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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF MOUNTAIN VIEW No. 318 SASKATCHEWAN

BY

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

Water Supply Paper No. 103

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WATER SUPPLY PAPER NO. 103

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GROUND WATER RESOURCES OF PART OF THE RURAL MUNICIPALITY OF MOUNTAIN VIEW, NO. 318, 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 give on the figure. Where contour lines are not shown on the figure, the elevations of adjacent wells as indicated in the Table of Well Records accompanying each report can be used. The approximate elevation of the water-bearing horizon at the well-site can be obtained from the Table of Well Records by noting the elevation of the water-bearing horizon in surrounding wells and by estimating from these known elevations its elevation at the well-site.[1] If the water-bearing horizon is in bedrock the depth to water can be estimated fairly accurately in this way. If the water-bearing horizon is in unconsolidated deposits such as gravel, sand, clay, or glacial debris, however, the estimated elevation is less reliable, because the water-bearing horizon may be inclined, or may be in lenses or in sand beds which may lie at various horizons and may be of small lateral extent. In calculating the depth to water, care should be taken that the water-bearing horizons selected from the Table of Well Records be all in the same geological horizon either in the glacial drift or in the bedrock. From the data in the Table

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[1] If the well-site is near the edge of the municipality, the map and report dealing with the adjoining municipality should be consulted in order to obtain the needed information about nearby wells.

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

GLOSSARY OF TERMS USED

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

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

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

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

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

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

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

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

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

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

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

(1) Ground Moraine. A boulder clay or till plain (includes areas where the glacial drift is very thin and the surface uneven).

(2) Terminal Moraine or Moraine. A hilly tract of country formed by glacial drift that was laid down at the margin of the continental ice-sheet during its retreat. The surface is characterized by irregular hills and undrained basins.

(3) Glacial Outwash. Sand and gravel plains or deltas formed by streams that issued from the continental ice-sheet.

(4) Glacial Lake Deposits. Sand and clay plains formed in glacial lakes during the retreat of the ice-sheet.

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

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

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

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

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

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

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

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

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

(1) Wells in which the water is under sufficient pressure to flow above the surface of the ground. These are called Flowing Artesian Wells.

(2) Wells in which the water is under pressure but does not rise to the surface. These wells are called Non-Flowing Artesian Wells.

(3) Wells in which the water does not rise above the water table. These wells are called Non-Artesian Wells.

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

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

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

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

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

Eastend Formation. The name given to a series of fine-grained sands and silts. It has been recognized at various localities over the southern part of the province, from the Alberta boundary east to the escarpment of Missouri 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 Mountain View, No. 318, consists of nine townships west of the Third meridian, and comprises an area of 324 square miles, but only the southern six townships, namely townships 31 and 32, ranges 16, 17, and 18, embracing an area of 216 square miles, were investigated in 1935 and are covered by this report. The centre of the area under discussion lies approximately 70 miles east of the Alberta border and the same distance south of the city of North Battleford. A branch line of the Canadian Pacific railway follows the valley of Eaglehill creek through the southwestern corner of the municipality, and on it are situated the villages of Herschel and Stranraer.

The area is drained by Eaglehill creek which flows in a southeasterly direction. The valley of this creek is approximately 1 mile wide, and in most places is more than 100 feet deep. The ground surface on the uplands varies from gently undulating to quite hilly. The elevations along the valley vary from approximately 1,950 feet at lake Opuntia to 1,900 feet where the stream leaves the municipality. The elevation rises to the southwest and northeast of the valley, being in excess of 2,500 feet in secs. 20 and 29, tp. 31, range 18, and approximately 2,350 feet in section 36, tp. 32, range 16. The south-central part and the northeastern corner of township 32, range 16, and the western part of township 31, range 18, are mantled by moraine deposits. The remainder of the area under discussion is covered by glacial till or boulder clay. In a large area 5 to 8 miles wide paralleling the railway on the northeast, and a narrow belt on the southwest, the glacial till has been overlain by glacial lake clays.

No attempt has been made to outline any definite or continuous water-bearing horizons in this municipality, since very little correlation can be established in the occurrence of the different aquifers encountered by the many wells. However, all

the ground water conditions are fully discussed in the section dealing with the individual townships and it is advised that the water conditions by townships be carefully studied in conjunction with the well record sheets and the accompanying map before a site for a contemplated well is finally selected.

Water-bearing Horizons in the Unconsolidated Deposits

Throughout the area under discussion a few wells are obtaining small supplies of water from the upper or weathered zone of the glacial drift, usually within 30 feet of the surface. In a few places these wells are sunk in the vicinity of sloughs or depressions and depend directly on the amount of annual precipitation for their supply. In other localities, however, these shallow wells tap pockets of sand or gravel and the yield is more consistent. The sand and gravel pockets do not show any correlation in their occurrence and they are generally of widely scattered distribution. Over very small areas some continuity may be found, but the areal extent of continuous aquifers at this depth is small. Dry holes may be dug before a water-bearing deposit is encountered and in large areas in many parts of the municipality these shallow deposits appear to be absent.

In township 32, ranges 16, and 17; township 31, range 16, and the northeastern part of township 31, range 17, no great difficulty should be encountered in obtaining water from what appears to be an extensive deposit of sand and gravel in the lower part of the drift. This deposit lies at depths ranging from 40 to more than 100 feet below the surface and although it is not continuous over all the area mentioned, as several dry holes have already been dug, it should be encountered over most of the area. This water-bearing horizon is assumed to slope from the northeastern part of the municipality towards Eaglehill creek, and this assumption is borne out by the fact that flowing-artesian wells occur in township 31, range 16, and numerous springs are

present along Eaglehill valley. The yield from the majority of wells tapping this horizon is sufficient for local needs and the water is generally under some hydrostatic pressure. The water from most of the wells can be used for drinking as well as for stock.

Ground water conditions in the area to the southwest of Eaglehill creek in this municipality are not as good as those to the northeast, and the majority of the wells are shallow, usually being less than 40 feet deep. It is probable that considerable difficulty would be experienced in obtaining a large supply of water from aquifers in the glacial drift in this area and the use of dams and dugouts for the retention of run-off water is highly recommended. These in conjunction with a shallow well for domestic needs should solve the water problems that may arise during a continued period of drought.

Water-bearing Horizons in the Bedrock

Almost all of the area under discussion is underlain by the Belly River formation. A very small area in the southwestern corner is shown as underlain by the Bearpaw formation, but the geological boundary on the accompanying map, Figure 1, must be considered as only approximate and it is possible that the Bearpaw formation underlies more of this area than shown. The Belly River formation outcrops along the valley of Eaglehill creek at approximate elevations of 1,960 feet above sea-level. Elsewhere in the municipality it is overlain by glacial drift that has a thickness of at least 100 feet and which may have a maximum thickness of 500 feet. Lack of continuity of the bedrock aquifers over small areas suggests that the underlying bedrock was greatly eroded over most of the area before it was covered by glacial debris. For example, a 400-foot hole drilled to an elevation of 1,700 feet on sec. 36, tp. 32, range 18, directly between the producing well on section 34 of the same township, and the producing well on sec. 32, tp. 32,

range 17, failed to encounter a water-bearing horizon, although the two producing wells are tapping aquifers at elevations of 1,840 and 1,785 feet, respectively. The possibilities of obtaining water from the bedrock are discussed fully in the section dealing with the water conditions by townships, and this part of the report will deal only with the bedrock aquifers that appear to extend over more than one township.

Two wells, located on sec. 32, tp. 31, range 17, and on sec. 1, tp. 32, range 18, tap what is believed to be a common aquifer at an approximate elevation of 1,850 feet above sea-level. The wells were sunk to depths of 200 and 225 feet below the surface, respectively. This aquifer appears to extend towards the northwest and wells on secs. 9 and 11, tp. 32, range 18, are assumed to be tapping the same aquifer. It does not appear probable that it extends very far towards the southwest as the well on sec. 36, tp. 31, range 18, had to be sunk to an elevation of 1,568 feet above sea-level before an aquifer was encountered. Towards the southeast the areal limits of the aquifer are unknown, but it may extend for a few miles towards the northeast, although a well on sec. 8, tp. 32, range 17, is recorded as yielding hard water, whereas other wells tapping this aquifer yield water that is reported soft. This fact, however, does not exclude the well from tapping the same water-bearing horizon. In any event the aquifer thins out or disappears to the north of the last-mentioned well as another well on sec. 17, tp. 32, range 17, had to be sunk to an elevation of 1,732 feet above sea-level before an aquifer was tapped. All the wells mentioned yield an abundant supply of water that is under hydrostatic pressure. It is used for drinking as well as for stock, but it will doubtless prove to be unsatisfactory for irrigation.

A second water-bearing horizon in the bedrock is tapped by a well in sec. 1, tp. 31, range 16, and by wells on secs. 4 and 9, tp. 31, range 17. These wells tap what is believed to be

a common aquifer at depths of 252, 190, and 200 feet, respectively, or at elevations of 1,733, 1,766, and 1,716 feet above sea-level. A hole on sec. 2, tp. 31, range 17, 200 feet deep, failed to encounter the horizon, but the aquifer may have been passed through unnoticed, or it may be very thin at this point. This horizon should be tapped by other wells in the vicinity of the producing wells. The water is recorded as soft and is suitable for all farm needs. It is under hydrostatic pressure and is fairly abundant in quantity.

A third horizon that may prove to be of considerable areal extent was passed through in the deep well on sec. 4, tp. 31, range 17, at an elevation of approximately 1,600 feet above sea-level and was tapped by a well located on sec. 36, tp. 31, range 18, at an elevation of 1,568 feet above sea-level. It is thought that other wells drilled to this elevation will encounter the same aquifer. The water from this horizon is soft, abundant in quantity, and under considerable hydrostatic pressure. It is being used for drinking, but will doubtless prove injurious to vegetation if used for irrigation.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 31, Range 16

The elevation in this township rises from 1,925 feet in the southwestern corner to more than 2,250 feet in the north-central part. Two small tributaries of Eaglehill creek occur in the southwestern corner. The ground surface is slightly undulating to hilly. Part of a small moraine occurs in sections 33, 34, and 35. The remainder of the area is covered by boulder clay, which in the southern part of the township is mantled by a thin veneer of glacial lake clays.

Most of the supply of water in this township is being derived from wells that are less than 75 feet in depth. The aquifer tapped by these wells appears to slope towards the southwest and is overlain in part by a layer of impervious clay. The horizon appears to be fairly continuous, although wells drilled on sections 12 and 32 did not encounter water until depths of 106 and 100 feet had been reached. The average depth of the wells is 55 feet. The water obtained from this horizon is hard and in the southern part of the township is reported as being "alkaline", but is being used for drinking. It is under considerable hydrostatic pressure and overflows the surface in wells located on sections 8, 15, and 17, and formerly overflowed the surface in a well located on section 4. A flowing well on section 2 was filled in. The 106- and 100-foot wells previously mentioned may tap this same horizon, but they probably encountered pockets of sand or gravel below the general horizon.

On the SW.$\frac{1}{4}$, section 1, a well drilled 252 feet below the surface tapped an aquifer in the bedrock at an elevation of 1,733 feet above sea-level. This well is assumed to be drawing its supply from the Belly River formation. The water is soft and salty, but it is being used for drinking as well as for stock. The supply is abundant and the hydrostatic pressure is sufficient to

cause the water to rise to a level 90 feet below the surface. This aquifer will doubtless be encountered by other wells should they be drilled in this vicinity.

Township 31, Range 17

Eaglehill creek flows in a southeasterly direction through the southwestern part of the township. The valley is approximately 1 mile wide and 75 to 100 feet deep. Small V-shaped coulées are tributary to the main valley. The creek is at an elevation of approximately 1,900 feet above sea-level. The elevation rises to 2,300 feet in the southwestern corner and to 2,200 feet in the northeastern corner.

Boulder clay or till appears at the surface in a small area in the northeastern corner and in a larger area in the southwestern corner. In the remainder of the area the boulder clay has been overlain by a veneer of glacial lake clays. The Belly River formation outcrops on sections 4 and 5, but in the northeastern part of the township it is overlain by approximately 150 feet of glacial drift.

In the northeastern half of this township little difficulty is experienced in obtaining ground water at depths ranging from 40 to 100 feet below the surface. It is not known if the wells are tapping a continuous water-bearing horizon, or if each well is tapping a local pocket of sand or gravel. The correlation that can be established is only between small groups of wells over limited areas, and it does appear as if the wells were tapping a continuous water-bearing horizon in this part of the township. The water horizon, if continuous, dips towards the valley of Eaglehill creek and springs will occur along the side of the valley. The elevation of the aquifer in the northeastern corner is approximately 2,100 feet above sea-level, whereas along the plain near Eaglehill creek it is 1,930 to 1,960 feet above sea-level. A 90-foot hole was drilled on section 35 without encountering a water-bearing

horizon, but this hole may have passed through the aquifer or the horizon may thin out or disappear in this direction. Doubtlessly some of the wells in the township are tapping local pockets of sand or gravel. The majority of the wells in the township that obtain water from the unconsolidated deposits yield a supply that is adequate for local requirements and the water is under some hydrostatic pressure. The water is usually very hard, is highly mineralized, and has been reported "alkaline", and that from a few wells is not being used for drinking.

On the SW.$\frac{1}{4}$, section 32, a well drilled 200 feet below the surface tapped what is believed to be an aquifer in the bedrock at an elevation of 1,850 feet above sea-level. The areal extent of the aquifer is undefined as it has been tapped by only one well in this part of the township. This well yields an abundant supply of soft, usable water that is under sufficient hydrostatic pressure to rise to a level 40 feet below the surface.

Two wells on sections 4 and 9 have also tapped aquifers in the bedrock at elevations of 1,766 and 1,716 feet above sea-level. The well on section 4 was drilled in an effort to locate oil and it is 2,034 feet deep. Aquifers were encountered at 190, 265, and 350 feet below the surface. The well on section 9 taps an aquifer at a depth of 200 feet and it is thought to be the same as that encountered at a depth of 190 feet by the well in section 4. An abundant supply of water is available from both wells, the water from the well on section 9 flowing above the surface at the rate of 26 gallons a minute. The water is used for all local requirements. The areal extent of the upper aquifer is not definitely known. It does not appear to occur in the southeastern part of the township, as a well on section 2 was drilled to a depth of 200 feet without encountering water. Little trouble should be experienced, however, throughout the northern part of the township in obtaining adequate supplies of usable water.

Township 31, Range 18

Eaglehill creek flows in a southeasterly direction through the northeastern corner of the township in a valley approximately 1 mile wide. The creek is at an approximate elevation of 1,950 feet above sea-level. The area above the creek valley is for the most part quite rolling and hilly, and the elevation rises to more than 2,500 feet in sections 20 and 29, but along the southern part of the township the surface flattens out to a relatively level plain having an elevation of approximately 2,300 feet.

The western border of the township is mantled by moraine and the remainder of the township is covered by glacial till or boulder clay. In an area paralleling the railway on the south and extending to the northeastern corner the boulder clay has been covered by a veneer of glacial lake clays. The Belly River formation outcrops on section 33.

Little difficulty sould be experienced in obtaining ground water from deposits of sand and gravel that occur in the drift mantling this township. There are not a great number of wells in the township and at present no correlation can be established between the aquifers they tap, and it cannot be definitely said that the sand and gravel deposits form a continuous water-bearing horizon over the greater part of the township. It appears, rather, that the wells are tapping pockets of sand and gravel that usually lie within 40 feet of the surface. A hole on section 19 was sunk to a depth of 90 feet without obtaining water and similar holes will doubtless be dug in an attempt to locate water. A sufficient supply of usable water for household needs can usually be obtained from shallow wells dug near sloughs. By using dugouts for the retention of water for stock use and shallow wels for domestic supplies, an adequate supply of water should be obtained in those localities where water-bearing horizons appear to be non-existent.

A well located on the SW.$\frac{1}{4}$, section 36, was drilled to a depth of 462 feet below the surface. The log of this well was not available so it is not known at what depth the underlying bedrock was encountered, but the well is drawing its supply from a fine sand aquifer in the bedrock, probably the Belly River formation, at an elevation of 1,568 feet above sea-level. The areal limits of this aquifer are undefined. The water is soft, under considerable hydrostatic pressure, and is used for all local requirements. This horizon may be encountered at other localities in the township should other deep wells be drilled.

Township 32, Range 16

The elevation in this township decreases from 2,350 feet in the northeastern corner to about 2,150 feet in the south-eastern corner and to approximately 2,200 feet throughout the remainder of the township. The land surface is undulating and the northeastern corner is quite stony. A small moraine occurs in the south-central portion of the township and part of another moraine mantles a small area in the northeastern corner. The remainder of the township is covered by boulder clay or glacial till.

No great difficulty has been encountered in obtaining ground water in this township, but the drilling of a dry hole on section 32 to a depth of 116 feet below the surface seems to exclude the possibility of a continuous water-bearing horizon underlying all of the township at a depth of less than 100 feet from the surface. Some difficulty, however, has been experienced in the north-central part of the township with the fine sand of the aquifer continually plugging the wells and partly shutting off the supply of water.

A few dug wells, usually located beside sloughs or depressions, are obtaining small supplies of ground water from scattered pockets of sand and gravel that occur at depths of less

than 35 feet. This type of well, together with a dugout in which the run-off water may be retained for stock use, should supply sufficient water for farm requirements.

A water-bearing horizon that gives some appearance of continuity over the larger part of this township is tapped by a large number of wells sunk to depths varying from 35 to 100 feet below the surface. The horizon appears general at elevations varying from approximately 2,200 feet above sea-level in the northeastern part of the township to approximately 2,150 feet above sea-level, and sometimes less, in other parts of the township. This water-bearing horizon may be formed by scattered pockets of sand and gravel, but there appears little doubt that it is continuous over at least small areas, especially in the north-central part where it is composed of quicksand. The exact areal extent of this general horizon is not defined, but little difficulty should be experienced in obtaining ground water over most of the township, even if the aquifer is formed by scattered deposits rather than a continuous bed of sand or gravel. However, dry holes may be dug before a producing well is obtained. The water is suitable for all farm purposes.

Two wells located on sections 6 and 7 are obtaining water from what appears to be the same aquifer at an elevation of 2,050 feet above sea-level. The wells are sunk to depths of 135 and 145 feet below the surface, respectively, and it does not appear improbable that the same aquifer will be encountered by other wells in this vicinity. The water is hard, under sufficient hydrostatic pressure to rise to a level 60 feet below the surface, and is so highly mineralized that it is used only for stock. Water should be obtainable from the bedrock, but at present the depth to bedrock is unknown.

Township 32, Range 17

For the most part the surface of this township is very undulating and hilly, and the general slope is from the east towards the west and southwest. A large part of the western half of the township is drained by a few intermittent tributaries of a small creek that flows into Opuntia lake. Over a large part of the eastern half of this township the surface mantling is in the form of glacial till or boulder clay, whereas in the western half the glacial till has been covered by glacial lake clays.

Generally speaking, groung water conditions in this township are good, although a 200-foot hole in section 2 failed to encounter any water-bearing horizons. What appears to be a general water-bearing horizon underlies a large part of the township, but this horizon may be formed by scattered deposits rather than by a continuous bed of water-bearing sand or gravel, as the water horizons may be correlated over only very small areas. The wells tapping this aquifer range from 40 to 100 feet deep and the elevation of the aquifer varies from 2,145 feet above sea-level in the northeastern and east-central parts to approximately 2,025 feet in the northwestern part, and to 1,975 feet in the southwestern corner. A number of wells tap aquifers that do not occur at these elevations, but they are assumed to be drawing their main supplies from the same horizon. The well on the NW.$\frac{1}{4}$, section 14, was apparently tapping this aquifer before it was deepened, but at the present time it taps an aquifer at an elevation of 2,010 feet above sea-level at a depth of 170 feet below the surface. The water from the aquifer that occurs at depths ranging from 40 to 100 feet is suitable for drinking as well as for stock, and with few exceptions the supply is sufficient for local needs.

Two wells located on the NE.$\frac{1}{4}$, section 8, and the SE.$\frac{1}{4}$, section 34, tap aquifers at elevations of 1,885 and 1,880 feet, or at depths of 225 and 280 feet, respectively. These aquifers are

assumed to be in the Belly River formation, but do not appear to be continuous. The water from the well on section 8 is hard, whereas that from the well on section 34 is soft. The water from both wells is suitable for drinking. Other wells drilled in the vicinity of the above-mentioned wells may encounter the same water-bearing beds, and if so, an abundant supply of water that is under hydrostatic pressure is to be expected.

Two wells located on the SE.$\frac{1}{4}$, section 17, and the SW.$\frac{1}{4}$, section 32, tap aquifers in the Belly River formation at depths of 368 and 360 feet below the surface, or at elevations of 1,732 and 1,785 feet above sea-level. The areal extent of these aquifers is unknown, but other wells drilled to the same depths in the vicinity of the producing wells should encounter the same water-bearing sands. The water from the well on section 17 is hard, and that from the well on section 32 is soft but is suitable for all needs. The supply is abundant and the water is under hydrostatic pressure.

The topography in the western part of the township is suitable for the construction of small dams and the impervious nature of the soil is suitable for the excavation of dugouts. By these methods a supply of run-off water can be collected and retained for stock use and by using a shallow well dug beside a slough or depression, for domestic needs, a shortage of water for farm needs should not be experienced.

Township 32, Range 18

The northern part of this township is cut by the valley of a small creek that drains into Opuntia lake. Eaglehill creek flows in a southeasterly direction through the southwestern part of the area. The valley of Eaglehill creek is more than a mile in width and its slopes rise from an elevation of approximately 1,950 feet above sea-level to approximately 2,050 feet above sea-level at the level of the plain. The plain above the valley

is gently undulating and the elevation increases gradually away from the valley. The Belly River formation is reported to outcrop along the creek at an approximate elevation of 1,950 feet above sea-level.

A general water-bearing horizon appears to be present only in very small areas in this township. Some wells, assumed to be drawing their supply from aquifers in the unconsolidated deposits, are drilled considerably deeper than other wells that are considered to be tapping aquifers in the bedrock. This leads to the assumption that the underlying bedrock was deeply eroded before being covered by glacial drift.

A few wells at various locations in the township obtain small supplies of water from the upper or weathered zone of the glacial drift. Some of these wells probably tap scattered pockets of sand or gravel, whereas others obtain their supply by direct seepage from sloughs. A few other wells have been sunk to depths ranging from 56 to 150 feet below the surface and these appear to be tapping isolated pockets of sand or gravel. No correlation can be established in the occurrence of any of the water-bearing deposits in the glacial drift and no continuous water-bearing horizons are present. No doubt dry holes will be dug before a water-bearing pocket is encountered.

Two wells located on the SW.$\frac{1}{4}$, section 5, and the SW.$\frac{1}{4}$, section 9, tap an aquifer that may be common to both wells at 185 and 95 feet below the surface, or at elevations of 1,930 and 1,905 feet above sea-level, respectively. This aquifer is assumed to be at the base of the drift and although the well on section 5 is shown as being in the bedrock, some of the water is believed to be coming from the glacial drift. The areal extent of this horizon is not known, but it should be tapped in the vicinity of these two wells. An abundant supply of hard water, under some hydrostatic pressure, is available and is being used for all farm requirements.

Two wells located on sections 22 and 25 tap aquifers at depths of 235 and 220 feet below the surface; or at elevations of 1,865 and 1,870 feet above sea-level, respectively. It seems quite probable that these wells tap the same aquifer where its areal extent is not known, but a 400-foot dry hole on section 36 appears to limit its extent in that direction. The aquifer is assumed to be in the bedrock, but it may be in the basal part of the glacial drift. The water is hard, and is suitable for drinking as well as for stock. The hydrostatic pressure is sufficient to raise the water to an elevation of 2,040 feet above sea-level. The supply is more than sufficient for local needs.

Two wells located on the NW.$\frac{1}{4}$, section 12, and the SW.$\frac{1}{4}$, section 13, obtain their supply from an aquifer in the bedrock at elevations of 2,005 and 1,980 feet above sea-level, or at depths of 95 and 120 feet below the surface. The aquifer is not of large areal extent, but it may be tapped by other wells drilled in this immediate vicinity. The yield is abundant and the water is under small hydrostatic pressure. The water is reported to be soft and salty, but it is being used for domestic needs as well as for stock.

On the SE.$\frac{1}{4}$, section 4, a well dug only 20 feet deep appears to be tapping an aquifer in the bedrock at an elevation of 1,930 feet above sea-level. The areal extent of this aquifer is not known, but it is probably small. The water supply from the above well is more than sufficient for local needs. The water is soft, under some pressure, and although it cannot be used for irrigation it can be used for domestic and stock requirements.

Four wells, located on the SW.$\frac{1}{4}$, section 1, the NE.$\frac{1}{4}$, section 9, the SW.$\frac{1}{4}$, section 11, and the SW.$\frac{1}{4}$, section 34, are obtaining an abundant supply of soft water from aquifers in the Belly River formation at elevations of 1,855, 1,880, 1,825, and 1,840 feet above sea-level. These wells have been drilled to

depths of 225, 120, 255, and 200 feet below the surface. The similar elevations of the aquifers leads to the belief that the wells may all be drawing their supply from the same source. The hydrostatic pressure in the different wells varies, the water standing at elevations of 1,920 to 1,980 feet above sea-level. Other wells drilled in the vicinity of the producing wells should tap similar water-bearing deposits, but the areal extent of the horizon is not definitely known. It is improbable that it extends into the northeastern part of the township as a dry hole was drilled on section 36 to a depth of 400 feet below the surface, and drilling was discontinued at 1,700 feet above sea-level. The supply from the four wells mentioned above is sufficient for local needs and the water is soft and usable for all purposes except irrigation.

When the drilling of a deep well in this township is contemplated it would be wise to read this report in close conjunction with the well records and also the accompanying map. From a perusal of the several parts it should be possible to locate a well-site where the probability of striking a water-bearing deposit is good.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF MOUNTAIN VIEW, NO. 318 SASKATCHEWAN

West of 3rd meridian — Township / Range	31 / 16	31 / 17	31 / 18	32 / 16	32 / 17	32 / 18	Total No. in Municipality
Total No. of Wells in Township	31	40	22	36	37	24	190
No. of wells in bedrock	1	4	1	0	4	11	21
No. of wells in glacial drift	30	36	21	36	33	13	169
No. of wells in alluvium	0	0	0	0	0	0	0
Permanency of Water Supply							
No. with permanent supply	28	33	20	32	36	22	171
No. with intermittent supply	0	0	1	3	0	0	4
No. dry holes	3	7	1	1	1	2	15
Types of Wells							
No. of flowing artesian wells	4	1	0	0	0	0	5
No. of non-flowing artesian wells	12	20	5	10	24	16	87
No. of non-artesian wells	12	12	16	25	12	6	83
Quality of Water							
No. with hard water	26	29	12	25	30	14	136
No. with soft water	2	4	9	10	6	8	39
No. with salty water	1	2	0	0	0	3	6
No. with "alkaline" water	11	16	4	9	9	8	57
Depths of Wells							
No. from 0 to 50 feet deep	16	11	17	15	8	7	74
No. from 51 to 100 feet deep	13	25	3	18	20	6	85
No. from 101 to 150 feet deep	1	0	1	3	2	4	11
No. from 151 to 200 feet deep	0	3	0	0	3	2	8
No. from 201 to 500 feet deep	1	0	1	0	4	5	11
No. from 501 to 1,000 feet deep	0	0	0	0	0	0	0
No. over 1,000 feet deep	0	1	0	0	0	0	1
How the Water is used							
No. usable for domestic purposes	25	30	19	32	34	20	160
No. not usable for domestic purposes	3	3	2	3	2	2	15
No. usable for stock	28	33	21	35	36	22	175
No. not usable for stock	0	0	0	0	0	0	0
Sufficiency of Water Supply							
No. sufficient for domestic needs	28	33	20	32	36	22	171
No. insufficient for domestic needs	0	0	1	3	0	0	4
No. sufficient for stock needs	22	27	14	24	32	19	138
No. insufficient for stock needs	6	6	7	11	4	3	37

ANALYSES AND QUALITY OF WATER

General Statement

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

Total Dissolved Mineral Solids

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

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

Mineral Substances Present

Calcium and Magnesium

The calcium (Ca) and magnesium (Mg) content of water is dissolved from rocks and soils, but mostly from limestone, dolomite, and gypsum. The calcium and magnesium salts impart hardness to water. The magnesium salts are laxative, especially magnesium sulphate (Epsom salts, $MgSO_4$), and they are more detrimental to health than the lime or calcium salts. The calcium salts have no laxative or other deleterious effects. The scale found on the inside of steam boilers and tea-kettles is formed from these mineral salts.

Sodium

The salts of sodium are next in importance to those of calcium and magnesium. Of these, sodium sulphate (Glauber's salt, Na_2SO_4) is usually in excess of sodium chloride (common salt, NaCl). These sodium salts are dissolved from rocks and soils. When there is a large amount of sodium sulphate present the water is laxative and unfit for domestic use. Sodium carbonate (Na_2CO_3) "black alkali", sodium sulphate "white alkali", and sodium chloride are injurious to vegetation.

Sulphates

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

Chlorides

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

Iron

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

Hardness

Calcium and magnesium salts impart hardness to water. Hardness of water is commonly recognized by its soap-destroying powers as shown by the difficulty of obtaining lather with soap. The total hardness of a water is the hardness of the water in its original state. Total hardness is divided into "permanent hardness" and "temporary hardness". Permanent hardness is the hardness of the water remaining after the sample has been boiled and ~~it represents the~~ amount of mineral salts that cannot be removed by boiling. Temporary hardness is the difference between the total hardness and the permanent hardness and represents the amount of mineral salts that can be removed by boiling. Temporary hardness is due mainly to the bicarbonates of calcium and magnesium and iron, and permanent harness to the sulphates and chlorides of calcium and magnesium. The permanent hardness

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

Analyses of Water Samples from Part of the Municipality of Mountain View, No. 318, Saskatchewan.

No.	LOCATION Qtr.	Sec.	Tp.	Rge.	Mer.	Depth of Well, Ft.	Total dis'vd solids	HARDNESS Total	Perm.	Temp.	CONSTITUENTS AS ANALYSED Cl.	Alkalinity	CaO	MgO	SO_4	Na_2O	CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl		Source of Water.
1	SW.	1	31	16	3	252	1,571												(4)			(3)	(1)	(2)		x-2
2	SW.	9	31	17	3	200	1,875															(2)	(1)	(3)		x-2
3	NW.	24	31	17	3	60	3,340	900	900		39	205	230	144	2210	1,109	3,447	230	279		429		2,470	64		x-1
4	SW.	6	32	16	3	135	4,160	2,100	2,000	100	42	80	370	410	2555	692	3,664	80	790		1,220		1,505	69		x-1
5	SE.	6	32	17	3	80	2,360	700	650	50	17	90	150	115	1544	723	2,329	90	243		343		1,625	28		x-1
6	SW.	32	32	17	3	360	2,140	60	10	50	30	500	40	11	1140	1,010	2,260	72		23		427	1,688	50		x-2
7	SE.	4	32	18	3	20	1,920	105	25	80	34	530	40	14	972	918	2,045	72		29		450	1,438	56		x-2
8	SW.	5	32	18	3	185	2,380	650	600	50	35	160	120	119	1270	660	2,079	160	73		354		1,385	107		?

Water samples indicated thus, x-1, are from glacial drift.
Water samples indicated thus, x-2, are from bedrock, Belly River formation.
Analyses are reported in parts per million; where numbers (1), (2), (3), and (4) are used instead of parts per million, they represent the relative amounts in which the main constituents are present in the water.
Hardness is the soap hardness expressed as calcium carbonate ($CaCO_3$).

Analyses Nos. 1 and 2, 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 in the municipality of Mountain View were taken for chemical analysis. They are samples 3, 4, and 5. It is not definitely known whether No. 8 is from the glacial drift or from the underlying bedrock.

The water from the wells dug near sloughs or depressions is as a rule fairly soft, containing only small quantities of mineral salts in solution, and if not contaminated by surface pollution can be used for drinking.

The water from the wells that tap aquifers in the glacial drift at depths varying from 40 to more than 100 feet below the surface is invariably hard and contains a high concentration of mineral salts in solution. Samples Nos. 3, 4, and 5, and also 8, are all very hard, especially No. 4 which has a total hardness of 2,100 parts per million. A small percentage of this hardness can be eliminated by boiling and is referred to as temporary hardness. The predominant mineral salt present in the samples analysed is Na_2SO_4 (sodium sulphate or Glauber's salt) and the waters will probably have a laxative effect upon those not accustomed to their use. The continued use of such waters, however, does not appear to have any noticeable ill effects upon the users. In the samples from the drift, $MgSO_4$ (Epsom salts) is second in abundance, and in sample 4 it forms one-third of the total dissolved solid content. This water should not be used for drinking and it may produce scour among stock, although it was not reported as doing so. Samples 3, 5, and 8 contain sufficient $MgSO_4$ to make them slightly laxative and if water of better quality is available their use should be discontinued. Samples 3, 5, and 8 are fairly representative of the type of water that may be expected from depths of 40 to 100 feet in the area to the northeast of Eaglehill creek.

Water from the Bedrock

Four samples of water from the bedrock, Nos. 1, 2, 6, 7, were analysed. Samples 1 and 2 were analysed by the Provincial Analyst. The hardness of these samples is not given, but the waters are known to be moderately soft. Samples 6 and 7 are also soft and are fairly representative of the waters that are derived from the bedrock, Belly River formation, in this municipality. Some of the wells, however, that have tapped the upper part of the bedrock, yield moderately hard water. In the soft waters the salts of sodium are predominant, but in those that are hard the sulphates of calcium, and magnesium are apparently in considerable concentration. All of the water being derived from the bedrock is suitable for stock and in most cases it is being used for drinking. The water is not suitable for irrigation since it contains a relatively large amount of sodium carbonate (black alkali).

WELL RECORDS—Rural Municipality of MOUNTAIN VIEW, NO. 318, SASKATCHEWAN. (Part only)

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	SW.	1	31	16	3	Drilled	252	1,985	− 90	1,895	252	1,733	Belly River sand	Soft, salty, clear		D, S	Sufficient for local needs; #.
2	NW.	2	"	"	"	Bored	48	2,000	− 8	1,992	48	1,952	Glacial(?) sand	Hard, iron, sulphur, clear, "alkaline"	42	D, S	Sufficient for local needs.
3	N½.	2	"	"	"	Bored	72	2,003	+ 6	2,009	72	1,931	Glacial sand	Hard			Not needed so now filled in.
4	SE.	3	"	"	"	Bored	53	2,010	− 28	1,982	53	1,957	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs. Also a 50-foot well and several 50-foot dry holes.
5	SW.	4	"	"	"	Bored	50	1,990	− 5	1,985	50	1,940	Glacial "black muck"	Hard, cloudy, iron, "alkaline"	42	D, S	Sufficient for local needs.
6	SE.	6	"	"	"	Bored	54	1,980	− 19	1,961	54	1,926	Glacial "black muck"	Hard, cloudy, iron, "alkaline"	42	D, S	Sufficient for local needs.
7	NE.	7	"	"	"	Bored	60	1,980	− 10	1,970	60	1,920	Glacial "black muck"	Hard, cloudy, iron, "alkaline"	42	D, S	Sufficient for local needs.
8	N½.	8	"	"	"	Bored	60	1,990	+ 5	1,995	60	1,920	Glacial "black muck"	Hard, cloudy, iron, "alkaline"	42	D, S	Sufficient for local needs.
9	NW.	11	"	"	"	Bored	60	2,000	− 18	1,982	60	1,940	Glacial gravel	Hard, cloudy, iron, "alkaline"	42	S	Sufficient for local needs.
10	SE.	12	"	"	"	Dug	106	2,025	− 86	1,939	106	1,919	Glacial sand	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
11	SE.	14	"	"	"	Bored	30	2,010	− 26	1,984	30	1,980	Glacial sand	Hard, clear, "alkaline"	40	D, S	Insufficient for local needs. Also a 40-foot well. Total supply sufficient.
12	SW.	15	"	"	"	Dug	28	2,000	0	2,000	28	1,972	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
13	NE.	16	"	"	"	Bored	70	2,050	− 60	1,990	70	1,980	Glacial gravel				
14	SW.	17	"	"	"	Bored	50	2,000	+ 6	2,006	50	1,950	Glacial "black muck"	Hard, iron, cloudy, "alkaline"	42	D, S	Sufficient for local needs.
15	NE.	20	"	"	"	Bored	75	2,050	− 50	2,000	75	1,975	Glacial gravel	Hard, clear	42	D	Sufficient for domestic needs.
16	NW.	21	"	"	"	Dug	10	2,040	− 8	2,032	10	2,030	Glacial gravel	Hard, iron, clear	42	D, S	Sufficient for local needs. Also a spring on this quarter.
17	NE.	22	"	"	"	Dug	45	2,020	− 42	1,978	45	1,975	Glacial sand	Soft, clear		D, S	Sufficient for 10 head stock.
18	SE.	23	"	"	"	Bored	55	2,090	− 45	2,045	55	2,035	Glacial sand	Soft, clear, iron	42	D	Sufficient for domestic needs; also a similar well.
19	S½.	28	"	"	"	Bored	65	2,125	− 30	2,095	65	2,060	Glacial sand	Hard, clear, iron	42	D, S	Sufficient for local needs.
20	NW.	32	"	"	"	Bored	100	2,215	− 70	2,145	100	2,115	Glacial gravel	Hard, iron, clear		D, S	Sufficient for local needs. Also another similar well.
21		34	"	"	"	Bored	75	2,250	− 70	2,180	75	2,175	Glacial sand	Hard, clear	42	D, S	Insufficient for local needs.
22	SW.	36	"	"	"	Bored	55	2,140	− 53	2,087	55	2,085	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
23	NE.	36	"	"	"	Dug	24	2,110	− 21	2,089	24	2,086	Glacial sand	Hard, clear	42	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 MOUNTAIN VIEW, NO.318, SASKATCHEWAN, (Part only)

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	SE.	1	31	17	3	Bored	60	1,990	-- 56	1,934	60	1,930	Glacial sand	Hard, iron, clear		D, S	Sufficient for local needs. Spring in coulee.
2	E½.	2	"	"	"	Dug	28	1,950	- 24	1,926	28	1,922	Glacial gravel	Hard, iron, clear	42	D, S	Sufficient for local needs.
3	N½.	2	"	"	"	Bored	200	1,905									Dry hole; base probably bedrock.
4	SW.	3	"	"	"		60	1,990	- 40	1,950	60	1,930	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
5	NW.	4	"	"	"	Drilled	2032	1,956	- 14	1,952	190	1,766	Belly River sand				# 1 Herschel well; two other aquifers.
6	SW.	9	"	"	"	Drilled	200	1,916	+ 16	1,932	200	1,716	Belly River sand	Soft, salty, iron, clear, "alkaline"		D, S	Yields 26 gallons a minute. #
7	SE.	10	"	"	"	Bored	20	1,970	- 5	1,965	20	1,950	Glacial gravel, sand	Soft, clear	42	D, S	Insufficient for local needs; also a 14-foot well, good supply.
8	NE.	11	"	"	"	Bored	61	1,990	- 36	1,954	61	1,929	Glacial sand	Hard, iron, cloudy	42	D, S	Sufficient for local needs.
9	N½.	12	"	"	"	Dug	40	1,990	- 20	1,970	40	1,950	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
10	SW.	13	"	"	"	Bored	45	1,980	- 30	1,950	45	1,935	Glacial sand	Hard, iron, cloudy	42	D, S	Sufficient for local needs.
11	SE.	14	"	"	"	Bored	60	2,000	- 30	1,970	60	1,940	Glacial drift	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
12	SW.	15	"	"	"	Bored	100	2,000	- 97	1,903	100	1,900	Glacial sand	Hard, iron, cloudy		D, S	Insufficient for local needs.
13	NE.	15	"	"	"	Bored	52	2,050	- 42	2,008	52	1,998	Glacial sand	Hard, iron, clear, "alkaline"		D, S	Sufficient for local needs.
14	SW.	22	"	"	"	Bored	60	2,020	- 52	1,968	60	1,960	Glacial sand	Hard, clear, iron, "alkaline"	42	D, S	Sufficient for local needs.
15	SW.	22	"	"	"		90	2,040	- 65	1,975	90	1,950	Glacial drift	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
16	SE.	23	"	"	"	Bored	40	2,015	- 30	1,985	40	1,975	Glacial sand	Hard, iron, sulphur, "alkaline", salty, clear		S	Sufficient for local needs.
17	NW.	24	"	"	"	Dug	45	2,050	- 28	2,022	45	2,005	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Oversufficient for local needs.
18	NW.	24	"	"	"	Bored	60	2,060	- 45	2,015	60	2,000	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Oversufficient for local needs. #.
19	SE.	25	"	"	"	Bored	100	2,080	- 80	2,000	100	1,980	Glacial sand	Hard, cloudy, iron, "alkaline"	42	D, S	Sufficient for local needs.
20	NE.	26	"	"	"	Bored	68	2,080	- 56	2,024	68	2,012	Glacial sand and gravel	Hard, clear, iron, "alkaline"		S	Insufficient for 16 head stock.
21	S½.	27	"	"	"	Drilled	75	2,030	- 40	1,990	75	1,955	Glacial sand	Hard, clear, iron, "alkaline"	42	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 MOUNTAIN VIEW, NO. 318, SASKATCHEWAN. (Part only)

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
22	NE.	28	31	17	3	Bored	60	2,050	- 55	1,995	60	1,990	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
23	NW.	31	"	"	"	Dug	40	2,050	- 36	2,014	40	2,010	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs.
24	NE.	31	"	"	"	Bored	70	2,050	- 66	1,984	70	1,980	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
25	SW.	32	"	"	"	Drilled	200	2,050	- 40	2,010	200	1,850	Belly River sand	Soft, iron		D, S	Oversufficient for local needs; also two 60-foot dry holes.
26	NW.	32	"	"	"	Dug	65	2,090	- 40	2,050	65	2,025	Glacial sand	Hard, clear, iron	42	D, S	Sufficient for local needs.
27	SE.	33	"	"	"	Bored	60	2,050	- 55	1,995	60	1,990	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs; several 60-foot holes in quicksand.
28	SW.	34	"	"	"	Bored	48	2,050	- 43	2,007	48	2,002	Glacial gravel	Hard, clear, iron	42	D, S	Sufficient for local needs.
29	NW.	34	"	"	"	Dug	43	2,105	- 31	2,074	43	2,062	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
30	SE.	35	"	"	"	Bored	56	2,180	- 41	2,139	54	2,126	Glacial drift	Hard, clear, iron, "alkaline"		S	
31	SW.	36	"	"	"			2,150									Three dry holes.
1	SW.	2	31	18	3	Dug	15	2,300	- 6	2,294	6	2,294	Glacial sandy gravel	Soft, clear		D, S	Sufficient for local needs.
2	SW.	7	"	"	"	Bored	80	2,390	- 78	2,312	78	2,312	Glacial drift	Soft, clear		D, S	Was a large supply but went dry when cribbing was put in.
3	SW.	9	"	"	"	Bored	40	2,300	- 10	2,290	40	2,260	Glacial gravel	Soft, clear, iron		D, S	Very large yield.
4	SW.	15	"	"	"	Bored	40	2,330	- 34	2,296	40	2,290	Glacial sand	Soft, clear		D, S	Sufficient for local needs; was a 40-foot well, good supply; caved in.
5	NW.	15	"	"	"	Bored	40	2,355	- 10	2,345	40	2,315	Glacial drift	Hard, cloudy, iron, "alkaline"		S	Intermittent supply.
6	NE.	16	"	"	"	Bored	100	2,360	- 40	2,320	100	2,260	Glacial gravel	Hard, clear	41	D, S	Insufficient for local needs.
7	NE.	16	"	"	"		40	2,360	- 20	2,340	40	2,320	Glacial gravel	Hard, clear	41	D, S	Insufficient for local needs.
8	SW.	18	"	"	"	Dug	18	2,380	- 12	2,368	18	2,362	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
9	SW.	19	"	"	"	Dug	18	2,400	- 12	2,388	12	2,388	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
10	SW.	19	"	"	"	Bored	90	2,400									Dry hole; base in glacial drift.
11	NE.	23	"	"	"	Spring		2,000					Glacial drift	Hard, "alkaline"			Located in pasture.
12	NW.	27	"	"	"	Dug	15	2,025	- 5	2,020	5	2,020	Glacial sand and gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also a flowing spring.
13	SW.	30	"	"	"	Dug	10	2,400	- 5	2,395	5	2,395	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
14	NW.	31	"	"	"	Dug	25	2,120	- 18	2,102	18	2,102	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
15	NE.	34	"	"	"	Dug	26	2,000	- 23	1,977	23	1,977	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of MOUNTAIN VIEW, NO. 318, SASKATCHEWAN. (Part only)

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
16	NW.	35	31	18	3	Spring		2,020	0	2,020	0	2,020	Glacial sand	Hard, clear, iron		D, S	Steady flow.
17	SW.	36	"	"	"	Drilled	462	2,030	100	1,930	462	1,568	Belly River sand	Soft, clear	42	D, S	Sufficient for local needs; two wells 40 and 120 feet deep, not used.
1	SE.	2	32	16	3	Bored	35	2,160	- 33	2,127	33	2,127	Glacial sand	Soft, clear, "alkaline"	42	D, S	Sufficient for local needs.
2	SE.	4	"	"	"	Bored	75	2,260	- 70	2,190	70	2,190	Glacial gravel and sand	Soft, clear		D, S	Sufficient for 14 head stock only.
3	SW.	4	"	"	"	Bored	80	2,250	- 60	2,190	80	2,170	Glacial sand	Hard, iron, cloudy, "alkaline"	42	D, S	Sufficient for local needs.
4	NW.	4	"	"	"	Dug	22	2,250	- 18	2,232	22	2,228	Glacial sandy gravel	Hard, clear	42	D, S	Sufficient for local needs.
5	SE.	6	"	"	"	Dug	20	2,205	0	2,205	20	2,185	Glacial clay	Hard, clear, iron, "alkaline"	42	D, S	Intermittent supply; also an 80-foot intermittent well.
6	SW.	6	"	"	"	Bored	135	2,185	- 60	2,125	135	2,050	Glacial sand	Hard, iron, cloudy, "alkaline"	42	S	Sufficient for local stock needs. #.
7	SW.	7	"	"	"	Bored	145	2,195	- 60	2,135	145	2,050	Glacial sand	Hard, iron, cloudy, "alkaline"	42	S	Sufficient for local needs.
8	SW.	10	"	"	"	Dug	70	2,245	- 68	2,177	70	2,175	Glacial gravel and sand	Soft, clear	42	D, S	Sufficient for local needs.
9	SE.	13	"	"	"		18	2,190	- 13	2,177	18	2,172	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
10		14	"	"	"	Dug	45	2,205	- 29	2,176	45	2,160	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
11	NW.	15	"	"	"	Dug	75	2,260	- 73	2,187	75	2,185	Glacial gravel	Soft, clear	42	D, S	Sufficient for local needs; also a similar well.
12	NE.	15	"	"	"	Dug	70	2,265	- 68	2,197	70	2,195	Glacial sand	Soft, clear	42	D, S	Sufficient for local needs.
13	SW.	16	"	"	"	Dug	76	2,270	- 74	2,196	76	2,194	Glacial sand	Soft, clear	42	D, S	Insufficient for local needs.
14	NE.	16	"	"	"	Bored	80	2,280	- 78	2,202	80	2,200	Glacial sand	Soft, clear	42	D, S	Sufficient for local needs.
15	NW.	17	"	"	"	Bored	100	2,260	- 70	2,190	100	2,160	Glacial gravelly sand	Hard, clear, iron, "alkaline"	42	D, S	Sufficient for local needs.
16	SW.	18	"	"	"	Bored	65	2,200	- 55	2,145	65	2,135	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs.
17	NW.	18	"	"	"	Bored	80	2,200	- 40	2,160	80	2,120	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	NE.	22	"	"	"	Dug	55	2,275	- 52	2,223	55	2,220	Glacial sand	Soft, clear	42	D, S	Insufficient for local needs.
19	NW.	24	"	"	"	Bored	100	2,280	- 20	2,260	100	2,180	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
20	NE.	26	"	"	"	Dug	100	2,270	- 80	2,190	100	2,170	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
21	SE.	28	"	"	"	Bored	45	2,270	- 35	2,235	45	2,225	Glacial sand	Hard, clear	42	D, S	Insufficient for local needs due to plugging with sand; also two others similar.
22	NE.	28	"	"	"			2,250					Glacial drift				

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WELL RECORDS—Rural Municipality of MOUNTAIN VIEW, NO. 318, SASKATCHEWAN. (Part only)

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
23	S½.	29	32	16	3	Bored	68	2,240	- 65	2,175	68	2,172	Glacial sand	Soft, clear	42	D, S	Sufficient for local needs; also a 22-foot seepage well.
24	SE.	30	"	"	"	Dug	90	2,210	- 85	2,125	90	2,120	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
25	SE.	32	"	"	"	Bored	116	2,215									Dry hole in glacial drift.
26	SW.	32	"	"	"	Bored	70	2,210	- 60	2,150	70	2,140	Glacial drift	Hard, cloudy, iron, "alkaline"	42	D, S	Insufficient for local needs.
27	NW.	32	"	"	"	Dug	32	2,215	- 29	2,186	32	2,183	Glacial gravel	Hard, clear, "alkaline"	42	D, S	Sufficient for 8 head stock; also a 21-foot well, soft water.
28	SE.	33	"	"	"	Dug	32	2,270	- 28	2,242	32	2,238	Glacial sand and gravel	Hard, clear	42	D, S	Insufficient for local needs; other similar wells.
29	SE.	34	"	"	"		85	2,260	- 82	2,178	85	2,175	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
30	NW.	34	"	"	"	Bored	58	2,290	- 54	2,236	54	2,236	Glacial sand	Hard, clear	42	D, S	Insufficient for local needs.
31	NE.	36	"	"	"	Dug	30	2,350	- 20	2,330	30	2,320	Glacial gravel	Hard, clear	42	D, S	Very large supply.
1	NW.	2	32	17	3	Drilled	200	2,130									Dry hole; base in glacial clay.
2	SW.	4	"	"	"	Bored	56	2,060	- 43	2,017	56	2,004	Glacial gravel	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
3	N½.	4	"	"	"	Bored	100	2,065	- 60	2,005	100	1,965	Glacial gravel	Hard, clear, iron, "alkaline"	42	S	Sufficient for local needs.
4	SE.	6	"	"	"	Bored	80	2,060	- 76	1,984	80	1,980	Glacial sand	Hard, clear		D, S	Sufficient for local needs. #.
5	SW.	8	"	"	"	Bored	90	2,070	- 70	2,000	90	1,980	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
6	NE.	8	"	"	"	Drilled	225	2,110	- 50	2,060	225	1,885	Belly River sand	Hard, clear	42	D, S	Sufficient for local needs.
7	NE.	9	"	"	"	Bored	120	2,130	- 95	2,035	120	2,010	Glacial drift	Soft, clear	42	D, S	Sufficient for local needs.
8	SE.	10	"	"	"	Bored	60	2,140	- 52	2,088	60	2,080	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
9	NE.	10	"	"	"	Bored	57	2,175	- 40	2,135	57	2,118	Glacial sand	Hard, clear, "alkaline"	42	S	Sufficient for local needs.
10	NW.	12	"	"	"	Drilled	165	2,210	-100	2,110	165	2,045	Glacial sand	Hard, clear, iron	42	D, S	
11	NE.	13	"	"	"	Bored	80	2,190			80	2,110	Glacial sand			N	Good supply but cannot keep out sand.
12	SE.	14	"	"	"	Dug	52	2,200	- 47	2,153	52	2,148	Glacial sand	Hard, clear, iron	42	D, S	Sufficient for local needs.
13	SW.	14	"	"	"	Dug	52	2,205	- 48	2,157	52	2,153	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
14	NW.	14	"	"	"	Drilled	170	2,180	- 50	2,130	170	2,010	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
15	NE.	14	"	"	"	Dug	52	2,200	- 47	2,153	52	2,148	Glacial sand	Hard, clear, iron		D	Sufficient for domestic needs; a similar well used for stock.
16	SE.	15	"	"	"	Dug	38	2,175	- 35	2,140	35	2,140	Glacial sand	Hard, clear, "alkaline"	42	D, S	Insufficient for local needs.
17	S½.	16	"	"	"	Bored	50	2,120	- 10	2,110	50	2,070	Glacial sand	Soft, iron, clear	42	D, S	Sufficient for local needs.

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WELL RECORDS—Rural Municipality of MOUNTAIN VIEW, NO. 318, SASKATCHEWAN (Part only)

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.	16	32	17	3	Bored	62	2,140	- 22	2,118	62	2,078	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
19	NW.	16	"	"	"	Dug	42	2,125	- 18	2,107	42	2,083	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
20	SE.	17	"	"	"	Drilled	368	2,100	- 60	2,040	368	1,732	Belly River formation	Hard, clear, iron	42	D, S	Sufficient for local needs.
21	SE.	20	"	"	"	Bored	94	2,130	- 52	2,078	52	2,078	Glacial sandy clay	Hard, clear, "alkaline"	42	D, S	Insufficient for local needs.
22	NE.	20	"	"	"	Bored	28	2,150	- 10	2,140	28	2,122	Glacial drift	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
23	SE.	22	"	"	"	Bored	55	2,170	- 47	2,123	55	2,115	Glacial sand	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
24	SW.	23	"	"	"	Dug	20	2,150	- 17	2,133	20	2,130	Glacial sand	Soft, clear	42	D, S	Sufficient for local needs.
25	SW.	24	"	"	"	Bored	56	2,200	- 54	2,146	56	2,144	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
26	SW.	25	"	"	"	Bored	80	2,225	- 73	2,152	80	2,145	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
27	W½.	27	"	"	"	Bored	60	2,200	- 56	2,144	56	2,144	Glacial sand	Hard, clear, "alkaline"	42	D, S	Insufficient for local needs.
28	SW.	28	"	"	"	Bored	140	2,150	- 60	2,090	140	2,010	Glacial sand	Hard, clear	42	D, S	Sufficient for local needs.
29	NW.	29	"	"	"	Bored	87	2,095	- 27	2,068	87	2,008	Glacial gravel	Soft, clear, soda	42	D, S	Sufficient for local needs; also a 9-foot well used for stock.
30	SW.	30	"	"	"	Bored	72	2,095	- 25	2,070	72	2,023	Glacial gravel	Hard, clear	42	D, S	Sufficient for local needs.
31	NE.	31	"	"	"	Bored	80	2,140	- 40	2,100	80	2,060	Glacial gravel	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
32	SW.	32	"	"	"	Drilled	360	2,145	- 60	2,085	360	1,785	Belly River sand	Soft, clear	42	D, S	Sufficient for local needs. #.
33	NE.	33	"	"	"	Dug	31	2,150	- 23	2,127	31	2,119	Glacial clay	Hard, clear	42	D, S	Sufficient for local needs.
34	SE.	34	"	"	"	Drilled	280	2,160	- 20	2,140	280	1,880	Belly River sand	Soft, clear	42	D, S	Sufficient for local needs; also a 32-foot well now caved in.
1	SW.	1	32	18	3	Drilled	225	2,080	-100	1,980	225	1,855	Belly River sand	Soft, clear, iron		D, S	Sufficient for local needs.
2	SW.	3	"	"	"	Dug	15	1,960	- 10	1,950	15	1,945	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
3	NW.	3	"	"	"	Dug	28	1,960	- 18	1,942	18	1,942	Glacial?sand	Hard, clear, iron, "alkaline"		S	Sufficient for local needs.
4	SE.	4	"	"	"	Dug	20	1,960	- 8	1,952	20	1,940	Belly River sand	Soft, salty		D, S	Sufficient for local needs. #.
5	SW.	5	"	"	"	Bored	185	2,115	-170	1,945	185	1,930	Belly River ? sand	Hard, salty, iron, clear		D, S	Oversufficient for local needs. #.
6	SE.	6	"	"	"	Dug	25	2,120	- 18	2,102	18	2,102	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
7	SE.	9	"	"	"	Dug	30	2,000	- 20	2,980	30	1,970	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 10 head stock.
8	SW.	9	"	"	"	Bored	95	2,000	- 20	1,980	95	1,905	Glacial sand	Hard, clear, iron, "alkaline"	42	D, S	Sufficient for local needs.
9	NE.	9	"	"	"	Bored	120	2,000	- 80	1,920	120	1,880	Belly River sand	Soft		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of MOUNTAIN VIEW, NO. 318, SASKATCHEWAN (Part only)

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	NW.	10	32	18	3	Bored	50	2,010									Dry hole; base in glacial drift.
11	SW.	11	"	"	"	Drilled	255	2,080	-100	1,980	255	1,825	Belly River sand	Soft, iron, clear		D, S	Sufficient for local needs.
12	E½.	12	"	"	"	Bored	100	2,050	- 70	1,980	100	1,950	Glacial sand	Hard, clear, "alkaline"	42	D, S	Sufficient for local needs.
13	NW.	12	"	"	"	Bored	95	2,100	- 90	2,010	95	2,005	Belly River sand	Soft, salty, clear		D, S	Insufficient for local needs.
14	SW.	13	"	"	"	Bored	120	2,100	-100	2,000	120	1,980	Belly River sand	Soft, salty, clear		D, S	Sufficient for local needs.
15	SW.	14	"	"	"	Drilled	150	2,110	- 30	2,080	150	1,960	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
16	NE.	20	"	"	"	Dug	12	2,030	- 8	2,022	12	2,018	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 40 head stock.
17	S½.	22	"	"	"	Drilled	235	2,100	- 80	2,020	235	1,865	Belly River sand	Hard, clear	42	D, S	Sufficient for local needs.
18	E½.	24	"	"	"	Bored	105	2,070	- 95	1,975	105	1,965	Glacial gravel	Hard, clear, iron	42	D, S	Insufficient for local needs.
19	SW.	25	"	"	"	Drilled	220	2,090	- 50	2,040	220	1,870	Belly River sand	Hard, clear, iron	42	D, S	Sufficient for local needs.
20	NE.	26	"	"	"	Bored	80	2,085	- 74	2,011	80	2,005	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs.
21	SE.	30	"	"	"	Bored	56	1,985	- 16	1,969	56	1,929	Glacial sand	Hard, clear, "alkaline"		D, S	
22	NE.	30	"	"	"	Dug	10	1,980	- 7	1,973	10	1,970	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs.
23	SW.	34	"	"	"	Drilled	200	2,040	- 60	1,980	200	1,840	Belly River sand	Soft, clear	42	D, S	Sufficient for local needs.
24	SW.	36	"	"	"	Drilled	400	2,100									Dry hole; base in Belly River.

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.