CANADA
DEPARTMENT OF MINES

HON. T. A. CRERAR, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER

BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF SCOTT No. 98 SASKATCHEWAN

BY

B. R. MacKay, & H. H. Beach

Water Supply Paper No. 4

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INTRODUCTION

Lack of rainfall during the years 1930 to 1934 over a large part of the Prairie Provinces brought about an acute shortage both in the larger supplies of surface water used for irrigation and the smaller supplies of ground water required for domestic purposes and for stock. In an effort to relieve the serious situation the Geological Survey began an extensive study of the problem from the standpoint of domestic uses and stock raising. During the field season of 1935 an area of 80,000 square miles, comprising all that part of Saskatchewan south of the north boundary of township 32, was systematically examined, records of approximately 60,000 wells were obtained, and 720 samples of water were collected for analyses. The facts obtained have been classified and the information pertaining to any well is readily accessible. The examination of so large an area and the interpretation of the data collected were possible because the bedrock geology and the Pleistocene deposits had been studied previously by McLearn, Warren, Rose, Stansfield, Wickenden, Russell, and others of the Geological Survey. The Department of Natural Resources of Saskatchewan and local well drillers assisted considerably in supplying several hundred well records. The base maps used were supplied by the Topographical Surveys Branch of the Department of the Interior.

Publication of Results

The essential information pertaining to the ground water conditions is being published in reports, one being issued for each municipality. Copies of these reports are being sent to the secretary treasurers of the municipalities and to certain Provincial and Federal Departments, where they can be consulted by residents of the municipalities or by other persons, or they may be obtained by writing direct to the Director, Bureau of Economic Geology, Department of Mines, Ottawa. Should anyone require more detailed information than that contained in the reports such additional information as the Geological Survey possesses can be obtained on application to the director. In making such request the applicant should indicate the exact location of the area by giving the quarter section, township, range, and meridian concerning which further information is desired.

The reports are written principally for farm residents, municipal bodies, and well drillers who are either planning to sink new wells or to deepen existing wells. Technical terms used in the reports are defined in the glossary.

How to Use the Report

Anyone desiring information about ground water in any particular locality should read first the part dealing with the municipality as a whole in order to understand more fully the part of the report that deals with the place in which he is interested. At the same time he should study the two figures accompanying the report. Figure 1 shows the surface and bedrock geology as related to the ground water supply, and Figure 2 shows the relief and the location and type of water wells. Relief is shown by lines of equal elevation called "contours". The elevation above sea-level is given on some or all of the contour lines on the figure.

If one intends to sink a well and wishes to find the approximate depth to a water-bearing horizon, he must learn: (1) the elevation of the site, and (2) the probable elevation of the water-bearing bed. The elevation of the well site is obtained by marking its position on the map, Figure 2, and estimating its elevation with respect to the two contour lines between which it lies and whose elevations are give on the figure. Where contour lines are not shown on the figure, the elevations of adjacent wells as indicated in the Table of Well Records accompanying each report can be used. The approximate elevation of the water-bearing horizon at the well-site can be obtained from the Table of Well Records by noting the elevation of the water-bearing horizon in surrounding wells and by estimating from these known elevations its elevation at the well-site.[1] If the water-bearing horizon is in bedrock the depth to water can be estimated fairly accurately in this way. If the water-bearing horizon is in unconsolidated deposits such as gravel, sand, clay, or glacial debris, however, the estimated elevation is less reliable, because the water-bearing horizon may be inclined, or may be in lenses or in sand beds which may lie at various horizons and may be of small lateral extent. In calculating the depth to water, care should be taken that the water-bearing horizons selected from the Table of Well Records be all in the same geological horizon either in the glacial drift or in the bedrock. From the data in the Table

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

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

GLOSSARY OF TERMS USED

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Eastend Formation. The name given to a series of fine-grained sands and silts. It has been recognized at various localities over the southern part of the province, from the Alberta boundary east to the escarpment of Missouri coteau. The thickness of the formation seldom exceeds 40 feet.

Bearpaw Formation. The Bearpaw consists mostly of incoherent dark grey to dark brownish grey, partly bentonitic shales, weathering light grey, or, in places where much iron is present, buff. Beds of sand occur in places in the lower part of the formation. It forms the uppermost bedrock formation over much of western and southwestern Saskatchewan and has a maximum thickness of 700 feet or somewhat more.

Belly River Formation. The Belly River consists mostly of non-marine sand, shale, and coal, and underlies the Bearpaw in the western part of the area. It passes eastward and northeastward into marine shale. The principal area of transition is in the western half of the area where the Belly River is mostly thinner than it is to the west and includes marine zones. In the southwestern corner of the area it has a thickness of several hundred feet.

Marine Shale Series. This series of beds consists of dark grey to dark brownish grey, plastic shales, and underlies the central and northeastern parts of Saskatchewan. It includes beds equivalent to the Bearpaw, Belly River, and older formations that underlie the western part of the area.

WATER-BEARING HORIZONS OF THE MUNICIPALITY

The rural municipality of Scott covers an area of 324 square miles in the south-central part of Saskatchewan. It consists of a square block of nine tps. described as townships 10, 11, and 12, ranges 16, 17, and 18, W. 2nd mer. The Moose Jaw-Weyburn line of the Canadian Pacific railway extends diagonally from northwest to southeast across the municipality. This municipality lies near the southwestern border of an area formerly occupied by a glacial lake which many thousands of years ago covered a large area in southeastern Saskatchewan. Over the greater part of the area the ground surface is remarkably flat and does not vary by more than 20 feet from an elevation of 1,900 feet above sea-level. Only in the extreme southwestern corner does the elevation exceed 1,950 feet above sea-level. The northwesterly flowing Moosejaw creek, and its small tributaries, and a small creek south of the town of Lewvan, form the only natural drainage of the municipality.

One of the most serious problems with which the residents have to contend is the almost entire absence of ground water supplies over the greater part of the northeastern half of this municipality. In some places it is necessary to haul water from distances up to 10 miles. The unfortunate situation is, that, so far as known, there exist no extensive water-bearing horizons within this barren area, either in the unconsolidated deposits or the underlying Marine shale bedrock, from which adequate supplies of drinkable water can be obtained. In the southwestern half of the municipality conditions are better. Supplies of water adequate for local requirements are generally obtainable at shallow depths from the Recent stream deposits and from sandy beds in the lake clays

Water-bearing Horizons in the Unconsolidated Deposits

The Recent deposits of alluvium are confined to the main valley and tributaries of Moosejaw creek in the southwest corner of the municipality, and to the bed of the intermittent stream in township 12, range 16, south of the town of Lewvan. Along Moosejaw creek and its tributaries wells sunk to depths of 15 to 30 feet yield adequate supplies of hard, "alkaline" water for both domestic and stock requirements. Water of similar quality is found at shallow depths in gravel and sand deposits along the upper reaches of the smaller creek in secs. 1 and 11, tp. 12, range 16. Farther down this stream the Recent deposits are much thinner and very little water is to be expected from them.

Many thousands of years ago, before the advance of the continental ice-sheet that at one time covered the province of Saskatchewan, this municipality lay on the western slope of a very broad valley. The ground surface, composed of a greyish black shale, was quite irregular, due to the presence of many narrow ravines and valleys cut by swiftly flowing streams. The area resembled somewhat the present "badlands" district lying to the east of the town of Truax. The continental ice-sheet passed in a southwesterly direction over the area and deposited a thick mantle of glacial till which filled in all pre-existing valleys and depressions. The till is composed largely of boulder clay in which is sparingly interspersed small pockets of sands and gravels. The thickness of the till is variable over the municipality. It is 60 to 80 feet thick along the eastern border of the area, but thins gradually in a southwesterly direction to less than 30 feet in the extreme southwest corner. With the melting and gradual retreat of the ice-sheet a large lake, known as Lake Regina, was formed covering the entire area between the Missouri coteau on the west and the Moose Mountain highlands on the east. In it fine, bluish grey clay was deposited covering the boulder clay. This lake clay has a thickness of 25 to 40 feet over the northeastern part of this municipality, but thins uniformly in a southwesterly direction.

In the extreme southwest corner, along the western shore-line of the lake, the clay forms only a thin veneer, and in small areas along the southern boundary of the municipality the clay is absent and boulder clay is exposed at the surface.

The lake clay is largely impervious to the passage of ground water. It swells and becomes very sticky when wet, thus causing the dirt roads of Regina district to become almost impassable after rains. Little or no water can be expected from wells sunk into the lake clay. Near the southwestern shore of the lake, however, considerable amounts of sand and gravel were deposited as thin beds in the lake clay. These beds form reservoirs for the accumulation of ground water. An attempt has been made to indicate by zone lines on Figure 1 the areal extent of the more sandy phases of the lake clay and areas where sand beds exist between the lake clay and the underlying boulder clay. Within the boundaries of Lake Regina there are a number of sandy areas characterized on the surface by small knolls and ridges, seldom exceeding 25 feet in height. The porous nature of the material in these hillocks affords the most favourable conditions for the accumulation of ground water in the municipality. Wells sunk to depths not exceeding 40 feet on or near these knolls and ridges yield fairly large supplies of medium hard, slightly mineralized water, suitable for both domestic and stock use. Remote from the ridges, the supplies obtained from seepage wells sunk into the lake clay are usually charged with dissolved mineral salts rendering it unfit for drinking, but in many places it is being used for stock.

In the southwestern part of the municipality fairly extensive beds of sand, and occasionally gravel, occur between the lake clay and the underlying boulder clay. These beds are encountered at depths of 25 to 40 feet. The yield from this horizon is often quite large, being sufficient in some places for 100 or more head of stock. The highly "alkaline" quality of the water, however, often renders it unfit for human consumption. This sand horizon has been encountered in several wells in the extensive dry area in the northeastern half of the municipality, but in all instances it was dry or contained only a very small quantity of water.

The well records show that, conforming to a narrow belt extending along the present location of the Canadian Pacific "Soo Line" tracks, there exists a buried stream channel which was carved in the bedrock many hundred of years prior to the advance of the continental ice-sheet. This was later filled in by boulder clay and finally altogether covered by later thick deposits of lake clay. The approximate boundaries of the course of the channel are indicated on Figure 1. Thin beds of sand and gravel are believed to form a continuous aquifer along the bottom and lower slopes of this buried stream valley. Along the edge of the channel this water-bearing horizon is encountered at depths of 70 to 100 feet from the surface. Toward the central, and deeper, part of the channel it lies at depths of 170 to 210 feet. The yield from this water-bearing horizon in nearly all instances is amply sufficient for local requirements. The quality of the water is variable. Much of it contains iron and mineral salts in solution in sufficient quantities to render it unfit for domestic use. This condition exists particularly on the eastern slope and in the bottom of the valley. Supplies derived along the western slope in general are quite suitable for household use.

Water-bearing Horizons in the Bedrock

The Marine shale bedrock underlies the glacial deposits throughout the entire municipality. It is encountered at depths of 15 to 25 feet from the surface in its southwest corner, and at gradually increasing depths in a northeasterly direction until at the western edge of the above-mentioned, buried, pre-glacial stream valley it lies at approximately 60 feet from the surface. Along the deepest part of the channel it is probable that the bedrock lies at least 225 feet below the surface. The Marine shale can be easily recognized in drilling by its dark blue-grey appearance when wet and by the small, roughly cubical fragments into which it crumbles on drying. These fragments are often coated with spots of yellow iron oxide. Fossil "baculites", locally known as "petrified fish", are frequently encountered in drilling into the shale, but are not found in the overlying glacial blue clay.

Many holes have been sunk into the Marine shale in all parts of the municipality. The great majority of these holes are dry and the remainder yield only small amounts of highly "alkaline", salty water that is unfit for human consumption and usually unsuitable for stock. Further search for water in the shale in any part of this municipality seems inadvisable. The Marine shale has a total thickness of nearly 900 feet under this area, and, consequently, there is little if any possibility of encountering adequate supplies of water suitable for farm use by drilling to depths greater than 250 feet in the stream channel area and 75 feet in all other parts of the municipality.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 10, Range 16

The known ground water supplies of this township are confined almost entirely to two horizons in the glacial drift in the southwestern half of the township. The ground surface of this part of the area lying within the "A" line is irregular and is characterized by knolls and low ridges composed of clay interspersed with considerable amounts of pervious sand and gravel. The experience of many residents has been that shallow wells located on or near the knolls and ridges can be expected to yield fairly large supplies of good water. A few wells are capable of producing from 10,000 to 20,000 gallons of water daily. In the intervening flat areas gravel and sand pockets are more irregularly distributed in the clay and are usually of limited areal extent. It may be necessary to sink several wells before a productive sand or gravel pocket is encountered. A number of small, buried stream deposits undoubtedly occur in the drift close to the surface, but sufficient detailed information is not available to make the tracing of them possible. For example, the town of Yellowgrass derives its water supply from wells sunk to depths of 35 to 45 feet in gravel. The large yield from these wells suggests that they may be situated along such a buried gravel bed deposited by a glacial stream. Along the eastern edge of the drift-covered area the gravel deposits are fewer and of smaller areal extent. Consequently, the supply of water obtained is much smaller, and is generally too "alkaline" to be used in the household. Similar conditions prevail in section 7, south of Yellowgrass.

A deeply buried pre-glacial stream channel extends across the western half of the township, as shown on the municipality map. Several wells are producing from the sand bed lying along the bottom and on the gently sloping sides of this channel. One well in SE.$\frac{1}{4}$, section 19, drilled to a depth of 230 feet produces a large supply of hard, highly mineralized water from what is believed to be the bottom of the channel. Other wells sunk to depths of 80 to 100 feet in SW.$\frac{1}{4}$, sections 3 and 11, NW.$\frac{1}{4}$, section 20, and NE.$\frac{1}{4}$, section 30, yield similar supplies from the same aquifer along the eastern slope of the buried valley. The water from both the central and eastern marginal areas of the channel is too highly charged with salts in solution to be used in the household, but is generally suitable for stock.

No continuous water-bearing horizons are known to exist in the northeastern half of the township. This situation is due to the fact that a layer of lake clay approximately 30 feet thick overlies the boulder clay which in turn rests upon the Marine shale bedrock without intervening sand layers that are suitable for the retention of any large quantities of water. The lake clay and boulder clay are impervious to the passage of water and the few pockets of sand that have been struck in several wells are dry because the overlying clays prevent the downward seepage of surface water. Several wells have been sunk to depths of 50 to 100 feet in sections 23, 34, and 36, without obtaining more than very small seepages of highly mineralized water. Natural conditions seem to indicate that further prospecting for water in this part of the area will not yield sufficient supplies suitable for farm use. Similar conditions are believed to exist in W.$\frac{1}{2}$, section 18, where several wells have been sunk to depths of over 300 feet without striking water.

The Marine shale bedrock underlies the glacial drift throughout this township. The surface of the shale is struck at a depth of 235 feet along the buried stream channel, and rises gradually to the northwest-southeast diagonal of the township where it is within 60 feet of the surface. The shale is encountered at about this depth throughout the northeastern half of the township. Several dry holes put down in sections 18, 23, 34, and 36 encountered only a hard, unproductive blue clay but whether they terminated in glacial drift or bedrock could not be determined. A well located on NE.$\frac{1}{4}$, section 34, drilled to a depth of 50 feet into hard blue lay, yielded at first a very small supply of bitter, salty water that was unfit for household and stock use. It is improbable that sinking of wells through the glacial deposits into the underlying shale bedrock in any part of this township will produce an adequate water supply.

Township 10, Range 17

A layer of bluish grey lake clay covers this entire township, with the exception of the southeastern corner where the underlying boulder clay comes to the surface. The lake clay, being impervious to the passage of water, holds rainfall caught in surface depressions for considerable periods of time. Ibsen lake occupies such a depression, and in it are concentrated large amounts of mineral salts, particularly sodium and magnesium sulphate (Glauber's salt and Epsom salts). Water obtained from wells sunk in the proximity of the lake is too highly charged with these salts to be used either for household or stock requirements. Less highly mineralized water is obtained from shallow wells situated along the intermittent creeks northwest of the lake. The water, although reported to be "alkaline", is suitable for stock and has been used in the households. The seasonal variation of the creeks, however, generally renders this source inadequate for local requirements during the winter months. Throughout the central and southwestern parts of the area thin beds of sand are known to occur between the lake clay and the underlying boulder clay at depths ranging from 20 feet in the southwest corner of the township to 45 feet in the central part. Many wells have been sunk to this horizon, and yield fairly large supplies of water suitable for stock use, but generally unsuitable for human consumption. Along the northern halves of sections 21, 22, and 23 beds of gravel have been encountered that yield supplies of slightly "alkaline" water suitable for household use and sufficient for a few head of stock.

Small areas of sand and gravel in the form of low knolls and ridges are scattered over sections 23, 24, 25, 26, 35, and 36. Shallow wells sunk to depths of 20 to 40 feet on or near these knolls yield small supplies of hard, slightly mineralized water suitable for household use and sufficient for a few head of stock. That these water horizons are of very limited extent is indicated by the fact that deep holes have been sunk in W.½, section 18, in the township adjoining on the east, without obtaining adequate supplies of water suitable either for human or stock use.

A buried pre-glacial stream channel has been traced across the northeastern part of the township and several wells are producing from the sand bed that occurs along the bottom and sides of the channel. This bed is encountered at depths of 75 to 100 feet from the surface along the eastern side of the channel in sections 25, 35, and 36, and NE.½, sections 26 and 34. Along the central part of the channel, in sections 24, 27, and 33, and NE.½, section 23, it was found necessary to sink wells to depths of 170 to 220 feet before production was obtained. Wells situated along the western slope of the buried channel in sections 23 and 31 strike the sand horizon at 100 feet from the surface and it is probable that it will be encountered at similar depths in section 24, section 27, and SW.½, sections 28 and 32. The supply derived from this sand bed is generally amply sufficient for local requirements, but the large amounts of dissolved sulphate salts in the water, together with a large concentration of iron, render it unfit for domestic use although it is considered to be quite suitable for stock.

The Marine shale bedrock underlies the southwestern and central parts of the township at approximately 50 feet from the surface. In a northeasterly direction it is struck at gradually increasing depths as far east as the western side of the pre-glacial stream channel where it deepens rapidly. Along the central part of the channel the shale lies at 200 to 225 feet from the surface. Beyond this point the depth to the shale decreases rapidly to within 80 feet of the surface along its eastern border, in section 36. Many wells have been sunk into the shale at widely separated localities within the township. In no place was water suitable either for human or stock use obtained, and further search for water in the Marine shale bedrock is not recommended in any part of the township.

Township 10, Range 18

Supplies of ground water suitable for farm requirements are almost entirely confined to the thin deposits of Recent sands and gravel bordering the small streams and to two sand horizons of limited areal extent in the lake clays that cover all but the southwestern corner of the township. The wells bordering the creeks seldom exceed 35 feet in depth. They yield small quantities of hard, slightly mineralized, but drinkable water which is generally sufficient for 20 to 30 head of stock. During periods of drought and in the winter months the supply decreases, but has never completely failed. Water is also obtained at shallow depths from sand and gravel deposits in the lake clays in a long, narrow area extending diagonally across the township from the southeast to the northwest corner. This area is outlined on Figure 1 by the "A" line. The surface is characterized by small knolls and ridges composed of lake clay interspersed with pockets of sand and gravels. It has been found that wells located on or near these slight prominences yield sufficient water for 30 to 50 head of stock. The water is hard and contains sulphate salts in solution, generally Glauber's salt and Epsom salts. In only two wells in this narrow area, however, was the water considered to be too highly mineralized to be used in the household.

Several wells located in areas remote from streams in the northeastern half of the township are producing small quantities of hard, "alkaline" water from thin beds of sand occurring between the lake clay and the underlying boulder clay at depths ranging from 15 to 35 feet from the surface. The sand beds are not continuous over large areas and it may be necessary to sink several holes before a productive sand pocket is encountered. The water contains too great a quantity of dissolved sulphate salts to be suitable for drinking, but is being used for watering stock.

Throughout the southwestern part of the township, remote from the stream courses, a thin layer of glacial drift not exceeding 15 feet in thickness immediately overlies the Marine shale bedrock. Sand pockets occur sparingly in the impervious drift and generally yield only highly "alkaline" water.

Marine shale forms the bedrock throughout the township. The small water seepages obtained from it are unfit for human or stock requirements due to a large concentration of dissolved mineral salts. The shale underlies the northeastern half of the township at slightly greater depths than in the southwestern half. It is encountered at 35 feet from the surface in NE.$\frac{1}{4}$, section 34, and is believed to lie at approximately the same depth below the surface over the northeastern half of the township. The poor water conditions of the shale make the sinking of wells into it in any part of the township inadvisable.

Township 11, Range 16

Ground water has been found in only three isolated areas in this township, and the majority of the residents are obliged to haul water for household and stock use from considerable distances. The acute water condition is due to paucity of water-bearing sand beds in the glacial lake clay, the underlying boulder clay, and the Marine shale. The impervious nature of the overlying lake clay greatly hinders and often entirely prevents the downward seepage of surface water. In sections 4, 5, and 6, in the extreme southwestern corner of the township, small supplies of drinkable water are obtained by sinking wells on or near low ridges and knolls that occur over the otherwise flat ground surface. The knolls and ridges are composed of clay containing irregular pockets of sand and gravel and form a much more porous aquifer than does the surrounding lake clay. Water from this source is hard and slightly mineralized, but is suitable for both household and stock use.

The remainder of the township is covered by a layer of heavy bluish grey clay ranging from 20 to 35 feet in thickness. Wells sunk into this clay are either dry or yield only very small seepages of water containing large amounts of sulphate salts in solution, reported to be harmful to stock. Over most of the township the blue clay lies directly on the dark grey, crumbly, Marine shale bedrock and only very small seepages of bitter, salty water occur at the contact. In some places, however, a thin bed of grey sand intervenes between the clay and the bedrock, and in a few places this sand contains water. Two wells in sections 13 and 14 derive a supply from this horizon that is sufficient for local stock needs, but due to its contamination by mineral salts and iron the water is unsuitable for domestic use. Several dry holes put down in SW.$\frac{1}{4}$, sections 11, 14, and 20, and SE.$\frac{1}{4}$, section 22, indicate that this sand bed is either unproductive or absent in these areas. A well located in northeast $\frac{1}{4}$, section 36, obtains a supply of 2 to 3 barrels a day from the contact of the lake clay and bedrock at a depth of 24 feet. It is probable that similar supplies will be obtainable in the eastern part of sections 25 and 36, but in sections 26, 28, 32, 33, 34, and 35, the sand bed although present is dry. To the south of this area many dry holes indicate that this sand member is absent, and it seems improbable that any appreciable amounts of water will be found at this horizon in the central part of the township.

Many holes have been drilled into the Marine shale bedrock that underlies the entire township at approximately 30 feet below the surface, at an average elevation of 1,870 feet above sea-level, without encountering water or even more than an occasional thin lens of dry sand. Any further prospecting for water into the Marine shale appears to be useless, due to its impervious nature and the almost entire absence of porous beds suitable for retaining any large supply of ground water.

Township 11, Range 17

Ground-water supplies are derived from two horizons in the glacial deposits of this township. The upper horizon occurs in a narrow belt of sands and gravels irregularly interspersed through the lake clay that extends with gradually diminishing width from the southeast corner northwestward across the township. Smaller areas of similar sands and gravels also exist in sections 25 and 26. The lower productive horizon is an aquifer of grey sand confined to the bottom and gently sloping sides of a buried pre-glacial stream channel that crosses the southwestern part of the township.

Throughout the upper productive horizon, the areal extent of which is shown approximately by the "A" line on Figure 1, shallow seepage wells located on or near low knolls and ridges yield small quantities of slightly mineralized water. Supplies derived from wells in the southeast corner are generally sufficient for 25 head of stock. On the western margin of the buried pre-glacial channel, in section 6 and along its eastern margin in sections 3, 4, 9, 19, and 20, the sand bed is encountered at depths of 100 to 150 feet. The supply derived is amply sufficient for local farm requirements and although containing considerable amounts of iron is quite suitable for household use. In the central and deepest part of the channel in SW.¼, section 4, sections 5, 8, and 18, and NE.¼, section 7, it is necessary to sink wells to depths of 165 to 210 feet in order to reach the productive sand bed. Here also the supply obtainable is large, but a greater concentration of iron in the water renders it less suitable for domestic use. Water derived from the buried channel is under pressure and rises in wells to within 50 feet of the surface.

In an area embracing the S.$\frac{1}{2}$ of section 21 to the S.$\frac{1}{2}$ of sections 29 and 30, many wells have been drilled, some even to depths of 400 feet, without obtaining water. The only possibilities of finding water in this area are confined to encountering small, isolated pockets of sand and gravel which, if present, will probably be struck within 40 feet of the surface.

The Marine shale bedrock underlies glacial deposits throughout the entire township. It is encountered in drilling about 220 feet from the surface (elevation of 1,680 feet above sea-level), along the base of the buried pre-glacial channel in the southwestern part of the township. From there the surface of the shale rises rapidly to the northeast to within 60 to 70 feet from the surface along the northwest-southeast diagonal of the township, and is found at gradually decreasing depths in a northeasterly direction throughout the remainder of the area. Many holes have been drilled to depths of 100 feet and some to 300 feet into the shale bedrock. A lack of sandy beds suitable for retaining any large quantities of water makes it improbable that adquate supplies will be found in the shale. Drilling or boring into the bedrock is not recommended in any part of this township.

Township 11, Range 18

Ground water supplies of this township are derived from three horizons in the Recent stream deposits and sand and gravel beds in the lake clay overlying the unproductive Marine shale bedrock. Seepage wells dug to depths of 20 feet or less in the sands and gravels bordering Moosejaw creek have produced hard, slightly "alkaline" water in sufficient quantities for local needs. The water from this horizon is quite suitable for stock, but due to the variability of its mineral salt content it cannot always be used for drinking.

Two areas in which sand and gravel beds occur in the otherwise impervious lake clay are shown, bounded by "A" line, on Figure 1 in the north-central and southwestern parts of the township. A low, northwesterly trending ridge of sand and gravel passes diagonally through section 5 into sections 6 and 7. Wells from 20 to 25 feet deep situated on or near this ridge produce hard, clear, only slightly mineralized water sufficient for household needs and for at least 25 head of stock. The other area of sands and gravels covers the greater part of the northeastern half of the township. Shallow wells sunk to depths of 25 to 35 feet, within a radius of 1½ miles from the town of Lang, yield 10 to 25 barrels a day of clear, hard water with only small amounts of dissolved salts and suitable for household use. The supplies are derived from isolated sand and gravel pockets in the lake clay. In the northern part of this area, in sections 25 and 35, the water is more highly mineralized and not generally suitable for drinking. The supply is not usually sufficient for more than 5 head of stock. Wells sunk to depths of 30 to 40 feet in SE.¼, section 32, and E.½, section 34, produce fairly large supplies of medium hard, drinkable water. Should adequate supplies of water not be obtainable at shallow depths in the central and northwestern parts of the township deeper drilling is advisable, but throughout the remainder of the township sinking of wells below a depth of 50 feet is not recommended.

The third producing water horizon in this township is a bed of grey sand lying upon the surface of the Marine shale bedrock in the bottom and along the gently sloping sides of a buried pre-glacial stream channel. This buried valley is approximately 3 miles wide and trends diagonally across the township, with its central or deepest part underlying the Canadian Pacific "Soo Line" tracks. Wells sunk to depths of 10 to 100 feet from the surface along the northeastern margin of the channel, in sections 26, 31, and 33, yield small supplies of hard, slightly "alkaline" water containing considerable amounts of iron. This water is generally unfit for drinking, but is quite suitable for watering stock. Wells sunk to a similar depth along the southern margin of the stream channel, in NE.$\frac{1}{4}$, sections 16 and 19; SW.$\frac{1}{4}$, section 29, and S.$\frac{1}{2}$, section 30, yield adequate supplies of hard, clear water containing only minor amounts of iron and sulphate salts in solution. Farther east along the southern margin of the channel in section 1, the mineral salt content of the water is much higher, rendering it unfit for household use. In the vicinity of, and to the northwest and southeast of the town of Lang wells sunk to depths of 140 to 165 feet reach this aquifer in the central part of the channel. These wells yield fairly large supplies of water which, although reported to be high in iron, does not generally contain more than small amounts of dissolved sulphate salts. It is used for watering stock, but is not considered suitable for domestic use. The residents depend for drinking water upon shallow seepage wells sunk into sand and gravel pockets in the drift. Water both from the central part and along the margins of the buried stream channel is under pressure and rises in wells to within 60 to 80 feet of the surface.

The Marine shale bedrock underlies the unconsolidated glacial deposits throughout the entire township. It is encountered in drilling at about 175 feet from the surface along the bottom of the buried stream channel. The surface of the shale rises rapidly to the northeast and southwest to form the sides of the channel, and over the rest of the municipality is encountered within 50 feet of the surface. The impervious nature of the shale and the absence in it of porous, sandy beds make it unlikely that there will be found in it even small supplies of water suitable even for stock. At least ten wells have been sunk into the shale in section 11, some to depths of 720 feet, and none of these holes yields more than small seepages of bitter, salty water that is unfit for farm use. The sinking of wells into the bedrock in any part of this township, therefore, is not recommended.

Township 12, Range 16

A large number of wells have been sunk in all parts of this township, but supplies of ground water suitable for farm use are confined to the two small areas indicated on the municipality map. The most extensive area occurs in the north-central part of the township. Its areal extent is indicated approximately on Figure 1 by the "A" line. The second area is confined to the valley of the creek in the southeast corner of the township. Throughout the remainder of the township the layer of impervious lake and boulder clay averages 30 feet in thickness, is believed to directly overlie the Marine shale bedrock, and there are no sandy beds suitable for the retention of any large quantities of water. Small sand pockets were struck in several of the holes, but they were dry, due to the fact that the overlying impervious lake clay prevents the downward percolation of any surface water.

A supply of hard, drinkable water sufficient for the use of a dozen or more families is being obtained from a gravel bed 20 feet below the surface along the creek in section 1. The supply continues with reduced quantity into sections 11, 10, and 15, but beyond this the supply decreases and the water becomes so highly charged with mineral salts and so discoloured with iron oxide as to be unsuitable for domestic use. The same condition holds in passing laterally into the finer sand, which begins a few hundred feet from the creek. Numerous test holes were sunk farther down the creek in sections 17 and 18, but the thin sand beds encountered contained no water.

The ground surface of the north-central part of the township is very gently rolling. Low knolls and ridges are common, many of which trend in a northwest-southeast direction. These small prominences are usually composed of a mixture of lake clay and glacial sand and gravel. Shallow wells sunk on or near these knolls generally yield hard, drinkable water in sufficient quantities for average farm requirements. Remote from the ridges and knolls the material encountered is largely lake clay from which only very small quantities of undrinkable water can be expected.

The Marine shale underlies the entire township at approximately 30 feet from the surface. Many holes have been sunk into the shale to depths of 100 to 150 feet in nearly every section in the township without encountering a satisfactory supply of drinkable water. It is extremely improbable that further drilling into the bedrock in any part of the township will prove any more successful.

Township 12, Range 17

With the exception of the extreme southwest corner, this township is entirely lacking in supplies of ground water suitable for household or stock use.

Many dry holes have been sunk, even to depths of 600 to 700 feet, and at best only very small supplies of poor water have been obtained. This is due either to the entire absence, or to the very limited extent, of sand layers that normally act as reservoirs in both the overlying unconsolidated deposits and in the bedrock. The few sand beds that have been encountered in several of the holes are dry, as the overlying impervious lake clay will not permit the surface water to percolate downward to where it can accumulate in the more porous beds. The only productive horizon in this township is confined to section 6 and probably extends into SW.$\frac{1}{4}$, sections 5 and 7. Here a few sand pockets occur, at depths not exceeding 30 feet, in the clay, from which small supplies of drinkable water have been obtained. Wells located on low knolls and ridges can be expected to yield slightly larger quantities, due to a greater concentration of porous sand and occasionally gravel which form these slight prominences. Small supplies of drinkable water are obtained at depths of 20 to 30 feet in the southwest corner of the adjacent township to the northeast. This horizon may be found productive in section 36 of this township, although no prospecting has as yet been done. With the exception of these two possibilities and a doubtful one in SE.$\frac{1}{4}$, section 32, it is improbable that even small supplies of drinkable water will be found in this township, due to the non-water-bearing nature of both the lake clay and the bedrock.

The Marine shale bedrock underlies the entire township at a depth of about 75 feet in the southwestern corner and rising gradually to the northeast corner to within 40 to 50 feet from the surface. Deep drilling has been extended to depths of 650 feet or more into the shale, which has been found to have the same poor water-bearing properties in this township as in other parts of the municipality, and further drilling into it is not recommended.

Township 12, Range 18

Ground water suitable for domestic use and for stock is not plentiful in this township, due to the lack of extensive aquifers both in the unconsolidated deposits and in the underlying Marine shale bedrock. The sand beds in the lake clay, which produce water in townships to the west and to the south, are either dry or non-existent throughout the greater part of this township. Two productive horizons do exist in the lake clay deposits, but they are confined to very small areas. Many attempts have been made to obtain adequate supplies of water throughout the remainder of the township but without success.

It has been found that wells located on or near low knolls and ridges that occur at irregular intervals over the township are much more productive than wells located on the level plain. These low ridges are composed mainly of sand and gravel, which act as reservoirs for surface water.

The first horizon, small, isolated pockets or beds of sand, and occasionally gravel occurs in a narrow zone, not exceeding one mile in width, extending from the southern boundary of the township through sections 2, 3, 9, 10, and 16, and the southern part of section 20. It is also present along the southern boundaries of sections 5 and 6, and as a small isolated area in sections 27 and 28. In these areas shallow wells sunk to depths of 40 feet or less produce small seepages of hard water containing sulphate salts in solution, which make the water unsuitable for household use, and although used for stock cannot be considered beneficial.

The only wells in the southern half of the township that yield water low enough in dissolved mineral salts to be used in the household, and in sufficient quantities for average farm requirements, occur in SW.$\frac{1}{4}$, sections 5 and 6. Wells located in sections 2 and 3 yield less than two tanks a day, and wells producing from a small area to the north, in sections 27 and 28, yield even smaller quantities. Two wells sunk in SW.$\frac{1}{4}$, section 27, and SE.$\frac{1}{4}$, section 28, yield fair supplies of slightly "alkaline" water at depths of 25 and 30 feet from what is believed to be an isolated sand pocket in the lake clay, as dry holes on all sides indicate that the aquifer is not of any great areal extent.

The second producing horizon is a bed of sand lying at the contact between the glacial clay and the Marine shale bedrock, at depths of 50 to 70 feet, in sections 2, 12, and 13. Dry holes located in NW.$\frac{1}{4}$, section 2, and SW.$\frac{1}{4}$, sections 14 and 24, indicate that this horizon is confined to the sections mentioned above. Only four wells are producing from this aquifer, so that its continuity over the area defined above has not been determined.

The water is highly mineralized and unfit for domestic use, but in only one instance was it reported to be unfit for stock. The yield is very small. Two of the wells each produce about 20 barrels a day, and the other two in the area are much less productive. Two wells located in the southern half of section 6, which tap this horizon, at depths of 50 and 100 feet from the surface, yield small quantities of "alkaline" water with a high iron content. This supply is believed to be derived from the northern margin of a pre-glacial channel, which cuts across the township to the south but occurs only in the extreme southwest corner of this township. Many dry holes located in sections 4, 8, and 18 indicate that this aquifer does not extend into the central part of the township.

Elsewhere in the township the Marine shale bedrock underlies the entire township at depths not exceeding 70 feet. As the deep drilling into bedrock in this township has proved the Marine shale to possess the same poor water-bearing character as elsewhere throughout the municipality, further drilling into it in search for water is not recommended.

Not less than sixty-seven dry holes have been sunk in the township, and it is improbable that adequate supplies of ground water will be obtained in any part of the township remote from the productive areas mentioned above. This barren condition is due largely to the lack of sandy beds near the surface and to the impervious nature of the lake clay and the shale bedrock which prevents surface water from seeping into the few sandy beds at greater depths that would ordinarily act as reservoirs.

Statistical Summary of Well Information in Rural Municipality of Scott, No. 98, Saskatchewan

West of 2nd mer. Township	10	10	10	11	11	11	12	12	12	Total No. in municipality
Range	16	17	18	16	17	18	16	17	18	
Total No. of Wells in Township	71	29	37	35	108	89	92	68	91	620
No. of wells in bedrock	6	6	3	20	41	27	41	52	58	254
No. of wells in glacial drift	65	22	28	15	67	58	47	16	33	351
No. of wells in alluvium	0	1	6	0	0	4	4	0	0	15
Permanency of Water Supply										
No. with permanent supply	42	22	24	7	37	47	9	0	9	197
No. with intermittent supply	3	4	8	0	1	7	4	3	15	45
No. dry holes	26	3	5	28	70	35	79	65	67	378
Types of Wells										
No. of flowing artesian wells	0	0	0	0	0	0	0	0	0	0
No. of non-flowing artesian wells	7	15	4	0	2	19	0	0	1	56
No. of non-artesian wells	38	11	28	7	29	35	13	3	23	187
Quality of Water										
No. with hard water	45	25	32	7	37	49	13	3	24	235
No. with soft water	0	1	0	0	1	5	0	0	0	7
No. with salty water	1	2	5	0	1	4	1	0	3	17
No. with alkaline water	28	23	31	5	37	35	8	1	17	185
Depths of Wells										
No. from 0 to 50 feet deep	48	14	35	24	40	36	76	20	33	326
No. from 51 to 100 feet deep	13	6	1	7	38	25	11	34	46	181
No. from 101 to 150 feet deep	4	1	1	2	7	15	0	2	10	42
No. from 151 to 200 feet deep	1	4	0	2	11	6	3	9	2	38
No. from 201 to 500 feet deep	5	3	0	0	12	6	0	2	0	28
No. from 501 to 1,000 feet deep	0	1	0	0	0	1	0	1	0	3
No. over 1,000 feet deep	0	0	0	0	0	0	2	0	0	2
How the Water is used										
No. usable for domestic purposes	29	8	20	5	23	32	5	2	5	129
No. not usable for domestic purposes	16	18	12	2	15	22	8	1	19	113
No. usable for stock	40	22	32	7	36	50	11	3	22	223
No. not usable for stock	5	4	0	0	2	4	2	0	2	19
Sufficiency of Water Supply										
No. sufficient for domestic needs	43	25	32	7	37	54	12	3	22	235
No. insufficient for domestic needs	2	1	0	0	1	0	1	0	2	7
No. sufficient for stock needs	37	23	23	5	33	47	6	0	8	182
No. insufficient for stock needs	8	3	9	2	5	7	7	3	16	60

ANALYSES AND QUALITY OF WATER

General Statement

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

Total Dissolved Mineral Solids

The term "total dissolved mineral solids" as here used refers to the residue remaining when a sample of water is evaporated to dryness. It is generally considered that waters that have less than 1,000 parts per million of dissolved solids are suitable for ordinary uses, but in the Prairie Provinces this figure is often exceeded. Nearly all waters that contain more than 1,000 parts per million of total solids have a taste due to the dissolved mineral matter. Residents accustomed to the waters may use those that have much more than 1,000 parts per million of dissolved solids without any marked inconvenience, although most persons not used to highly mineralized water would find such waters highly objectionable.

Mineral Substances Present

Calcium and Magnesium

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

Sodium

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

Sulphates

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

Chlorides

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

Iron

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

Hardness

Calcium and magnesium salts impart hardness to water. Hardness of water is commonly recognized by its soap-destroying powers as shown by the difficulty of obtaining lather with soap. The total hardness of a water is the hardness of the water in its original state. Total hardness is divided into "permanent hardness" and "temporary hardness". Permanent hardness is the hardness of the water remaining after the sample has been boiled and it represents the amount of mineral salts that cannot be removed by boiling. Temporary hardness is the difference between the total hardness and the permanent hardness and represents the amount of mineral salts that can be removed by boiling. Temporary hardness is due mainly to the bicarbonates of calcium and magnesium and iron, and permanent harness to the sulphates and chlorides of calcium and magnesium. The permanent hardness can be partly eliminated by adding simple chemical softeners such as ammonia or sodium carbonate, or many prepared softeners. Water that contains a large amount of sodium carbonate and small amounts of calcium and magnesium salts is soft, but if the calcium and magnesium salts are present in large amounts the water is hard. Water that has a total hardness of 300 parts per million or more is usually classed as excessively hard. Many of the Saskatchewan water samples have a total hardness greatly in excess of 300 parts per million; when the total hardness exceeded 3,000 parts per million no exact hardness determination was made. Also no determination for temporary hardness was made on waters having a total hardness less than 50 parts per million. As the determinations of the soap hardness in some cases were made after the samples had been stored for some time, the temporary hardness of some of the waters as they come from the wells probably is higher than that given in the table of analyses.

Analyses of Water Samples from the Municipality of Scott, No. 98, Saskatchewan.

LOCATION						Depth of Well, Ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS									Source of Water
No.	Qtr.	Sec.	Tp.	Rge.	Mer.			Total	Perm.	Temp.	Cl.	Alka-linity	CaO	MgO	SO_4	Na_2O	Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl		
1.	SW.	8	10	16	2	42	5,746											(3)	(4)		(2)		(1)	(5)		x 1
2.	SW.	27	12	18	2	28	520	500	280	220	10	335	150	65	107	20	507	296		56	113		25	17		x 1

Water samples indicated thus, x 1, are from glacial drift or other unconsolidated deposits.
Analyses are reported in parts per million; where numbers (1), (2), (3), (4), and (5) are used instead of parts per million, they represent the relative amounts in which the five main constituents are present in the water.
Hardness is the soap hardness expressed as calcium carbonate ($CaCO_3$).

Analysis No. 1, by Provincial Analyst, Regina.
For interpretation of the table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

Only one sample of ground water was collected and analysed from this municipality. The following discussion of the character of the water derived from the unconsolidated deposits and the bedrock formations is based largely on generalizations made from analyses of water collected in adjoining municipalities in which the Recent alluvium, the glacial deposits, and the bedrock formations show a close similarity.

Water obtained from shallow wells sunk into the Recent sand and gravel deposits along Moosejaw creek and its tributaries is hard, and although containing small amounts of mineral salts in solution is of a better quality on the whole than supplies derived from the glacial drift. In the extreme southwest corner of the municipality the water from these stream deposits is more highly charged with mineral salts, particularly Na_2SO_4 (Glauber's salt) and NaCl (common salt) which presumably have been derived from the Marine shale bedrock that comes to the surface just beyond the southwest corner of the municipality. South of the town of Lewvan, in the northeast part of the municipality, drinkable water is obtained only from very shallow wells sunk in the loose gravels close to the stream channel. Wells located remote from the stream yield only small seepages of water that is highly charged with dissolved mineral salts, particularly sulphates.

The glacial deposits show marked variations in character within short distances and at different depths; corresponding variations in the quality of the ground water derived from the drift are to be expected. One well may yield a moderately hard, slightly mineralized water whereas another well sunk to a similar depth and located only 50 feet distant may give water that is too high in dissolved sulphates salts to be used either for drinking or stock watering. It should not be inferred, therefore, that if water of poor quality is struck in one well, similar water will of necessity exist over a large area in this district.

Ground water derived from the glacial boulder clay and lake clay is much more highly mineralized than supplies derived from stream deposits. The mineral salts most commonly found in waters from the lake and boulder clays are the following, their relative quantities decreasing in the order given: sodium sulphate (Na_2SO_4), magnesium sulphate ($MgSO_4$), calcium carbonate ($CaCO_3$), calcium sulphate ($CaSO_4$), magnesium carbonate ($MgCO_3$), sodium chloride ($NaCl$), and sodium carbonate (Na_2CO_3). The water is generally exceedingly hard, having a total hardness in some places of over 1,000 parts per million. The sulphate salt content is also high. Several analyses of waters from the clays, in different parts of the lake basin, show an excess of 2,000 parts per million of combined sodium and magnesium sulphate. Water containing more than 1,000 parts per million of these two salts often has a laxative effect on humans, tends to produce scour in stock, and is not suitable for irrigation. Water so mineralized should not be used if better supplies are procurable within reasonable hauling distance. The first analysis given on the accompanying table is of water derived from a well sunk into boulder clay. The water was reported to be unfit for either human or stock use. Ground water derived from sand and gravel deposits in the drift is usually very hard, the total hardness generally being in excess of 300 parts per million and occasionally over 750 parts per million. The Glauber's salt (Na_2SO_4), Epsom salts ($MgSO_4$), and common salt ($NaCl$) content is low, and the water, if not contaminated by organic material, is considered quite suitable for household use. The second analysis given in the table is of water from a well located in SW.$\frac{1}{4}$, sec. 27, tp. 12, range 18, which derives its supply from sand and gravel pockets in the glacial drift.

Water obtained from the pre-glacial stream channel that extends diagonally across the municipality is very hard, due to the presence of calcium and magnesium salts, but shows considerable variation in the amounts of the other mineral salts present, Glauber's salt (Na_2SO_4) and common salt ($NaCl$) being most common. No analyses have been made of waters from the buried channel in this municipality. One analysis of water from a 148-foot well, located in sec. 16, tp. 13, range 19, in the municipality adjoining on the north, and believed to derive its supply from the channel, has a total dissolved solid content of 3,020 parts per million; of which 1,881 parts per million is of sodium sulphate and 683 parts per million of common salt, these two salts forming the main constituents. Despite its high total solid content this water is being used for drinking. In many localities along the central and eastern parts of the burried channel the high content of the two above mentioned salts renders the water unfit for household use, but it is being used for watering stock without noticeable ill effects. Iron forms an objectionable constituent in water from many wells tapping this horizon. Much of this iron may be removed by letting the water stand for a period of time in a trough or container that permits of a large water surface being in contact with the air. Agitation of the water is also helpful in removing iron. One method that has proved successful in several instances is to allow the water to pass over a sheet of corrugated, galvanized iron suspended between the pump and the trough. The iron settles as a brown precipitate on the bottom of the trough.

Water from the Bedrock

The Marine shale forms the bedrock beneath the unconsolidated deposits throughout the entire municipality. Since the water in the shale in this municipality is almost invariably unfit for farm requirements supplies used in this district are derived almost entirely from the overlying unconsolidated material. Less variation exists in the quality of water from the Marine shale than in supplies from the unconsolidated stream bed and glacial deposits. This is due to the fact that the shale itself is strikingly uniform in composition throughout the entire municipality, whereas the overlying deposits show marked variations in character over small areas. Water from the shale has a very high mineral salt content. Analyses of eight samples of ground water taken from the Marine shale at widely separated localities all show an excess of 2,000 parts per million of total solids, and in one instance 4,120 parts per million. The combined sulphate salts of sodium and magnesium (Glauber's salt and Epson salts) range between 1,000 and 3,100 parts per million. Common salt averaged 500 parts per million. These high figures are to be expected in waters from a formation known definitely to be of marine origin. A much greater variation is noted in the total hardness of waters from the shale and appears to be more or less proportionate to the total solid content. Several samples analysed are slightly to moderately hard, i.e. the total hardness is less than 200 parts per million, whereas in other places the water is excessively hard having a total hardness of 1,000 to 3,000 parts per million of dissolved calcium and magnesium carbonate salts. Ground water from the Marine shale has a strong laxative effect, and is quite unsuitable for domestic use. It has a tendency to produce scour in stock.

WELL RECORDS—Rural Municipality of SCOTT. NO. 98.

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	NE	2	10	16	2	Dug	30	1900	− 30	1870	30	1870	Glacial, sand	Hard, alkaline		S.	Sufficient for local needs.
2	SW	3	"	"	"	Bored	90	1900	− 52	1848	80	1820	" "	" very alkaline		N.	Well not used.
3	SE	4	"	"	"	Dug	50	1900	− 48	1852	50	1850	" "	Hard, clear		S.	Yields 9 tanks per day.
4	SW	5	"	"	"	"	36	1900	− 36	1864	36	1864	" clay	"			Very small supply, 4 dry holes, from 35'-60'
5	NW	5	"	"	"	Bored	87	1910	− 75	1835	83	1827	" gravel	" clear		S.	
6	SE	6	"	"	"	"	50	1900			50	1850	" sand	" alkaline		S.	Well choked with quicksand.
7	NE	6	"	"	"	"	60	1900	− 47	1853	50	1850	" , grey sand	" "		S.	Only used in winter.
8	SW	7	"	"	"	"	48	1900	− 35	1865	35	1865	" sand	" salty, iron		S.	Well filled in, dry holes from 60'-80'.
9		7	"	"	"	Drilled	200	1900	− 30	1870	184	1716	? , gravelly clay			N.	Was good supply, well not used now.
10		7	"	"	"	"	475	1900					Marine shale, bedrock			N.	Dry hole.
11	NE	7	"	"	"	"	115	1900					Marine Shale bedrock			N.	" " . Bedrock struck at 107' from surface, elevation 1793.
12	NE	7	"	"	"	"	110	1900	−110	1790	?	?	Marine Shale bedrock				Very small supply, 1 dry hole.
13		7	"	"	"	"	150	1900	− 20	1880	150	1750	Marine shale				Good supply in 1917, no later information.
14	SW	8	"	"	"	Dug	42	1900			42	1858	Glacial, sand	Hard, very alkaline		S.	Unfit for man or stock, contains Na_2SO_4, $NaCl$, $CaSO_4$, $MgSO_4$, $CaCO_3$
15	SW	9	"	"	"	"	50	1900	− 25	1875	40	1860	" gravel	Hard, alkaline		S.	Sufficient for local needs.
16	NW	10	"	"	"	"	40	1900	− 28	1872	32	1868	" "	Hard, iron,		D. S.	" " " " .
17	NE	10	"	"	"	"	30	1900	− 30	1870	30	1870	"	" " alkaline		S.	" " 6 head of stock.
18	SW	11	"	"	"	Dug & Drilled	101	1900	− 40	1860	101	1799	" "	Hard, iron, alkaline		S.	" " local needs.
19	NE	11	"	"	"	Dug	20	1900	− 16	1884	20	1880	" "	Hard		S.	Supplies 50 tanks per day.
20	SE	12	"	"	"	"	25	1890	− 17	1873	25	1865	" "	" iron, alkaline		S.	Sufficient for local needs.
21	NW	12	"	"	"	"	20	1900	− 16	1884	20	1880	" "	Hard		S.	" " " " .
22	SW	13	"	"	"	"	20	1900	− 16	1884	20	1880	" "	"		D. S.	" " " " .
23	SW	14	"	"	"	"	40	1910			40	1870	" "	" iron		D. S.	" " " " .
24	SE	15	"	"	"	"	20	1900			20	1880	" sand	" " alkaline		N.	
25	SE	16	"	"	"	"	60	1910			60	1850	" "	Hard, clear		S.	" " " " .
26	SW	16	"	"	"	"	20	1900			20	1880	" "	" "		D. S.	" " " " .
27	NW	16	"	"	"	"	40	1900			40	1860	" "	" " alkaline		S.	Only supplies 3 bbls per day.

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 SCOTT. NO. 98.

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	SE.	18	10	16	2	Dug	43	1910	− 18	1892	22	1888	Glacial, sand	Medium hard, clear		D. S.	Supplies Yellowgrass Town, many farms, & yields 30 gals. per min., 3,700,000 gals. in 1934.
29	SW.	18	"	"	"	Drilled	320	1910					" (?) clay			N.	20 dry holes some 300', dry gravel at 1800'.#
30	SE.	19	"	"	"	"	234	1910	− 35	1875	220	1690	" gravel	Hard, iron, clear		S.	Fine grey sand struck at 1816' & 1770'.
31	SE.	19	"	"	"	"	98	1910			98	1812	" (?) clay			N.	Very small supply, 4 dry holes, 40' deep.
32	SW.	19	"	"	"	Dug	40	1910			40	1870	" sand	Medium hard, clear		D. S.	Sufficient for local needs, situated on a low ridge.
33	NW.	20	"	"	"	Bored	75	1900	− 15	1885	70	1830	Fine blue sand	Hard		N.	Very strong supply.
34	SW.	21	"	"	"	Dug	30	1900			30	1870	" gravel	" $MgSO_4$		S.	Only sufficient for 8 head of stock, laxative.
35	SE.	22	"	"	"	"	18	1900	− 10	1890	18	1882	Glacial, sand	" clear, alkaline		S.	Sufficient for local needs. Haul drinking water.
36	SE.	23	"	"	"	Bored	100	1900					Marine shale			N.	4 dry holes to 1805', small seepage well with salty water.
37	SW.	27	"	"	"	Dug	16	1900			16	1884	Glacial sand	Hard, slightly alkaline		D. S.	Sufficient for local needs.
38	SE.	28	"	"	"	"	19	1910			19	1891	" "	Hard, clear, alkaline		D. S.	" " " " .
39	SW.	28	"	"	"	"	16	1910			16	1894	" "	Hard, clear, alkaline		D. S.	" " " " , 2 similar wells.
40	NW.	28	"	"	"	"	25	1900			25	1875	" "	Hard, clear, alkaline		D. S.	" " " " .
41	SW.	29	"	"	"	"	35	1910			35	1875	" "	Hard, iron, alkaline		S.	" " " stock needs, drinking water hauled.
42	NE.	30	"	"	"	Bored	70	1900	− 50	1850	70	1830	" "	Hard, alkaline		S.	Sufficient for local stock needs, drinking water hauled.
43	SE.	31	"	"	"	Dug	32	1910			20	1890	" "	" clear		D. S.	Supplies 22 tanks per day.
44	NW.	31	"	"	"	"	35	1895			35	1860	" "	" slightly alkaline, clear		D. S.	Sufficient for local needs.
45	NW.	32	"	"	"	"	35	1910			35	1875	" "	Hard		N.	Well filled in.
46	NW.	33	"	"	"	"	30	1910			30	1880	" "	" clear, alkaline		S.	Insufficient for local needs, dugout used and water is hauled.
47	NE.	34	"	"	"	Bored	50	1900					" blue clay			N.	Dry hole.
48	NE.	36	"	"	"	"	40	1900					" clay			N.	" " , 5 other test holes 40' deep dry.
1	SW.	2	10	17	2	Dug	32	1900	− 26	1874	32	1868	" sand	Hard, clear	42	S.	Sufficient for 100 head of stock., Hauls drinking water.
2	SE.	9	"	"	"	"	23	1895	− 15	1880	23	1872	" "	" "		N.	Good supply but unfit for man or stock owing to high content of $MgSO_4$.
3	SE.	10	"	"	"	Bored	43	1900	− 30	1870	43	1857	" "	" " alkaline		S.	Sufficient for 40 head of stock, laxative.
4	NW.	10	"	"	"	Dug	21	1900	− 14	1886	21	1879	" "	Hard, alkaline		S.	" " local needs, laxative.
5	NW.	11	"	"	"	"	28	1900	− 14	1886	28	1872	" "	" " clear	45	S.	" " 8 head of stock, laxative.
6	SW.	14	"	"	"	"	13	1900	− 11	1889	13	1887	" "	Hard, clear		S.	" " stock, several dry holes dug.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
7	NW.	15	10	17	2	Dug	18	1,905	− 17	1,888	18	1,887	Glacial, sand	Hard, clear, iron		D. S.	Only waters 4 head of stock.
8	SW.	17	"	"	"	Drilled	600	1,900					Marine shale			N.	Dry hole.
9	SE.	18	"	"	"	Dug	26	1,900	− 11	1,889	26	1,874	Strea sand	Hard, alkaline		D. S.	Waters 50 head of stock in summer, almost dry in winter.
10	NE.	21	"	"	"	"	23	1,900	− 12	1,888	23	1,877	Glacial "	" clear		D. S.	Waters 20 head of stock, also 3 similar wells and a dugout.
11	NE.	22	"	"	"	"	36	1,900	− 30	1,870	35	1,865	" "	" alkaline		S.	Too alkaline for constant stock use.
12	NE.	23	"	"	"	Drilled	100	1,900	− 65	1,835	100	1,800	" gravel	" iron		S.	Sufficient for local needs, laxative.
13	SW.	25	"	"	"	Dug	33	1,900	− 18	1,882	30	1,870	" "	" alkaline		D. S.	Well for stock 45' deep, also use dugout.
14	NE.	25	"	"	"	Drilled	100	1,900	− 50	1,850	100	1,800	" "	" iron	42	D. S.	Very good supply.
15	NE.	26	"	"	"	Dug	85	1,900	− 35	1,865	85	1,815	" "	" clear, alkaline		S.	" " " , laxative.
16	NW.	27	"	"	"	Drilled	170	1,900	− 50	1,850	170	1,730	" sand	Hard, alkaline		S.	Sufficient for stock use, laxative.
17	NE.	28	"	"	"	"	200	1,900	− 70	1,830	200	1,700	" "	" iron		S.	" " " ".
18	NW.	31	"	"	"	Bored	100	1,900	− 50	1,850	100	1,800	" "	" , clear	45	D. S.	Very good supply.
19	NE.	33	"	"	"	Drilled	200	1,900	− 80	1,820	200	1,700	" "	" alkaline	42	S.	" " " , laxative.
20	SW.	34	"	"	"	"	225	1,900	− 50	1,850	225?	1,675	" "	" " iron	45	D. S.	Sufficient for local needs.
21	NE.	34	"	"	"	"	107	1,900	− 87	1,813			" "	" " "	42	S.	Waters 12 head of stock, laxative.
22	NW.	35	"	"	"	"	210	1,900	− 20	1,880	199	1,701	Marine shale	Soft salty			Poor supply.
23	NW.	35	"	"	"	Bored	65	1,900	− 48	1,852	65	1,835	Glacial, gravel	Hard, clear, alkaline	45	S.	Waters 25 head of stock, laxative.
24	SE.	36	"	"	"	Dug	35	1,900	− 21	1,879	35	1,865	" sand	Hard, clear, iron		S.	" 10 " " " ".
1	SE.	2	10	18	2	Dug	14	1,950	− 10	1,940	14	1,936	" "	Hard, alkaline clear, iron	42	S.	" 40 " " " , ".
2	NW.	6	"	"	"	"	12	1,950			12	1,938	" clay	Hard, clear, alkaline	45	D.	Sufficient for house use only, seepage from creek.
3	NE.	10	"	"	"	"	14	1,900	− 4	1,896	14	1,886	Stream sand	Hard, slightly alkaline,	45	D. S.	Sufficient for house use only, seepage from creek.
4	NW.	10	"	"	"	"	14	1,900	− 10	1,890	14	1,886	" "	Hard alkaline clear	43	D. S.	Sufficient for house use only, seepage from creek.
5	NE.	12	"	"	"	"	22	1,900	− 17	1,883	22	1,878	Glacial "	Hard, alkaline		S.	Waters from 35 to 40 head of stock, laxative.
6	SE.	14	"	"	"	"	35	1,900	− 30	1,870	35	1,865	" "	" soda, magnesia		S.	" 200 head of stock, laxative.
7	NE.	15	"	"	"	"	26	1,900	− 21	1,879	26	1,874	" "	Hard, clear, alkaline	45	S.	Large supply, laxative. Drinking water is hauled.
8	W½.	20	"	"	"	"	30	1,925	− 12	1,913	30	1,895	Stream "	Hard, alkaline		D. S.	Small, intermittent supply.
9	NE.	21	"	"	"	"	15	1,900	− 11	1,889	12	1,888	" "	" " clear	42	D. S.	Waters 30 head of stock.

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WELL RECORDS—Rural Municipality of SCOTT NO. 98.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
10	SW.	22	10	18	2	Dug	30	1,900	– 22	1,878	30	1,870	Stream, sand	Hard, clear, alkaline		D. S.	Waters 40 head of stock in winter.
11	NW.	23	"	"	"	"	25	1,900	– 15	1,885	18	1,882	Glacial "	Hard, salty, clear	42	S.	" 100 " " " , laxative.
12	SW.	26	"	"	"	"	31	1,900	– 12	1,888	31	1,869	" "	Hard, alkaline iron, clear	45	S.	Yields 8 bbls. a day, laxative. Hauls drinking water.
13	NW.	27	"	"	"	"	13	1,900	– 10	1,890	15	1,885	" "	Hard, salty, alkaline		S.	Waters 20 head of stock.
14	SW.	28	"	"	"	"	30	1,900	– 25	1,875	30	1,870	" "	Hard, alkaline clear		D. S.	Sufficient for local needs, laxative.
15	SW.	30	"	"	"	"	30	1,900	– 8	1,892	25	1,875	Stream "	Hard, clear, alkaline	45	D. S.	Waters 30 head of stock, well at the edge of creek.
16	NW.	30	"	"	"	"	18	1,900	– 14	1,886	18	1,882	Glacial "	Hard, clear, alkaline	45	D. S.	Waters 30 head of stock, slightly laxative.
17	NW.	31	"	"	"	"	24	1,900	– 20	1,880	20	1,880	" "	Hard, slightly alkaline		D. S.	Sufficient for local needs.
18	SW.	32	"	"	"	"	35	1,900	– 30	1,870	35	1,865	" "	Hard, slightly alkaline	44	D. S.	Good supply.
19	SE.	32	"	"	"	"	35	1,900	– 31	1,869	35	1,865	" "	Hard, slightly alkaline		D. S.	" " , slightly laxative.
20	SE.	34	"	"	"	"	25	1,900	– 17	1,883	25	1,875	" "	Epsom salts, hard, clear, soda	45	D. S.	Sufficient for local needs.
21	NE.	34	"	"	"	"	15	1,900	– 7	1,893	15	1,885	" "	Hard, alkaline		D. S.	Only sufficient for house use.
22	NW.	36	"	"	"	Drilled	135	1,900	– 40	1,860	135	1,765	" gravel	" " salty		S.	Sufficient for stock use, laxative.
1	NW.	3	11	16	2	Bored	47	1,900					" sandy clay			N.	Dry hole.
2	SW.	4	"	"	"	Dug	20	1,900	– 10	1,890	20	1,880	" blue "	Hard, alkaline		S.	Sufficient for local needs.
3	SW.	5	"	"	"	"	25	1,890	– 1	1,889	1	1,889	" sand	" clear		D. S.	" " " " .
4	SE.	6	"	"	"	Bored	40	1,920	– 38	1,882	5	1,915	" "	" slightly alkaline		D. S.	" " " " , except in dry years.
5	SW.	11	"	"	"	Augor	35	1,900					" blue clay			N.	Dry hole.
6	SW.	12	"	"	"	Dug	27	1,900	– 20	1,880	27	1,873	" sand	Hard, clear, alkaline		S.	¾ of a tank a day, laxative.
7	NW.	13	"	"	"	"	20	1,900	– 18	1,882	20	1,880	" "	Hard, iron, alkaline		D. S.	Poor quality of water, sufficient for local use.
8	SE.	14	"	"	"	"	27	1,900	– 20	1,880	27	1,873	" "	Hard, iron, clear		D. S.	Sufficient for local needs.
9	SW.	14	"	"	"	Bored	121	1,900					" blue clay			N.	Dry hole.
10	SW.	20	"	"	"	Drilled	150	1,900					Marine shale			N.	" " .
11	SE.	22	"	"	"	Bored	40	1,890					" "			N.	" " , 4 other similar dry holes.
12	NW.	26	"	"	"	Drilled	100	1,900					" "			N.	" " . All water hauled.
13	NW.	28	"	"	"	Bored	40	1,900					Glacial, yellow clay			N.	" " . " " " .
14	SW.	32	"	"	"	Dug	80	1,900					Glacial, yellow clay			N.	Two other dry holes 40' and 80' deep. on this ¼.
15	NE.	32	"	"	"	Drilled	200	1,910					Marine shale			N.	Several other dry holes from 60' to 100' deep.
16	NW.	33	"	"	"	Bored	100	1,900					" "			N.	Dry hole.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

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
17	SE.	34	11	16	2	Dug	28	1,900					Glacial, blue clay			N.	Dry hole. All water is hauled. Several other dry holes 30' deep.
18	NE.	34	"	"	"			1,900								N.	Several dry holes
19	NE.	35	"	"	"	Drilled	195	1,900					" " "			N.	" " " . All water is hauled.
20	NE.	36	"	"	"	Dug	24	1,900	− 20	1,880	20	1,880	" " "	Hard, clear, alkaline		D. S.	Only sufficient for house use, 3 bbls. a day.
1	SE.	1	11	17	2	Drilled	175	1,900			175	1,725	" " "				Very small supply.
2	SE.	2	"	"	"	"	247	1,900					Marine, shale			N.	Dry hole.
3	SW.	2	"	"	"	Bored	40	1,900	− 28	1,872	30	1,870	Glacial, sand	Hard, clear		D. S.	Sufficient for local needs.
4	SE.	3	"	"	"	"	85	1,900	− 70	1,830	85	1,815	" "	" "		D. S.	" " " " .
5	NW.	4	"	"	"	"	165	1,910	−100	1,810	165	1,745	" "	" " alkaline, iron		S.	" " " " .
6	SW.	4	"	"	"	"	145	1,910	− 70	1,840	175	1,735	" "	Hard, clear, alkaline, iron		S.	" " " " .
7	NE.	5	"	"	"	Drilled	250	1,900	− 25	1,875	250	1,650	" "	Hard clear, alkaline, iron		S.	Very good supply.
8	NW.	6	"	"	"	Bored	120	1,900	− 90	1,810	120	1,780	" "	Hard, $MgSO_4$, clear		S.	Sufficient for local needs.
9	NE.	8	"	"	"	Drilled	265	1,900	− 60	1,840	265	1,635	Gravel over bed-rock	Hard, iron		D. S.	" " " " .
10	NW.	9	"	"	"	"	160	1,910	− 40	1,870	160	1,750	Glacial, sand	" " clear		D. S.	" " " " .
11	SW.	11	"	"	"	Dug	30	1,900	− 27	1,873	30	1,870	" "	" " " alkaline		D. S.	" " " " , laxative.
12	SE.	12	"	"	"	"	40	1,900	− 18	1,882	20	1,880	" "	Hard, clear		D. S.	Waters 20 head of stock.
13	NE.	12	"	"	"	"	16	1,895	− 12	1,883	16	1,879	" "	" " alkaline		D. S.	Sufficient for local needs, laxative.
14	SW.	13	"	"	"	"	22	1,905	− 18	1,887	22	1,883	" "	Hard, clear, iron		D. S.	" " " " , " .
15	SW.	14	"	"	"	"	26	1,900	− 22	1,878	22	1,878	" "	Hard, clear, alkaline		D. S.	" " " " .
16	SW.	15	"	"	"	"	30	1,900	− 26	1,874	30	1,870	" grey sand	Hard, clear, alkaline		D. S.	" " " " .
17	NE.	18	"	"	"	Drilled	175	1,900			175	1,725	" " "	Hard, iron		D. S.	" " " " .
18	SW.	18	"	"	"	"	210	1,910			210	1,700	Sand over bed-rock	" " clear		S.	" " " " . Use shallow seepage well for drinking water.
19	SW.	19	"	"	"	"	125	1,910					Glacial boulder			N.	Dry hole.
20	SW.	19	"	"	"	"	100	1,910						Iron			
21	SW.	19	"	"	"	"	212	1,910	−105	1,805	170	1,740	Glacial, fine sand	Hard, iron		S.	Sufficient for local needs.
22	NE.	19	"	"	"	"	165	1,900	− 55	1,845	158	1,742	Glacial, sand	" "		N.	
23	SE.	20	"	"	"	Bored	43	1,900			43	1,857	" "	" " alkaline		S.	Small supply, laxative. Dry hole to 165', struck bedrock at 160'.

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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
24	SW.	21	11	17	2	Drilled	400	1,900					Marine shale			N.	Dry holes from 300' to 400' deep. 4 other dry holes 40' deep.
25	SW.	22	"	"	"	Bored	125	1,900					" "			N.	Several dry holes.
26	NE.	22	"	"	"	Drilled	275	1,900	- 55	1,845	268	1,632	Yellow sand	Hard, iron, clear		S.	
27	NW.	23	"	"	"	Dug	26	1,905	- 22	1,883	25	1,879	Coarse, grey sand	Hard, iron, alkaline		S.	Laxative even for stock.
28	SE.	24	"	"	"	Bored	80	1,900					Marine shale			N.	Dry hole, also 3 other dry holes, 32', 75', and 80' deep.
29	SE.	24	"	"	"	Dug	12	1,900			12	1,888	Glacial, sand	Hard, clear, alkaline		D. S.	Sufficient for local needs, laxative.
30	SE.	25	"	"	"	"		1,900					" blue clay			N.	Several dry holes.
31	NE.	25	"	"	"	"	20	1,900			20	1,880	" "	Hard, clear		D. S.	Sufficient for local needs.
32	SE.	27	"	"	"	Bored	40	1,915	- 36	1,879	40	1,875	" "	" " iron, alkaline		D. S.	" " " " , laxative. 2 dry holes, 260' and 280' in blue clay.
33	NE.	28	"	"	"	Dug	30	1,900	- 26	1,874	30	1,870	" gravel	Hard, iron, clear		D. S.	Yields 4 or 5 bbls. a day.
34	SE.	29	"	"	"	Drilled	285	1,900					" blue clay			N.	Dry hole, also 2 other dry holes 70' deep.
35	NW.	29	"	"	"	Dug	34	1,900			29	1,871	" gravel	Hard, clear		D. S.	Good supply.
36	SE.	30	"	"	"	Bored	31-60	1,900								N.	Several dry holes.
37	NE.	30	"	"	"	Dug	35	1,900			35	1,865	" sand	Fairly soft, clear		N.	Very little water, well is now filled in.
38	NE.	30	"	"	"	"	27	1,900			3	1,897	" "	Hard		D. S.	Sufficient for local needs, 15 dry holes up to 105' deep. Bedrock struck at 65' from surface.
39	SW.	30	"	"	"	Bored	90	1,900					" blue clay			N	15 dry holes.
40	NE.	32	"	"	"	Drilled	70	1,900			70	1,830	" "	Hard, clear, alkaline		S.	Sufficient for local needs.
41	NW.	33	"	"	"	Dug	32	1,900			32	1,868	" "	Hard, clear, alkaline		S.	Very little water. 2 dry holes 27' and 30' deep
42	SW.	35	"	"	"	Drilled		1,900					Dry sand in clay			N.	Several dry holes.
43	NE.	35	"	"	"	"	175	1,900					" " " "			N.	" " "
44	SE.	36	"	"	"	Dug	25	1,900	- 16	1,884	25	1,875	Glacial, sand	Hard, clear, alkaline		S.	Sufficient for local needs, laxative.
1	NW.	1	11	18	2	Bored	112	1,880	- 52	1,828	112	1,768	" "	Hard, alkaline clear	40	S.	" " " " .
2	NE.	1	"	"	"	"	125	1,900	- 75	1,825	125	1,775	" "	Hard, alkaline clear		S.	" " " " .
3	NE.	3	"	"	"	"	80	1,910					Marine shale			N.	Dry hole, also 4 other dry holes 50'-80' deep.
4	SW.	5	"	"	"	Dug	24	1,900	- 20	1,880	24	1,876	Glacial sand	Hard, clear		D. S.	Sufficient for local needs.
5	SE.	6	"	"	"	"	20	1,910	- 17	1,893	20	1,890	" "	" "		D. S.	" " " " .
6	SW.	7	"	"	"	"	22	1,920	- 20	1,900	15	1,905	" "	" "		D. S.	" " " " .

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

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

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	HEIGHT TO WHICH WATER WILL RISE: Elev.	PRINCIPAL WATER-BEARING BED: Depth	PRINCIPAL WATER-BEARING BED: Elev.	PRINCIPAL WATER-BEARING BED: Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
7	NW.	7	11	18	2	Dug	14	1,900	- 4	1,896	14	1,886	Glacial, sand	Hard, clear, alkaline		S.	Sufficient for local needs. Waters 26 head of stock.
8	SW.	11	"	"	"	Drilled	720	1,910					Marine shale			N.	Dry hole. Also 10 other dry holes from 150' to 300' into bedrock.
9	NW.	11	"	"	"	Bored	50	1,910	- 44	1,866	50	1,860	Glacial gravel	Hard, alkaline fe, red colour		S.	Sufficient for local stock needs.
10	NW.	12	"	"	"	"	150	1,910	- 90	1,820	150	1,760	" sand	Hard, alkaline clear		S.	" " " " ".
11	NW.	13	"	"	"	Dug	20	1,900	- 13	1,887	20	1,880	" "	Hard, alkaline clear		D. S.	" " " needs.
12	NW.	14	"	"	"	"	30	1,905	- 22	1,883	30	1,875	" "	Hard, alkaline clear		D. S.	" " " " . 15 bbls. a day.
13	NW.	14	"	"	"	Bored	53	1,905			55	1,850	" "	Hard, alkaline clear		S.	" " " " .
14	NE.	14	"	"	"	Dug	17	1,905	- 12	1,893	17	1,888	" "	Hard, alkaline clear		D. S.	" " " " . 10 " " ".
15	NE.	14	"	"	"	Drilled	174	1,905	-134	1,771	174	1,731	" "	Hard, alkaline iron		S.	
16	NE.	14	"	"	"	Bored	175	1,910			175	1,735	" "	Hard, alkaline iron, clear		S.	Practically dry.
17	NE.	15	"	"	"	Drilled	115	1,905	- 40	1,865	115	1,790	" gravel	Hard, iron		D. S.	Sufficient for local needs.
18	NE.	16	"	"	"	"	80	1,910	- 55	1,855	80	1,830	" sand	Hard, sulphur, clear		S.	Yields 10 bbls. a day.
19	SE.	17	"	"	"	Dug	30	1,900	- 20	1,880	30	1,870	Stream "	Hard, clear		S.	Sufficient for local needs.
20	NW.	17	"	"	"	"	20	1,910			4	1,906	Glacial gravel	" " iron		S.	" " " stock needs. Hauls drinking water.
21	NW.	18	"	"	"	"	16	1,895			23	1,872	" "	Soft, "		D. S.	Sufficient for local needs.
22	NW.	19	"	"	"	"	22	1,910	- 15	1,895	22	1,888	" "	Hard, " iron		D. S.	" " " " 3-4 bbls. a day.
23	NE.	19	"	"	"	Bored	100	1,910			100	1,810		" " "		D. S.	Sufficient for local needs.
24	NW.	20	"	"	"	"	100	1,910	- 50	1,860	100	1,810	" sand	" "		D. S.	" " " " .
25	NE.	20	"	"	"	Drilled	150	1,910	- 75	1,835	150	1,760	" "	" " "		S.	" " " " . Hauls drinking water.
26	SE.	21	"	"	"	Dug	17	1,910			15	1,895	" gravel	" "		D. S.	Sufficient " " " . 5 bbls. a day.
27	SE.	22	"	"	"	"	40	1,910	- 35	1,875	40	1,870	" blue clay	" alkaline		S.	Waters 4 head of stock.
28	SE.	22	"	"	"	"	16	1,905			16	1,889	" gravel	" clear		D. S.	Sufficient for local needs.
29	SE.	22	"	"	"	Drilled	55	1,910			55	1,855	" sandy clay	" " alkaline		S.	" " " " . 1 dry hole 120' deep.
30	SW.	22	"	"	"	Dug	24	1,910	- 18	1,892	18	1,892	" sand	Soft, clear, alkaline	40	D. S.	10 bbls. a day.
31	NW.	22	"	"	"	Drilled	175	1,910	- 70	1,840	175	1,735	" " bedrock?	Hard, clear, iron		S.	" 30 " " " . 6 dry holes 50'-100' deep.
32	SE.	23	"	"	"	"	150	1,910	-100	1,810	150	1,760	Glacial, sand	Hard, clear, iron		S.	Sufficient for local stock needs. Hauls drinking water.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

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	SW.	23	11	18	2	Drilled	137	1,910	- 80	1,830	167	1,743	Glacial, sand	Hard, clear, alkaline		S.	Sufficient for local stock needs.
34	SE.	24	"	"	"	Bored	50	1,910	- 16	1,894	16	1,894	" "	Hard, iron, clear			Well now caved in
35	NW.	25	"	"	"	Dug	35	1,900	- 25	1,875	30	1,870	" "	Hard, iron, clear		D. S.	Sufficient for local needs.
36	SW.	26	"	"	"	Bored	100	1,910	- 70	1,840	100	1,810	" "	Hard, iron, clear		D. S.	" " " ".
37	NE.	27	"	"	"	Dug	15	1,910	- 9	1,901	4 15	1,906 1,895	" "	Soft, clear		D. S.	Poor supply.
38	SW.	29	"	"	"	Bored	115	1,910	- 75	1,835	115	1,795	" " gravel	Hard, clear		D. S.	Waters 6 head of stock.
39	NE.	29	"	"	"	"	140	1,905	-100	1,805	140	1,765	Glacial	" iron		S.	" 18 " " ", laxative.
40	SE.	30	"	"	"	"	100	1,910			100	1,810	" "	" " clear		D. S.	Sufficient for local needs.
41	SW.	30	"	"	"	Drilled	200	1,910	- 80	1,830	200	1,710	" "	Hard, clear, alkaline		D. S.	" " " ". Pumps 10-15 bbls. a day.
42	NW.	31	"	"	"	Dug	86	1,910	- 80	1,830	86	1,824	" gravel	Hard, clear, alkaline		S.	Sufficient for local stock needs, laxative.
43	SE.	32	"	"	"	"	33	1,900	- 8	1,892	33	1,867	" sand	Hard, clear		N.	
44	SE.	33	"	"	"	Bored	80	1,900	- 73	1,827	80	1,820	" "	" " alkaline		S.	Sufficient supply, but hard on stock owing to mineral salts.
45	SE.	34	"	"	"	Dug	30	1,900	- 22	1,878	30	1,870	" " gravel	Hard, clear	42	D. S.	Sufficient for local needs.
46	NE.	34	"	"	"	Bored	40	1,900	- 32	1,868	40	1,860	Glacial, sand	" alkaline	40	D. S.	" " " ".
47	NW.	35	"	"	"	"	90	1,900	- 45	1,855	45	1,855	" "	" " clear		S.	" " " ". Also 2 dry holes 60'-80' deep.
48	NE.	35	"	"	"	"	40	1,900	- 36	1,864	40	1,860	" "	Hard, alkaline clear		N.	Very small supply.
49	NE.	36	"	"	"	"	35	1,900			35	1,865	" "	Hard, alkaline clear		D. S.	" " ".
1	NE.	1	12	16	2	Dug	11	1,900	- 5	1,895	11	1,889	" "	Hard, alkaline clear		S.	Sufficient for local stock needs.
2	NW.	1	"	"	"	"	16	1,900	- 5	1,895	16	1,884	" "	Hard, clear		D. S.	Very good supply of good drinking water.
3	SW.	3	"	"	"	Drilled	50	1,900					" blue clay			N.	25 dry holes 20'-50' deep.
4	SE.	10	"	"	"	"	200	1,900					Marine shale			N.	Dry hole.
5	NE.	10	"	"	"	Dug	35	1,900			35	1,865	Glacial, sand	Hard, alkaline			Very small supply. 4 other dry holes 35' deep
6	SW.	12	"	"	"	"	33	1,900	- 25	1,875	33	1,867	" gravel	" " clear		S.	Poor supply.
7	SW.	15	"	"	"	"	28	1,900			28	1,872	" "	Hard, slightly alkaline		N.	Well caved in. Was a poor supply.
8	NE.	17	"	"	"	Drilled	1,010	1,900					Marine shale			N.	Dry hole. 12 other dry holes 50' deep.
9	NE.	17	"	"	"	"	1010	1,900					" "			N.	Dry hole.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
10	SW.	18	12	16	2	Drilled	100	1,900					Marine shale			N.	Dry hole. Several other dry holes from 25'-40' deep.
11	SE.	24	"	"	"	Bored	35	1,900					Glacial, blue clay			N.	5 dry holes 35' deep.
12	SE.	25	"	"	"	Drilled	200	1,900					Marine shale			N.	Dry hole. 5 other dry holes from 50'-100' deep.
13	SW.	25	"	"	"	Bored	76	1,900					" "			N.	3 dry holes from 60'-75' deep.
14	NE.	26	"	"	"	"	40	1,900					" "			N.	Several dry holes 40' deep.
15	SE.	27	"	"	"	"	24	1,900					Glacial blue clay			N.	5 dry holes from 24'-65' deep.
16	SW.	28	"	"	"	Dug	28	1,900	− 32	1,868	35	1,865	Glacial, sand	Hard, alkaline		S.	Small supply.
17	SE.	29	"	"	"	"	35	1,900			35	1,865		" " clear		S.	Good supply, well only used in winter.
18	NW.	29	"	"	"	Bored	40	1,900					" blue clay			N.	Several dry holes from 27'-40' deep.
19	NW.	31	"	"	"	"	80	1,900					Marine shale			N.	Dry hole.
20	NE.	32	"	"	"	Dug	30	1,900	− 20	1,880	20	1,880	Glacial, sand	Hard, clear		D. S.	Sufficient for local needs.
21	NW.	33	"	"	"	"	30	1,900			30	1,870	" "	" "		D. S.	" " " " .
22	NE.	34	"	"	"	"	30	1,900					" clay	" alkaline iron, sulphur		D. S.	" " " " . High content of $MgSO_4$.
23	NE.	36	"	"	"	"	40	1,900					" blue clay			N.	Several dry holes 40' deep in dry gravel.
1	SW.	1	12	17	2	Drilled	90	1,900					Marine shale				
2	SE.	2	"	"	"	"	500	1,900					" "			N.	Several dry holes.
3	SW.	2	"	"	"	"	200	1,900					" "			N.	" " " 200' deep.
4	SW.	4	"	"	"	"	160	1,900					" "			N.	" " " from 90'-100' deep.
5	SE.	5	"	"	"	Dug	38	1,900					Glacial, blue clay			N.	Dry hole. Also 5 other dry holes.
6	NE.	6	"	"	"	Bored	30	1,900	− 27	1,873	30	1,870	" sand	Hard, clear		D. S.	Insufficient for local needs.
7	NE.	9	"	"	"	"	50	1,900					" blue clay			N.	Dry hole.
8	NE.	10	"	"	"	"	60	1,900					" " "			N.	" " .
9	SW.	11	"	"	"	"	100	1,900					Marine shale			N.	" " .
10	NE.	12	"	"	"	Auger	40	1,900					Glacial gravel, sand			N.	" " . Also 5 others, one with very small seepage.
11	SW.	17	"	"	"	Bored	100	1,900					Marine shale			N.	Many dry holes bored in 1905.
12	SW.	18	"	"	"	Drilled	300	1,910					Marine shale			N.	Dry hole. Several others from 30'-90' deep, one with small seepage of very alkaline water.
13	NE.	20	"	"	"	"	30	1,890					Glacial, dry sand			N.	Dry hole.

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WELL RECORDS—Rural Municipality of SCOTT NO. 98.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
14	NE.	27	12	17	2	Drilled	750	1,900					Marine shale			N.	Dry hole. Several others from 75'-90' deep.
15	NW.	31	"	"	"	"	80	1,900					" "			N.	" " .
16	SW.	32	"	"	"	Dug	40	1,900			40	1,860	Glacial, blue clay	Hard, slightly alkaline		N.	Very small supply, near slough.
17	NW.	32	"	"	"	Bored	72	1,900					Marine shale			N.	Dry hole.
18	NW.	33	"	"	"	"	64	1,900					" "			N.	" " .
19	NW.	35	"	"	"	Dug	30	1,900					Glacial blue clay			N.	Several dry holes from 15'-30' deep.
1	SW.	1	12	18	2	Bored	70	1,890					Marine shale			N.	Dry hole.
2	SE.	2	"	"	"	"	60	1,895	− 57	1,838	60	1,835	Glacial, sand	Hard, alkaline		N.	Abandoned. Used to yield 1 tank a day.
3	SE.	2	"	"	"	"	50	1,900					" "	Hard, alkaline		N.	" . " " " very small supply.
4	SW.	2	"	"	"	Dug	17	1,900	− 16	1,884	17	1,883	" "	Hard, slightly alkaline, clear	42	D.	Only sufficient for house use.
5	SW.	2	"	"	"	"	35	1,895			40	1,855	" "			N.	Caved in. Used to be sufficient for local needs.
6	NW.	2	"	"	"	Bored	90	1,895								N.	Several dry holes from 80'-90' deep.
7	SE.	3	"	"	"	"	40	1,900	− 39	1,861	40	1,860	" "	Hard, clear, alkaline		S.	Yields 1 bbl. an hour, laxative.
8	NE.	3	"	"	"	"	50	1,895					Marine shale			N.	Dry hole. Also several others 40'-50' deep.
9	SE.	4	"	"	"	"	42	1,900					Glacial sand			N.	" " .
10	SW.	4	"	"	"	Drilled	130	1,900					Marine shale			N.	" " . " " " 70'-90' " .
11	NE.	4	"	"	"	Dug	27	1,900			27	1,873	Glacial, sand	Hard, alkaline			Very small supply.
12	SW.	5	"	"	"	"	24	1,900			24	1,876	" "	Hard, clear		N.	Good supply. Not used.
13	SE.	6	"	"	"	Bored	110	1,900			110	1,790	" "(?)	", much iron		S.	" " . High iron content makes it unfit for house use.
14	SW.	6	"	"	"	Dug	50	1,900	− 35	1,865	50	1,850	" sand, gravel	Hard, iron, clear		D. S.	Yields 1½ tanks a day.
15	NW.	8	"	"	"	Bored	95	1,900								N.	Dry hole. Also several others 65'-80' deep.
16	SW.	10	"	"	"	Dug	50	1,890	− 48	1,842	40	1,850	Glacial, clay	Hard, alkaline iron, cloudy		S.	Insufficient for local needs. Waters 8 head of stock.
17	NW.	11	"	"	"	"		1,900									Shallow seepage well besides municipal dugout.
18	NW.	12	"	"	"	Bored	70	1,890	− 65	1,825	70	1,820	Glacial sandy clay	Hard, alkaline iron, cloudy	41	S.	Waters 5 head of stock.
19	SW.	13	"	"	"	"	55	1,890	− 50	1,840	55	1,835	Glacial, blue clay	Hard, iron, alkaline	41	D. S.	Insufficient supply. Only waters 6 head of stock.
20	NE.	13	"	"	"	Dug	45	1,890	− 35	1,855	45	1,845	Glacial, gravel	Hard, strongly alkaline, iron		N.	Insufficient supply. Too alkaline for human beings or stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SCOTT NO. 98.

WELL No.	LOCATION					TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE		PRINCIPAL WATER-BEARING BED			CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
	¼	Sec.	Tp.	Rge.	Mer.				Above (+) Below (−) Surface	Elev.	Depth	Elev.	Geological Horizon				
21	SW.	14	12	18	2	Bored	68	1,890					Marine shale			N.	Dry hole, sand at 1,845'. 4 dry holes 40' deep.
22	SW.	15	"	"	"	Drilled	100	1,900					" "			N.	Dry hole, 2 others 70'-90' deep. Bedrock struck at 40' (1,860').
23	NE.	15	"	"	"	Bored	60	1,900					" "			N.	Dry hole, 4 others 60'-70' deep. Bedrock struck at 50' (1,850').
24	SE.	16	"	"	"	"	100	1,900					" "			N.	Dry hole, 4 others 60'-100' deep. Bedrock struck at 80' (1,820').
25	SW.	16	"	"	"	Dug	33	1,900			33	1,867	Glacial, sand	Hard, strongly alkaline		N.	Very small supply.
26	SW.	17	"	"	"	"	80	1,900					Marine shale			N.	Dry hole.
27	NE.	17	"	"	"	Bored	35	1,900			35	1,865	Glacial, gravel	Hard, clear, alkaline		D. S.	Sufficient for local needs. 2 other wells 35' deep almost dry.
28	SE.	18	"	"	"	Dug	40	1,900					Marine shale ?			N.	7 dry holes 40' deep.
29	SW.	18	"	"	"	"	50	1,900					" "			N.	Several dry holes dug.
30	SW.	19	"	"	"	Bored	70	1,900			70	1,830	Glacial, sand	Hard, clear, salty		S.	Small supply, 2 dry holes 40' and 100' deep.
31	SW.	20	"	"	"	Dug	55	1,900			55	1,845	" " gravel	Hard, slightly alkaline		S.	Insufficient for local needs.
32	SW.	22	"	"	"	Bored	100	1,900					" clay			N.	Several dry holes from 60'-100' deep.
33	SE.	24	"	"	"	"	70	1,900					" " (?)			N.	Dry hole. Also 1 dry hole 65' deep.
34	SW.	24	"	"	"	"	90	1,900					Marine shale			N.	7 dry holes from 60'-90' deep. Bedrock struck at 75' (1,825').
35	SW.	26	"	"	"	"	90	1,900					" "			N.	4 dry holes from 60'-90' deep.
36	SW.	27	"	"	"	Dug	28	1,895			28	1,867	Glacial, sand	Medium, hard, clear	42	D. S. M.	Fairly good supply, #.
37	NE.	27	"	"	"	Bored	70	1,890					Marine shale			N.	Dry hole. Also several shallow dry holes.
38	SE.	28	"	"	"	"	35	1,900			33	1,867	Glacial, gravel	Hard, alkaline $CaSO_4$		S.	Small supply of poor water.
39	NW.	28	"	"	"	Drilled	200	1,900					Marine shale			N.	Dry hole. Bedrock struck at about 80' (1,820').
40	SW.	30	"	"	"	Bored?	40	1,900					" "			N.	" " " " " " 37' (1,863').
41	NE.	31	"	"	"	"	154	1,900					" "			N.	Several dry holes 55'-154' deep.
42	SE.	32	"	"	"	"	119	1,900					Glacial, blue clay			N.	Dry hole. Dry sand struck at 80' (1,820').
43	SW.	32	"	"	"	Drilled	120	1,900					Marine shale			N.	2 dry holes 110' and 120' deep.
44	NW.	32	"	"	"	"	150	1,900					" "			N.	Well filled in. Used to yield a small supply.

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

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