737	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs; several dry holes, deepest 90 feet; hauls water.
14	NE.	11	"	"	"	Bored	50	1,870									Dry hole; base in glacial drift; 14-foot seepage well, waters 8 head stock.
15	SW.	12	"	"	"	Dug	20	1,860	- 12	1,848			Glacial sand	Hard, "alkaline"		S	Intermittent supply; hauls water.
16	NW.	13	"	"	"	Dug	15	1,890	- 4	1,886	4	1,886	Glacial sand	Soft, clear		D, S	Intermittent supply; many shallow dry holes.
17	SW.	14	"	"	"	Bored	28	1,870	- 25	1,845	25	1,845	Glacial gravel	Hard, clear, "alkaline"		S	Oversufficient for 30 head stock; also 11-foot well for domestic use.
18	NE.	16	"	"	"	Bored	90	1,870	- 75	1,795	90	1,680	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock; a 175-foot well is plugged with sand.
19	NE.	17	"	"	"	Bored	75	1,875	- 40	1,835	70	1,805	Glacial sand	Hard, iron, "alkaline"		D, S	Oversufficient for 12 head stock.
20	SW.	17	"	"	"	Bored	118	1,875	- 86	1,789	118	1,757	Glacial sand	Hard, cloudy, "alkaline" iron		D, S	Oversufficient for local needs.
21	NW.	18	"	"	"	Bored	62	1,864	- 57	1,807	57	1,807	Glacial gravel	Hard, iron		D, S	Sufficient for local needs. #
22	SE.	18	"	"	"	Dug	84	1,870	- 64	1,806	84	1,786	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 60 head stock.
23	SW.	20	"	"	"	Bored	68	1,870	- 62	1,808	68	1,802	Glacial sand	Hard, clear, "alkaline" iron		D, S	Insufficient supply in dry years; hauls water
24	NW.	20	"	"		Dug	24	1,875	- 21	1,854	21	1,854	Glacial sand	Hard, clear		D, S	Oversufficient for 30 head stock.
25	NW.	20	"	"	"	Bored	53	1,890	- 49	1,841	49	1,841	Glacial gravel	Hard, clear		D, S	Oversufficient for 19 head stock; had a 20-foot well with good supply.
26	NW.	21	"	"	"	Bored	37	1,875									Dry hole; base in glacial drift; hauls water and uses slough.
27	NW.	22	"	"	"	Dug	18	1,880	0	1,880			Glacial gravel	Hard, clear		D, S	Insufficient for local needs; also a 210-foot dry hole.
28	NE.	22	"	"	"	Drilled	105	1,875	- 65	1,810	105	1,770	Glacial sand	Hard, clear, iron		D, S	Sufficient for 18 head stock; several dry holes to maximum depth of 56 feet.
29	NW.	23	"	"	"	Dug	6	1,885	- 6	1,879			Glacial clay	Hard, clear		D, S	Intermittent supply.
30	SE.	23	"	"	"	Dug	14	1,885	- 8	1,877	8	1,877	Glacial gravel	Soft, clear		D, S	Sufficient for 52 head stock.
31	SW.	24	"	"	"	Bored	50	1,890					Glacial drift	Hard, "alkaline"		N	Small supply; also seepage well.
32	NE.	24	"	"	"	Dug	20	1,890	- 16	1,874	16	1,874	Glacial drift	Hard, "alkaline"		S	Intermittent supply; hauls water.
33	SE.	25	"	"	"	Dug	16	1,895	0	1,895			Glacial sand	Soft, clear		D	Sufficient for domestic use only.
34	NW.	25	"	"	"	Dug	14	1,890	- 6	1,884	6	1,884	Glacial gravel	Hard, clear		D, S	Oversufficient for 22 head stock.

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

WELL RECORDS—Rural Municipality of LONGLAKETON NO.219, 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
35	S.W.	25	22	20	2	Dug	6	1,880	- 2	1,878	2	1,878	Glacial sand	Hard, "alkaline"		S	Sufficient for 8 head stock; also two other shallow wells.
36	NE.	27	"	"	"	Bored	80	1,900	- 10	1,890	80	1,820	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 30 head stock; also use sloughs.
37	N.W.	27	"	"	"	Dug	20	1,890	0	1,890			Glacial drift	Hard, clear, "alkaline"		D, S	Intermittent supply; also four seepage wells.
38	SE.	28	"	"	"	Bored	20	1,885	0	1,885			Glacial clay	Hard, clear		D, S	Intermittent supply; also a 118-foot dry hole.
39	NE.	28	"	"	"	Bored	94	1,890	- 40	1,850	95	1,795	Glacial drift	Hard, clear, iron		D, S	Insufficient for 40 head stock; also two seepage wells.
40	SW.	29	"	"	"	Bored	50	1,890	- 20	1,870	20	1,870	Glacial sand	Hard, "alkaline"		D, S	Insufficient for local needs; also an 80-foot well.
41	NW.	29	"	"	"	Dug	15	1,872	- 12	1,860	12	1,860	Glacial sand	Hard, clear		D, S	Sufficient for 32 head stock.
42	SW.	29	"	"	"	Dug	20	1,875					Glacial sand	Hard, clear		D	Intermittent supply.
43	SW.	30	"	"	"	Dug	50	1,870	- 46	1,824	46	1,824	Glacial drift	Hard, clear, iron		D, S	Insufficient for local needs; has 60-foot dry hole.
44	NE.	32	"	"	"	Dug	40	1,900	- 25	1,875	40	1,860	Glacial drift	Hard		S	Good supply; other wells 18 and 20 feet deep.
45	NW.	32	"	"	"	Bored	114	1,894	- 74	1,820	114	1,780	Glacial sand	Hard, clear		S	Sufficient for 50 head stock; also a shallow well and three dry holes deepest 100 feet.
46	SE.	32	"	"	"	Dug	20	1,890	- 18	1,872	18	1,872	Glacial gravel	Hard		D, S	Sufficient for 6 head stock; also a similar well.
47	NE.	33	"	"	"	Dug	15	1,895	0	1,895			Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock.
48	NW.	34	"	"	"	Drilled	280	1,905	-180	1,725	280	1,625	Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for local needs.
49	SW.	34	"	"	"	Dug	14	1,900	0	1,900			Glacial clay	Hard, clear		D, S	Intermittent supply.
50	NW.	35	"	"	"	Drilled	180	1,905	-100	1,805	180	1,725	Glacial sand	Hard, cloudy, "alkaline" iron		D, S	Oversufficient for 40 head stock; several shallow wells small supply.
51	NE.	35	"	"	"	Bored	125	1,900									Dry hole; base in glacial drift; several shallow wells, small supply.
52	NW.	36	"	"	"	Dug	13	1,900	- 7	1,893	7	1,893	Glacial sand	Hard, clear		D, S	Oversufficient for 16 head stock.
53	NE.	36	"	"	"	Dug	14	1,905	0	1,905			Glacial sand	Soft, clear		D, S	Intermittent supply; three dry holes 50 feet deep.
1	SE.	2	22	21	2	Dug	62	1,860	- 59	1,801	59	1,801	Glacial sand	Hard, clear	40	D, S	Sufficient for 20 head stock; also a 30-foot seepage well and a 70-foot well caved in.
2	SE.	4	"	"	"	Dug	60	1,830	- 54	1,776	54	1,776	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for local needs.
3	NE.	4	"	"	"	Dug	69	1,830	- 47	1,783	76	1,754	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for local needs.
4	SE.	6	"	"	"	Dug	16	1,810	- 12	1,798	12	1,798	Glacial sand	Hard, clear	41	D, S	Sufficient for 12 head stock.
5	SW.	6	"	"	"	Dug	68	1,800	- 30	1,770	68	1,732	Glacial drift	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
6	NE.	8	"	"	"	Dug	45	1,820	- 35	1,785	35	1,785	Glacial sand	Hard, clear, iron	45	D	Sufficient for local needs; also a 40-foot dry hole.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of LONGLAKETON NO.219, 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	NW.	8	22	21	2	Bored	88	1,830	- 60	1,770	88	1,742	Glacial sand	Hard, clear, "alkaline" iron	42	S	Sufficient for local needs; haul domestic supply.
8	NW.	9	"	"	"	Bored	60	1,830	- 20	1,810	60	1,770	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
9	SW.	10	"	"	"	Bored	70	1,840	- 30	1,810	70	1,770	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for 24 head stock.
10	SE.	12	"	"	"	Dug	50	1,860	- 48	1,812	48	1,812	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for 75 head stock.
11	NE.	12	"	"	"		95	1,860					Glacial drift			N	Poor supply, well abandoned.
12	NW.	13	"	"	"	Dug	60	1,865	- 56	1,809	56	1,809	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for 20 head stock.
13	SW.	15	"	"	"	Dug	37	1,830	- 32	1,798	32	1,798	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for 20 head stock.
14	SE.	16	"	"	"	Dug	40	1,840	- 33	1,807	40	1,800	Glacial sand	Hard, clear, iron	42	D, S	Sufficient for local needs.
15	SW.	16	"	"	"	Dug	13	1,830	- 2	1,828			Glacial drift	Hard, clear	45	D, S	Sufficient supply in normal years.
16	NE.	17	"	"	"	Dug	13	1,830	- 8	1,822	8	1,822	Glacial sand	Soft, clear	40	D, S	Insufficient for local needs.
17	SE.	18	"	"	"	Dug	45	1,820	- 39	1,781	39	1,781	Glacial sand	Hard, clear, "alkaline"	42	D, S	Waters 30 head stock; also two dry holes 26 and 42 feet deep and 25-foot seepage well.
18	SW.	18	"	"	"	Dug	60	1,810	- 50	1,760	60	1,750	Glacial sand	Hard, iron, clear	41	D, S	Sufficient for local needs.
19	NW.	18	"	"	"	Dug	45	1,800	- 44	1,756	44	1,756	Glacial sand	Hard, clear	41	D, S	Sufficient for local needs; also a 26-foot well, good supply.
20	NE.	19	"	"	"	Dug	48	1,810	- 40	1,770	40	1,770	Glacial gravel	Hard, clear	40	D, S	Sufficient for local needs; also a 25-foot well.
21	NE.	20	"	"	"	Dug	27	1,820	- 24	1,796	24	1,796	Glacial sand	Hard, "alkaline"	45	D, S	Sufficient for local needs.
22	NE.	21	"	"	"	Dug	28	1,830	- 25	1,805	25	1,805	Glacial gravel	Hard, clear, iron	45	D, S	Oversufficient for local needs.
23	NW.	21	"	"	"	Dug	17	1,830	- 13	1,817	13	1,817	Glacial sand	Soft, clear	48	D, S	Oversufficient for 80 head stock.
24	NW.	21	"	"	"	Dug	36	1,830	- 34	1,796	34	1,796	Glacial sand	Hard, clear, iron	45	D, S	Insufficient for local needs; hauls water.
25	SE.	22	"	"	"	Bored	51	1,840	- 44	1,796	44	1,796	Glacial gravel	Hard, clear, iron	40	D, S	Sufficient for 35 head stock.
26	SW.	22	"	"	"	Dug	22	1,840	- 19	1,821	19	1,821	Glacial sand	Hard, clear	41	D, S	Sufficient for 45 head stock.
27	NE.	22	"	"	"	Dug	37	1,840	- 33	1,807	33	1,807	Glacial gravel	Hard, clear	42	D, S	Also 65-foot dry hole.
28	NE,	23	"	"	"		54	1,860	- 47	1,813	47	1,813	Glacial sand	Hard, clear	42	D, S	Sufficient for 30 head stock.
29	SE.	24	"	"	"	Bored	78	1,860	- 70	1,790	70	1,790	Glacial sand	Hard, clear, iron	40	D, S	Insufficient for local needs.
30	SW.	25	"	"	"	Bored	67	1,860	- 45	1,815	67	1,793	Glacial drift	Hard, clear, "alkaline"	40	D, S	Oversufficient for 60 head stock.
31	SE.	26	"	"	"	Bored	57	1,860	- 50	1,810	57	1,803	Glacial sand	Hard, clear	40	D, S	Oversufficient for 20 head stock.
32	SW.	28	"	"	"	Dug	35	1,825	- 25	1,800	35	1,790	Glacial sand	Hard, clear	40	D, S	Sufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219, 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
33	NW.	28	22	21	2	Bored	50	1,825	- 15	1,810	50	1,775	Glacial sand	Hard, clear, iron	40	D, S	Sufficient for 40 head stock; also 35- foot dry hole and 35-foot well abandoned.
34	SW.	29	"	"	"	Dug	9	1,810	- 2	1,808	9	1,801	Glacial gravel	Soft, clear	48	D, S	Sufficient for local needs.
35	SW.	30	"	"	"	Dug	22	1,810	- 14	1,796	22	1,788	Glacial gravel	Hard, clear, iron	45	D, S	Yields 4,000 gallons a day.
36	N½.	30	"	"	"	Dug	5	1,800					Glacial sand	Hard			Abundant supply.
37	SE.	31	"	"	"	Dug	28	1,800	- 22	1,778	22	1,778	Glacial sand	Hard, clear	41	D, S	Sufficient for local needs.
38	NE.	31	"	"	"	Dug	20	1,900	- 14	1,786	14	1,786	Glacial gravel	Hard, clear	40	D, S	Sufficient for local needs.
39	NE.	32	"	"	"	Dug	60	1,820	- 30	1,790	60	1,760	Glacial gravel	Hard, clear	42	D, S	Oversufficient for 20 head stock; several seepage wells.
40	NE.	33	"	"	"	Dug	45	1,810					Glacial gravel	Hard, clear	40	D, S	Insufficient for local needs; also a 36-foot well.
41	NW.	33	"	"	"	Dug	60	1,830									Dry hole; base in glacial drift; 12-foot well and several dry holes.
42	SW.	34	"	"	"	Dug	40	1,840	- 34	1,806	40	1,800	Glacial sand	Hard, clear, iron	41	D, S	Sufficient for local needs.
43	NW.	34	"	"	"	Drilled	70	1,840	- 50	1,790	70	1,770	Glacial sand	Hard, clear, iron	40	D, S	Insufficient for local needs; similar 65-foot well.
44	NW.	35	"	"	"	Bored	65	1,850	- 60	1,790	60	1,790	Glacial sand	Hard, clear	40	D, S	Sufficient for local needs; several 20-foot wells in quicksand.
45	SW.	36	"	"	"	Bored	60	1,860	- 52	1,808	60	1,800	Glacial sand	Hard, clear, iron	42	D, S	Sufficient for 20 head stock.
46	NE.	36	"	"	"	Drilled	131	1,870					Glacial gravel	Hard, clear		D, S	Intermittent supply; also a 31-foot well.
1	NE.	1	23	19	2	Bored	36	1,842	- 33	1,809	33	1,809	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
2	NW.	2	"	"	"	Dug	10	1,855	- 4	1,851			Glacial drift	Hard, clear, "alkaline"		D, S	Intermittent supply; similar well; hauls water.
3	SE.	2	"	"	"	Dug	45	1,850									Dry hole; base in glacial gravel.
4	SE.	3	"	"	"	Bored	55	1,874	- 30	1,844	55	1,819	Glacial drift	Hard, clear, "alkaline"			Insufficient supply; three seepage wells, hauls water.
5	SW.	4	"	"	"	Dug	10	1,890	- 8	1,882	8	1,882	Glacial gravel	Hard, clear		D	Sufficient only for domestic needs; also a well beside slough.
6	NW.	4	"	"	"	Bored	150	1,890	- 85	1,805	150	1,740	Glacial sand	Hard, cloudy, "alkaline" iron		S	Sufficient for local needs; also a 24-foot well beside slough.
7	SE.	6	"	"	"	Dug	12	1,900	- 7	1,893	7	1,893	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
8	NE.	7	"	"	"	Bored	135	1,895	-100	1,795	135	1,760	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for local needs; also a shallow well for house use.
9	SE.	8	"	"	"	Dug	13	1,880	0	1,880			Glacial gravel	Soft, clear		D, S	Insufficient for local needs; also similar wells and use sloughs.
10	NW.	9	"	"	"	Bored	100	1,860	- 76	1,784	100	1,760	Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for 20 head stock.
11	NW.	10	"	"	"	Dug	9	1,860	- 4	1,856	4	1,856	Glacial sand	Hard, clear		D, S	Sufficient for 23 head stock.
12	SE.	10	"	"	"	Dug	33	1,865									Dry hole; base in glacial drift; hauls water and uses sloughs.

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 LONGLAKETON NO.219, 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
13	NW.	10	23	19	2	Bored	76	1,860	- 60	1,800	76	1,784	Glacial sand	Hard, "alkaline"		D, S	Oversufficient for 50 head stock.
14	NW.	11	"	"	"	Dug	25	1,850	- 24	1,826	24	1,826	Glacial gravel	Hard, clear		D,	Sufficient for domestic needs only; use well on section 14 for stock.
15	SW.	12	"	"	"	Dug	19	1,842	- 13	1,829	13	1,829	Glacial sand	Soft, clear		D, S	Oversufficient for 10 head stock.
16	SE.	12	"	"	"	Bored	20	1,840	- 11	1,829	11	1,829	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
17	SW.	13	"	"	"	Dug	15	1,840	- 7	1,833			Glacial gravel	Soft, clear		D, S	Sufficient for 15 head stock; also another seepage well.
18	NE.	14	"	"	"	Dug	23	1,843	- 19	1,824	19	1,824	Glacial drift	Hard, clear, "alkaline"		S	Intermittent supply; hauls water.
19	SW.	14	"	"	"	Dug	14	1,830	- 11	1,819	11	1,819	Glacial gravel	Hard, clear		D, S	Sufficient for 20 head stock.
20	NE.	16	"	"	"	Bored	54	1,865	- 48	1,817	48	1,817	Glacial sand	Hard, clear		D, S	Oversufficient for local needs.
21	SE.	17	"	"	"	Bored	175	1,860					Glacial drift	Hard, cloudy, "alkaline"		N	Good yield, but not usable; several shallow wells, huals water and uses sloughs.
22	NW.	18	"	"	"	Bored	112	1,895	- 92	1,803	95	1,800	Glacial gravel	Hard, clear, "alkaline"		D, S	Oversufficient for 45 head stock; several dry holes deepest 85 feet.
23	NW.	20	"	"	"	Dug	13	1,850	- 10	1,840	10	1,840	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.
24	SW.	20	"	"	"	Bored	54	1,855	- 48	1,807	48	1,807	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 26 head stock.
25	NW.	21	"	"	"	Dug	30	1,850	- 26	1,824	26	1,824	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
26	SE.	22	"	"	"	Bored	65	1,840	- 20	1,820	65	1,775	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
27	NW.	22	"	"	"	Dug	12	1,845	- 8	1,837	8	1,837	Glacial clay	Hard, clear		D, S	Intermittent supply.
28	SW.	22	"	"	"	Bored	36	1,845	- 32	1,813	32	1,813	Glacial gravel	Soft, clear		D, S	Sufficient for 25 head stock.
29	NE.	23	"	"	"	Dug	12	1,824	- 7	1,817			Glacial drift	Hard, clear, "alkaline"		D, S	Intermittent supply; also 138-foot well caved in; several dry holes, hauls water.
30	NW.	23	"	"	"	Dug	13	1,810	- 9	1,801	9	1,801	Glacial gravel	Hard, clear		D, S	Intermittent supply; also similar well; hauls water.
31	NW.	24	"	"	"	Dug	25	1,820	- 24	1,796	24	1,796	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
32	SW.	24	"	"	"	Dug	14	1,830	0	1,830	0	1,830	Glacial sand	Soft, clear		D, S	Sufficient for 30 head stock.
33	NE.	24	"	"	"	Bored	80	1,830									Dry hole; base in glacial drift; several dry holes; hauls water and uses seepage wells.
34	SW.	25	"	"	"	Dug	16	1,825	- 14	1,811	14	1,811	Glacial sand	Hard, clear		D, S	Intermittent supply; hauls water.
35	SW.	26	"	"	"	Dug	12	1,810	- 8	1,802	8	1,802	Glacial gravel	Soft, clear		D, S	Oversufficient for 10 head stock.
36	SE.	27	"	"	"	Dug	9	1,840	- 6	1,834	6	1,834	Glacial gravel	Soft, clear		D, S	Sufficient for 15 head stock.
37	SW.	27	"	"	"	Dug	14	1,835	0	1,835			Glacial drift	Hard, clear, "alkaline"		S	Intermittent supply; also a similar well.
38	NW.	27	"	"	"	Bored	115	1,840	- 88	1,752	115	1,725	Glacial sand	Hard, cloudy, iron		D, S	Sufficient for 15 head stock; also a 127-foot dry hole.
39	NE.	28	"	"	"	Dug	9	1,830	- 5	1,825	5	1,825	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock; also an old well plugged with sand.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219, 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
40	SW.	28	23	19	2	Dug	36	1,845	- 18	1,827	18	1,827	Glacial gravel	Hard, clear		D, S	Sufficient for 35 head stock.
41	SE.	30	"	"	"	Dug	25	1,845	- 20	1,825	20	1,825	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 35 head stock.
42	SE.	32	"	"	"	Dug	6	1,840	0	1,840	4	1,836	Glacial sand	Soft, clear		D, S	Oversufficient for 18 head stock.
43	NE.	32	"	"	"	Drilled	122	1,820	- 96	1,724	122	1,698	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 100 head stock.
44	NE.	33	"	"	"	Dug	12	1,830									Dry hole; base in glacial drift; hauls water.
45	NE.	34	"	"	"	Drilled	170	1,825	- 50	1,775	170	1,655	Glacial sand	Hard, clear, "alkaline" iron		S	Sufficient for local needs; several shallow wells; hauls water.
46	SW.	34	"	"	"	Bored	100	1,840	- 60	1,780	96	1,744	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
47	SE.	34	"	"	"	Drilled	110	1,810	- 50	1,760	110	1,700	Glacial gravel	Hard, clear, "alkaline"		S	Oversufficient for local needs; shallow wells used for domestic needs.
48	SW.	35	"	"	"	Dug	11	1,805	0	1,805			Glacial sand	Soft, clear		D, S	Intermittent supply.
49	SW.	36	"	"	"	Drilled	226	1,820	- 90	1,730	226	1,594	Glacial sand	Hard, clear, "alkaline" iron		S	Oversufficient for 60 head stock; also a 180-foot well, poor supply, seepage wells.
50	SE.	36	"	"	"	Drilled	240	1,815	- 90	1,725	240	1,575	Glacial sand	Hard, iron, "alkaline"		D, S	Oversufficient for 50 head stock.
1	NW.	2	23	20	2	Drilled	230	1,930					Glacial drift	Hard, clear, "alkaline" iron		D, S	Oversufficient for 25 head stock.
2	NW.	4	"	"	"	Dug	35	1,905	- 31	1,874	31	1,874	Glacial sand	Hard, clear		D, S	Insufficient for local needs; alsoten dry holes 25 to 75 feet deep.
3	SE.	5	"	"	"	Dug	16	1,895	- 14	1,881	14	1,881	Glacial sand	Hard, clear	44	D, S	Sufficient for 14 head stock.
4	NE.	6	"	"	"	Drilled	193	1,890	-118	1,772	193	1,697	Glacial gravel	Hard, clear, iron		D, S	Oversufficient for 50 head stock.
5	NE.	7	"	"	"	Drilled	127	1,895					Glacial gravel	Hard, cloudy, iron		D, S	Oversufficiont for 150 head stock.
6	SW.	9	"	"	"	Dug	15	1,900	- 13	1,887	35	1,865	Glacial sand	Hard, clear		D, S	Insufficient for local needs; several dry holes; melt snow and use sloughs.
7	NW.	9	"	"	"	Dug	15	1,920	- 13	1,907	13	1,907	Glacial gravel	Hard, clear		D, S	Sufficient for 15 head stock only.
8	NE.	10	"	"	"	Dug	14	1,925	- 10	1,915	10	1,915	Glacial gravel	Soft, clear		D, S	Oversufficient for local needs.
9	SE.	10	"	"	"	Drilled	268	1,920	-188	1,732	268	1,652	Glacial sand	Hard, cloudy, "alkaline" iron		D, S	Sufficient for village of Earl Grey; other intermittent wells.
10	NW.	11	"	"	"	Dug	18	1,930	- 14	1,916	14	1,916	Glacial sand	Hard, clear		D, S	Intermittent supply.
11	SW.	11	"	"	"	Dug	15	1,924	- 11	1,913	11	1,913	Glacial gravel	Soft, clear		D, S	Oversufficient for 10 head stock.
12	SW.	12	"	"	"	Dug	25	1,920	- 20	1,900	20	1,900	Glacial sand	Soft, clear		D, S	Sufficient for 15 head stock; four dry holes; three wells yield small supply.
13	SW.	13	"	"	"	Drilled	396	1,915					Glacial sand	Hard, clear, "alkaline" iron		D, S	Oversufficient for 200 head stock.
14	NE.	13	"	"	"	Dug	12	1,900	- 10	1,890	10	1,890	Glacial gravel	Soft, clear		S	Oversufficient for 50 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219, 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	SW.	14	23	20	2	Dug	20	1,924									Dry hole; base in glacial drift; hauls water.
16	SE.	15	"	"	"	Bored	118	1,930	-109	1,821	118	1,812	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also an 8-foot well with soft water.
17	SW.	16	"	"	"	Dug	32	1,925	0	1,925			Glacial gravel	Hard, clear		D, S	Intermittent supply; hauls water.
18	SE.	16	"	"	"	Dug	26	1,925									Dry hole; base in glacial drift; several other dry holes; haul water.
19	SE.	17	"	"	"	Drilled	270	1,910	-120	1,790	270	1,640	Glacial sand	Hard, cloudy, "alkaline"		D, S	Oversufficient for 250 head stock.
20	SW.	18	"	"	"	Drilled	170	1,890	-100	1790	170	1,720	Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for local needs; also a 250-foot dry hole.
21	NE.	18	"	"	"	Drilled	200	1,900	-100	1,800	200	1,700	Glacial gravel	Hard, clear		D, S	Oversufficient for 165 head stock; twenty wells 10 to 75 feet deep.
22	SE.	19	"	"	"	Bored	60	1,905	- 38	1,867	38	1,867	Glacial gravel	Hard, clear		D, S	Oversufficient for 45 head stock; several intermittent wells and a 78-foot dry hole.
23	SE.	20	"	"	"	Drilled	210	1,930	-160	1,770	210	1,720	Glacial gravel	Hard, clear, "alkaline"		S	Oversufficient for 25 head stock; also 45-foot well for domestic use.
24	NW.	20	"	"	"	Bored	35	1,910	- 24	1,886	24	1,886	Glacial sand	Hard, clear		D, S	Oversufficient for 100 head stock; several dry holes, one 115 feet deep.
25	NW.	21	"	"	"	Dug	22	1,910	- 12	1,898	12	1,898	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for 8 head stock; also two shallow wells.
26	SW.	21	"	"	"	Dug	15	1,930	- 12	1,918	12	1,918	Glacial gravel	Soft, clear		D, S	Oversufficient for 14 head stock.
27	SE.	21	"	"	"	Dug	18	1,920	- 14	1,906	14	1,906	Glacial sand	Soft, clear		D, S	Insufficient for local needs; hauls water.
28	SW.	22	"	"	"	Bored	80	1,920									Dry hole; hauls water.
29	NW.	22	"	"	"	Bored	36	1,915	- 34	1,881	34	1,881	Glacial sand	Hard, cloudy, "alkaline"		S	Insufficient for 30 head stock; haul water also a 205-foot dry hole. #
30	SE.	23	"	"	"	Dug	104	1,905	- 94	1,911	104	1,801	Glacial sand	Hard, clear, "alkaline"		S	Oversufficient for 11 head stock; also shallow well for domestic use.
31	SW.	23	"	"	"	Drilled	157	1,922					Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for local needs; also a 40-foot well.
32	SE.	24	"	"	"	Dug	8	1,895	- 4	1,891	4	1,891	Glacial gravel	Soft, clear		S	Oversufficient for 24 head stock; also two shallow wells.
33	NW.	24	"	"	"	Dug	12	1,880	0	1,880			Glacial gravel	Hard, clear		D, S	Intermittent supply; hauls water.
34	SE.	26	"	"	"	Drilled	160	1,900	- 60	1,840	160	1,740	Glacial gravel	Hard, clear			Oversufficient for 30 head stock; also a 16-foot well for domestic needs.
35	NE.	26	"	"	"	Bored	110	1,860	- 80	1,780	110	1,750	Glacial drift	Hard, clear, "alkaline"		D, S	Oversufficient for 20 head stock; many dry holes, deepest 120 feet.
36	NW.	26	"	"	"	Dug	40	1,895	- 15	1,880			Glacial sand	Hard, "alkaline", dark colour		S	Intermittent supply; hauls water.
37	SW.	27	"	"	"	Dug	35	1,895									Dry hole; base in glacial drift; several shallow wells hauls water.
38	SE.	27	"	"	"	Dug	14	1,900	0	1,900			Glacial clay	Soft, clear		D, S	Intermittent supply; melts snow two dry holes over 100 feet deep.
39	SW.	29	"	"	"	Dug	25	1,910									Dry hole; base in glacial drift; hauls water.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219 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
40	NE.	29	23	20	2	Dug	28	1,910	- 24	1,886	24	1,886	Glacial sand	Soft, clear		D, S	Sufficient for 18 head stock.
41	SW.	30	"	"	"	Drilled	240	1,900					Glacial sand	Hard, cloudy, "alkaline" iron		D, S	Oversufficient for local needs.
42	NE.	30	"	"	"	Dug	8	1,910	0	1,910			Glacial clay	Hard, clear		D, S	Intermittent supply; hauls water.
43	SW.	32	"	"	"	Dug	20	1,900	0	1,900			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; haul water; several dry holes 30 to 35 feet deep.
44	SE.	32	"	"	"	Dug	20	1,900	- 16	1,884			Glacial sand	Hard, clear		D, S	Insufficient for local needs; hauls water.
45	SW.	33	"	"	"	Bored	154	1,890									Dry hole; base in glacial drift; four other dry holes.
46	SW.	34	"	"	"	Drilled	310	1,870	-130	1,740	310	1,560	Glacial sand	Hard, clear, "alkaline"		S	Good supply, but fills with sand; about forty dry holes, maximum depth 155 feet.
47	NW.	34	"	"	"	Bored	90	1,860									Dry hole; base in glacial drift; use seepage well and haul water.
48	NE.	34	"	"	"	Bored	150	1,850	-120	1,730	150	1,600	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for local needs; also 15-foot well for domestic needs.
49	SE.	35	"	"	"	Dug	14	1,845	- 10	1,835	10	1,835	Glacial gravel	Soft, clear		D, S	Insufficient supply in winter; hauls water.
50	NW.	36	"	"	"	Bored	48	1,820	- 33	1,787	48	1,772	Glacial gravel	Hard, clear		D, S	Oversufficient for 150 head stock.
51	NE.	36	"	"	"	Dug	39	1,840	- 23	1,817	39	1,801	Glacial gravel	Hard, clear		D, S	Oversufficient for local needs; also a similar well.
52	SE.	36	"	"	"	Dug	37	1,845	- 25	1,820	37	1,808	Glacial sand	Hard, "alkaline"		D, S	Oversufficient for 25 head stock.
53	SW.	36	"	"	"	Drilled	285	1,845	- 50	1,795	285	1,560	Glacial sand	Hard, cloudy, "alkaline" iron		S	Oversufficient for 150 head stock; also a shallow well for drinking water.
1	SE.	2	24	19	2	Dug	16	1,820	- 8	1,812			Glacial sand	Hard, clear		D, S	Intermittent supply; hauls water.
2	NW.	2	"	"	"	Dug	14	1,825	- 11	1,814	11	1,814	Glacial sand	Soft, clear		D, S	Sufficient for 6 head stock.
3	NE.	3	"	"	"	Dug	15	1,825	0	1,825			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also a 12-foot dry hole.
4	SE.	4	"	"	"	Drilled	260	1,835	-100	1,735	260	1,575	Glacial sand	Hard, clear, iron		S	Sufficient for 44 head stock; 22-foot well for drinking and 75-foot dry hole.
5	NE.	4	"	"	"	Dug	21	1,830	- 18	1,812	18	1,812	Glacial gravel	Hard, clear		D, S	Sufficient for 20 head stock; also a similar 19-foot well.
6	SW.	4	"	"	"	Bored	101	1,830									Dry hole; base in glacial drift; also two dry holes 65 and 95 feet deep; hauls water.
7	NE.	5	"	"	"	Bored	66	1,830	- 28	1,802	66	1,764	Glacial sand	Hard, clear		D, S	Oversufficient for 100 head stock.
8	SW.	5	"	"	"	Dug	20	1,825	- 14	1,811	14	1,811	Glacial sand	Soft, clear		D	Insufficient for local needs; also 194-foot dry hole.
9	NW.	6	"	"	"	Bored	40	1,835	- 31	1,804	40	1,795	Glacial sand	Hard, clear		S	Insufficient for local needs; also three shallow wells and 110-foot dry hole.
10	NE.	7	"	"	"	Bored	95	1,810	- 50	1,760			Glacial drift	Hard, clear, "alkaline"		S	Intermittent supply; also 45-foot well for domestic use; hauls water.
11	SW.	8	"	"	"	Bored	40	1,810	- 24	1,786	40	1,770	Glacial sand	Hard, iron		D, S	Sufficient for 30 head stock; several dry holes.

NOTE—All depths, aititudes, 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 LONGLAKETON NO. 219, 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
12	N.W.	9	24	19	2	Bored	90	1,825	- 78	1,747	90	1,735	Glacial gravel	Hard, clear		D, S	Sufficient for 40 head stock; also 40-foot well and several dry holes.
13	N.E.	10	"	"	"	Dug	30	1,825	- 24	1,801			Glacial sand	Hard, clear		D, S	Several dry holes; hauls water; intermitten supply.
14	S.W.	10	"	"	"	Bored	54	1,825	- 35	1,790	54	1,771	Glacial drift	Hard, clear, "alkaline"		S	Insufficient for local needs; also a well for domestic use.
15	N.W.	10	"	"	"	Bored	46	1,825	- 36	1,789	36	1,789	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
16	N.W.	12	"	"	"	Dug	30	1,820	- 19	1,801	19	1,801	Glacial sand	Soft, clear		D, S	Sufficient for 30 head stock.
17	N.W.	12	"	"	"	Bored	60	1,820	- 46	1,774	60	1,760	Glacial sand	Hard, clear		D, S	Sufficient for 150 head stock.
18	S.E.	12	"	"	"	Bored	62	1,810	- 52	1,758	62	1,748	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs; also a number of shallow wells; hauls water.
19	N.E.	14	"	"	"	Bored	40	1,830	- 30	1,800	30	1,800	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock; similar well and three 250-foot wells.
20	S.E.	14	"	"	"	Bored	60	1,820									Dry hole; base in glacial drift; hauls wate
21	S.E.	15	"	"	"	Dug	35	1,825	- 26	1,799	26	1,799	Glacial sand	Hard, clear, "alkaline"		D, S	Oversufficient for 20 head stock; supply decreases in summer.
22	N.W.	16	"	"	"	Drilled	190	1,815	- 50	1,765	190	1,625	Glacial gravel	Hard, clear, iron		D, S	Oversufficient for 35 head stock; also a shallow well for house.
23	N.W.	18	"	"	"	Drilled	230	1,810	-150	1,660	230	1,580	Glacial sand	Hard, clear, iron		S	Oversufficient for 30 head stock; 20-foot well for house and two dry holes, deepest 80 feet.
24	N.E.	18	"	"	"	Dug	23	1,805	- 20	1,785	20	1,785	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock.
25	N.W.	20	"	"		Bored	50	1,820	- 38	1,782	38	1,782	Glacial sand	Hard, clear, iron		D, S	Insufficient for local needs; also a 12-foo well.
26	S.W.	20	"	"	"	Bored	85	1,825	- 60	1,765	65	1,760	Glacial sand	Hard, clear, iron		D, S	Sufficient for 25 head stock.
27	S.E.	20	"	"	"	Drilled	210	1,820	- 48	1,772	210	1,610	Glacial sand	Hard, cloudy, iron		D, S	Oversufficient for 200 head stock; also an 11-foot well and several 40-foot dry holes.
28	N.W.	22	"	"	"	Bored	90	1,820									Dry hole; base in glacial drift; several other dry holes; uses slough and hauls wate
29	N.E.	23	"	"	"	Bored	150	1,810	-144	1,666	144	1,666	Glacial sand	Hard, clear, "alkaline"		S	Insufficient supply; also two wells 45 and feet deep; poor supply; uses sloughs and hauls water.
30	S.E.	24	"	"	"	Bored	70	1,840	- 60	1,780	60	1,780	Glacial sand	Hard, cloudy, "alkaline" iron		S	Insufficient for local needs; also a 40-foo well for house; hauls stock supply.
31	S.W.	24	"	"	"	Bored	120	1,810	- 30	1,780	30	1,780	Glacial sand	Hard, clear, "alkaline"		S	Insufficient for local needs; 97-foot well used for house; several dry holes; uses slough and hauls water.
32	N.E.	25	"	"	"	Dug	16	1,840	- 12	1,828	16	1,824	Glacial gravel	Soft, clear		D, S	Oversufficient for 40 head stock.
33	S.E.	26	"	"	"	Bored	80	1,805	- 40	1,765	40	1,765	Glacial sand	Hard, clear		D, S	Insufficient for local needs; also a seepag well.
34	N.E.	28	"	"	"	Dug	28	1,825	- 18	1,807	28	1,797	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also 200-foot well, not used.
35	N.W.	28	"	"	"	Dug	10	1,825	- 7	1,818	7	1,818	Glacial sand	Soft, clear		D, S	Sufficient for 16 head stock; also several dry holes.
36	N.W.	30	"	"	"	Bored	37	1,825	- 17	1,808	37	1,788	Glacial gravel	Hard, "alkaline"	41	D, S	Sufficient for 11 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 LONGLAKETON NO.219, 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
37	SW.	30	24	19	2	Dug	18	1,825	0	1,825			Glacial gravel	Soft, clear		D, S	Intermittent supply; also a similar well.
38	NE.	30	"	"	"	Bored	40	1,830	- 32	1,798	40	1,790	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for local needs; also shallow well for domestic use.
39	NE.	31	"	"	"	Dug	22	1,830	- 18	1,812	18	1,812	Glacial gravel	Soft, clear		D	Intermittent supply; hauls water.
40	SW.	32	"	"	"	Dug	30	1,820	- 6	1,814			Glacial sand	Hard, clear, "alkaline"		S	Sufficient for 11 head stock; also a 14-foo well for house use.
41	SE.	32	"	"	"	Drilled	224	1,830	-124	1,706	200	1,630	Glacial sand	Hard, clear, iron		D, S	Oversufficient for 26 head stock; several dry holes.
42	NE.	32	"	"	"	Dug	16	1,830									Dry hole; base in glacial drift; hauls wate
43	SE.	34	"	"	"	Dug	23	1,815	- 12	1,803			Glacial clay	Hard, clear, "alkaline"		S	Insufficient for local needs; several dry holes; hauls water.
44	NW.	34	"	"	"	Bored	114	1,815	- 80	1,735	80	1,735	Glacial clay	Hard, clear		D, S	Insufficient for local needs; also four similar wells; poor supply.
45	SW.	36	"	"	"	Dug	14	1,800	- 8	1,792	8	1,792	Recent sand	Hard, clear, "alkaline" iron		D, S	Oversufficient for 40 head stock.
46	SE.	36	"	"	"	Dug	14	1,800	- 9	1,791	9	1,791	Recent gravel	Hard, clear, iron		D, S	Oversufficient for 15 head stock.
47	NE.	36	"	"	"	Dug	18	1,805	- 12	1,793	12	1,793	Recent gravel	Hard, clear, iron		D, S	Sufficient for local needs.
1	SW.	2	24	20	2	Bored	90	1,880									Insufficient for local needs; also four see page wells.
2	NW.	2	"	"	"	Dug	14	1,830	- 10	1,820	10	1,810	Glacial sand	Hard, clear		D, S	Sufficient for domestic needs only; also a 15-foot well and several dry holes.
3	SW.	3	"	"	"	Dug	21	1,855	- 11	1,844	11	1,844	Glacial sand	Soft, clear		D, S	Yields 70 barrels a day; also a 30-foot wel
4	NW.	3	"	"	"	Dug	20	1,840					Glacial sand	Hard, "alkaline"		N	Now filled in.
5	NE.	4	"	"	"	Bored	90	1,855	- 88	1,767	88	1,767	Glacial drift	Hard, clear		D	Insufficient for local needs; uses slough and hauls water.
6	SW.	4	"	"	"	Dug	21	1,865	- 16	1,849	16	1,849	Glacial gravel	Soft, clear		D, S	Oversufficient for 75 head stock; several holes, deepest 60 feet.
7	SE.	4	"	"	"	Dug	40	1,875	- 38	1,837	38	1,837	Glacial drift	Hard, clear		D	Intermittent supply; stock watered in slou
8	NE.	5	"	"	"	Bored	60	1,870	- 30	1,840	60	1,810	Glacial sand	Hard, cloudy, "alkaline" iron		D, S	Oversufficient for 100 head stock; also a 110-foot well.
9	SW.	6	"	"	"	Bored	90	1,910	- 14	1,896	90	1,820	Glacial drift	Hard, clear		D, S	Oversufficient for local needs; also a shallow seepage well.
10	NW.	6	"	"	"	Dug	24	1,910	- 8	1,902	24	1,886	Glacial gravel	Hard, clear, "alkaline"		D, S	Oversufficient for 20 head stock; several dry holes.
11	SE.	6	"	"	"	Drilled	95	1,910	- 35	1,875	95	1,815	Glacial sand	Hard, clear, iron		D, S	Oversufficient for local needs; also an 18 foot well and good supply.
12	NW.	7	"	"	"	Dug	20	1,910	- 6	1,904	6	1,904	Glacial sand	Hard, clear		D, S	Oversufficient for local needs.
13	NW.	8	"	"	"	Dug	8	1,880	- 7	1,873	7	1,873	Glacial gravel and stones	Hard, clear		S	Oversufficient for 150 head stock.
14	SW.	8	"	"	"	Dug	14	1,885	- 10	1,875	10	1,875	Glacial sand	Hard, clear		D, S	Oversufficient for local needs; also a dug

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

WELL RECORDS—Rural Municipality of LONGLAKETON NO. 219, 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.	8	24	20	2	Dug	13	1,875	0	1,875			Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock.
16	NW.	9	"	"	"	Drilled	435	1,870									Dry hole; base probably in Marine Shale series; several other dry holes; stock wate at sloughs.
17	SE.	10	"	"	"	Bored	47	1,825	- 17	1,808	39	1,786	Glacial gravel	Hard, clear		D, S	Oversufficient for local needs.
18	NE.	10	"	"	"	Dug	16	1,820	- 10	1,810	10	1,810	Glacial sand	Hard, clear		D, S	Insufficient for local needs; also two othe shallow wells.
19	SW.	11	"	"	"	Dug	16	1,810	- 12	1,798	12	1,798	Glacial gravel	Soft, clear		S	Oversufficient for 100 head stock.
20	NW.	12	"	"	"	Dug	15	1,790	- 11	1,779	11	1,779	Glacial sand	Hard, clear		D, S	Oversufficient for 100 head stock.
21	SE.	13	"	"	"	Dug	20	1,805	- 12	1,793	12	1,793	Glacial sand	Soft, clear		D, S	Oversufficient for local needs.
22	NE.	14	"	"	"	Dug	25	1,795	- 20	1,775	20	1,775	Glacial sand	Soft, clear		D, S	Sufficient for 20 head stock.
23	SE.	15	"	"	"	Bored	20	1,818	- 13	1,805	13	1,805	Glacial sand	Hard, clear		D	Sufficient for domestic needs.
24	NE.	16	"	"	"	Drilled	350	1,852	-250	1,602	350	1,502	Glacial sand	Hard, clear		S	Insufficient for local needs; also 150-foot shallow well for house and several dry hole deepest 100 feet.
25	NW.	16	"	"	"	Bored	90	1,880	- 40	1,840	90	1,790	Glacial sand	Hard, cloudy, "alkaline" iron		S	Intermittent supply; uses shallow well and hauls water.
26	SE.	16	"	"	"	Drilled	255	1,860	-155	1,705	255	1,605	Glacial sand	Hard, clear, "alkaline" iron		D, S	Sufficient for local needs; also a shallow, intermittent well.
27	SW.	17	"	"	"	Bored	65	1,900	- 61	1,839	61	1,839	Glacial sand	Hard, clear, "alkaline" iron		D, S	Insufficient for local needs; also five dry holes, deepest 105 feet; uses slough and hauls water.
28	NW.	17	"	"	"	Dug	12	1,900	0	1,900			Glacial clay	Hard, clear		S	Intermittent supply.
29	NW.	18	"	"	"	Dug	16	1,925	- 2	1,923	2	1,923	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
30	NE.	18	"	"	"	Dug	50	1,920	- 35	1,885	35	1,885	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
31	SE.	19	"	"	"	Dug	10	1,925	- 4	1,921	4	1,921	Glacial sand	Soft, clear		D, S	Oversufficient for 80 head stock.
32	SW.	19	"	"	"	Dug	16	1,940	- 4	1,936	4	1,936	Glacial sand	Hard, clear		D	Sufficient for 19 head stock; several dry holes.
33	NW.	19	"	"	"	Dug	8	1,930	0	1,930			Glacial sand	Hard, clear		D, S	Intermittent supply; hauls water.
34	NE.	20	"	"	"	Drilled	300	1,890					Glacial sand	Hard, cloudy, "alkaline" iron		N	Insufficient supply; also a 12-foot well yields good water.
35	NE.	21	"	"	"	Dug	8	1,845	2	1,843	2	1,843	Glacial sand	Soft, clear		D, S	Oversufficient for 100 head stock.
36	SW.	22	"	"	"	Dug	10	1,845	0	1,845			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
37	SE.	22	"	"	"	Drilled	106	1,825					Glacial drift	Hard, clear		D, S	Insufficient for local needs; shallow seepage well; hauls water.
38	NW.	22	"	"	"	Bored	75	1,840	- 40	1,800	75	1,765	Glacial gravel	Hard, clear, iron		D	Oversufficient for 18 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 LONGLAKETON NO.219, 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
39	NE.	23	24	20	2	Dug	8	1,810	- 6	1,804	6	1,804	Glacial gravel	Soft,clear		S	Oversufficient for local needs.
40	NW.	23	"	"	"	Dug	28	1,815									Dry hole; base in glacial drift; hauls water.
41	NW.	24	"	"	"	Bored	46	1,815	- 20	1,795	46	1,769	Glacial sand	Hard,cloudy, "alkaline"		S	Insufficient for 6 head stock.
42	SW.	24	"	"	"	Bored	40	1,795	- 20	1,775	39	1,756	Glacial gravel	Hard,cloudy, "alkaline"		S	Sufficient for 17 head stock; also a seepage well for house use.
43	SE.	25	"	"	"	Bored	132	1,825	- 82	1,743	132	1,693	Glacial gravel	Hard,clear		D, S	Oversufficient for 150 head stock.
44	SW.	27	"	"	"	Dug	37	1,845	- 25	1,820	37	1,808	Glacial drift	Hard,clear, iron		D, S	Oversufficient for 100 head stock.
45	NW.	27	"	"	"	Dug	18	1,845	- 15	1,830	15	1,830	Glacial gravel	Soft,clear		D, S	Oversufficient for 17 head stock.
46	NW.	28	"	"	"	Dug	60	1,850	- 48	1,802	60	1,790	Glacial sand	Hard,clear, "alkaline" iron		S	Sufficient for 20 head stock; also a 28-foot well for domestic use.
47	NE.	28	"	"	"	Bored	62	1,845	- 20	1,825	62	1,783	Glacial sand	Hard,iron, cloudy		S	Sufficient for local needs; also a shallow well for domestic use.
48	SE.	28	"	"	"	Drilled	152	1,845	- 52	1,793	152	1,693	Glacial sand	Hard,clear, "alkaline" iron		S	Sufficient for 12 head stock; hauls drinking water.
49	SW.	30	"	"	"	Dug	24	1,925	- 7	1,918	24	1,901	Glacial sand	Hard,clear		D, S	Oversufficient for 25 head stock; stock water at sloughs also.
50	NE.	30	"	"	"	Dug	15	1,910	- 9	1,901	9	1,901	Glacial sandy clay	Soft,clear		D, S	Oversufficient for 25 head stock; several dr holes, deepest 30 feet.
51	SW.	31	"	"	"	Dug	14	1,890	- 12	1,878	12	1,878	Glacial gravel	Hard,clear		D, S	Intermittent supply; use small lake for stoc
52	SW.	32	"	"	"	Dug	12	1,900	- 9	1,891	9	1,891	Glacial gravel	Hard,clear		D, S	Oversufficient for local needs.
53	SE.	32	"	"	"	Drilled	307	1,875	-147	1,728	307	1,568	Glacial sand	Hard,clear, "alkaline"		D, S	Oversufficient for local needs; 15-foot well and 55-foot well not used.
54	NE.	32	"	"	"	Bored	34	1,860	-- 22	1,838	22	1,838	Glacial sand	Hard,clear		D, S	Sufficient for 13 head stock; stock also watered at slough.
55	SW.	34	"	"	"	Dug	32	1,845	- 25	1,820	25	1,820	Glacial drift	Hard,clear, iron		D, S	Oversufficient for 20 head stock.
56	SE.	34	"	"	"	Drilled	100	1,840	- 25	1,815	100	1,740	Glacial sand	Hard,clear		S	Sufficient for 35 head stock; several dry holes; hauls drinking water.
57	NW.	34	"	"	"	Bored	45	1,845	- 12	1,833	45	1,800	Glacial sand	Hard,cloudy, iron		D, S	Oversufficient for 75 head stock; also a12-foot well, good supply.
58	SW.	35	"	"	"	Drilled	121	1,830	- 32	1,798	121	1,709	Glacial sand	Hard,clear, "alkaline"		S	Oversufficient for 150 head stock; shallow well for domestic use.
59	NE.	36	"	"	"	Dug	26	1,825	- 18	1,807	26	1,799	Glacial sand	Hard,clear		D, S	Oversufficient for 18 head stock.
60	SW.	36	"	"	"	Dug	14	1,825	- 11	1,814	11	1,814	Glacial gravel	Soft,clear		D, S	Sufficient for local needs; also two similar wells.

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.