CANADA

DEPARTMENT OF MINES

AND

TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

WATER SUPPLY PAPER No. 134

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF EDENWOLD NO. 158 SASKATCHEWAN

By

B. R. MacKay, H. N. Hainstock and G. L. Scott

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BUREAU OF ECONOMIC GEOLOGY

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF EDENWOLD, NO. 158, 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 760 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 Edenwold comprises an area of 348 square miles in southeastern Saskatchewan. It consists of nine full townships described as tps. 16, 17, 18, and 19, ranges 17 and 18, township 20, range 17, and one partial township composed of sections 1 to 24 inclusive, described as township 20, range 18, all W. 2nd mer. Piapot Indian Reserve, No. 75, and part of Muskowpetung Indian Reserve, No. 80, are also included in the discussion of this municipality. Piapot Indian Reserve, No. 75, occupies the northern 2 miles of township 20, range 18, and the part of township 21, range 18, that lies south of Qu'Appelle river. The portion of Muskowpetung Indian Reserve, No. 80, included in this report, is located in the part of township 21, range 17, that lies south of Qu'Appelle river. The centre of the municipality is approximately 13 miles east and slightly north of the city of Regina.

The main line of the Canadian Pacific railway traverses the southern part of township 18, range 17, and the northern part of township 17, range 18, and on it are located the town of Balgonie and the hamlet of Pilot Butte. The Arcola and Moose Mountain Sections of the Canadian Pacific railway traverse the southwestern corner of the municipality, and on them is located the hamlet of Richardson. The Brandon-Regina branch of the Canadian National railway, on which are located the hamlet of Jameson and the siding of Dreghorn, traverses the southern part of the municipality. The Qu'Appelle Division of the Canadian National railway extends across township 18, range 18, and townships 19, ranges 17 and 18, and on it are located the hamlets of Zehner and Frankslake, and the village of Edenwold. A spur line of the Canadian Pacific railway extends in a northwesterly direction from the main line at Pilot Butte to several large gravel pits in secs. 4 and 5, tp. 18, range 18. A spur line of the Qu'Appelle Division of the Canadian National railway is used for transporting sand and

gravel from pits in secs. 7 and 8, tp. 18, range 18. The hamlet of Kathrinthal, a German settlement, is located in the SE.$\frac{1}{4}$, sec. 14, tp. 16, range 17.

The southwestern part of the municipality is covered by glacial lake clay. This area, which marks the site of glacial Lake Regina, is a flat, treeless plain, mantled with a heavy, dark clay or "gumbo" soil. A deposit of glacial outwash sands and gravels, 3 to 4 miles wide, extending from Boggy creek in a southeasterly direction to Kathrinthal, borders the shore-line of the glacial lake. The glacial outwash deposits increase in thickness to the northwest, attaining a thickness of approximately 20 feet in the vicinity of Jameson and 60 feet in some of the gravel pits northwest of Pilot Butte. The soil in this outwash-covered area is very light and in many places has been wind-blown, giving an undulating appearance to the land surface. This area is also devoid of any tree growth. The northwestern part of an area that is mantled by glacial lake sands extends into the municipality to the east of Kathrinthal. Long, curving, gravelly clay ridges of morainic origin, which are less than one-quarter mile wide and rise 30 to 40 feet above plain level, run in a northwest-southeast direction in the northeastern part of the area mantled by glacial outwash sands and gravels. The remainder of the southern 17 miles of the municipality is an undulating, lightly wooded, till plain. The northern 14 miles of the municipality is largely overlain by moraine. The ground surface of this area is rolling and rough, low-rounded hills and undrained depressions or sloughs are very common, and the district is densely wooded with poplar and willow. North of the moraine-covered area to the base of Qu'Appelle valley the surface is mantled by glacial till. Short, deep ravines break the undulating ground surface in this area and drain the surface water to Qu'Appelle river. Qu'Appelle river, which forms the northern boundary of the area under discussion, flows in an

easterly direction and meanders through a valley about 1 mile wide. The banks of the valley slope upwards very steeply to plain-level some 300 feet above the floor of the valley. The floor of the valley is covered to a depth of at least 40 feet with Recent alluvial sands and silts that were deposited during many floodings of the valley by the river.

Waskana creek, a tributary of Qu'Appelle river, flows in a northwesterly direction across township 16, range 18. The valley of this stream is very wide and shallow, and the flow of the creek is small and sluggish. Four, small, tributary streams flow intermittently from the highlands to the northeast of Waskana creek, their flood-plains becoming wider as the flat, glacial lake clay-covered area is reached. Boggy creek, another tributary of Qu'Appelle river, flows in a westerly direction across the centre of the municipality. The flow of this creek is intermittent, and the city of Regina has constructed a dam across it in the NW.$\frac{1}{4}$, sec. 7, tp. 18, range 18.

The divide between Qu'Appelle river and Boggy and Waskana creeks passes in a northwesterly direction from the south-eastern corner of township 19, range 17, at an elevation of 2,275 feet, to the southwestern corner of sec. 19, tp. 20, range 18, at an elevation of 2,175 feet above sea-level. The elevation falls gradually to the southwest of the height of land to a minimum of 1,885 feet at the southwestern corner of the municipality. Northeast of the divide the elevation decreases gradually to an elevation of 1,900 to 1,950 feet at the edge of Qu'Appelle valley.

Water-bearing Horizons in the Unconsolidated Deposits

Water in this municipality is obtained from springs and wells whose aquifers either lie within the glacial drift or in the Recent alluvium forming the flood-plain of Qu'Appelle river; from small dams, dugouts, and cisterns that collect and retain

surface water; and from sloughs and streams. Most of the water, however, is obtained from wells.

Most of the dugouts and cisterns that collect rain-water are located in the southern part of the municipality, particularly in that area covered by glacial lake clay, where water from wells is usually very difficult to obtain. Dams are used in many cases in the summer and autumn months, not on account of any shortage of well water, but because they are a convenient method of watering stock. One of the best dams in the municipality was built forty years ago by a farmer in the SE.¼, sec. 12, tp. 20, range 17. With the exception of two years, the water impounded by this dam in the spring has been adequate to meet the farmer's requirements throughout the year. A few small dams retain water that is used for irrigating large gardens.

Two areas are outlined on the map in which flowing wells and springs occur. The quality and quantity of water delivered by these springs are extremely variable. A few springs yield soft water, but most of them yield hard water, and some of the waters are too highly mineralized for drinking. Three of the most productive springs are located in the northern area, and one of them has yielded a constant supply of water since 1892. Another of these springs delivers approximately 4 gallons of water a minute.

Wells that derive adequate supplies of water from sand and gravel deposits in the glacial drift are most common in townships 17 and 18, ranges 17 and 18. Water is most difficult to locate in the glacial drift in the part of township 16, ranges 17 and 18, that is overlain by glacial lake clay, and in townships 19 and 20, range 18. Adequate supplies of water are easily obtained in the alluvial deposits in Qu'Appelle valley at depths less than 40 feet. In the remainder of the municipality only a fair supply of water is obtained from the glacial drift. The

glacial drift is believed to extend down to an elevation of 1,650 to 1,700 feet, but little information is available to confirm this estimate, and the elevation of the base of the drift possibly varies greatly throughout the municipality. The drift is largely composed of blue boulder clay, but deposits of water-bearing sand and gravel are found within it. Yellow boulder clay and sand and gravel usually overlie the blue clay to depths of 10 to 60 feet. Abundant supplies of water are most easily obtained in the area covered by glacial outwash sands and gravels at depths less than 50 feet; particularly in the northwestern half of the area. This large area of outwash sand and gravel appears to have been deposited by water issuing from the ice front when the narrow series of moraines in this area were being formed. The thickness of the glacial outwash decreases from a maximum thickness of approximately 60 feet north of Pilot Butte to about 20 feet in the vicinity of Jameson. An 18-foot well owned by the Canadian National railway near Jameson yields about 45,600 gallons of water a day from the glacial outwash sand and gravel, and a well 28 feet deep near Pilot Butte yields about 400,000 gallons of water a day from the same deposit. The water from the glacial outwash sand and gravel is hard but not highly mineralized and it is used in locomotives by both railways. Water-bearing sand and gravel pockets are very difficult to locate in the glacial drift in townships 19 and 20, range 18, immediately north of the tongue of moraine that extends into township 18, range 18. In other parts of the municipality adequate supplies of water are difficult to locate in the part of the glacial drift overlying the blue clay. Many small supplies of water are obtained, but the wells are easily affected by variations in the annual rainfall, and they are most unreliable in winters and prolonged drought periods. Occasionally a large pocket of sand and gravel is struck that yields a more abundant and constant supply of water than that obtained from the average

shallow well. The water from these wells is not under pressure, but it is generally of better quality than that from wells that tap aquifers in the blue clay.

Abundant supplies of water are usually obtained when a deposit of sand and gravel is struck in the blue clay. Wells that tap these deposits are from 20 to 332 feet deep, and as a rule are either bored or drilled. The water is nearly always under pressure and many of the wells have never been pumped dry. Wells drilled to depths of 50 to 275 feet, in the northeastern half of township 17, range 17, and township 18, ranges 17 and 18, are almost certain to derive an abundant supply of water from an aquifer in the blue boulder clay. The city of Regina has drilled many wells in township 17, ranges 17 and 18, to determine the possibility of obtaining a supply of water that could be used for a city supply. Little difficulty was experienced in striking supplies of water in the glacial drift, but none of the wells yielded sufficient water to last under continuous pumping for several hours. The supply in most of the wells, however, would have been quite sufficient for the requirements of a farm. The water from wells that strike aquifers in the blue boulder clay is invariably hard, much of it "alkaline", and some contains iron. The water is generally used for drinking and only a few wells yield water that is too highly mineralized for stock. Numerous dry holes have been bored and drilled into the glacial drift in the area covered by glacial lake clay, and also in the four northern townships, particularly townships 19 and 20, range 18. One farmer in the SW.$\frac{1}{4}$, sec. 10, tp. 19, range 18, drilled forty dry holes 130 to 440 feet deep in the glacial drift. About one hundred and ten farms in these four townships have an inadequate supply of water, whereas only twenty-three farms in townships 17 and 18, ranges 17 and 18, are short of water.

Farmers who cannot obtain water in wells are advised to collect surface water in deep dugouts. These reservoirs are successful if the location is properly chosen and they are made at least 12 feet deep.

Water-bearing Horizons in the Bedrock

Three wells in the municipality are believed to have been drilled through the glacial drift and into the bedrock. These wells are 350, 2,856, and 888 feet deep, and are located in the NW.¼, sec. 25, tp. 16, range 18, the NE.¼, sec. 33, tp. 17, range 18, and the SW.¼, sec. 10, tp. 19, range 18, respectively. The Marine Shale series immediately underlies the glacial drift throughout the municipality, but information on the three wells did not definitely establish the contact of the drift and the bedrock. The 2,856-foot well, drilled by the Aladdin Oil and Gas Company of Regina, is reported to have reached the shale bedrock at a depth of about 400 feet, or at an elevation of approximately 1,620 feet above sea-level. The base of the well is at an elevation of 836 feet below sea-level. The lower parts of the 350- and 888-foot wells are probably in the Marine shale. The 350- and 2,856-foot wells did not strike water in the shale. Water was struck in the 888-foot well, but the drill became stuck in the well and the water could not be used. No information is available as to the quality or quantity of the water in this well, and it is not definitely known whether the aquifer lies within the glacial drift or in the Marine Shale series.

Experience has shown that it is useless to drill into the bedrock for a supply of water in this part of Saskatchewan. Prospecting for water should be confined entirely to the glacial drift.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 16, Range 17

Approximately the southwestern half of the township lies within the basin of glacial Lake Regina and is mantled by glacial lake clay. Smaller areas in the eastern 2 miles of the township are covered by glacial lake sands, moraine, and glacial till. The remainder of the township is mantled by glacial outwash sands and gravels, which in some localities attain a thickness of 20 feet. The elevation rises from 1,900 feet above sea-level at the southwestern corner of the township to 2,100 feet at the northeastern corner. The rise in elevation is very gradual from the southwestern corner of the township to the old shore-line of glacial Lake Regina and then is more rapid towards the northeastern corner of the township. The soil in the glacial lake clay-covered area is a heavy clay, commonly termed "gumbo", and the land is very flat. The soil in the glacial outwash and lake sand-covered districts is very light and sandy, and in many places it has been reworked by wind action giving a rolling appearance to the land surface. The land is slightly undulating in the northeastern corner of the township and the soil is a sandy clay loam. The township is devoid of any natural tree growth. Three, small, intermittent tributaries of Waskana creek flow diagonally across the township from the uplands. The flood-plains of these streams widen perceptibly at the shore-line of glacial Lake Regina.

Flowing springs are located along the ravines that contain the creeks, and they are particularly common in the ravine that passes through sections 36, 35, 34, 27, and 28. At least ten springs are located in the part of the ravine that traverses the NW.$\frac{1}{4}$, section 27, and the NE.$\frac{1}{4}$, section 28. A well 2 feet deep was dug at the point where one of these springs issues from the ground in the NW.$\frac{1}{4}$, section 27. The water rises to a point 2$\frac{1}{2}$ feet above the surface and the well yields approximately 1 gallon of

water a minute. The water from the springs is hard, "alkaline", and contains iron, but it is used for drinking. The hamlet of Kathrinthal uses a spring located in a ravine in the SW.¼, section 13, but the spring ceases to flow during the winter.

Adequate supplies of water are very difficult to locate in the upper 50 feet of the glacial drift in nearly all parts of the township except in the area mantled by glacial outwash sands and gravels. Small, water-bearing lenses of sand and gravel exist within the boulder clay, but the supply of water from wells tapping these deposits decreases considerably in drought years and winters. Many dry holes have been dug in an attempt to strike an aquifer. Occasionally a well is made that yields a fairly abundant supply of water. One of these wells, bored 42 feet deep, in the SW.¼, section 4, struck pockets of water-bearing gravel and sand at depths of 12 and 38 feet. The water is hard and the supply is sufficient for the requirements of the hamlet of Kronau situated on the railway, at the southern border of the municipality. The hamlet of Kathrinthal, on the other hand, uses eight shallow wells and a spring in an effort to obtain sufficient water.

Whenever possible, wells are dug near creeks as the deposits of sand and gravel appear to be more numerous at shallow depths in the ravines, and the wells also derive seepage water from the creek. An 18-foot well dug near a creek, in the SW.¼, section 5, penetrated the following materials in descending order: 2 feet top soil, 4 feet brown clay, 4 feet "gumbo" clay, 2 feet brown clay, and 6 feet gravel. The water is hard and "alkaline", and the supply depends largely on seepage water from the creek. Moderate supplies of water are not difficult to obtain from the glacial outwash sands and gravels at depths less than 20 feet.

Boring or drilling to depths greater than 50 feet in the glacial drift have usually been unsuccessful. Three wells,

however, in the NE.$\frac{1}{4}$, section 14, the NE.$\frac{1}{4}$, section 20, and the SE.$\frac{1}{4}$, section 26, 40, 65, and 310 feet deep, have struck pockets of sand and gravel within the blue clay and yield water under pressure. The supply in the 65-foot well decreased during the drought of 1930 to 1934, but the supply in the other two wells remained constant. The water in the 310-foot well rises to a point 50 feet below the surface and the well yields about one-half a gallon of water a minute. The water in the three wells is hard, but it is used for drinking. Three dry holes, 100, 160, and 200 feet deep, were drilled in the NW.$\frac{1}{4}$, section 9.

The contact between the glacial drift and the underlying Marine Shale series is believed to be at an elevation of approximately 1,650 feet above sea-level. Drilling into the bedrock is not recommended, as the Marine Shale series rarely contains water-bearing beds. The possibility of striking pockets of water-bearing sand and gravel at depths greater than 50 feet in the blue boulder clay of the glacial drift is also poor, and unless finances permit the risk of failure, boring or drilling operations should not be contemplated. The excavation of deep dugouts, to collect surface water, is one method advised to alleviate the shortage of water in this township.

Township 16, Range 18

The elevation increases gradually from 1,885 feet at the southwestern corner of the township to 1,955 feet at the northeastern corner. The entire township, with the exception of a small area in section 36 that is mantled by glacial outwash sands and gravels, lies within the basin of glacial Lake Regina. The land surface is very flat and treeless and the soil is a heavy, black clay or "gumbo". Waskana creek meanders across the township in a northwesterly direction from section 3 to section 31. Two small, intermittent, tributary streams flow into Waskana creek

from the northeast, in the SW.¼, section 10, and the SW.¼, section 31. The streams flow sluggishly through wide, shallow ravines.

The ground water conditions of this township are very poor and only seven farmers obtain an adequate supply of water from wells. Four of the wells, 12, 19, 16, and 22 feet deep, are dug in deposits of sand and gravel that derive water by direct seepage from nearby creeks. Although the supply of water from these wells is adequate, it is readily affected by prolonged drought periods. The 19-foot well in the SW.¼, section 1, is used by six farmers as a source from which drinking water is hauled. Two wells, 48 and 56 feet deep, in the SE.¼, section 24, and the NW.¼, section 35, yield water under pressure from pockets of gravel and quicksand. The supply in the 48-foot well decreased during the drought years, the water-level lowering from a point 12 feet below the surface to a point 25 feet below the surface. The water is hard and "alkaline", but is used for drinking. The 56-foot well was made in 1934 and was drilled through 18 feet gumbo clay, 30 feet blue clay, 5 feet hardpan, and 3 feet quicksand. The water rises to a point 36 feet below the surface, but the supply, which in 1935 was 4 barrels of water a day, had decreased due to sand plugging the casing. The only other well in the township that yields a sufficient supply of water for the owner's requirements was bored through 56 feet of sandy clay in the NE.¼, section 32. The supply of water varies greatly and each year it is especially low in the month of March.

Numerous dry holes and seepage wells have been dug, bored, and drilled in this township. Deposits of water-bearing sand and gravel in the glacial drift are very scarce and in some places the water from an aquifer that has been tapped is too bitter for use. One dry hole, drilled in the NW.¼, section 25, is believed to have passed through the glacial drift into the

underlying Marine Shale series. The elevation of the base of this well is 1,585 feet above sea-level, and the contact between the glacial drift and the bedrock is estimated to be at an elevation of 1,650 to 1,700 feet above sea-level.

Several farmers use dugouts as a means of catching surface water in the spring and conserving it for stock. The excavation of these artificial reservoirs is highly recommended in this township. Boring or drilling operations should not be contemplated due to the expense involved and the improbability of obtaining a supply of water from an aquifer at depths in the glacial drift.

Township 17, Range 17

The elevation rises gradually 275 feet from the southwestern corner of the township to the northeastern corner of the township. The southwestern half of the township is largely mantled by glacial outwash sands and gravels and the remainder is largely covered by glacial till. Long, gravelly ridges, approximately one-quarter of a mile wide, rise 30 to 40 feet above plain-level and extend in a northwest to southeast direction along the edge of the area covered by outwash sands and gravels. These ridges are of morainic origin. A crescent-shaped area that is mantled by glacial outwash sands and gravels extends into sections 31 and 32.

The land surface in the till plain is slightly undulating and small, rounded hills and undrained depressions are common. The area mantled by glacial outwash sands and gravels is rolling, where the sand has been wind-blown, and is slightly undulating to flat in other places, particularly in the southwestern corner of the township. A small, intermittent stream, locally termed Balgonie creek, originates in the NE.$\frac{1}{4}$, section 33, flows in a southwesterly direction, and leaves the township in the NW.$\frac{1}{4}$,

section 7. A short, tributary stream joins Balgonie creek in the SE.$\frac{1}{4}$, section 18. Another small creek flows south from its headwaters in the NW.$\frac{1}{4}$, section 12. All these streams are part of the Waskana Creek drainage system. The township is not wooded.

Flowing springs are of common occurrence along the banks of the creeks in the southwestern half of the township. In places a well is sunk and cribbed 2 to 8 feet deep at the point where the spring issues from the ground, and the water usually rises a few inches to as much as 4 feet above the ground surface. The supply of water from these springs varies only slightly with variations in the annual rainfall. One spring in the SW.$\frac{1}{4}$, section 17, yields sufficient water for 110 head of stock. The spring water is nearly always hard, not highly mineralized, and is suitable for drinking.

Adequate supplies of water are easily obtained at depths less than 25 feet in the glacial outwash sands and gravels. An 18-foot well dug into glacial outwash sand by the Canadian National railway near Jameson, yields 45,600 gallons of water a day. The water is slightly hard and is used for drinking and in boilers of steam locomotives. A test hole was sunk into the glacial outwash at Sturgeon springs near Balgonie creek in the NE.$\frac{1}{4}$, section 18, to determine the possibility of obtaining an adequate supply of water from the glacial outwash sands for use in the city of Regina. The water-level was at a point 5 feet below the surface and the water-bearing sand extended to a depth of 17 feet below the surface. A pumping test with compressed air yielded at the rate of about 70,000 gallons a day during the first hour, with a draw down nearly to the base of the water-bearing bed. The small capacity of the well did not warrant further consideration by the city.

Water is much more difficult to locate in sand and gravel above the blue clay in the till plain. A few wells yield

small but sufficient supplies of water from pockets of sand and gravel that underlie yellow boulder clay and overlie blue clay. Those deposits of water-bearing sand and gravel are not difficult to strike and only a few wells less than 100 feet deep failed to encounter them. The hydrostatic pressure causes the water to rise above the aquifer and the supply is usually abundant. The water in the 230-foot well, the deepest in the township, rises to a point 30 feet below the surface. The water is more highly mineralized than it is in wells dug in the glacial outwash sands and gravels, but it is used for drinking. It is often described as being hard, and slightly "alkaline", and containing iron.

Four test wells, 150 to 198 feet deep, were drilled by the city of Regina in 1929 in the NE.$\frac{1}{4}$, section 18. One of these wells, 180 feet deep, was drilled through 17 feet of glacial outwash sand that outcrops at the surface, and the test for water capacity was conducted only for the amount available in the outwash sand. This test was described in a previous paragraph. The log of the 198-foot well, as taken from Geological Survey, Canada, Summary Report 1929, Part B, page 110, shows the following materials penetrated in descending order:

Driller's Log	Depth in Feet	
	From	To
Sand with coal layers and water	0	35
Sandy clay	35	48
Coarse gravel, water	48	49
Sand and gravel with clay, water	49	92
Clay	92	93
Muddy gravel, water	93	108
Gravelly, blue clay, sand	108	154
Gravel, sand, water	154	158
Clay	158	160
Coarse sand and gravel, water	160	170

	Depth in Feet	
	From	To
Clay	170	172
Sand, gravel, water	172	175
Clay	175	195
Gravel, water	195	196
Clay	196	198

The water from the 48- to 49-foot level rose to a point 10 feet below the surface, but the supply was small. Water from the 160- to 170-foot level rose to the ground-level and was pumped for five hours at the rate of 28 gallons a minute with a draw down of 27 feet. None of the wells yielded sufficient water to be considered a possible source of water for the city of Regina. The large quantity of sand and gravel in proportion to the amount of clay is to be noted in the log of the 198-foot well.

Only eight farmers in this township have an inadequate supply of water. Boring or drilling to depths less than 250 feet in the glacial drift are almost certain to strike an oversufficient supply of water in deposits of sand and gravel. A few farmers have constructed dams across ravines and impound surface water for stock use. These dams were built, not because of a shortage of well water, but because they are more convenient for watering stock during the summer months. Ground water conditions and the possibilities of striking adequate supplies of water in the glacial drift in this township are considered very good.

Township 17, Range 18

The southwestern part of the township is covered by glacial lake clay, whereas most of the remainder of the township is mantled by glacial outwash sands and gravels. The northeastern part of section 36 is covered by till plain. Two, long, narrow, gravelly clay ridges run in a northwest to southeast direction

through sections 26 and 34, and sections 25, 36, and 35. These ridges are about 30 to 40 feet above plain-level, are less than one-quarter of a mile wide, and are of morainic origin. The elevation rises gradually from 1,890 feet at the southwestern corner of the township to 2,075 feet at the northeastern corner. The ground surface in the lake clay-covered area is very flat, whereas in the remainder of the township it is slightly undulating to rolling. In some sections in the area covered by glacial outwash the sand has been wind-blown into small dunes. Balgonie creek flows intermittently in a southwesterly direction across sections 12, 11, 2, and 3. The township is devoid of tree growth except for a few clumps of poplar in sections 23 and 35.

Ground water conditions in this township are exceptionally good and no difficulty is experienced in obtaining adequate supplies of water from sand and gravel aquifers in the glacial drift. Flowing springs that yield hard, but not highly mineralized, water are found in small ravines that dissect the township. Some of these springs, such as those in the SE.$\frac{1}{4}$, section 12, flow throughout the year and farmers use them for watering stock.

No water is obtained in the glacial lake clay, but little trouble is experienced in obtaining adequate supplies of water from sand and gravel pockets in the underlying boulder clay at depths of 21 to 151 feet. Three wells in the NE.$\frac{1}{4}$, section 9, the SW.$\frac{1}{4}$, section 10, and the NE.$\frac{1}{4}$, section 19, that are 42, 50, and 120 feet deep, respectively, yield water under pressure. The 42- and 120-foot wells have never been pumped dry, but the supply in the 50-foot well was decreased by the drought of 1930 to 1934. The water in the 42-foot well was pronounced unfit for use by the Provincial Analyst, but the water in the other two wells is not too highly mineralized to prevent it being used for drinking. Four test wells, 151, 165, 170, and 200 feet deep, were drilled by the

city of Regina in the SE.¼, section 30. The 151-foot well was the most productive of the four wells. The log of this well, taken from Geological Survey, Canada, Summary Report 1929, part B, page 107, shows the following materials in descending order:

Driller's Log	Depth in Feet	
	From	To
Yellow clay	0	25
Gritty, blue clay	25	50
Sand and blue clay	50	55
Gritty, blue clay	55	80
Black sand and clay, water	80	105
Black sand	105	120
Sand, water	120	129
Sand and gravel	129	151

Water rose from the 22-foot bed of sand and gravel at the base of the well to a point 2 feet above the surface. The yield was 72,000 gallons of water a day. It is interesting to note that the two deepest wells, drilled in the same quarter-section, yielded very little water. This indicates that the water-bearing horizons are not continuous over large areas.

Water is very easily obtained in the area covered by glacial outwash sands and gravels, particularly in the northwestern part of the township. The outwash sands and gravels in some localities extend to a depth of 40 feet below the surface. Abundant supplies of water can be obtained in the vicinity of Pilot Butte by driving sand-points to a depth of 20 to 30 feet. The water from the outwash sand and gravel is not highly mineralized and that from a few wells is soft.

The Canadian Pacific Railway Company secures a considerable supply of slightly mineralized water from the glacial outwash sand and gravel approximately one-half mile east of Pilot

Butte. Two collecting galleries, together with several flowing artesian wells sunk in the bottom of each gallery, were formerly used. These wells were from 24 to 28 feet deep and were sunk through sand and gravel to the top of the underlying boulder clay. In 1929 a gravel-walled well lined with concrete screens was constructed for the company. The well is approximately 28 feet deep, and is located about 60 feet south of the original galleries. Four hundred thousand gallons of water a day have been pumped from this well, and it is estimated that, if necessary, 1,000,000 gallons of water a day can be secured.

Several wells have been sunk to aquifers of sand and gravel in the blue boulder clay that underlies the glacial outwash sands and gravels. One of these wells, 50 feet deep, is located in the SE.$\frac{1}{4}$, section 12, and another drilled by the Canadian Pacific Railway Company is 332 feet deep and is located in the NW.$\frac{1}{4}$, section 34. A number of wells 40 to 200 feet deep were drilled in sections 23, 24, 25, and 26, in 1929, by the city of Regina. The two most productive wells yielded 8 to 9 gallons of water a minute with a considerable draw-down, and none of them indicated the presence of a large quantity of water that would be suitable for use by the city.

The Aladdin Oil and Gas Company of Regina drilled a well in the NE.$\frac{1}{4}$, section 33, near Pilot Butte. The well was drilled to a depth of 2,160 feet in 1931 and was continued to a depth of 2,856 feet in 1934, at which depth drilling was discontinued. The elevation at the well-site is approximately 2,020 feet above sea-level, so that the base of the well is at an approximate elevation of 836 feet below sea-level. A large supply of water was reported to have been struck at a depth of about 400 feet, near the contact of the drift and the bedrock, but no water was reported to have been found in the shale.

A few farmers in the township have built small dams across ravines and excavated dugouts for conserving surface water. These

artificial reservoirs are used for convenience in watering stock during the summer months and not on account of a shortage of well water.

Township 18, Range 17

The elevation increases gradually from 2,075 feet at the southwestern corner of the township to 2,275 feet at the height of land in the NE.$\frac{1}{4}$, section 36. The southern part of the township is mantled by boulder clay or glacial till, whereas the northern sections are covered by moraine. Part of the western half of section 6 is mantled by glacial outwash sands and gravels. The land is undulating throughout the township, hills and undrained depressions becoming more common in the moraine-covered area. The township is wooded with poplar and willow, and the growth becomes more dense towards the northeastern sections of the township. A wide, shallow ravine runs in a westerly direction from the height of land in township 18, range 16, and traverses sections 25, 26, 27, 28, 29, 20, 19, and 18 of this township. During the first two or three weeks of the freshet season a considerable flow of water is carried in this ravine as far as section 20. At this location the water begins to take a subterranean course, and in section 18 the ravine contains water for only two or three days during the spring run-off. The flow of water disappears entirely in sec. 13, tp. 18, range 18, and comes again to the surface as springs in the NE.$\frac{1}{4}$, section 8, of the same township. Mr. Wynne-Roberts cites an observation on October 6, 1912 (See Geological Survey, Canada, Summary Report 1929, part B, page 85) when after a heavy rainfall the stream flowing through the ravine in sec. 18, tp. 18, range 17, carried water at the rate of 250,000 gallons a day. This flow entirely disappeared into the ground in the next three-fourths of a mile westward as a result of the porous condition of the drift.

A flowing spring in a ravine in the SW.¼, section 26, was dug out to a depth of 4 feet and cribbed. The aquifer is gravel and the water rises to a point 1 foot above the ground surface. The spring flows throughout the year; the water is retained by a small dam and the supply is sufficient for 100 head of stock. The water is hard and contains iron. A well 5 feet deep in the same ravine in the SE.¼, section 27, has yielded an abundant supply of water since 1898. The water is hard, "alkaline", and contains iron. It does not rise above the well casing.

Adequate supplies of water are difficult to locate in the portion of the glacial drift that lies above the blue clay, except in the floors of ravines. A few wells such as two 8-foot wells in the NW.¼, section 33, and the SW.¼, section 35, have been dug in pockets of gravel that outcrop at the surface. The water table is 2 and 4 feet below the surface in these two wells and the supply of water is abundant and constant. The well in the NW.¼, section 33, cannot be bailed dry, and the well in the SW.¼, section 35, yields an oversufficient supply of water for 100 head of stock. The water is hard, contains iron, but is suitable for drinking. In most places yellow boulder clay overlies the blue clay, and occasionally thin layers of sand and gravel that yield small supplies of water are found at the contact.

The most reliable sources of water in this township are wells 20 to 220 feet deep that tap deposits of sand and gravel within the blue clay. The supply of water from these wells is usually abundant and many of them have never been pumped dry. Most of the wells yield water under hydrostatic pressure, but the pressure is extremely variable. In a 105-foot well in the NE.¼, section 17, the water rises only 15 feet above the aquifer, and in a similar well in the SW.¼, section 11, the water rises 80 feet above the aquifer. A well 117 feet deep, in the SW.¼, section 16, yields water that stands at the same level as the top of the gravel

aquifer, but the supply is oversufficient for 35 head of stock. Gas or air issues from this well and will extinguish a lighted match if held over the casing. A layer of hardpan overlies the aquifers in many places, in these deep wells. Very little difficulty is experienced in obtaining water in the glacial drift between depths of 100 and 220 feet, but a few dry holes 60 to 80 feet deep have been bored. The water from the wells that tap aquifers in the blue clay is invariably hard, much of it "alkaline", and some contains iron, but it is generally used for drinking. The town well of Balgonie is 40 feet deep and the water rises from a sand aquifer to a point 22 feet below the surface. The supply is sufficient, but the water is hard and contains iron. A 26-foot well bored through 8 feet of yellow clay and 18 feet of sand and gravel is also used, although the supply is not so large as it is in the 40-foot well.

Four dams and three dugouts were reported to be used by farmers for conserving surface water. Only nine farmers in the township have an inadequate supply of well water and the possibilities of striking water-bearing deposits in the glacial drift are very good. Drilling to depths less than 250 feet is advised. The glacial drift is believed to be very thick in this township. Water-bearing deposits of sand and gravel may be just as common in the lower part of the glacial drift as they are in the upper 250 feet.

Township 18, Range 18

The elevation increases gradually from 1,975 feet above sea-level at the southwestern corner of the township to 2,210 feet at the northeastern corner. A large area in the south-central part of the township is mantled by glacial outwash sands and gravels. Moraine covers most of the northern 2 miles and extends southward in the west-central part of the area. The remainder of the township is covered by glacial till or boulder clay. Ridges of gravel and

clay of morainic origin, which rise about 30 to 40 feet above plain-level, extend northwards through sections 2, 11, 13, 14, 22, and 23. The ground surface is undulating and becomes more rough in the glacial till and moraine-covered areas. The north-eastern part of the township is wooded with poplar. The glacial outwash sands and gravels in this township are used extensively for construction purposes. A spur line of the Canadian National railways is built to a sand and gravel pit in the NW.¼, section 8. The Canadian Pacific railway has excavated about 1,000,000 cubic yards of sand and gravel from pits in sections 4 and 5. The deposit of sand and gravel varies in depth from 12 to 45 feet and covers an area of about 800 acres; and the water table stands at a level of approximately 47 feet below the surface. The amount of sand and gravel available from the deposit is estimated at 10,000,000 to 15,000,000 cubic yards. Smaller pits are worked for commercial purposes in many other places in the area covered by outwash sand and gravel.

Ground water conditions in this township are exceptionally good and only three farmers in the SW.¼, section 2, and the NW.¼, and the NE.¼, section 36, have an inadequate supply of water. A flowing spring that yields an abundant supply of soft water is located in the NE.¼, section 8, in the ravine that contains Boggy creek. Abundant supplies of slightly mineralized water are obtained by driving sand-points or digging wells to a maximum depth of 50 feet in the glacial outwash sands and gravels. Some farmers dig a well for 20 or more feet in the outwash and drive a sand-point until the water table is reached. A flowing artesian well 3 feet deep, in the SE.¼, section 6, has ceased to flow since the Regina pumping station on Boggy creek was installed.

In those parts of the township not overlain by glacial outwash sands and gravels, adequate supplies of water are very difficult to locate in the glacial drift above the blue boulder clay.

Most of the wells are bored or drilled to deposits of sand and gravel in the blue clay, and they are from 40 to 228 feet deep. The water is usually under very slight pressure, and in many wells the pressure is sufficient to raise the water only a few feet above the top of the aquifer. Several wells 48 to 78 feet deep in sections 10, 11, 12, 13, and 14 derive water that does not rise above the aquifer, although the supply is sufficient and constant. The deposits of sand and gravel in the blue boulder clay of the glacial drift between depths of 40 and 228 feet appear to be extensive and very little difficulty is experienced in striking them. Most of the wells yield abundant supplies of water and many of them have never been pumped dry. A 200-foot well in the NW.$\frac{1}{4}$, section 24, was pumped steadily for eight days and nights without causing it to become dry. The water from these deeper wells is hard, much of it contains iron, but it is usually not too "alkaline" to prevent its use for drinking. The supply in two wells, one 40 feet deep, in the SE.$\frac{1}{4}$, section 18, and the other 140 feet deep, in the SW.$\frac{1}{4}$, section 34, was decreased when the Regina pumping station was opened.

Eight dry holes 100 to 120 feet deep were made in the NE.$\frac{1}{4}$, section 28, before a 167-foot well encountered a gravel aquifer beneath an 8-foot bed of hardpan. A dry hole 65 feet deep was also made in the SE.$\frac{1}{4}$, section 19. Four farmers use small dams for conserving surface water, and one in the SE.$\frac{1}{4}$, section 18, is used for irrigating 20 acres of garden. Another dam in the NW.$\frac{1}{4}$, section 24, impounds sufficient water to flood 3 acres of land. The depth of the water at the face of the dam is 16 feet.

Township 19, Range 17

The entire township is covered by moraine. A height of land runs from the SE.$\frac{1}{4}$, section 1, at an elevation of 2,275 feet above sea-level, to the NW.$\frac{1}{4}$, section 18, at an approximate

elevation of 2,230 feet. The elevation rises from 2,200 feet at the southwestern corner of the township to the height of land and then falls gradually to an elevation of 2,140 feet at the northeastern corner of the township. The topography is typical of moraine-covered country. The land surface is very uneven, low, rounded hills and undrained depressions being common, and it is densely wooded with poplar.

The wells in the township range in depth from 12 to 300 feet, and the producing wells tap aquifers of sand and gravel in the glacial drift. Beds of water-bearing sand and gravel are apparently not so common in the drift that covers this township as they are in the four southern townships of the municipality. Many dry holes have been dug and bored to a maximum depth of 115 feet. The deposits of sand and gravel appear to occur as pockets rather than as extensive layers, as in some sections no trouble is experienced in obtaining water, whereas in others, in many cases in adjacent quarter-sections, it is very difficult to locate water-bearing sand and gravel.

Adequate supplies of water are particularly difficult to obtain in the part of the drift that overlies the blue bouldor clay. This portion of the glacial drift is generally 20 to 30 feet thick and is largely composed of yellow boulder clay. Occasionally thin layers of sand and gravel are struck in this part of the drift, generally at the contact between the yellow and blue clays. Shallow wells that have tapped these pockets of sand and gravel are easily influenced by variations in annual rainfall, and those farmers who rely on this type of well often must use a number of them, together with water from sloughs, to obtain a sufficient supply for stock. Many farmers who own shallow wells must tank water in winters and drought years. The water is hard and much of it "alkaline", but it is used for drinking if it is not strongly laxative.

A well dug 25 feet deep in the floor of a ravine in the SE.¼, section 32, shows an interesting log. The well was dug through 20 feet of silt, and in the lower 5 feet of the well, bones, shells, and a well-preserved tree stump were found. Water was located in the base of the well, but it was dark green in colour and had a foul odour.

Most of the wells that have tapped pockets of sand and gravel in the blue boulder clay are from 20 to 125 feet deep. These wells usually yield an abundant supply of water that rises under hydrostatic pressure. The water is always hard and as a rule is "alkaline" and contains iron, but it is commonly used for drinking. Three such wells, 98, 101, and 109 feet deep, are in use in the village of Edenwold. These wells yield an abundant supply of water, the 109-foot well never having been pumped dry, but the water is "alkaline". A layer of what is locally known as "sea-mud", probably of interglacial origin, was struck in the 98-foot well immediately above a fine sand aquifer. The fine sand in this well in many places plugs the casing for a distance of 19 feet above the base of the well. A well 300 feet deep was drilled in the village of Edenwold, the materials penetrated in descending order are as follows:

3	feet of soil
18	feet of yellow clay
3	feet of grey sand, water
3	feet of sand
93	feet of blue clay
3	feet of grey sand
154	feet of blue clay
20	feet of sand, water
3	feet of blue clay

A large supply of hard, "alkaline" water was struck in the bed of sand 280 feet below the surface, but the well is now abandoned.

The only other well in the township that is drilled to a depth greater than 125 feet was made by the Provincial Government in 1901. This well was drilled in the SE.¼, section 11, but it has not been in use for the past twenty years. The water rose from a gravel aquifer at the base of the well, 226 feet below the surface, to a point 80 feet below the surface. The water is hard, "alkaline", cloudy, and contains iron.

At least seventeen farmers in the township have an insufficient supply of water. Very few dugouts were reported and the excavation of these artificial reservoirs is highly recommended in this area for those farmers who cannot finance deep drilling operations. The undulating topography of the land offers numerous excellent sites for dugouts, as the maximum amount of surface water can be collected in the depressions. In addition to a favourable location the dugout should be at least 12 feet deep to retain water throughout the winter months.

Township 19, Range 18

A height of land extends northwestwards from an elevation of 2,230 feet above sea-level at the northeastern corner of section 13, to an elevation of 2,210 feet at the northern edge of section 34. The elevation rises gradually from 2,075 feet at the southwestern corner of the township to the height of land and then falls to 2,200 feet at the northeastern corner. The southwestern half of section 6 is mantled by glacial till, but the remainder of the township is covered by moraine. The land is rough and hilly and sloughs are very common. The township is densely wooded with poplar.

Ground water conditions are very poor in this township in comparison with townships 17 and 18, ranges 17 and 18. The producing wells are from 14 to 245 feet deep and tap pockets of sand and gravel in the glacial drift. Numerous dry holes have been

dug, bored, and drilled in this township. Approximately one-half the residents either have no water supply on their own land, or the supply is inadequate to meet stock requirements throughout the year.

Most of the producing wells are dug by hand to aquifers of sand and gravel that overlie blue clay. These wells are usually less than 35 feet deep, the supply is small, and two or more are used in many places to obtain sufficient water for stock requirements. Occasionally a shallow well strikes a large pocket of sand and gravel and yields a fairly abundant supply of water. Three such wells, 32, 22, and 27 feet deep, are located in the NW.$\frac{1}{4}$, section 6, the NE.$\frac{1}{4}$, section 14, and the SE.$\frac{1}{4}$, section 19. The first two wells struck sand and gravel beneath yellow boulder clay and the third well was dug entirely in sand and gravel. The 32- and 27-foot wells water 100 and 50 head of stock, respectively, whereas the 22-foot well, besides watering 75 head of stock, was used by many farmers during 1934. The water from shallow wells is usually not highly mineralized although it is hard, and it is quite suitable for drinking. A great many holes have been dug by hand in search of water. For example, twenty dry holes were made to a maximum depth of 65 feet in the SE.$\frac{1}{4}$, section 16, and fifteen dry holes 30 to 50 feet deep were dug in the SE.$\frac{1}{4}$, section 2.

Water-bearing sands and gravels are almost as difficult to locate within the blue boulder clay of the glacial drift, by boring or drilling, as they are in the upper part of the drift by hand digging methods. Only eight wells 32 to 245 feet deep have been successful in obtaining adequate supplies of water under pressure from aquifers in the blue clay. The pressure is usually not very great, and in these wells, 170, 235, and 245 feet deep, the water rises to points only 158, 205, and 200 feet below the surface. The supply, however, is abundant and is not readily affected by drought conditions. The water is hard and mostly

"alkaline", but that from all the wells except one is used for drinking. Many farmers have attempted to strike water-bearing pockets of sand and gravel in the blue boulder clay and have failed. Eight dry holes 45 to 300 feet deep were made in the SW.¼, section 12, and on the NE.¼ of this same section a 175-foot well obtains an abundant supply of water from a quicksand aquifer. At least forty dry holes 130 to 440 feet deep were drilled in the glacial drift in the SW.¼, section 10.

The glacial drift is underlain by the Marine Shale series which is thought to occur at an approximate elevation of 1,650 to 1,700 feet. Only one well in the township is believed to have penetrated the drift and encountered the Marine shale. This well is 888 feet deep and is drilled in the SW.¼, section 10. The base of this well is at an elevation of 1,287 feet above sea-level, but no log was kept during the drilling so that the contact of the glacial drift and the bedrock is not known. Water was struck in this well and rose to a point 175 feet below the surface, but the well was rendered useless due to the drill having become stuck in the hole. No information as to the quality or quantity of the water was obtained.

Drilling to depths greater than 400 feet is not advised in this township. The underlying Marine Shale series does not contain usable water and all efforts to obtain water should be confined to the glacial drift. Those farmers who must haul water are advised to excavate dugouts to collect and retain surface water. Sloughs are used extensively and these natural drainage basins could be deepened in order to retain sufficient water for stock during the winter months. Experience has shown that a dugout must be 12 feet deep to be satisfactory, and it is much better to excavate it small and deep, rather than shallow and large. Prior to digging shallow wells the water-bearing deposits should be located by a small test auger.

Township 20, Range 17

The elevation decreases gradually from 2,200 feet above sea-level at the southwestern corner of the township to approximately 1,940 feet at the northern boundary. The part of the township that is lower than 2,000 feet in elevation is covered by glacial till, whereas the remainder is covered by moraine. The land is rolling and quite rough, particularly in the moraine-covered area; sloughs are common, and the township is wooded with poplar, the growth becoming less dense towards the north.

Flowing springs are located in the northern 2 miles of the township and a few have been deepened and cribbed. Three of the most productive springs are located in the SE.$\frac{1}{4}$, section 25, the SE.$\frac{1}{4}$, section 27, and the SW.$\frac{1}{4}$, section 35. The water in the spring in the SE.$\frac{1}{4}$, section 25, rises 4 feet above the surface and it has been known to rise 12 feet. T is spring has been used since 1915; the water is hard and suitable for drinking, and the flow of water is about 4 gallons a minute. The spring in the SE.$\frac{1}{4}$, section 27, has been in use since 1892 and the supply has not decreased since that date. The water rises about 4 feet above the surface and the supply is oversufficient for 500 head of stock. The water from this spring is hard, "alkaline", cloudy, and is not being used for drinking. The water from the spring in the SW.$\frac{1}{4}$, section 35, is hard, "alkaline", cloudy, and has a swampy odour. This water is also unsuitable for drinking, but the supply is oversufficient for 600 head of stock. Three small springs in a ravine in the NW.$\frac{1}{4}$, section 31, each yield about seven barrels of water a day. The water from them is highly mineralized and acts as a laxative on humans.

Water-bearing sand and gravel are very difficult to locate in the upper 100 feet of the glacial drift in some sections, whereas in others no difficulty is experienced in obtaining abundant supplies of water. Water is particularly difficult to obtain in the

southern 2 miles of the township. Only five farms within this area have an adequate supply of water. Numerous dry holes have been made to a maximum depth of 170 feet and most of the farmers haul water. In the northern 4 miles of the township adequate but not always abundant supplies of water are obtained from deposits of sand and gravel in the blue boulder clay between depths of 30 and 235 feet. Only three wells obtain sufficient supplies of water from aquifers that overlie the blue clay. These wells are 20, 46, and 30 feet deep and are located in the SE.$\frac{1}{4}$, section 16, the SW.$\frac{1}{4}$, section 17, and the NE.$\frac{1}{4}$, section 27. The 46-foot well was bored through sand and gravel that extended from the ground surface to the base of the well, and the water stands at a point 4 feet below the surface. The supply is oversufficient for 45 head of stock.

The water in those wells, 30 to 235 feet deep, that strike aquifers in the blue clay is in many places under high pressure. Some of these wells can be pumped dry, whereas others yield a very abundant supply. One well, 165 feet deep in the SW.$\frac{1}{4}$, section 28, yielded water for one year. The water rose to a point 4 feet above the surface. In 1934, however, the well casing became partly plugged with sand and the water-level gradually lowered to a point 80 feet below the surface. The supply of water, however, is still abundant and is sufficient to water at least 600 head of stock. Three wells, 202, 64, and 44 feet deep, in the NW.$\frac{1}{4}$, section 14, the SW.$\frac{1}{4}$, section 20, and the SW.$\frac{1}{4}$, section 21, penetrated a material that is locally termed "sea-mud", and which was probably deposited in an interglacial period. The water from the wells that tap aquifers in the blue boulder clay is always hard, much of it "alkaline", and some contains iron, but it is generally used for drinking. The water from a 63-foot well in the NW.$\frac{1}{4}$, section 18, is too highly mineralized for stock.

Nearly one-half the farmers in the township are short of water and several of them have built small dams to conserve surface water. One of the best dams in the township was constructed forty years ago and is located in the SE.¼, section 12. For thirty-eight of the forty years that the dam has been in service, sufficient water has been retained in the freshet season for the use of stock throughout the following winter. Dugouts have not been adopted as a means of conserving surface water. The excavation of these artificial reservoirs is recommended for alleviating the water shortage in this township.

Township 20, Range 18

This township comprises sections 1 to 24, inclusive, and the entire area is covered by moraine. The land is undulating and hilly, sloughs are common, and a dense growth of poplar covers much of the township. A height of land runs from the south half of section 3, at an elevation of 2,210 feet, to the southwestern corner of section 19, at an elevation of 2,175 feet. The elevation decreases to 2,090 feet at the northeastern corner of the township and to 2,155 feet above sea-level at the southwestern corner.

The wells in the township are from 8 to 275 feet deep and those that yield water tap aquifers of sand or gravel in the glacial drift. Water-bearing beds of sand and gravel are exceedingly difficult to locate in the upper 50 feet of the glacial drift. Only five wells less than 50 feet deep yield sufficient water for the owners' requirements. These wells derive water from pockets of sand and gravel that overlie the blue boulder clay and the supply of water in all of them varies with the amount of seasonal precipitation. The water from four of the wells is hard and that from the fifth is soft, but it is not "alkaline" and is quite suitable for drinking. Numerous dry holes and seepage wells have been dug to depths less than 50 feet in this township. One farmer in the SW.¼, section 2,

has dug approximately seventy-five dry holes, to depths less than 36 feet, during the past eight years.

The most productive wells are those that have been bored or drilled to pockets of sand and gravel in the blue boulder clay at depths of 50 and 275 feet. Numerous dry holes 50 to 126 feet deep have been made, many in the same quarter-section as a producing well. When water is obtained, however, it is always under pressure and the supply is mostly abundant and constant. Many of these wells, such as a 60-foot well in the NW.¼, section 2, and a 201-foot well in the NE.¼, section 4, have never been pumped dry. The pressure of the water is not high and the water may only rise 20 to 50 feet above the aquifer. The water is usually highly mineralized or "alkaline", but as a rule is used for drinking. A 50-foot well in the NE.¼, section 11, was abandoned, as stock refused to drink the water. A 197-foot well in the SW.¼, section 23, yields an abundant supply of water, but it is not used, as it was pronounced unfit by the Provincial Analyst.

At least eighteen farmers in this partial township are short of water. Sloughs are used for stock when possible, and water is hauled from wells that yield an abundant supply. Dugouts are not used and the excavation of these artificial reservoirs, if they are properly located and the depth of the dugout is at least 12 feet, should greatly relieve the water shortage. Drilling to depths greater than 100 feet in the glacial drift will probably meet with success, but such operations are expensive and should not be attempted if finances do not permit the risk of not obtaining water.

Muskowpetung Indian Reserve, No. 80

The portion of Muskowpetung Indian Reserve that is discussed in this municipality report is situated in the part of township 21, range 17, located south of Qu'Appelle river. The floor of the valley through which Qu'Appelle river meanders is

overlain by a deposit of Recent alluvium at least 35 feet thick, which was laid down during many floodings of the valley. The remainder of the area under discussion is mantled by glacial till. The ground surface is undulating and broken by several, short, deep ravines that drain surface water towards Qu'Appelle river. A thin growth of poplar covers the reserve with the exception of the flat, valley floor.

Several shallow wells have been dug on the reserve, but most of them have caved in and are not in use. The greater part of the Indian settlement is along Qu'Appelle valley, and river water is used extensively. Sloughs, springs, and small streams are also used for both stock and drinking water.

A 90-foot well was bored in a small Indian village in the south-central part of the reserve. The residents farm approximately 800 acres of land, and the supply of water from the well is sufficient for drinking and for stock in the village. The water rises to a point 60 feet below the surface and the supply was not seriously affected by the drought of 1930 to 1934. The water is hard and contains iron.

The 35-foot well at the residence of the agent at the Indian farm in Qu'Appelle valley obtains an abundant supply of water from alluvial gravel. The water is hard, contains iron, and the supply is oversufficient for 55 head of stock. Adequate supplies of water are easily obtained in the floor of Qu'Appelle valley at depths less than 40 feet.

Piapot Indian Reserve, No.75

Piapot Indian Reserve occupies the northern 2 miles of township 20, range 18, and that part of township 21, range 18, lying south of Qu'Appelle river.

The floor of Qu'Appelle valley is formed by a thick deposit of Recent stream sands and silts. Glacial till covers that part of the reserve lying 1 to 3 miles south of the banks of

Qu'Appelle valley. The remainder of the reserve is mantled by moraine. The land surface is very undulating and broken by many deep ravines that extend as far as 4 miles south of Qu'Appelle valley. The flat valley floor is not wooded, but the remainder of the reserve is covered by a growth of poplar and willow.

No wells were reported in the Piapot Indian Reserve. The southern 3 miles of the reserve are used for grazing purposes, and stock use slough water, as well as water from a dam known as the "Indian dam". Most of the Indian settlement is along Qu'Appelle valley and most of the water used for drinking and stock purposes is probably obtained from springs, sloughs, and Qu'Appelle river.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF EDENWOLD, NO.158, SASKATCHEWAN

Township / West of 2nd meridian — Range	16 17	16 18	17 17	17 18	18 17	18 18	19 17	19 18	20 17	20 18	Total No. in Municipality
Total No. of Wells in Township	71	54	67	84	80	65	108	137	91	109	926
No. of wells in bedrock	0	1	0	1	0	0	0	1	0	0	3
No. of wells in glacial drift	71	53	67	83	80	65	108	136	91	109	923
No. of wells in alluvium	0	0	0	0	0	0	0	0	0	0	0
Permanency of Water Supply											
No. with permanent supply	59	29	64	70	60	53	69	38	54	40	548
No. with intermittent supply	1	6	0	4	3	2	3	11	8	11	54
No. dry holes	11	19	3	4	11	10	31	148	29	58	324
Types of Wells											
No. of flowing artesian wells	15	0	15	9	1	2	0	0	8	0	50
No. of non-flowing artesian wells	6	2	17	11	38	24	24	9	18	20	169
No. of non-artesian wells	39	33	32	60	30	29	53	40	36	31	383
Quality of Water											
No. with hard water	58	35	59	75	67	40	73	36	59	46	548
No. with soft water	2	0	5	5	2	15	4	13	3	5	54
No. with salty water	0	1	0	0	0	0	0	0	0	0	1
No. with "alkaline" water	26	21	13	12	31	11	29	11	31	13	198
Depths of Wells											
No. from 0 to 50 feet deep	64	40	46	69	33	26	67	102	58	61	566
No. from 51 to 100 feet deep	4	10	13	1	29	13	32	38	22	34	196
No. from 101 to 150 feet deep	0	1	3	4	15	10	7	21	5	7	79
No. from 151 to 200 feet deep	2	2	4	8	1	9	0	19	3	3	51
No. from 201 to 500 feet deep	1	1	1	1	2	1	2	10	3	4	32
No. from 501 to 1,000 feet deep	0	0	0	0	0	0	0	1	0	0	1
No. over 1,000 feet deep	0	0	0	1	0	0	0	0	0	0	1
How the Water is Used											
No. usable for domestic purposes	49	23	61	70	58	51	64	44	48	40	514
No. not usable for domestic purposes	11	12	3	4	11	4	13	5	14	11	88
No. usable for stock	51	25	63	80	60	54	72	47	58	49	565
No. not usable for stock	9	10	1	0	3	1	5	2	4	2	37
Sufficiency of Water Supply											
No. sufficient for domestic needs	58	30	64	70	66	51	67	38	53	39	542
No. insufficient for domestic needs	2	5	0	4	3	4	10	11	9	12	60
No. sufficient for stock needs	49	15	55	70	51	46	51	32	36	23	428
No. insufficient for stock needs	11	20	9	10	18	9	26	17	26	28	174

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 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 Edenwold, No.158, Saskatchewan.

LOCATION						Depth of Well, ft.	Total dissolved 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	SW.	2	16	17	2nd	22	8,740	2,200 Bacteria in 1 C.C. of Water Bacillus Coli present									8,740		(2)		(3)	(4)	(1)	(5)		#1
2	SW.	2	16	17	2nd	35	4,343	Bacteria too numerous to count. Bacillus Coli present.									4,343	(5)	(2)		(3)		(1)		(4)	#1
3	NE.	18	17	17	2nd	Sturgeon Spring	400	196	49	147	14.8	Nil	140	43.4	48		400									#1
4	NE.	18	17	17	2nd	198	1,700	340	Nil	340	34.0	500	140	76.1	632.1		1,700									#1
5	SW.	1	17	18	2nd	60	5,080	2,300	2,300	Nil	45	435	380	396	3,124	1,295	4,899	435	330		1,180		2,880	74		#1
6	NE.	4	17	18	2nd	40	3,320	800	800	Nil	222	495	70	112	1,681	1,336	3,311	125		234		98	2,488	366		#1
7	SW.	14	17	18	2nd	24	1,957	Bacteria too numerous to count. Bacillus Coli present									1,957		(2)		(3)	(4)	(1)	(5)		#1
8	N.½	23	17	18	2nd	150	900	450	80	370	29.7	Nil	170	80.9	253.8		900									#1
9	SW.	11	18	17	2nd	105	1,217										1,217	(3)	(1)		(4)		(2)		(5)	#1
10	SW.	2	19	17	2nd	25	2,080	1,700	1,500	200	59	430	120	270	1,132	500	2,009	215		182	545		1,030	97		#1
11	NE.	2	19	17	2nd	34	3,449										3,449	(3)	(1)		(2)				(4)	#1
12	NE.	30	19	17	2nd	47	3,280	2,600	2,500	100	24	240	730	418	2,099	09	3,084	240	1,448		1,246		110	40		#1
13	NE.	24	19	18	2nd	47	440	Bacteria too numerous to count. Bacillus Coli present.									440	(3)	(1)		(2)				(4)	#1

Water from the Unconsolidated Deposits

Samples of water from fifteen wells and two springs that tap aquifers in the glacial drift were analysed and the results are tabulated in the accompanying table. The water from the two springs, as shown by samples 3 and 16, differs considerably in quality. The water from Sturgeon spring contains 400 parts per million of total dissolved solids, which is very low for water from the glacial drift. The water is not excessively hard and much of the hardness could be removed by boiling. Better drinking water would be difficult to find in an aquifer in the glacial drift. The water shown by sample 16, however, contains 2,040 parts per million of total dissolved solids, 1,485 parts of which are sodium sulphate (Glauber's salt), and magnesium sulphate (Epsom salts). The high concentration of these two salts will cause the water to act as a laxative on humans, but it will be suitable for stock.

Water from wells in the glacial drift differs widely in quality; sample 13 has a total dissolved solid content of 440 parts per million and sample 1 has 8,740 parts per million. Samples 12 and 13 were taken from two wells of the same depth and situated only about 1 mile apart, yet the total dissolved solid of sample 12 is approximately $7\frac{1}{2}$ times as great as the total dissolved solid of sample 13. A 150-foot well yields water (sample 8) that contains only 900 parts per million of total dissolved solids. Generally speaking, however, water from the glacial drift is highly mineralized, the sulphate salts of calcium, magnesium, and sodium being the predominant mineral salts. The water represented by samples 1, 2, 5, 6, 11, 12, 14, 15, and 17 is highly mineralized and is too laxative for drinking, and samples 1, 2, and 5 are too highly mineralized even for stock use. Samples 1, 6, 7, and 14 show a small amount of sodium carbonate,

"black alkali", a salt that is not usually found in waters from the glacial drift. This salt, although not injurious in drinking water, is very harmful to vegetation and water containing a large concentration of it cannot be used for irrigation.

Water from the Bedrock

No producing wells in the municipality are deriving water from the Marine Shale series. Water from this shale is highly mineralized. The predominant mineral salt in solution is generally sodium sulphate (Glauber's salt). Lesser amounts of magnesium sulphate (Epsom salts), and sodium chloride (common salt) will also be present. The water will probably be unfit for use.

WELL RECORDS—Rural Municipality of EAGLE HILL, NO. 158, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	SW.	1	16	17	2	Dug	6	1,960					Glacial drift	Hard		D	Barely sufficient water.
2	NE.	1	"	"	"	Dug	8	1,980	- 6	1,974	6	1,974	Glacial fine sand	Soft		D, S	Good supply; a 30-foot well on a knoll has been abandoned.
3	SW.	2	"	"	"	Dug	35	1,960					Glacial sand	Hard, "alkaline"		D, S	Abundant supply; a 28-foot well yielded very little water; #, #.
4	NE.	3	"	"	"	Dug	15	1,945					Glacial drift	Hard, iron, "alkaline"		D, S	Seepage water from a creek; sufficient supply.
5	SW.	4	"	"	"	Bored	42	1,930	- 12	1,918	12	1,918	Glacial sand	Hard		D	Well used by Hamlet of Kronau; water-bearing sand struck at depths of 12 and 38 feet.
6	SE.	5	"	"	"	Dug	14	1,930	- 2	1,928			Glacial sand and gravel	Hard, "alkaline"		D, S	Water was struck at depths of 14 feet in two other wells.
7	SE.	5	"	"	"	Dug	25	1,930	- 14	1,916			Glacial gravel	Hard		D, S	Barely insufficient for 50 head stock; supply decreases in winter.
8	SW.	5	"	"	"	Dug	18	1,915	- 8	1,907	12	1,903	Glacial gravel	Hard, "alkaline"		D, S	Well deepened in 1934 to obtain sufficient water; several dry holes and two shallow wells abandoned.
9	SE.	6	"	"	"	Dug	12	1,895	- 8	1,887			Glacial gravel	Hard, iron		D, S	Good supply; well has never pumped dry.
10	NW.	9	"	"	"	Drilled	200	1,940									Dry hole in glacial drift; two other dry holes 100 and 160 feet deep.
11	SW.	10	"	"	"	Drilled	80	1,950									Dry hole in glacial drift.
12	SW.	11	"	"	"	Bored	18	1,960	- 16	1,944			Glacial fine sand	Hard, "alkaline"		D	Poor supply and must haul water in winter.
13	S..	13	"	"	"	Spring		1,995					Glacial drift				Spring used by hamlet of Kathrinthal; spring ceases flowing in winter.
14	SE.	14	"	"	"	Bored	36	1,990	- 29	1,961	30	1,960	Glacial fine sand	Hard, "alkaline"		D, S	One of 8 wells in hamlet of Kathrinthal; sufficient supply.
15	SE.	14	"	"	"	Dug	40	1,985	- 22	1,963			Glacial sand and gravel	Hard, iron, "alkaline"		N	Water is highly mineralized.
16	NE.	14	"	"	"	Bored	40	2,000	- 19	1,981	35	1,965	Glacial fine sand	Hard		D, S	One of four similar wells; sufficient supply.
17	SW.	19	"	"	"	Dug	12	1,930	- 2	1,928			Glacial sand	Hard		S	Intermittent supply in dry years; hauls drinking water in summer.
18	SE.	20	"	"	"	Dug	37	1,940	- 16	1,924			Glacial gravel	Hard, iron		D, S	Yields 3 barrels of water a day; another 37-foot well yields unusable water; uses a creek and hauls water.
19	NE.	20	"	"	"	Bored	65	1,950	- 45	1,905			Glacial gravel	Hard, iron		D, S	Yields 20 barrels of water a day; supply decreased during the drought.
20	NE.	22	"	"	"	Dug	10	1,990	- 8	1,982	8	1,982	Glacial fine sand	Hard, cloudy		D, S	Yields 2 barrels of water a day.
21	NE.	24	"	"	"	Bored	40	2,060	- 34	2,026			Glacial drift	Hard, "alkaline"		N	Yields 2 barrels of water a day; 4 dry holes 40 feet deep.
22	SE.	25	"	"	"	Bored	27	2,055	- 15	2,040			Glacial sand	Soft		D, S	Sufficient, but supply decreases in winter and dry years.
23	SE.	26	"	"	"	Drilled	310	2,050	- 50	2,000	300	1,750	Glacial sand	Hard			Yields ½ gallon of water a minute.
24	NW.	27	"	"	"	Dug	2	2,000	+ 2	2,002	0	2,000	Glacial gravel	Hard, iron, "alkaline"		D, S	Abundant supply; at least 10 springs in the vicinity.
25	NE.	28	"	"	"	Spring							Glacial drift				
26	NE.	30	"	"	"	Dug	40	1,955	- 32	1,923	-		Glacial gravel	Hard, iron, "alkaline"		S	Only used for stock in winter.
27	NW.	30	"	"	"	Dug	45	1,945					Glacial drift	Hard, bitter, "alkaline"		N	One of several wells 35 to 45 feet deep that yield unusable water.

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 EDENWOLD, NO. 158, 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
28	NE.	31	16	17	2	Dug	20	1,960	- 15	1,965			Glacial drift	Hard		D	Good supply.
29	SE.	32	"	"	"	Dug	18	1,985	- 15	1,970	15	1,970	Glacial gravel	Hard, iron		D, S	Sufficient supply.
30	NE.	32	"	"	"	Dug	16	2,000	- 16	1,984	16	1,984	Glacial sand	Hard		D, S	Abundant supply; well has never pumped dry; supply decreases slightly in drought years.
31	SE.	34	"	"	"	Dug	3	1,995	+ 1	1,996	0	1,995	Glacial gravel	Hard, iron		D, S	Sufficient supply.
32	NW.	36	"	"	"	Bored	60	2,055	- 25	2,030	35	2,020	Glacial gravel	Hard, iron, "alkaline"		D	Insufficient supply; also owns a flowing artesian well 3 feet deep; the water rises 3 feet above the surface.
1	SE.	1	16	18	2	Dug	12	1,890	- 10	1,880	10	1,880	Glacial sand	Hard		D, S	Sufficient supply; many shallow wells gave good water, but after 10 years the water became too "alkaline".
2	SW.	1	"	"	"	Dug	19	1,890	- 15	1,875	15	1,875	Glacial sand	Hard		D,S	Six farmers haul drinking water from this well.
3	SW.	2	"	"	"	Dug	16	1,885			10	1,875	Glacial sand and gravel	Hard		D, S, I	Sufficient for 24 head stock; only; a 40-foot well yields very "alkaline" water; one dry hole 75 feet deep.
4	NW.	7	"	"	"	Dug	50	1,885					Glacial drift	Hard			Very small supply; uses a dugout for stock and a well in the dugout for house use.
5	SW.	10	"	"	"	Dug	16	1,895	- 12	1,883			Glacial sandy clay	Hard, "alkaline"		D, S	A 10-foot well near a creek is also used; ample supply of water.
6	SW.	13	"	"	"	Bored	84	1,910									Dry hole in glacial drift; uses a dugout for stock and hauls drinking water.
7	NE.	14	"	"	"	Dug	16	1,900	0	1,900	12	1,888	Glacial gravel	Hard		D, S	Well is dug near a creek and water is from direct seepage.
8	SW.	16	"	"	"	Drilled	40	1,895									Dry hole in glacial drift.
9	NW.	16	"	"	"	Dug	18	1,890	- 6	1,884			Glacial drift	Salty		N	Well dug near a creek; has not been used for 15 years.
10	SE.	18	"	"	"		80	1,885									One of 5 dry holes in glacial drift.
11	SW.	20	"	"	"	Bored	35	1,890									One of two dry holes in glacial drift; 3 wells near creek yield "alkaline" seepage water.
12	SE.	24	"	"	"	Bored	48	1,920	- 12	1,908	48	1,872	Glacial gravel	Hard, "alkaline"		D, S	Sufficient although supply decreased in drought years.
13	NW.	25	"	"	"	Drilled	350	1,935									The deepest of four dry holes; uses dugouts for water.
14	SE.	26	"	"	"		70	1,930									One of four dry holes; uses dugouts for water.
15	NE.	31	"	"	"	Dug	22	1,900	- 6	1,894	20	1,880	Glacial gravel	Very hard		D, S	Well yields 2 barrels of water a day.
16	NE.	32	"	"	"	Dug	15	1,900			14	1,886	Glacial gravel	Hard		D, S	Seepage water from a creek; intermittent supply.
17	NE.	32	"	"	"	Bored	56	1,900	- 20	1,880			Glacial sandy clay	Hard, iron		D	Well pumps dry; supply is very small in the month of March.
18	SE.	32	"	"	"	Dug	14	1,905	- 6	1,899			Glacial drift	Hard		D	Seepage water from a creek; intermittent supply.
19	SE.	33	"	"	"	Dug	28	1,910	- 6	1,904			Glacial drift	Hard, "alkaline"		N	
20	NW.	33	"	"	"	Bored	40	1,910					Glacial drift	Hard, very bitter		S	Well is used in winters only for stock.

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

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

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 156, 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
21	SW.	34	16	18	2	Bored	35	1,910	- 25	1,085			Glacial drift	Hard, "alkaline"		D, S	Insufficient for 13 head stock in dry years.
22	NW.	34	"	"	"	Bored	50	1,910					Glacial drift	Hard, "alkaline"		D, S	One of two similar wells; not quite sufficient water.
23	NW.	35	"	"	"	Drilled	56	1,925	- 36	1,889	53	1,872	Glacial fine sand	Hard		D, S	Supply was abundant before the well was partly plugged by sand; dry hole 35 feet deep.
24	NW.	36	"	"	"	Bored	50	1,950	- 48	1,902			Glacial drift	Iron, "alkaline", very bitter		S	Yields 1 barrel of water a day; uses a dug-out also.
25	NE.	36	"	"	"	Bored	50	1,950	- 48	1,902	48	1,902	Glacial sand	Hard, iron, "alkaline", bitter		D	Yields 2 barrels of water a day; 6 other similar wells.
1	NE.	2	17	17	2	Bored	30	2,085	- 26	2,059			Glacial drift	Hard		D, S	Pumps dry and refills in ½ hour.
2	NE.	2	"	"	"	Dug	8	2,050	+ 4	2,054	5	2,045	Glacial sand	Hard		D, S	Well will water over 40 head stock.
3	SE.	2	"	"	"	Dug	20	2,075	- 17	2,058	17	2,058	Glacial sand	Hard		D, S	Sufficient for 15 head stock; stock also water at springs in a creek.
4	NW.	3	"	"	"	Bored	38	2,025	- 37	1,988	37	1,988	Glacial fine sand	Hard		D, S	Yields ½ barrel of water a day; one dry hole 21 feet deep.
5	SW.	3	"	"	"	Dug	18	2,015	- 11	2,004	11	2,004	Glacial gravel	Hard		D	A C.N.R. well near Jameson; well yields 45,000 gallons a day.
6	NE.	4	"	"	"	Dug	18	2,008	- 14	1,994	14	1,994	Glacial sand	Hard, "alkaline"		S	Sufficient supply.
7	NW.	4	"	"	"	Dug	12	2,010	- 5	2,005	9	2,001	Glacial fine sand	Soft		D	C.N.R. well in Jameson; sufficient supply.
8	NE.	5	"	"	"	Dug	16	2,005	- 11	1,994	11	1,994	Glacial sand	Soft		D, S	Bails dry and refills in 20 minutes; sufficient supply.
9	SE.	6	"	"	"	Bored	22	1,990	- 14	1,976	20	1,970	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 50 head stock; well has never pumped dry.
10	NW.	6	"	"	"	Dug	22	1,980	- 12	1,968	12	1,968	Glacial sand	Hard, "alkaline"		D, S	Sufficient supply.
11	NE.	10	"	"	"	Bored	80	2,055	- 45	2,010	40	2,015	Glacial gravel	Hard, iron		D, S, I	Sufficient for 30 head stock.
12	SW.	10	"	"	"	Dug	28	2,035	- 23	2,012			Glacial gravel	Hard		D, S	Pumps dry and refills in 12 hours; a well 40 feet deep yields very "alkaline" water.
13	SW.	11	"	"	"	Bored	16	2,050	- 6	2,044			Glacial gravel	Hard		D, S	Pumps dry and refills in 1 hour.
14	NE.	12	"	"	"	Bored	30	2,145	- 26	2,119	27	2,116	Glacial gravel	Hard		D, S, I	Sufficient for 35 head stock.
15	NW.	12	"	"	"	Bored	70	2,110	- 20	2,090	70	2,040	Glacial sand	Hard		D, S, I	Abundant supply; stock also water at springs in a ravine.
16	NW.	14	"	"	"	Bored	35	2,100	- 33	2,067	33	2,067	Glacial gravel	Hard		D, S, I	Sufficient for 35 head stock; well has never bailed dry.
17	NW.	14	"	"	"	Dug	3	2,090	+ 1	2,091	3	2,087	Glacial gravel	Hard		S	Sufficient supply.
18	NE.	15	"	"	"	Bored	30	2,100	- 26	2,074	26	2,074	Glacial sand	Hard		D, S	Well cannot be bailed dry; stock also use springs in a ravine.
19	NE.	15	"	"	"	Dug	3	2,090	+ 2	2,092	0	2,090	Glacial gravel	Hard		D, S	The flow is too fast for the water to freeze in winter.
20	NE.	16	"	"	"	Bored	23	2,090	- 11	2,079			Glacial gravel	Hard		D, S	Insufficient for 15 head stock; also uses a dam for stock.
21	SW.	16	"	"	"	Bored	20	2,040	- 8	2,032	20	2,020	Glacial gravel	Soft		S, D, I	Well has never pumped dry; sufficient for 300 head stock; also uses a dam.
22	SW.	17	"	"	"	Dug	6	2,000	+ 1	2,001	0	2,000	Glacial sandy clay	Hard		D, S, I	Sufficient for 110 head stock; bails dry and refills in 15 minutes.

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 EDENWOLD, NO. 158, 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
23	NE.	18	17	17	2	Drilled	198	2,000	0	2,000	160	1,840	Glacial sand and gravel			N	One of several test wells sunk for the city of Regina; this well pumped 28 gallons a minute for 5 hours; #, #; Sturgeon Spring also in this quarter-section.
24	NE.	21	"	"	"	Bored	90	2,110					Glacial sand?	Hard, Iron		D, S	Good supply for 35 head stock.
25	NE.	22	"	"	"	Bored	52	2,125	- 40	2,085	52	2,073	Glacial gravel	Hard, "alkaline"		D, S, I	Well has never been pumped dry; one dry hole 50 feet deep.
26	NW.	22	"	"	"	Bored	53	2,105	- 48	2,057			Glacial gravel	Hard		D, S	Sufficient for 11 head stock.
27	SE.	23	"	"	"	Bored	50	2,125	- 47	2,078	47	2,078	Glacial gravel	Hard		D, S	Sufficient for 17 head stock.
28	NW.	24	"	"	"	Bored	75	2,150	- 72	2,078	72	2,078	Glacial gravel	Hard, "alkaline"		D, S	Insufficient for 15 head stock; one dry hole 90 feet deep.
29	SE.	24	"	"	"	Drilled	150	2,160	- 80	2,080			Glacial drift	Hard, iron		D, S	Sufficient for 40 head stock.
30	NE.	25	"	"	"	Bored	132	2,215	-116	2,099	132	2,083	Glacial gravel	Hard		D, S	Sufficient for 100 head stock.
31	NW.	36	"	"	"	Dug	16	2,170	- 12	2,158	12	2,158	Glacial gravel	Hard		D, S	Sufficient for 35 head stock.
32	SE.	26	"	"	"	Bored	65	2,150	- 54	2,096	65	2,085	Glacial gravel	Hard		D, S	Sufficient for 10 head stock only.
33	NW.	27	"	"	"	Bored	156	2,150	- 80	2,070	156	1,994	Glacial gravel	Hard		D, S	Abundant supply for 50 head stock.
34	SW.	28	"	"	"	Bored	46	2,100	- 36	2,064	43	2,057	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 10 head stock.
35	SW.	28	"	"	"	Bored	92	2,100	- 60	2,040	60	2,040	Glacial fine sand	Hard, iron, "alkaline"		S	Sufficient for 15 head stock; pumps dry and refills slowly.
36	SW.	29	"	"	"	Dug	14	2,040	- 11	2,029	11	2,029	Glacial fine sand	Hard		D, S	Insufficient for 20 head stock.
37	SE.	29	"	"	"	Dug	26	2,045	- 4	2,041	20	2,025	Glacial sand	Hard		D, S	Sufficient for 14 head stock; a dam is also used for stock.
38	SW.	30	"	"	"	Dug	30	2,050	- 28	2,022	28	2,022	Glacial gravel	Hard, "alkaline"		D, S	Insufficient for 10 head stock; stock also water at a spring.
39	SW.	31	"	"	"	Dug	20	2,045	- 8	2,037	8	2,037	Glacial gravel	Soft		D, S	Poor supply; stock also water at a small dam near the well.
40	NE.	31	"	"	"	Bored	32	2,080	- 17	2,063			Glacial drift	Hard, "alkaline"		D, S	Sufficient for 20 head stock.
41	NE.	32	"	"	"	Drilled	230	2,140	- 30	2,110	230	1,910	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 60 head stock; also owns a 40foot well.
42	SE.	32	"	"	"	Bored	52	2,110	- 18	2,092			Glacial drift	Hard		D	Poor supply; two wells 50 and 71 feet deep yield small supplies of water; stock water at a slough.
43	SE.	34	"	"	"	Bored	36	2,160	- 24	2,136	30	2,124	Glacial gravel	Hard		D, S	Sufficient for 35 head stock.
44	SW.	34	"	"	"	Bored	40	2,150	- 28	2,122	40	2,110	Glacial gravel	Hard, "alkaline"		D, S	Good supply for 50 head stock; stock use water a dam in summer.
45	NW.	34	"	"	"	Bored	55	2,170	- 10	2,160	55	2,115	Glacial gravel	Hard, iron		D, S	Abundant supply for 70 head stock.
46	NE.	35	"	"	"	Drilled	100	2,198			100	2,098	Glacial gravel	Hard		D, S	Sufficient for 40 head stock.
1	SW.	1	17	18	2	Bored	60	1,950	- 58	1,892			Glacial drift	Hard, odour, "alkaline"		S	Poor supply; several dry holes; #; uses a dugout and hauls from a spring in section 12.

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 EDENWOLD, NO. 158, 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
2	NE.	2	17	18	2	Dug	7	1,940	0	1,940	0	1,940	Glacial gravel	Soft		S	Sufficient for 40 head stock; a 35-foot well yields a small supply.
3	NE.	4	"	"	"	Bored	40	1,935	- 37	1,898			Glacial drift	Hard, iron, "alkaline"		S	Sufficient for 30 head stock; #.
4	NE.	9	"	"	"	Bored	42	1,945	- 18	1,927	42	1,903	Glacial gravel	Hard, "alkaline", cloudy		S	Abundant supply but analyst reported the water unfit for use.
5	SW.	10	"	"	"	Bored	50	1,940	- 30	1,910			Glacial drift	Hard, iron		D, S	Pumps dry but supply is sufficient for 15 head stock.
6	SE.	11	"	"	"	Dug	34	1,950	- 32	1,918	32	1,918	Glacial fine sand	Hard		D, S	Sufficient for 25 head stock.
7	SE.	12	"	"	"	Dug	50	1,965	- 40	1,925	50	1,915	Glacial sand	Hard		D, S	Abundant supply for 30 head stock; flowing springs in a ravine.
8	NW.	13	"	"	"	Dug	14	1,990	- 11	1,979	1	1,979	Glacial sand	Hard		D, S	Sufficient for 100 head stock; well was deepened in 1934.
9	NW.	14	"	"	"	Dug	28	2,000	- 4	1,996	4	1,996	Glacial sand	Hard		D, S, I	Sufficient for 30 head stock.
10	SE.	14	"	"	"	Dug	34	1,985	- 32	1,953	32	1,953	Glacial sand	Hard		D	School well; sufficient supply.
11	SW.	14	"	"	"	Dug	24	1,990	- 20	1,970	20	1,970	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 50 head stock; #. A spring in pasture is also used by stock in summer.
12	SE.	16	"	"	"	Bored	35	1,960	- 20	1,940			Glacial sand	Hard, iron, "alkaline"		D, S	Sufficient for 35 head stock.
13	NE.	19	"	"	"	Drilled	120	1,940	- 80	1,860	120	1,820	Glacial sand	Hard		D, S	Abundant supply for 40 head stock; a dugout is also used for stock.
14	NW.	21	"	"	"	Dug	14	1,975	- 10	1,965	10	1,965	Glacial sand	Hard		D, S	Sufficient for 12 head stock; a spring fed bog located south-east of the farm.
15	NW.	22	"	"	"	Dug	15	2,010	- 12	1,998	12	1,998	Glacial sand	Hard		D, S	Sufficient for 25 head stock.
16	SW.	23	"	"	"	Dug	11	2,010	- 4	2,006	4	2,006	Glacial sand	Soft		D, S	Sufficient for 100 head stock; test wells sunk in N.½, section 23, by city of Regina.
17	SE.	24	"	"	"	Dug	24	2,020	- 12	2,008	12	2,008	Glacial sand	Hard		D, S	Sufficient for 25 head stock; dugout used for stock also
18	SE.	25	"	"	"	Spring							Glacial sand				This spring is the source of a small creek; 3 test holes drilled by this quarter in 1929 in search of water for Regina.
19	NE.	28	"	"	"	Dug	22	2,005	- 20	1,985	20	1,985	Glacial sand	Hard		D, S	Very poor supply; stock water at a C.P.R. dam.
20	SW.	28	"	"	"	Dug	20	1,990	- 16	1,974	16	1,974	Glacial sand	Hard		D, S	Insufficient for 12 head stock; stock water at a dugout.
21	SW.	29	"	"	"	Dug	21	1,950	- 16	1,934	18	1,932	Glacial sand	Hard, "alkaline"		D, S	One of four similar wells; sufficient for 30 head stock.
22	SE.	30	"	"	"	Drilled	151	1,950	+ 2	1,952	129	1,821	Glacial sand				One of 4 wells drilled by city of Regina.
23	NW.	30	"	"	"	Dug	8	1,950	- 4	1,946	5	1,945	Glacial sand	Hard, "alkaline"		D, S	Well dug near a small dam; sufficient for 20 head stock.
24	NW.	32	"	"	"	Dug & Sand-point	20	2,000	- 10	1,990	10	1,990	Glacial sand and gravel	Soft		D, S, I	Abundant supply; well owned by Parkdale Dairy Farm.
25	SE.	32	"	"	"	Dug	43	2,000	- 32	1,968	32	1,968	Glacial sand	Hard		D, S	Sufficient for 15 head stock.
26	NE.	32	"	"	"	Dug	6	2,010	- 4	2,006	4	2,006	Glacial gravel	Hard		D, S	Good supply for 18 head stock.
27	SW.	32	"	"	"	Dug & Sand-point	47	1,985					Glacial gravel	Hard		D, S	Also uses a spring in a small ravine in the NW.¼, section 29.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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
28	SW.	33	17	18	2	Dug	8	1,990	- 1	1,989	1	1,989	Glacial sand	Hard		D, S	Water canbe found in this ravine in some places at 2 feet.
29	NW.	33	"	"	"	Dug	20	2,020	- 12	2,008	12	2,008	Glacial sand and gravel	Soft		D, S, I	Plenty of water; water is easily obtained on this quarter section.
30	NE.	33	"	"	"	Dug & Sand-point	22	2,022	- 17	2,005	17	2,005	Glacial sand	Hard		D, S	Water easily obtained at depths of 25 to 35 feet in Pilot Butte; abundant supply.
31	NE.	33	"	"	"	Drilled	2,856	2,020									
32	NW.	34	"	"	"	Drilled	332	2,015					Glacial sand			D, S	The Kelly well, 28 feet deep, will yield about 1,000,000 gallons of water a day.
33	SW.	34	"	"	"	Dug	19	2,010	- 14	1,996	14	1,996	Glacial sand	Hard, iron		D, S	One of four similar wells; sufficient for 130 head stock.
34	NE.	36	"	"	"	Bored	48	2,060	- 43	2,017	43	2,017	Glacial sand	Soft		D, S	Sufficient for 23 head stock.
35	SW.	36	"	"	"	Dug	6	2,040	+ 1	2,041	0	2,040	Glacial sand	Hard		D, S	Water overflows the casing only in the spring; good supply for 30 head stock.
36	SE.	36	"	"	"	Dug	8	2,045	+ 1	2,046	7	2,038	Glacial sand	Hard		S	Good supply although it decreased during the drought.
37	SE.	36	"	"	"	Dug	24	2,055	- 10	2,045			Glacial drift	Hard, "alkaline"		D, S	Insufficient for 8 head stock in drought years.
1	NW.	2	18	17	2	Bored	102	2,215	- 22	2,193	102	2,113	Glacial gravel	Hard		D, S	Well has never pumped dry; plenty of water for 200 head stock.
2	SW.	2	"	"	"	Bored	54	2,210					Glacial drift	Hard, iron		D, S	Good supply for 60 head stock.
3	SE.	2	"	"	"	Drilled	220	2,210	- 60	2,150	220	1,990	Glacial fine sand	Hard, cloudy		D, S	Sufficient for 100 head stock.
4	SW.	3	"	"	"	Bored	20	2,192	- 8	2,184	8	2,184	Glacial sand and gravel	Hard		D	Town well of Balgonie; sufficient supply.
5	SW.	3	"	"	"	Bored	40	2,192	- 22	2,170	40	2,152	Glacial sand	Hard, iron		D	Another well used by town of Balgonie.
6	SW.	3	"	"	"	Bored	82	2,195	- 52	2,143	80	2,115	Glacial gravel	Hard		D, S	One of three similar wells; sufficient for 75 head stock.
7	SE.	4	"	"	"	Bored	45	2,180	- 37	2,143	37	2,143	Glacial sand and gravel	Hard		D, S, I	Good supply for 100 head stock; one dry hole in glacial drift.
8	SW.	4	"	"	"	Bored	30	2,160	- 27	2,133			Glacial drift	Hard, "alkaline"		D, S	Insufficient for 15 head stock.
9	NE.	4	"	"	"	Drilled	100	2,180					Glacial sand and gravel	Hard, "alkaline"		D, S	Sufficient for 50 head stock.
10	SW.	5	"	"	"	Bored	57	2,130	- 39	2,091	57	2,073	Glacial sandy gravel	Hard		D, S	Sufficient for 25 head stock; also owns a 100-foot well.
11	NE.	6	"	"	"	Bored	100	2,115	- 90	2,025	110	2,005	Glacial sand	Hard, iron, "alkaline"		D, S, I	Good supply for 50 head stock; well has never pumped dry.
12	NW.	6	"	"	"	Dug	30	2.090	- 27	2,063			Glacial gravel	Hard, "alkaline"		S	Sufficient supply.
13	SW.	8	"	"	"	Drilled	103	2,140	- 85	2,055	103	2,037	Glacial gravel	Hard, "alkaline"		D, S	Pumping has not lowered the level; good supply for 200 head stock; also owns 2 similar wells.
14	NE.	9	"	"	"	Drilled	120	2,190			120	2,070	Glacial sand and gravel	Hard, iron		D, S, I	Well known as Balgonie No. 76; used by two farmers; well drilled in 1901.
15	NW.	10	"	"	"	Drilled	113	2,200	- 48	2,152	113	2,087	Glacial drift	Hard, "alkaline"		D, S, I	Abundant supply for 50 head stock.
16	NE.	11	"	"	"	Drilled	100	2,240					Glacial drift	Hard		N	Well drilled in 1901; the well has not been in use for several years.
17	SW.	11	"	"	"	Drilled	105	2,220	- 25	2,195	105	2,115	Glacial drift	Hard, "alkaline"		D, S	Abundant supply for 50 head stock; well has never pumped dry; #.

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 EDENWOLD, NO. 158, 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.	11	18	17	2	Bored	71	2,235	- 30	2,205	62	2,173	Glacial blue sand	Hard, iron, "alkaline"		D, S, I	Sufficient for 40 head stock.
19	SE.	12	"	"	"	Bored	39	2,250	- 24	2,226	39	2,211	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 50 head stock.
20	NW.	13	"	"	"	Bored	90	2,260	- 80	2,180			Glacial drift	Hard, "alkaline"		D, S	Poor supply but sufficient for 15 head stock in 1935; a 40-foot well is not used; stock also use sloughs.
21	SE.	14	"	"	"	Bored	70	2,240	- 30	2,210	70	2,170	Glacial gravel	Hard, iron, "alkaline"		D, S	Abundant supply for 85 head stock.
22	SE.	15	"	"	"	Bored	78	2,215	- 38	2,177	78	2,137	Glacial sand	Hard		D, S, I	Good supply for 100 head stock; also owns an 18-foot slough seepage well.
23	NW.	15	"	"	"	Bored	69	2,220	- 44	2,176	57	2,163	Glacial sandy clay	Hard		D, S	Sufficient for 30 head stock.
24	SW.	15	"	"	"	Drilled	139	2,200	-124	2,076	139	2,061	Glacial gravel	Hard, "alkaline"		D, S, I	Sufficient for 150 head stock.
25	SW.	16	"	"	"	Bored	117	2,180	-114	2,000	114	2,000	Glacial gravel	Hard		D, S	Oversufficient for 35 head stock; air from this well will extinguish a lighted match.
26	SW.	17	"	"	"	Drilled	110	2,145	- 40	2,105	110	2,035	Glacial sand	Hard, iron		D, S	Sufficient for 10 head stock.
27	NE.	17	"	"	"	Bored	105	2,175	- 90	2,085	105	2,070	Glacial fine sand	Hard, iron, "alkaline"		D, S	Well pumps dry and refills in 1 day; also uses a 40-foot well that yields an intermittent supply of water.
28	SW.	18	"	"	"	Bored	35	2,115	- 33	2,082	33	2,082	Glacial fine sand	Soft		D, S	Sufficient for 4 head stock only; hauls water from a slough.
29	NE.	19	"	"	"	Drilled	137	2,150	- 37	2,113	137	2,013	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 85 head stock; supply has decreased since 1928.
30	NW.	20	"	"	"	Drilled	127	2,153	- 67	2,086	127	2,026	Glacial coarse gravel	Hard, iron		D, S	Abundant supply for 40 head stock; 3 dry holes 40 to 60 feet deep.
31	SE.	20	"	"	"	Drilled	200	2,160	-105	2,055	135	2,025	Glacial black sand	Hard, "alkaline"		D, S, I	Yields 1 barrel of water an hour: several dry holes 60 to 80 feet deep.
32	NW.	21	"	"	"	Bored	55	2,195	- 25	2,170			Glacial drift	Hard		D, S	Sufficient for 30 head stock; stock water at a dam in summer.
33	NW.	22	"	"	"	Bored	22	2,210	- 14	2,196			Glacial sand and gravel	Hard, "alkaline"		D, S	Sufficient for 25 to 50 head stock; one dry hole near the house.
34	NE.	22	"	"	"	Bored	70	2,225	- 40	2,185	18	2,207	Glacial drift	Hard, iron		D	Sufficient for house use.
35	NW.	24	"	"	"	Bored	70	2,265	- 40	2,225	70	2,195	Glacial sand and gravel	Hard		S	Sufficient for 13 head stock; haul drinking water.
36	SW.	26	"	"	"	Dug	4	2,235	+ 1	2,236	4	2,231	Glacial gravel	Hard, iron		S	Sufficient for 100 head stock; water is retained in a dam during the summer.
37	SW.	26	"	"	"	Dug	18	2,245	- 17	2,228	17	2,228	Glacial gravel	Hard		D	Intermittent supply.
38	NE.	26	"	"	"	Dug	8	2,250	- 2	2,248	8	2,242	Glacial gravel	Soft		D, S	Sufficient for 100 head stock.
39	SE.	27	"	"	"	Dug	5	2,225	0	2,225	0	2,225	Glacial gravel	Hard, iron, "alkaline"		S	Sufficient for 16 head stock.
40	SW.	28	"	"	"	Bored	61	2,200	- 24	2,176	60	2,140	Glacial sand	Hard, "alkaline"		D, S	Abundant supply for 25 head stock; a dam on a creek is also used for stock in summer.
41	SE.	28	"	"	"	Bored	45	2,200	- 25	2,175	45	2,155	Glacial sand?	Hard, "alkaline"		D, S, I	Abundant supply for 30 head stock.
42	NW.	28	"	"	"	Bored	122	2,240	- 82	2,158	122	2,118	Glacial gravel	Hard, iron, "alkaline"		D, S	Abundant supply; 2 wells 56 and 102 feet deep yield small supplies.
43	SE.	30	"	"	"	Dug	20	2,260									Dry hole in glacial drift; uses dam and hauls water.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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.	30	18	17	2	Bored	25	2,180	- 18	2,162			Glacial sand	Hard, "alkaline"		D	Barely sufficient for the house in dry years; 2 wells 35 and 50 feet deep yield poor supplies; uses a dugout and hauls water in winter.
45	SE.	31	"	"	"	Bored	95	2,210	- 85	2,125	95	2,115	Glacial gravel	Hard, iron, "alkaline"		D, S	Well is plugged with sediment; uses a dugout and hauls water.
46	NW.	31	"	"	"	Bored	98	2,210	- 91	2,119			Glacial sand	Hard, "alkaline"		S	Intermittent supply; stock use sloughs in summer and water is hauled in winter.
47	SE.	32	"	"	"	Bored	40	2,230					Glacial drift	Hard, "alkaline"		S	This well and a 60-foot well yield sufficient water for 30 head stock in winter; also uses a dugout in summer.
48	NE.	32	"	"	"	Dug	32	2,240	- 24	2,216			Glacial gravel	Hard		D	Waters stock at a well in the NW.¼, section 33.
49	SE.	33	"	"	"	Bored	47	2,255	- 34	2,221	47	2,208	Glacial gravel	Hard, "alkaline"		D, S, I	Another similar 40-foot well is also used; sufficient for 35 head stock.
50	NE.	33	"	"	"	Bored	70	2,255	- 50	2,199	70	2,179	Glacial sand	Hard, iron, "alkaline"		D, S	Sufficient for 35 head stock.
51	NW.	33	"	"	"	Dug	8	2,245	- 2	2,243	2	2,243	Glacial gravel	Hard, iron		S	Cannot bail this well dry; waters 85 head stock
52	SE.	34	"	"	"	Dug	10	2,255	- 6	2,249	6	2,249	Glacial gravel	Hard		D, S	Sufficient for 12 head stock; 2 dry holes in glacial drift.
53	SW.	35	"	"	"	Dug	8	2,250	- 4	2,246	4	2,246	Glacial gravel	Hard		D, S, I	Oversufficient for 100 head stock.
54	NE.	36	"	"	"	Dug	46	2,275	- 40	2,235			Glacial drift	Hard		D, S	Sufficient supply; stock also water at sloughs.
55	SW.	36	"	"	"	Bored	20	2,260	- 4	2,256	17	2,243	Glacial gravel	Hard, "alkaline"		S	Supply oversufficient for 50 head stock; 80-foot well yields drinking water.
56	NE.	36	"	"	"	Drilled	202	2,270					Glacial drift			N	Well drilled by the government in 1901; well has not been used for 20 years.
1	SW.	1	18	18	2	Bored	65	2,062	- 25	2,037	65	1,997	Glacial fine sand	Hard, "alkaline"		D, S, I	Sufficient supply; a 40-foot well yields a small supply.
2	SE.	1	"	"	"	Bored	60	2,080	- 35	2,045	60	2,020	Glacial gravel	Hard		D, S	Sufficient for 50 head stock.
3	SW.	2	"	"	"	Dug	12	2,035	- 11	2,024	11	2,024	Glacial sand	Hard		D, S	Intermittent supply.
4	SW.	3	"	"	"	Dug	30	2,025	- 25	2,000	25	2,000	Glacial coarse sand	Soft		D, S, I	Sufficient supply.
5	SW.	5	"	"	"	Sand-point	30	2,000					Glacial sand	Soft		D, S, I	Plenty of water.
6	SE.	6	"	"	"	Dug	19	2,000	- 10	1,990	10	1,990	Glacial gravel	Hard		D, S, I	Sufficient for 40 head stock; a 3-foot artesian well became dry when Regina Pumping Station was installed.
7	NE.	6	"	"	"	Dug & Sand-point	25						Glacial sand	Soft		D, S	Sufficient for 30 head stock.
8	NE.	8	"	"	"	Spring		1,995					Glacial sand	Soft		D, S	A flowing spring in bottom of ravine that contains boggy creek.
9	NW.	9	"	"	"	Dug	27	2,005	- 21	1,984	21	1,984	Glacial gravel	Hard		S	Most of the water is obtained from the spring in the NE.¼, section 8.
10	NW.	10	"	"	"	Bored	48	2,045	- 38	2,007	38	2,007	Glacial sand	Hard, iron		D, S	Sufficient for 20 head stock.
11	SE.	10	"	"	"	Dug & Sand-point	22	2,040	- 6	2,034	6	2,034	Glacial sand	Soft, "alkaline"		D, S, I	Sufficient for 30 head stock.
12	NE.	10	"	"	"	Bored	52	2,055	- 47	2,008	47	2,008	Glacial sand	Hard		D, S	Sufficient for 75 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	SE.	11	18	18	2	Bored	46	2,050	- 34	2,016	46	2,004	Glacial sand	Hard		D, S	Well has never pumped dry; good supply for 28 head stock.
14	NW.	11	"	"	"	Bored	58	2,000	- 54	2,006	54	2,006	Glacial gravel	Hard		D, S	Sufficient for 75 head stock.
15	SE.	12	"	"	"	Bored	56	2,110	- 48	2,062	48	2,062	Glacial gravel	Soft		D, S, I	Sufficient for 10 head stock.
16	NE.	12	"	"	"	Bored	78	2,110	- 72	2,038	72	2,038	Glacial gravel	Hard		D, S, I	Sufficient for 50 head stock; well has never pumped dry.
17	SW.	13	"	"	"	Dug	52	2,090	- 47	2,043	47	2,043	Glacial gravel	Soft		D, S	Constant supply.
18	SW.	14	"	"	"	Bored	50	2,055	- 46	2,009	46	2,009	Glacial gravel	Hard		D, S	Sufficient for 50 to 75 head stock.
19	SE.	15	"	"	"	Dug	6	2,055	- 1	2,054	1	2,054	Glacial sand and gravel	Soft		S	Sufficient for 100 head stock.
20	SW.	16	"	"	"	Drilled	112	2,035	- 72	1,963	112	1,923	Glacial coarse sand	Soft		D, S	Abundant supply for 150 head stock; an artesian well 60 feet deep 9 mile east has been abandoned.
21	SE.	17	"	"	"		110	2,025	- 57	1,958	100	1,925	Glacial gravel				
22	NE.	17	"	"	"	Dug	16	2,040	- 14	2,026	14	2,026	Glacial gravel	Soft		S	Abundant supply for 50 head stock; well has never pumped dry.
23	SE.	18	"	"	"	Dug	40	2,000	- 24	1,976	40	1,960	Glacial gravel	Hard		D, S	This well yielded flowing artesian water until the Regina wells were sunk; a dam irrigates 20 acras of garden.
24	SE.	19	"	"	"	Drilled	114	2,025	- 50	1,975	114	1,911	Glacial sand	Hard, "alkaline"		D, S	Sufficient, but supply has decreased due to sand plugging; one dry hole 65 feet deep.
25	SE.	20	"	"	"	Bored	70	2,050	- 50	2,000	70	1,980	Glacial sand	Hard, iron		D, S	Sufficient for 30 head stock; a dam in the SW.¼, section 20, used in summer.
26	NW.	21	"	"	"	Drilled	130	2,085	-118	1,967	130	1,955	Glacial sand and gravel	Hard, iron, "alkaline"		D, S, I	Drilled by government in 1905; abundant supply and has never been pumped dry.
27	NW.	22	"	"	"	Drilled	155	2,100	- 55	2,045	155	1,945	Glacial fine sand	Hard		D, S	Sufficient for 50 head stock.
28	SE.	22	"	"	"	Bored	83	2,090	- 28	2,062	83	2,007	Glacial gravel	Soft		D, S, I	Sufficient for 35 head stock.
29	NW.	22	"	"	"	Dug	20	2,100	- 10	2,090			Glacial sandy gravel	Soft		D, S	Sufficient for 40 head stock.
30	NW.	23	"	"	"	Drilled	150	2,115	-130	1,985	150	1,965	Glacial sand and gravel	Hard, iron, "alkaline"		D, S, I	Oversufficient for 100 head stock.
31	SE.	23	"	"	"	Dug	14	2,105	- 10	2,095	10	2,095	Glacial sand and gravel	Soft		S	Well is rarely used; a 20-foot well is used for drinking water at a dam.
32	SE.	24	"	"	"	Bored	56	2,125	- 48	2,077	48	2,077	Glacial sand	Hard, "alkaline"		D, S	Sufficient supply; stock also water at a small dam.
33	NW.	24	"	"	"	Drilled	200	2,125	- 50	2,075	200	1,925	Glacial gravel	Hard, iron, "alkaline"		D, S, I	Pumped steady for 8 days and nights and well did not become dry; a dam is used by several farmers for stock.
34	NE.	24	"	"	"	Drilled	195	2,140			195	1,945	Glacial gravel	Hard, "alkaline"		D, S, I	Abundant supply for 200 head stock; irrigation results are poor.
35	NE.	25	"	"	"	Drilled	200	2,150	-178	1,972	200	1,950	Glacial sand	Hard		D, S	One of two similar wells; sufficient for 35 head stock.
36	SE.	26	"	"	"	Bored	28	2,120	- 25	2,095	25	2,095	Glacial sand	Soft		D, S, I	Sufficient for 35 head stock.
37	SW.	26	"	"	"	Drilled	145	2,115	-129	1,986	145	1,970	Glacial coarse sand	Hard		D, S	Sufficient for 100 head stock.
38	NE.	26	"	"	"	Drilled	228	2,150	-213	1,937	228	1,922	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply for 40 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	NW.	28	18	18	2	Drilled	160	2,110	-140	1,970	160	1,950	Glacial sand	Hard		D, S	Sufficient supply.
40	NE.	28	"	"	"	Drilled	167	2,110	-137	1,973	107	1,943	Glacial gravel	Hard, iron, "alkaline"		D, S, I	Abundant supply for 200 head stock; 8 dry holes 100 to 120 feet deep.
41	NW.	30	"	"	"	Bored	90	2,045	- 58	1,987			Glacial gravel	Hard		N	Stock supplied usually at a small creek.
42	NW.	30	"	"	"	Dug	20	2,040	0	2,040			Glacial gravel	Hard		D	Abundant supply for house use.
43	NE.	31	"	"	"	Bored	190	2,100					Glacial drift	Hard		D, S	Sufficient for 24 head stock.
44	NW.	32	"	"	"	Dug	41	2,115	- 37	2,078	37	2,078	Glacial sand	Hard		D, S, I	This well is also used by the Hamlet of Zehner.
45	SW.	32	"	"	"	Drilled	165	2,100	-105	1,995	165	1,935	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 50 head stock; one dry hole.
46	NW.	33	"	"	"	Bored	115	2,135	- 80	2,055	115	2,020	Glacial gravel	Hard		D, S	Abundant supply for 45 head stock.
47	SW.	34	"	"	"	Drilled	140	2,140	-124	2,016	140	2,000	Glacial sand and gravel	Hard		D, S	Sufficient for 50 head stock; supply decreased after Regina Pumping Station was opened.
48	SE.	34	"	"	"	Dug	30	2,140	- 26	2,114			Glacial gravel	Soft		D, S	Intermittent supply; also waters stock at a small creek.
49	NE.	36	"	"	"	Dug	40	2,210	- 39	2,171			Glacial sand	Hard, cloudy		D	Poor supply.
50	NW.	36	"	"	"	Bored	30	2,200	- 15	2,185			Glacial gravel	Hard		D	A similar well is used for stock; water must be hauled in winter.
1	SW.	1	19	17	2	Dug	19	2,260	- 14	2,146	14	2,146	Glacial sand	Hard		D	Yields 6 barrels of water a day.
2	NE.	1	"	"	"	Bored	76	2,200	- 61	2,199	61	2,199	Glacial gravel	Hard, iron		D, S	Sufficient for 20 head stock.
3	NW.	1	"	"	"	Dug	45	2,205	- 41	2,224			Glacial sand	Soft		N	Well has caved in; water is obtained from a well in the NE.¼, section 2.
4	SW.	2	"	"	"	Bored	25	2,250	- 4	2,246			Glacial drift	Hard, "alkaline"		S	Well is seldom used; #.
5	NW.	2	"	"	"	Bored	90	2,255	- 60	2,195	90	2,165	Glacial gravel	Hard, iron, "alkaline"		S	Good supply for 20 head stock; a 12-foot seepage well is used for drinking water.
6	NE.	2	"	"	"	Dug	34	2,265	- 31	2,234	31	2,234	Glacial gravel	Very hard		N	Abundant supply but water was pronounced too hard for use by the analyst; #.
7	NE.	2	"	"	"	Bored	85	2,270	- 65	2,205	65	2,185	Glacial gravel	Hard		D, S	Sufficient for 10 head stock.
8	SE.	4	"	"	"	Bored	50	2,240	- 28	2,212	50	2,190	Glacial gravel	Hard, iron, "alkaline"		D, S	Abundant supply for 60 head stock.
9	SE.	4	"	"	"	Dug	16	2,235	- 14	2,221	14	2,221	Glacial sand	Hard		D, S	Lutheran Church well; yields 6 pails of water a day.
10	SW.	4	"	"	"	Dug	23	2,230	- 15	2,215	23	2,207	Glacial sand	Hard		D, S	Sufficient for 50 head stock.
11	NW.	6	"	"	"	Dug	40	2,215	- 34	2,181	34	2,181	Glacial sand	Hard, "alkaline"		D, S, I	Sufficient for 20 head stock; irrigation results are poor; another well 20 feet deep is used also.
12	SE.	6	"	"	"	Dug	20	2,210	- 19	2,191	19	2,191	Glacial gravel	Hard, "alkaline"		D	Another 35-foot well is used; insufficient supply.
13	NE.	6	"	"	"	Dug	24	2,220	- 21	2,199	21	2,199	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 25 head stock; sand is plugging the base of the well.
14	SE.	7	"	"	"	Dug	105	2,225									The deepest of 10 dry holes; uses rainwater and hauls.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	NW.	7	19	17	2	Bored	27	2,220	- 25	2,195	25	2,195	Glacial gravel	Hard		D, S	Not quite sufficient water; sometimes hauls additional water.
16	SW.	7	"	"	"	Dug	34	2,215	- 27	2,188			Glacial sand	Hard		D, S	Sufficient for 35 head stock; a 30-foot well yields a small supply.
17	SE.	10	"	"	"	Bored	56	2,200	- 41	2,219	50	2,204	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 35 head stock.
18	SE.	11	"	"	"	Drilled	226	2,200	- 80	2,180	226	2,034	Glacial coarse gravel	Hard, iron, "alkaline"		N	Well drilled by government in 1901; it has not been used for 20 years.
19	NW.	12	"	"	"	Bored	40	2,250	- 20	2,230	32	2,218	Glacial gravel	Hard, iron, "alkaline"		D, S	Sufficient for 35 head stock.
20	SW.	13	"	"	"	Dug	22	2,240	- 16	2,224			Glacial gravel	Hard		D, S	Well became dry in 1934; owns 3 wells but they yield insufficient water in dry years; stock also use a dugout.
21	NW.	14	"	"	"	Dug	20	2,210	- 15	2,195			Glacial sand	Hard		D, S	One of two wells that together yield sufficient water for 50 head stock.
22	SE.	16	"	"	"	Bored	68	2,240	- 24	2,216	68	2,172	Glacial gravel	Hard, iron, "alkaline"		D, S	Sufficient for 100 head stock,
23	NW.	16	"	"	"	Dug	46	2,220	- 30	2,190			Glacial drift	Hard, iron, "alkaline"		D, S, I	Insufficient supply; irrigation results are poor.
24	SW.	18	"	"	"	Dug	18	2,215					Glacial sand	Hard, iron		D, S	Sufficient for 20 head stock.
25	NE.	18	"	"	"	Dug	24	2,230	- 6	2,224			Glacial sand	Hard		D, S	Sufficient for 35 head stock.
26	SW.	19	"	"	"	Bored	76	2,225	- 36	2,189	76	2,149	Glacial drift	Hard, iron, "alkaline"		D, S	Abundant supply for 50 head stock; a dugout is also used for stock
27	NE.	19	"	"	"	Bored	30	2,210	- 27	2,183	27	2,183	Glacial fine sand	Hard, "alkaline"		D, S	Dry hole 80 feet deep; insufficient supply for 10 head stock.
28	NW.	19	"	"	"	Bored	95	2,215	- 60	2,155	95	2,120	Glacial drift	Hard, iron, "alkaline"		D, S	Insufficient for 23 head stock.
29	SE.	20	"	"	"	Bored	65	2,205	- 35	2,170	65	2,140	Glacial white sand	Hard		D,S	Good supply for 60 head stock.
30	NW.	20	"	"	"	Dug	47	2,210	- 41	2,169			Glacial drift	Hard		D, S	Sufficient for 20 head stock; a 49-foot well in blue clay has been abandoned.
31	NW.	21	"	"	"	Dug	23	2,200	- 18	2,182	18	2,182	Glacial sand	Soft		S	Sufficient for 20 head stock.
32	SE.	21	"	"	"	Dug	27	2,205	- 18	2,187			Glacial gravel	Hard		D, S	Sufficient for 55 head stock.
33	SW.	22	"	"	"	Dug	80	2,195	- 50	2,145			Glacial sand	Hard		D, S	Abundant supply for 100 head stock.
34	NW.	22	"	"	"	Dug	30	2,190	- 24	2,166			Glacial sand	Hard, "alkaline"		D, S, I	Sufficient for 17 head stock; stock also use sloughs in spring.
35	SE.	22	"	"	"	Bored	27	2,195					Glacial sandy clay	Hard, "alkaline"		S	Sufficient for 35 head stock; two other wells 20 and 40 feet deep are also used.
36	NE.	22	"	"	"	Bored	80	2,185	- 60	2,125	40	2,145	Glacial sand	Hard, "alkaline"		S	Sufficient for 31 head stock; a 22-foot well yields a good supply of house water.
37	NW.	23	"	"	"	Bored	42	2,180	- 12	2,168	20	2,160	Glacial yellow sand	Hard, iron, "alkaline", odour		D, S	Poor supply.
38	NW.	24	"	"	"	Drilled	110	2,190			110	2,080	Glacial sand	Hard		D,S	Sufficient for 40 head stock; 10 shallow dry holes; 2 wells 45 and 52 feet deep yield small supplies.
39	NE.	26	"	"	"	Bored	110	2,170					Glacial drift	Hard, iron, "alkaline"		D, S	Sufficient for 20 head stock.
40	SE.	26	"	"	"	Bored	101	2,175	- 59	2,116	70	2,105	Glacial sandy clay	Hard, iron, "alkaline"		D, S	One well in village of Edenwold; a 300-foot well has been abandoned.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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
41	SE.	26	19	17	2	Drilled	109	2,180	- 30	2,150	99	2,081	Glacial sand and gravel	Hard, iron, "alkaline"		D	Village well of Edenwold; abundant supply; a 98-foot well becomes plugged by fine sand.
42	SE.	27	"	"	"	Bored	22	2,180	- 18	2,162			Glacial drift	Hard		D	Intermittent supply; a 50-foot well in a slough yields plenty of water.
43	SW.	28	"	"	"	Dug	42	2,190	- 34	2,156			Glacial sand	Hard		D, S	Sufficient for 15 head stock.
44	SE.	28	"	"	"	Dug	28	2,185	- 20	2,165	20	2,165	Glacial fine sand	Hard		D, S	Sufficient for 30 head stock.
45	NW.	28	"	"	"	Dug	26	2,175	0	2,175			Glacial drift	Hard		D	Intermittent supply; hauls water from the NW.¼, section 20.
46	NE.	28	"	"	"	Bored	100	2,170	- 92	2,078			Glacial gravel	Hard, cloudy, "alkaline"		D, S	Sufficient for 25 head stock.
47	NW.	29	"	"	"	Dug	16	2,185	- 14	2,171	14	2,171	Glacial sand	Soft		D	Sufficient supply.
48	NE.	30	"	"	"	Bored	47	2,195	- 43	2,152	43	2,152	Glacial gravel	Hard, "alkaline", bitter		N	Stock refuse this water; a 10-foot well in a ravine is used for stock; 4 dry holes about 97 feet deep; #.
49	SE.	30	"	"	"	Bored	69	2,200	- 45	2,155	69	2,131	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 50 head stock.
50	NW.	31	"	"	"	Bored	66	2,200	- 36	2,164	66	2,134	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 30 head stock; 2 dry holes in glacial drift.
51	SW.	31	"	"	"	Bored	82	2,200	- 47	2,153			Glacial drift	Hard, iron, "alkaline"		D, S	Well was dry in 1934.
52	NE.	32	"	"	"	Dug	12	2,155					Glacial drift	Soft		S	Slough seepage well; additional water is hauled.
53	SW.	32	"	"	"	Dug	24	2,170	- 20	2,150	20	2,150	Glacial gravel	Hard		D, S	Sufficient for 8 head stock only; another well is also used for stock 12 feet deep.
54	NW.	32	"	"	"	Dug	24	2,175	- 22	2,153	22	2,153	Glacial gravel	Hard		D, S	Intermittent supply.
55	SE.	32	"	"	"	Dug	20	2,165	- 16	2,149			Glacial gravel	Hard		D, S	Sufficient for 10 head stock; a 25-foot well dug in ravine yielded tree stumps, bones, and shells.
56	NW.	33	"	"	"	Bored	96	2,150									Dry hole in glacial drift; uses sloughs and hauls water.
57	SE.	34	"	"	"	Bored	50	2,160	- 45	2,115			Glacial fine sand	Hard		D,S	Sufficient for 31 head stock.
58	NE.	34	"	"	"	Bored	100	2,145	- 55	2,090	98	2,047	Glacial sand	Hard, iron		D, S	Oversufficient for 75 head stock.
59	SE.	35	"	"	"	Bored	112	2,155	- 52	2,103	112	2,043	Glacial gravel	Hard		D, S	Sufficient for 100 head stock; a 28-foot well yields sufficient water for 12 head stock; 3 dry holes 80, 90 and 115 feet deep.
60	NW.	36	"	"	"	Dug	20	2,145	- 2	2,143	20	2,125	Glacial gravel	Hard		D, S	Abundant supply for 80 head stock.
1	SE.	1	19	18	2	Bored	90	2,200									The deepest of 5 dry holes and several test-holes; stock use a dugout and drinking water is hauled.
2	NE.	1	"	"	"	Dug	35	2,210	- 32	2,178			Glacial drift	Hard		D, S	Sufficient for 3 head stock.
3	NW.	2	"	"	"	Bored	24	2,190	- 22	2,168	22	2,168	Glacial gravel	Hard, "alkaline"		D, S	Good supply for 25 head stock; 3 farmers haul water from this well; also another similar well used.
4	SW.	2	"	"	"	Drilled	235	2,180	-205	1,975	235	1,945	Glacial sand	Hard, "alkaline"		D, S	Well has never pumped dry.
5	NE.	2	"	"	"	Bored	50	2,200									6 dry holes 35 to 50 feet deep; sloughs used in summer and water hauled in winter.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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.	2	19	18	2	Dug	16	2,195	- 6	2,189	13	2,182	Glacial sand and gravel	Soft		D, S	Sufficient for 9 head stock; 15 dry holes 30 to 50 feet deep.
7	NE.	3	"	"	"	Bored	23	2,185	- 10	2,175	18	2,167	Glacial sand	Soft		D, S	Sufficient for 8 head stock; well was deepened in the dry holes.
8	NW.	4	"	"	"	Bored	50	2,140									One of many dry holes in glacial drift.
9	NW.	5	"	"	"	Dug	20	2,100	- 13	2,087			Glacial drift	Hard, "alkaline"		D	Intermittent supply; also uses two slough seepage wells.
10	SE.	6	"	"	"	Bored	47	2,085	- 35	2,050			Glacial drift	Hard		D, S	Sufficient for 20 head stock; well has never bailed dry.
11	NE.	6	"	"	"	Dug	35	2,095	- 34	2,061			Glacial drift	Hard		D, S	Sufficient for 6 head stock only; stock use a dugout in summer and hauls water in winter.
12	NW.	6	"	"	"	Dug	32	2,080	- 18	2,062			Glacial gravel	Hard		D, S, I	Sufficient for 100 head stock.
13	NW.	7	"	"	"	Bored	74	2,100	- 72	2,028	52	2,048	Glacial sand	Hard		D	Very poor supply; waters stock at a well in the SE.¼, section 7.
14	SE.	7	"	"	"	Dug	32	2,105	- 4	2,101	32	2,073	Glacial gravel	Hard		S	Well has never pumped dry; abundant supply for 100 head stock.
15	NE.	7	"	"	"	Bored	24	2,125	- 17	2,108	17	2,108	Glacial sand	Soft		D, S	One of 2 similar wells; sufficient for 35 head stock; well was deepened in the dry years.
16	NE.	8	"	"	"	Drilled	200	2,150									Dry hole in glacial drift; well drilled in 1899 by the government.
17	NW.	9	"	"	"	Dug	14	2,155	- 8	2,147			Glacial sandy clay	Soft		D, S	One of three slough seepage wells; intermittent supply.
18	NE.	10	"	"	"	Dug	18	2,200	- 6	2,194			Glacial drift	Soft		D, S	One of 4 seepage wells; intermittent supply; one dry hole 30 feet deep.
19	SW.	10	"	"	"	Drilled	688	2,175	-175	2,000			Bedrock Marine shale	Hard		N	Well was lost due to the drill tightening.
20	SW.	10	"	"	"	Drilled	440	2,175									The deepest of 40 dry holes 130 to 440 feet deep in glacial drift; water is hauled.
21	NE.	12	"	"	"	Drilled	175	2,215	- 93	2,122	175	2,040	Glacial fine sand	Hard		D, S	Good supply for 50 head stock.
22	SW.	12	"	"	"	Bored	43	2,215	- 41	2,174	41	2,174	Glacial gravel	Hard, "alkaline"		D, S	Insufficient supply and hauls water; 7 dry holes 45 to 100 feet deep and 1 dry hole 300 feet deep.
23	SE.	14	"	"	"	Dug	24	2,200	- 19	2,181	19	2,181	Glacial sand	Hard, "alkaline"		D, S, I	Sufficient for 25 head stock.
24	NE.	14	"	"	"	Dug	22	2,215	- 15	2,200			Glacial sandy clay	Hard		D, S	Sufficient for 75 head stock; several farmers tanked from this well in 1934.
25	NW.	15	"	"	"	Bored	28	2,200	- 26	2,174	26	2,174	Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 15 head stock.
26	SW.	15	"	"	"		156	2,195									The deepest of 8 dry holes in glacial drift.
27	NE.	15	"	"	"	Bored	50	2,210									The deepest of 2 dry holes in glacial drift; one well yields about 1 barrel of water a day.
28	NW.	16	"	"	"	Bored	49	2,180									Dry hole in glacial drift; uses sloughs and hauls water.
29	SE.	16	"	"	"	Bored	65	2,185									One of 20 dry holes in glacial drift.
30	SW.	17	"	"	"	Bored	100	2,150	- 99	2,051			Glacial sandy clay	Hard, "alkaline"		D, S	Sufficient for 35 head stock; 5 dry holes 75 to 100 feet deep.
31	SE.	18	"	"	"	Bored	25	2,130	- 23	2,107	23	2,107	Glacial gravel	Hard		D, S	Good supply for 15 head stock.
32	NW.	19	"	"	"	Bored	63	2,100	- 61	2,099	61	2,099	Glacial sand	Hard		D, S	Sufficient for 23 head stock; 3 dry holes 35, 90 and 120 feet deep.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	SE.	19	19	18	2	Dug	27	2,160	- 20	2,140	20	2,140	Glacial gravel	Soft		S	Sufficient for 50 head stock.
34	NE.	19	"	"	"	Bored	85	2,160	- 72	2,088			Glacial sand	Hard		D, S	Yields ½ barrel of water a day; supply decreased since Regina Pumping Station was opened; 13 dry holes.
35	NW.	20	"	"	"	Bored	18	2,170	- 15	2,155			Glacial white sand	Hard, "alkaline"		D, S	Sufficient for 16 head stock.
36	SE.	21	"	"	"	Bored	26	2,190	- 19	2,171	19	2,171	Glacial gravel	Hard		D, S	Sufficient for 50 head stock.
37	NE.	21	"	"	"	Bored	90	2,185									One of several dry holes in glacial drift.
38	SE.	22	"	"	"	Bored	50	2,205									One of 7 dry holes in glacial drift; uses sloughs and hauls water.
39	SW.	23	"	"	"	Dug	27	2,210	- 24	2,186			Glacial drift	Hard		D, S	Sufficient for 4 head stock only.
40	SW.	24	"	"	"		28	2,220	0	2,220			Glacial drift	Soft		S	Slough seepage well; uses sloughs and hauls water; hauls house water the year round.
41	NE.	24	"	"	"	Bored	47	2,225	- 27	2,198	47	2,178	Glacial white sand	Hard, cloudy, odour		D, S	Sufficient for 50 head stock; a 60-foot well became dry in 1931; #.
42	NW.	24	"	"	"	Bored	37	2,230	- 29	2,201	32	2,198	Glacial sand and gravel	Hard, odour, "alkaline"		D, S	Good supply; 6 farmers used this well in 1934.
43	SW.	26	"	"	"	Drilled	245	2,210	-200	2,010	245	1,965	Glacial fine sand	Hard, "alkaline"		D, S	Abundant supply for 35 head stock.
44	SE.	27	"	"	"	Dug	47	2,200									One of many dry holes; uses a dugout and hauls water; rainwater used for house in summer.
45	NW.	28	"	"	"	Drilled	170	2,185	-158	2,027	170	2,015	Glacial gravel	Hard		D, S	Sufficient for 55 head stock.
46	SW.	32	"	"	"	Drilled	143	2,170									Dry hole in glacial drift; stock are watered at sloughs and a dam.
47	SW.	34	"	"	"	Dug	30	2,200	- 26	2,174	26	2,174	Glacial sand	Hard		D, S	One of two similar well; sufficient for 25 head stock.
48	NE.	34	"	"	"	Bored	80	2,205	- 79	2,126			Glacial gravel	Hard		N	Very small amount; several dry holes; uses a dugout and hauls water.
49	NE.	35	"	"	"	Dug	16	2,205	- 12	2,193	12	2,193	Glacial sand	Hard		D, S	Sufficient for 35 head stock.
50	SW.	36	"	"	"	Dug	32	2,215	- 28	2,187			Glacial drift	Hard		D,S	Sufficient for 15 head stock.
51	SE.	36	"	"	"	Bored	104	2,210	- 41	2,169	104	2,106	Glacial sand	Hard		D, S, I	Abundant supply for 100 head stock; 6 farmers hauled from this well, in 1934.
52	NW.	36	"	"	"	Dug	20	2,210	- 16	2,194	16	2,194	Glacial gravel	Hard		D, S	Sufficient for 25 head stock.
1	SE.	3	20	17	2	Dug	20	2,135	- 2	2,133			Glacial drift	Hard		S	Sufficient for 31 head stock; hauls drinking water and stock use sloughs in summer.
2	SW.	3	"	"	"	Bored	30	2,140	- 10	2,130			Glacial gravel	Hard, "alkaline"		D, S	Intermittent supply; hauls water from a dam in section 12 in winter; #.
3	SW.	4	"	"	"	Dug	18	2,145									Very little water; a 35-foot well yielded water that stock refused to drink; dry hole 95 feet deep; hauls water.
4	NW.	4	"	"	"	Dug	12	2,145	- 7	2,138			Glacial sandy clay	Soft		D, S	One of several seepage wells; insufficient supply.
5	SE.	5	"	"	"	Dug	35	2,150									Dry hole in glacial drift; hauls water 2 miles.
6	NE.	5	"	"	"	Dug	16	2,150	- 6	2,144			Glacial gravel	Hard		D, S	Sufficient for house use only; uses a small dugout and hauls water 1 mile for 12 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	SW.	6	20	17	2	Dug	70	2,195									Dry hole in glacial drift; uses a dam and hauls from the NW.¼, section 6.
8	NW.	6	"	"	"	Bored	50	2,190	- 38	2,152	50	2,140	Glacial gravel	Hard		D, S	Very good supply; several farmers tank from this well.
9	SE.	7	"	"	"	Dug	20	2,175	- 5	2,170			Glacial gravel	Hard, "alkaline"		N	
10	SW.	7	"	"	"	Bored	48	2,180	- 34	2,146			Glacial sand and gravel	Hard, cloudy		D, S	Oversufficient for 11 head stock.
11	NW.	7	"	"	"	Dug	30	2,170	- 25	2,145	25	2,145	Glacial sand	Hard		D, S	Sufficient for 9 head stock only; hauls water
12	NE.	8	"	"	"	Bored	80	2,150	- 72	2,078			Glacial sand	Hard, iron		D, S	dry hole 60 feet deep. Sufficient for 25 head stock.
13	SE.	9	"	"	"	Dug	12	2,125	0	2,125			Glacial sand	Hard		D, S	One of 3 slough seepage wells that together yield sufficient water for 20 head stock in winter.
14	NE.	9	"	"	"	Bored	22	2,125	- 16	2,109			Glacial gravel	Hard, "alkaline"		S	One of two similar wells that together yield enough water for stock; hauls drinking water.
15	SW.	10	"	"	"	Dug	32	2,120	- 23	2,097	28	2,092	Glacial sand	Hard		D, S	Sufficient for 8 head stock only; uses slough and hauls water.
16	NW.	10	"	"	"	Bored	58	2,115	- 52	2,063	55	2,060	Glacial gravel	Hard, iron, "alkaline"		D	Poor supply; 2 wells 10 and 28 feet deep yield small supplies; 7 dry holes to a maximu of 161 feet; hauls water.
17	NE.	12	"	"	"	Bored	30	2,080	- 8	2,072			Glacial drift	Hard		D, S	Sufficient for 20 head stock.
18	SE.	12	"	"	"	Dug	12	2,085	- 2	2,083			Glacial sand and gravel	Hard		D, S	Sufficient for 60 head stock; 3 dry holes 50, 90 and 170 feet deep; a dam has watered stock for 40 years.
19	SE.	13	"	"	"	Drilled	235	2,000	- 68	1,992	235	1,825	Glacial sand?	Hard		D, S	Abundant supply.
20	NW.	14	"	"	"	Drilled	202	2,050	- 60	1,990	180	1,870	Glacial coarse sand	Hard, iron, "alkaline"		D, S	Abundant supply for 50 head stock; a 217-foot well became plugged; 3 dry holes as deep as 120 feet.
21	NE.	14	"	"	"	Bored	37	2,050	- 10	2,040			Glacial gravel	Hard, "alkaline"		D, S	Sufficient for 5 head stock only; hauls water in winter from section 27.
22	NE.	15	"	"	"	Dug											Dry holes in glacial drift; hauls water from the NW.¼, section 14.
23	SW.	16	"	"	"	Bored	75	2,120	- 30	2,090	75	2,045	Glacial sand	Hard, iron		D, S	Oversufficient for 25 head stock; 2 dry holes 20 and 25 feet deep.
24	SE.	16	"	"	"	Dug	20	2,108	- 4	2,104			Glacial sand	Hard		D, S	Sufficient for 16 head stock.
25	SW.	17	"	"	"	Bored	46	,155	- 4	2,151	4	2,151	Glacial gravel	Hard		S	Plenty of water for 45 head stock.
26	NW.	18	"	"	"	Bored	63	2,155	- 25	2,130	63	2,092	Glacial gravel	Hard, sulphur, "alkaline"		D, S	Supply decreased on account of a cave in; hauls water; #.
27	NE.	18	"	"	"	Bored	62	2,155	- 32	2,123	62	2,093	Glacial sand	Hard		D, S	Oversufficient for 15 head stock.
28	NE.	18	"	"	"	Bored	135	2,155	- 60	2,095	135	2,020	Glacial gravel	Hard		S	Abundant supply.
29	NW.	19	"	"	"	Bored	54	2,100	- 41	2,059	54	2,046	Glacial sand	Hard, iron, "alkaline"		D, S	Sufficient for 15 head stock; supply decreased slightly in the drought.
30	SW.	20	"	"	"	Bored	64	2,115	- 52	2,063	64	2,051	Glacial drift	Hard, "alkaline"		D, S	Sufficient for 20 head stock; one other simila well used also.
31	SE.	20	"	"	"	Bored	98	2,075	- 18	2,057	98	1,977	Glacial gravel	Hard, "alkaline"		D, S	Oversufficient for 35 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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	NE.	21	20	17	2	Bored	94	2,010	- 10	2,000	94	1,916	Glacial gravel	Hard, "alkaline", iron		D, S, I	Abundant supply.
33	SW.	21	"	"	"	Bored	44	2,060	- 20	2,040	44	2,016	Glacial gravel	Hard, iron, "alkaline"		D, S	Oversufficient for 23 head stock.
34	SW.	22	"	"	"	Bored	62	2,040	- 47	1,993	62	1,978	Glacial gravel	Hard, "alkaline"		D, S, I	Abundant supply for 45 head stock.
35	NE.	22	"	"	"	Bored	30	2,005	- 12	1,993			Glacial drift	Hard, "alkaline"		S	Oversufficient for 30 head stock; a 17-foot well yields drinking water.
36	SE.	25	"	"	"	Dug	4	1,995	+ 12	2,007	4	1,991	Glacial gravel	Hard		D, S	Usual water level is 4 feet above the surface; yields 3½ gallons of water a minute; a smaller spring is used for domestic purposes; #.
37	SE.	26	"	"	"	Bored	20	1,990	- 10	1,980			Glacial drift			N	Hauls water for 14 head stock from the SE.¼, section 25.
38	SW.	26	"	"	"	Dug	18	1,995	- 10	1,985			Glacial sandy clay	Hard, "alkaline"		D, S	Sufficient supply; two farmers hauled from this well in dry years.
39	SE.	27	"	"	"	Spring		1,995	+ 8	2,003			Glacial drift	Hard, cloudy, "alkaline"		S	Oversufficient for 500 head stock; this spring has been in use since 1892.
40	NE.	27	"	"	"	Bored	30	1,985	- 12	1,973			Glacial sand	Hard, "alkaline"		D,S	Well cannot be bailed dry.
41	SE.	28	"	"	"	Bored	34	2,000	- 28	1,972			Glacial drift	Hard, iron, "alkaline"		S	Intermittent supply; a similar well is used for drinking water; hauls water for 15 head stock from section 29.
42	SW.	28	"	"	"	Bored	165	2,005	+ 4	2,009	165	1,840	Glacial fine sand	Hard, iron		D, S	This well flowed for 1 year, and then partly filled with sand; abundant supply; also owns a small spring.
43	NW.	30	"	"	"	Dug	35	2,015									4 dry holes 7 to 35 feet deep; water hauled from section 19.
44	NW.	31	"	"	"	Dug	5	1,950	- 1	1,951			Glacial gravel	Hard, iron, "alkaline"		D, S	One of 3 springs in a creek valley; yields about 7 barrels of water a day; sufficient supply.
45	NE.	32	"	"	"	Bored	90	1,955	- 50	1,905	90	1,865	Glacial drift	Hard, iron, "alkaline"		D, S	Abundant supply; well has never pumped dry.
46	NE.	34	"	"	"	Bored	80	1,950	- 57	1,893			Glacial drift	Hard, "alkaline"		D	Poor supply; a 100-foot well became dry in 1933. Several dry holes. Stock are watered at a spring in section 35.
47	NW.	35	"	"	"	Dug	10	1,960	- 2	1,958			Glacial drift	Hard, "alkaline"		D, S	Intermittent supply; melts snow in winter.
48	SW.	35	"	"	"	Spring		1,955					Glacial drift	Hard, odour, "alkaline"		S	Oversufficient for 600 head stock.
49	NE.	36	"	"	"	Bored	80	1,950	- 3	1,947	80	1,870	Glacial drift	Hard, iron, "alkaline"		D	Abundant supply; a dam is used for 25 head stock winter and summer; #.
1	SW.	1	20	18	2	Dug	40	2,210	- 10	2,200	19	2,191	Glacial gravel	Hard, iron		D, S	Yields 2 barrels of water a day; 2 dry holes 45 and 90 feet deep; hauls water for 11 head stock.
2	SE.	1	"	"	"	Bored	85	2,200	- 35	2,165	85	2,115	Glacial gravel	Hard, iron, sulphur, cloudy		D, S	Yielded over 500 gallons a day in dry years; 5 farmers hauled from this well in 1933; dry hole 82 feet deep.
3	SW.	2	"	"	"	Dug	35	2,200									One of numerous dry holes in glacial drift; use well in the NW.¼, section 2.
4	NW.	2	"	"	"	Bored	60	2,195	- 28	2,167	60	2,135	Glacial gravel	Hard		D,S	Abundant supply; 3 farmers hauled from this we in 1933.
5	SE.	2	"	"	"	Dug	30	2,210									Several dry holes 25 to 30 feet deep; uses sloughs and hauls water.
6	SE.	3	"	"	"	Bored	80	2,200	- 10	2,190	55	2,145	Glacial gravel	Hard, iron		D	Well has partly caved in; uses a dugout and ha water 1 mile; about 8 shallow dry holes.

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 EDENWOLD, NO. 158, 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	SW.	3	20	18	2	Bored	68	2,205	- 52	2,153	68	2,137	Glacial sand	Hard, cloudy		D, S	Well has never pumped dry; a 25-foot well, not in use, has caved in.
8	SW.	4	"	"	"	Bored	127	2,190									One of 5 dry holes 50 to 127 feet deep; uses sloughs and hauls water; also uses a 16-foot seepage well.
9	NE.	4	"	"	"	Drilled	201	2,200	-111	2,089	201	1,999	Glacial gravel	Hard, iron		D, S	Abundant supply and 3 farmers hauled from this well in 1934; 3 dry holes 80 to 85 feet.
10	SW.	5	"	"	"	Bored	90	2,175									The deepest of 3 dry holes; stock water at sloughs.
11	NW.	6	"	"	"	Bored	32	2,160	0	2,160			Glacial drift	Soft		D	Intermittent supply; 8 dry holes as deep as 62 feet; uses sloughs and hauls water.
12	SE.	8	"	"	"	Bored	63	2,195	- 57	2,138	56	2,139	Glacial sand	Hard, iron		D, S	Sufficient for 20 head stock.
13	SE.	9	"	"	"	Bored	85	2,210	- 81	2,129			Glacial sand	Hard		D, S	Yields ½ barrel of water a day.
14	SW.	9	"	"	"	Dug	20	2,205	- 6	2,199	9	2,196	Glacial sand	Hard		D, S	Sufficient for 22 head stock.
15	NW.	10	"	"	"	Dug	13	2,190	- 10	2,180	10	2,180	Glacial sand	Hard		D,S	Sufficient for 6 head stock only; one dry hole 36 feet deep.
16	NE.	10	"	"	"	Dug	30	2,185	- 27	2,158	27	2,158	Glacial sand	Hard		D, S	Sufficient for 8 head stock; water hauled previous to 1934; 3 dry holes.
17	NE.	11	"	"	"	Bored	50	2,190	- 20	2,170	50	2,140	Glacial sand	Hard, odour, very "alkaline"		N	Stock refuse the water; a 20-foot well yields ½ barrel of water a day. 3 dry holes 40 to 45 feet deep; hauls water.
18	NW.	11	"	"	"	Bored	125	2,190									The deepest of 5 dry holes in glacial drift.
19	NE.	12	"	"	"	Bored	108	2,180	- 46	2,134	108	2,072	Glacial sand	Hard, iron, odour, cloudy		D, S	Abundant supply, but well has partly caved in a 36-foot well yields a small supply.
20	NW.	12	"	"	"	Dug	16	2,185	- 8	2,177	8	2,177	Glacial white sand	Soft		D, S	Sufficient for 9 head stock only.
21	SE.	13	"	"	"	Dug	24	2,165	- 20	2,145	20	2,145	Glacial sand	Hard		D, S	Barely sufficient water for 10 head stock; one dry hole 90 feet deep.
22	SW.	14	"	"	"	Drilled	192	2,170	-117	2,053	192	1,978	Glacial coarse sand	Hard, iron, "alkaline"		D, S	Very good supply; several farmers use this well.
23	NW.	15	"	"	"	Bored	123	2,190	-105	2,085	123	2,067	Glacial sand	Hard		D, S	Plenty of water; a shallow well is used for domestic use; 2 dry holes 34 and 80 feet deep a 127-foot well caved in.
24	SE.	15	"	"	"	Drilled	184	2,180	- 84	2,096	104	2,016	Glacial sand	Hard, iron		D, S	Well has never pumped dry; one dry hole 60 feet deep.
25	SW.	16	"	"	"	Bored	40	2,205	- 10	2,195			Glacial drift	Hard, "alkaline"		S	Intermittent supply; a 21-foot well yields sufficient water for the house; hauls water from sloughs and Indian dam.
26	SE.	16	"	"	"	Bored	30	2,200	- 25	2,175			Glacial sand and gravel	Hard, iron		D, S	Intermittent supply; a 14-foot well also yields a poor supply; hauls water ¼ mile in winter.
27	SE.	17	"	"	"	Drilled	256	2,205	-100	2,105	256	1,949	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply for 20 head stock.
28	NE.	18	"	"	"	Bored	30	2,175	- 18	2,157			Glacial drift	Hard, iron		D, S	Yields 1 barrel of water a day; a 12-foot seepage well is used in wet years; hauls water; dry hole 90 feet deep.
29	SW.	19	"	"	"	Drilled	275	2,160	-110	2,050	270	1,890	Glacial gravel	Hard, iron, "alkaline"		D, S	Oversufficient supply.
30	SE.	20	"	"	"	Bored	84	2,175	- 71	2,104	84	2,091	Glacial coarse sand	Hard, "alkaline"		D, S	Sufficient for 25 head stock; a 15-foot well is also used for drinking; 4 dry holes 30, 44, 45, and 54 feet deep.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of EDENWOLD, NO. 158, 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
31	NE.	20	20	18	2	Drilled	256	2,150	-157	1,993	256	1,894	Glacial gravel	Hard, iron		S	Abundant supply; a 20-foot well is used for drinking water; one dry hole 90 feet deep.
32	NW.	21	"	"	"	Dug	18	2,150					Glacial sand	Soft		D	Sufficient for domestic purposes.
33	SW.	21	"	"	"	Bored	40	2,170	- 30	2,140			Glacial sand	Hard, iron, "alkaline"		S	Sufficient supply but stock well not drink water if slough water is available.
34	SW.	22	"	"	"	Bored	107	2,185	- 85	2,100	107	2,078	Glacial sand and gravel	Hard, iron, "alkaline", odour		S	Sufficient for 20 head stock only; a 53-foot well is used for drinking water; a 60-foot well became dry in 1931.
35	SE.	22	"	"	"	Bored	32	2,160	0	2,160			Glacial sandy gravel	Hard			Intermittent supply.
36	NE.	23	"	"	"	Bored	96	2,125	- 62	2,063	96	2,029	Glacial gravel	Hard, iron, "alkaline", odour, cloudy		S	Barely sufficient for 20 head stock; well is partly plugged; hauls drinking water.
37	SE.	23	"	"	"	Bored	80	2,150	- 60	2,090	80	2,070	Glacial drift	Hard, iron, "alkaline"		S	Good supply for 20 head stock; hauls drinking water from the NW.¼, section 23.
38	NW.	23	"	"	"	Dug	8	2,130	0	2,130			Glacial drift	Soft		D	Intermittent supply; stock use sloughs and a seepage well in slough when it becomes dry.
39	SW.	23	"	"	"	Drilled	197	2,150	-127	2,023	197	1,953	Glacial sand	Hard, iron, "alkaline"		N	Abundant supply but analyst condemned the water.
40	SE.	24	"	"	"	Bored	80	2,150	- 60	2,090	80	2,070	Glacial sand	Hard, "alkaline"		S	Abundant supply; a 12-foot well is used for drinking water in dry years.
41	NE.	24	"	"	"	Bored	75	2,110	- 45	2,065	75	2,035	Glacial drift	Hard, odour, "alkaline"		S	Abundant supply; several farmers haul from this well; a slough seepage well is used for drinking purposes.
									MUSKOWPETUNG INDIAN RESERVE NO. 80								
1						Bored	90	1,950	- 60	1,890	90	1,860	Glacial drift	Hard, iron		D, S	Oversufficient for 50 head stock.
2						Bored	35	1,900	- 20	1,580			Recent stream gravel	Hard, iron		D, S	One of 4 similar wells; oversufficient for 55 head stock.

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