CANADA
DEPARTMENT OF MINES

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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF FOAM LAKE No. 306 SASKATCHEWAN

BY

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

Water Supply Paper No. 211

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GROUND WATER RESOURCES OF PART OF THE RURAL MUNICIPALITY OF FOAM LAKE, NO. 306, SASKATCHEWAN

INTRODUCTION

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

Publication of Results

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

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

How to Use the Report

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

is given on some or all of the contour lines on the figure.

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

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

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

GLOSSARY OF TERMS USED

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

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

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

Buried pre-Glacial 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 whic 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 côteau. 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 part of the rural municipality of Foam Lake that lies south of the northern boundary of township 32 is discussed in this report. This part of the municipality, located in southeastern Saskatchewan, covers an area of approximately 175 square miles and consists of three fractional townships, described as tps.31, ranges 10, 11, and 12, and three full townships, described as tps. 32, ranges 10, 11, and 12, all W. 2nd mer. The fractional townships each consist of eighteen full sections, sections 19 to 36 inclusive, and six fractional sections, sections 13 to 18 inclusive. The Winnipeg-Edmonton branch of the Canadian Pacific railway runs northwesterly through township 31, range 12. A branch line of the Canadian Pacific railway that runs between Goudie and Nipawin traverses the central part of the municipality in a southeast-northwest direction, and on it are located the hamlets of Layco and Edfield. The centre of the municipality is 57 miles northwest of the city of Yorkton.

The maximum elevation of 1,910 feet above sea-level is reached in the southwestern corner of the municipality from where it gradually decreases in a northeastern direction to a minimum elevation of 1,732 feet at the shore-line of Whitesand lake in township 32, range 1[illegible]. The municipality is mantled by boulder clay or glacial till. In two small areas in the vicinity of Layco and in the western part of sec. 7, tp. 32, range 12, the boulder clay is overlain by glacial outwash sands and gravels. A thin veneer of glacial lake clay overlies the boulder clay in an area surrounding Foam Lake, and in a narrow strip along Milligan Creek valley in township 32, range 12. The land surface is slightly undulating, but becomes flat in the eastern sections of townships 31 and 32, range 10, and the northern half of township 32, range 11. The glacial till plain

in the central part of township 32, range 10, and the eastern part of township 32, range 11, has been modified by water action, and the top soil is very stony and unsuitable for cultivation.

Foam lake, Whitesand lake, Echo lake, and Hedley lake are four, large, permanent bodies of water at elevations of 1,774, 1,732, 1,769, and 1,738 feet above sea-level, respectively. The water-level in these lakes was lowered considerably during the drought of 1930 to 1934, but it rose 1 foot in Foam lake in 1935. Whitesand lake is the source of Whitesand river, which flows out of the southeastern corner of the lake. Beckett brook, Becvar brook, and Milligan creek, three small intermittent streams, drain from the south into Foam lake in township 31, range 12. Milligan creek continues in a northwesterly direction from the northern tip of Foam lake and carries the overflow water from this lake to Quill lake which lie at an elevation of 1,703 feet. Sloughs are quite common, and large, flat, marshy areas are in evidence in township 31, range 10, and townships 32, ranges 10 and 11. The eastern four townships of the municipality are quite densely wooded with small poplar.

Water-bearing Horizons in the Unconsolidated Deposits

The water from lakes is used by many farmers for stock. The water in Foam lake is hard and "alkaline", but suitable for stock. Small, flowing springs are common along the ravine that contains Milligan creek, south of Foam lake. A spring located in the SW.$\frac{1}{4}$, sec. 1, tp. 32, range 11, discovered in 1908, yields an abundant supply of hard, highly mineralized water that is suitable for stock. During the winters when ice forms around the spring the water has been known to rise 13 feet above the ground surface.

Every producing well in the municipality, with the exception of three, obtains water from deposits of sand and gravel in the glacial drift at depths less than 100 feet. The three exceptions are wells in townships 31 and 32, range 12, which obtain water from aquifers 125, 126, and 184 feet below the surface. Two other wells, 110 and 125 feet deep, derive small supplies of seepage water, but they have not tapped a definite aquifer. Most of the wells in the municipality are dug to depths of 3 to 40 feet, and usually tap small pockets of sand and gravel that underlie yellow boulder clay and overlie impervious blue boulder clay. A number of wells, however, have been dug entirely in sand and gravel without any overlying yellow clay. An extensive deposit of glacial gravel that underlies the top soil occurs in the eastern part of the municipality. This area is outlined on the map by the "A" boundary line. The gravel overlies blue boulder clay and in some places the gravel deposit is at least 15 feet thick. Abundant supplies of slightly mineralized water can be obtained anywhere within this area at depths usually less than 10 feet.

In the remainder of the municipality the supply of water from shallow wells depends almost entirely on the extent of the pocket of sand and gravel tapped. These pockets of sand and gravel that overlie the blue clay are more difficult to locate in the southern townships than in the northern townships. Drought years and even winters will cause the water-level in most of the wells to lower. The water from shallow wells is rarely highly mineralized and these wells provide the best drinking water in the municipality.

Twenty-six wells 21 to 184 feet deep obtain water under hydrostatic pressure from pockets of sand and gravel within the blue boulder clay. One of these, located in the SE.$\frac{1}{4}$,

sec. 35, tp. 32, range 10, is a flowing artesian well. It is 60 feet deep, and the water rises to a point 10 feet above the surface. The supply of water from these wells is abundant, and variations in seasonal precipitation do not have any appreciable effect on the amount of water available. One of these wells, located in township 32, range 12, yields soft water, but the water in the other twenty-five wells is hard and usually highly mineralized. The water has no ill effects on stock, but it is not usually used for drinking if shallow well water is available. The supply in one well in township 32, range 12, has been partly closed off by the fine sand of the aquifer plugging the casing.

It is estimated that 30 per cent of the farmers in the municipality are unable to obtain reliable supplies from wells and must haul water, use sloughs when possible, and melt snow during the winter. These farmers are advised to prospect the upper 35 feet of the glacial drift with test augers for water-bearing pockets of sand and gravel. Dugouts excavated at least 12 feet deep in depressions are recommended as one of the cheapest and most certain methods of obtaining a permanent supply of water. Boring or drilling to depths in excess of 150 feet is not advised in township 32, ranges 10 and 11, or to depths in excess of 100 feet in township 31, ranges 10 and 11. The thickness of the glacial drift increases towards the north and west, and west of Foam lake it is probably in excess of 250 feet. If boring or drilling is contemplated it should be confined to the glacial drift.

Water-bearing Horizons in the Bedrock

The Marine Shale series underlies the glacial drift throughout the township. The Marine Shale, or "soapstone" as it is locally termed, was encountered in four wells in this municipality. In secs. 21 and 30, tp. 31, range 10, it was

struck at depths of 90 and 76 feet, or at elevations of 1,725 and 1,734 feet above sea-level. These wells yield small quantities of water that is derived from the glacial drift. Two wells in township 31, ranges 11 and 12, encountered the shale at approximately the same elevation but they were dry holes. In township 30, range 11, in the rural municipality of Beaver immediately south, the "soapstone" was encountered at an elevation of 1,760 feet by two dry holes. There appears to be a local rise in the bedrock in townships 30 and 31, ranges 10 and 11, as to the west of Foam lake a 184-foot well, drilled to an elevation of 1,576 feet above sea-level, did not encounter bedrock. In the municipality of Elfros to the west, bedrock is thought to occur at an elevation of 1,475 feet. The thickness of the glacial drift in the municipality of Foam lake is, therefore, estimated as follows: township 31, ranges 10 and 11 - 75 to 100 feet; township 32, ranges 10 and 11 - 150 feet; and townships 31 and 32, range 12 - probably 150 to 250 feet.

In drilling in this municipality it is strongly recommended that drilling be confined to the glacial drift, as the Marine Shale series in this part of Saskatchewan rarely contains usable water.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 31, Range 10

The northwestern part of section 31 is covered by glacial outwash sands and gravels, whereas the remainder of this fractional township is mantled by glacial till. The elevation decreases gradually from 1,840 feet at the southwestern corner of the township to 1,750 feet at the northeastern corner. The land is slightly undulating and wooded with poplar in the western 4 miles of the township, but it is flat and unwooded in the eastern 2 miles of the township. Sloughs, and large, flat, marshy areas are quite common. Echo lake, at an elevation of 1,769 feet above sea-level, covers an area of approximately 480 acres in the eastern part of the township.

Most of the wells are dug to depths of 5 to 30 feet and tap small pockets of sand and gravel that underlie yellow clay. In the area outlined by the "A" boundary line in the northern part of the township water is easily obtained from gravel at depths less than 16 feet, and the supply of water from wells in this part of the township is usually better than from those in the remainder of the township. In normal years the supply of water from wells that tap an aquifer above the blue boulder clay is usually sufficient for local needs, but in periods of drought and even in winters the supply diminishes. The water is usually hard and not highly mineralized, although the 5-foot well dug entirely in gravel in the SE.$\frac{1}{4}$, section 35, yields water that is too "alkaline" for drinking.

Three wells, 50, 58, and 76 feet deep, in the NE.$\frac{1}{4}$, section 18, the SE.$\frac{1}{4}$, section 20, and the SE.$\frac{1}{4}$, section 30, tap pockets of sand and gravel in the blue boulder clay, and yield abundant supplies of water under hydrostatic pressure. The water from these wells is more highly mineralized than that from the shallow wells, but it is used for drinking.

Two wells, 90 and 76 feet deep, in the SW.¼, section 21, and the NE.¼, section 30, strike the Marine Shale series, which underlies the glacial drift, at elevations of 1,725 and 1,734 feet. The shale encountered in the 90-foot well was described as being a hard, blue "soapstone", and in the 76-foot well as a hard, brown "soapstone". Both wells yield very small supplies of water that are thought to be derived from thin layers of sand and gravel in the glacial drift. The Marine Shale series rarely yields water in this part of Saskatchewan. All efforts for locating water should be confined to the glacial drift. Boring or drilling to depths in excess of 100 feet in this township is not recommended.

At least nine farmers in the township haul water or depend to a large extent on surface water in sloughs and lakes for stock. The excavation of dugouts to retain surface water should alleviate water shortage, but they must be at least 12 feet deep to be satisfactory.

Township 31, Range 11

The northeastern corner of section 36 is mantled by glacial outwash sands and gravels, and parts of sections 30 and 31 are overlain by a thin veneer of glacial lake clays. The remainder of this fractional township is mantled by glacial till. The elevation decreases gradually from 1,840 feet at the southeastern corner of the township to 1,780 feet at the northwestern corner. The land is slightly undulating and wooded with small groves of poplar. Milligan creek flows intermittently in a northwesterly direction through sections 17, 18, and 19.

A flowing spring in the NW.¼, section 35, yields an abundant supply of hard water. The water from this spring flows into a depression and forms a small slough. The supply of water from this spring has gradually decreased during the past ten years.

Springs are of common occurrence in the ravine that contains Milligan creek, and several farmers in the vicinity of the creek haul water from them for stock use.

The wells in the township are from 5 to 80 feet deep, the deepest producing well being 65 feet. The producing wells tap pockets of sand and gravel in the glacial drift, most of these pockets being immediately above blue boulder clay. These shallow wells usually yield small supplies of water and are easily affected by drought conditions. The shallowest well in the township, located in the NE.$\frac{1}{4}$, section 21, encounters a pocket of sand that yields an oversufficient supply of hard water for 100 head of stock. Pockets of water-bearing sand and gravel are difficult to strike in this township and many dry holes have been dug in an effort to locate them. The water from shallow wells is generally not highly mineralized and is suitable for drinking.

Only three wells in the township yield water under hydrostatic pressure. They are 65, 36, and 64 feet deep and are located in the NW.$\frac{1}{4}$, section 20, the NE.$\frac{1}{4}$, section 22, and the SW.$\frac{1}{4}$, section 24. These wells tap pockets of sand in the blue clay and the water rises to points 25, 16, and 20 feet below the surface, respectively. The supply is abundant and constant, and the 64-foot well yields an oversufficient supply for 200 head of stock. The two deeper wells yield hard water that is "alkaline", contains iron, and is not suitable for drinking. Several dry holes 40 to 80 feet deep have been bored in an effort to strike water-bearing sand or gravel above or in the blue boulder clay.

A 75-foot dry hole in the NW.$\frac{1}{4}$, section 30, struck "soapstone" at an elevation of 1,720 feet. This "soapstone" is probably the Marine Shale and since it rarely contains usable water in this part of Saskatchewan, boring or drilling to depths

much in excess of 75 feet in this township is not recommended. All efforts to obtain water should be confined to the glacial drift, and if "soapstone" is encountered, further boring or drilling in that particular well should be discontinued. If a pocket of water-bearing sand and gravel cannot be struck in the glacial drift, farmers are advised to excavate dugouts to collect and conserve surface water. They will be satisfactory if made at least 12 feet deep, and located so as to collect the maximum amount of surface run-off water.

Township 31, Range 12

Part of Foam lake, a permanent body of water, extends into the northeastern part of this fractional township. The elevation decreases gradually from 1,910 feet at the southwestern corner of the township to 1,774 feet above sea-level at Foam lake. Foam lake is a remnant of a glacial lake, and in an area surrounding the lake the boulder clay or glacial till is overlain by a thin veneer of glacial lake clays. The land is slightly undulating and a few scattered groves of poplar occur. Milligan creek flows into Foam lake from the southeast in the NW.$\frac{1}{4}$, section 25. Beckett brook and Beevar brook join in the NW.$\frac{1}{4}$, section 24, and flow into the lake in the SW.$\frac{1}{4}$, section 26. The three streams are small and have an intermittent flow of water.

The water from Foam lake is used by many farmers for stock, although it is hard and "alkaline". During the drought of 1930 to 1934 Foam lake was the source from which much water was tanked when wells did not yield an adequate supply. The water-level in the lake rose 1 foot in 1935. The water in the creeks is also used for stock in the spring and early summer months. The farmer in the NE.$\frac{1}{4}$, section 23, dams Beckett brook every spring and floods a meadow as a small irrigation project.

Several small springs that yield hard, "alkaline" water suitable for stock occur in the SW.¼, section 21.

Most of the wells in the township are dug to depths of 3 to 35 feet and usually tap aquifers of sand and gravel beneath yellow boulder clay. Several wells, however, are dug in pockets of sand and gravel that outcrop at the surface. The glacial drift of the NW.¼, section 34, is largely composed of sand, and water is easily obtained in this area at depths less than 15 feet. The quantity of water obtained from shallow wells varies and apparently depends largely on the extent of the pockets of sand and gravel. In some wells, such as those in the SE.¼, section 19, the NW.¼, section 20, and the SE.¼, section 32, which are 8, 10, and 3 feet deep, respectively, the supply of water is quite abundant and not easily affected by variations in annual rainfall. In most shallow wells, however, the supply was greatly decreased during the drought of 1930 to 1934.

Five wells, 46 to 126 feet deep, yield water under pressure from pockets of sand and gravel in the blue boulder clay. It is possible that the 125-foot well in the NW.¼, section 16, and the 126-foot well in the NW.¼, section 19, have tapped the same aquifer at elevations of 1,730 feet. The water rises to points 10 and 12 feet below the surface, respectively, and the sand was struck beneath a layer of hardpan in each well. The supply of water in these five wells is abundant and constant. The water is highly mineralized, but with the exception of one well it is used for drinking.

Adequate supplies of water are not readily found in the glacial drift and many dry holes to a maximum depth of 90 feet have been dug and bored. Several dry holes of unrecorded depth in the SE.¼, section 36, strike "soapstone". These wells are probably not more than 75 feet deep, as "soapstone" was struck in a well in the NW.¼, sec. 30, tp. 31, range 11, at an

elevation of 1,720 feet. The Marine Shale series is locally termed "soapstone" and it rarely contains usable water. If this material is struck in a well boring or drilling in that particular well should be discontinued.

Township 32, Range 10

The southwestern corner of section 6 is mantled by glacial outwash sands and gravels, but the remainder of the township is covered with glacial till. The elevation decreases very gradually from 1,800 feet at the southwestern corner of the township to 1,732 feet at the shore-line of Whitesand lake. The land rises gradually on the opposite side of the lake to an elevation of 1,760 feet at the northeastern corner of the township. The land is slightly undulating to flat, and large hay flats or marshes are common in the eastern sections. Whitesand lake, a large permanent body of water, is the source of Whitesand river. The river flows from the lake in the SW.$\frac{1}{4}$, section 24. Much of the land in the central part of the township has been modified by the action of water and the top soil is very stony and not suitable for cultivation.

An extensive deposit of gravel, which in some places is at least 15 feet thick, underlies the top soil in the southern part of the township. This deposit of glacial gravel lies within the area outlined by the "A" boundary line. An abundant supply of water can be found anywhere within this area at depths less than 16 feet below the surface. An 8-foot well in the NE.$\frac{1}{4}$, section 4, yields sufficient water for 100 head of stock. At a point in the SW.$\frac{1}{4}$, section 10, water issues from the ground as a flowing spring. The water from this extensive gravel aquifer is hard, but not "alkaline", and is suitable for drinking. Three of the wells yield soft water. Three wells, 8, 8, and 16 feet deep, in the SW.$\frac{1}{4}$, and SE.$\frac{1}{4}$, section 25, and the NE.$\frac{1}{4}$, section 26,

were dug in sand that extends from the surface to the base of the wells. These wells also yield an abundant supply of slightly mineralized water. In the remainder of the township water is very difficult to obtain in the upper 30 feet of the glacial drift.

Three wells, 40, 65, and 60 feet deep, in the SW.$\frac{1}{4}$, section 18, the SW.$\frac{1}{4}$, section 30, and the SE.$\frac{1}{4}$, section 35, obtain water under pressure from pockets of sand and gravel that lie within the blue boulder clay. In the 60-foot well the pressure is sufficient to raise the water to a point 10 feet above the ground surface. The water in this flowing-artesian well is hard and contains iron, but it is usable for drinking. The base of this well is at an elevation of 1,690 feet above sea-level. As the Marine Shale series was struck at an approximate elevation of 1,730 feet in township 31, range 10, the bedrock surface falls off towards the north, probably corresponding to the decrease in surface elevation. A 125-foot well, bored to an elevation of 1,630 feet in the SE.$\frac{1}{4}$, section 30, was made almost entirely in glacial blue boulder clay.

Those farmers who have an inadequate supply of well water usually haul water from Whitesand lake for stock purposes. Boring or drilling to depths much in excess of 100 feet is not recommended in this township. The Marine Shale series underlies the glacial drift and seldom yields usable water. The Marine Shale is locally termed "soapstone".

Township 32, Range 11

The southeastern corner of section 1 is mantled by glacial outwash sands and gravels and the western parts of sections 6 and 7 are covered with a thin veneer of glacial lake clay. The remainder of the township is mantled by glacial till.

The elevation decreases from 1,800 feet at the southeastern corner of the township to 1,738 feet at the shore-line of Hedley lake in sections 34 and 35. The land is slightly undulating in the southern sections, but towards the northern and northwestern parts it becomes very flat. Water in sloughs and flat, marshy areas in the northern part of the township is very "alkaline", and when the sloughs become dry a white precipitate of sodium sulphate covers the surface of the depressions. The top soil in the eastern part of the township is very stony. The township is wooded with groves of poplar.

A flowing spring is located in the SW.$\frac{1}{4}$, section 1. The spring was discovered in 1908, and ice has been known to form around the spring in winter to a height of 13 feet. The supply is abundant, but the water is hard, "alkaline", contains iron, and is suitable only for stock.

The wells in the township are from 5 to 110 feet deep, but most of them are less than 35 feet deep. Pockets of water-bearing sand and gravel that generally lie beneath yellow clay are most difficult to locate except in the southwestern and northeastern corners of the township. The supply of water from the shallow wells is quite variable, but most of the individual wells will water 25 to 40 head of stock. Two shallow wells that yield an abundant supply of water are 6 and 8 feet deep and are located in the SW.$\frac{1}{4}$, section 16, and the SE.$\frac{1}{4}$, section 23. The 6-foot well yields an oversufficient supply for 65 head of stock and the 8-foot well yields sufficient water for 80 head of stock. The water from shallow wells is rarely highly mineralized and at least sixteen wells in the township yield soft water.

Only six wells in this densely settled township yield water under hydrostatic pressure. These wells are 21 to 85 feet deep and derive water from pockets of sand in the blue boulder clay. The supply in these six wells is abundant and not easily

decreased by prolonged drought. The water is more highly mineralized than that from wells that tap aquifers above the blue boulder clay, and it is generally unsatisfactory as drinking water.

The deepest well in the township, 110 feet, is located in the SW.¼, section 33. A 6-inch layer of water-bearing sand was struck 50 feet below the surface, but the supply of water was small. The base of the well, at an elevation of 1,640 feet above sea-level, is still in blue boulder clay. "Soapstone" was not encountered in this well, and since this material was struck at an elevation of 1,7[illegible] feet in township 31, range 11, the elevation of the bedrock must decrease towards the north. It is believed, however, that the Marine Shale series lies not more than 150 feet below the surface throughout the township, and for this reason deep drilling is not recommended. Prospecting for water should be confined to the glacial drift.

Township 32, Range 12

The northern part of Foam lake lies in the southeastern part of this township. Milligan creek leaves Foam lake in the NW.¼, section 12, and flows intermittently in a northwesterly direction across the township. It drains the overflow water from Foam lake, at an elevation of 1,774 feet above sea-level, to Quill lakes at an elevation of 1,703 feet. Two small lakes are located in sections 25 and 35. The elevation decreases very gradually from 1,810 feet at the southwestern corner of the township to approximately 1,740 feet at the northern edge of section 34.

A thin veneer of glacial lake clay overlies the boulder clay in the vicinity of Foam lake and for a distance of about one-quarter of a mile on each side of Milligan creek. Glacial outwash sands and gravels cover an area in the western part of

section 7. The remainder of the township is mantled by glacial till. The land is slightly undulating to flat, and scattered groves of poplar occur throughout the area.

Most of the producing wells in the township are dug by hand to depths of 6 to 30 feet. Pockets of water-bearing sand and gravel are not difficult to strike in the upper 30 feet of the glacial drift and only ten farmers have been unable to secure an adequate supply of water from shallow wells. The pockets of sand and gravel generally underlie yellow boulder clay, but at least thirteen wells strike the pockets directly beneath the top soil. Occasionally more than one shallow well has to be used to obtain sufficient water for stock-raising purposes. Several wells, including those in the SE.$\frac{1}{4}$, section 5, the SE.$\frac{1}{4}$, section 14, and the NW.$\frac{1}{4}$, section 31, yield abundant supplies of water. The water-level in the 6-foot well in the SE.$\frac{1}{4}$, section 5, when visited in 1935 was 4 feet below the surface, and two hand pumps and men bailing at the same time could not lower this level sufficiently to clean out the well. The water from the shallow wells is rarely "alkaline", and is suitable for drinking.

Only six wells, 22 to 184 feet deep, yield water under pressure. Of these six wells, five yield water that is hard, contains iron, and is "alkaline", but a 65-foot well in the NE.$\frac{1}{4}$, section 20, yields soft water. These six wells tap pockets of sand and gravel in the glacial drift. A 90-foot dry hole was bored in the NW.$\frac{1}{4}$, section 32, but on this same quarter-section a 70-foot well struck a pocket of quicksand beneath hardpan and the water rose to a point 30 feet below the surface. This well yields a very small supply of water due to the quicksand plugging the casing.

Twenty-five dry holes, 40 to 125 feet deep, were made in the NW.$\frac{1}{4}$, section 30, before a 184-foot drilled well struck

water-bearing sand at an elevation of 1,576 feet above sea-level in the glacial drift. The water is under sufficient pressure to rise to a point 20 feet below the surface, and the supply is abundant.

The Marine Shale series was not encountered in any of the wells in the township. The thickness of the glacial drift is approximately 75 to 125 feet in townships 31, ranges 10 and 11, and probably does not exceed 150 feet in townships 32, ranges 10 and 11, but west of Foam lake the drift appears to be more than 250 feet thick according to logs of wells in the rural municipality of Elfros.

If "soapstone", as the Marine Shale is locally termed, is encountered while boring or drilling a well in this township, it is advised that drilling in that particular well be discontinued. The Marine Shale series rarely contains water-bearing horizons in this part of Saskatchewan and prospecting for water should be confined to the overlying glacial drift.

STATISTICAL SUMMARY OF WELL INFORMATION IN PART OF RURAL MUNICIPALITY OF FOAM LAKE, NO. 306, SASKATCHEWAN

Township	31	31	31	32	32	32	Total No. in municipality
West of 2nd meridian Range	10	11	12	10	11	12	
Total No. of Wells in Township	26	42	50	30	87	86	321
No. of wells in bedrock	2	1	3	0	0	0	6
No. of wells in glacial drift	24	41	47	30	87	86	315
No. of wells in alluvium	0	0	0	0	0	0	0
Permanency of Water Supply							
No. with permanent supply	16	25	37	25	55	52	210
No. with intermittent supply	4	3	2	3	8	3	23
No. dry holes	6	14	11	2	24	31	88
Types of Wells							
No. of flowing artesian wells	0	0	0	1	1	0	2
No. of non-flowing artesian wells	3	3	5	2	6	7	26
No. of non-artesian wells	17	25	34	25	56	48	205
Quality of Water							
No. with hard water	14	22	35	24	47	45	187
No. with soft water	6	6	4	4	16	10	46
No. with salty water	0	0	0	0	0	0	0
No. with "alkaline" water	4	4	12	8	7	16	51
Depths of Wells							
No. from 0 to 50 feet deep	20	37	40	26	81	61	265
No. from 51 to 100 feet deep	6	5	6	3	5	19	44
No. from 101 to 150 feet deep	0	0	4	1	1	5	11
No. from 151 to 200 feet deep	0	0	0	0	0	1	1
No. from 201 to 500 feet deep	0	0	0	0	0	0	0
No. from 501 to 1,000 feet deep	0	0	0	0	0	0	0
No. over 1,000 feet deep	0	0	0	0	0	0	0
How the Water is Used							
No. usable for domestic purposes	15	21	25	23	50	45	179
No. not usable for domestic purposes	5	7	14	5	13	10	54
No. usable for stock	18	28	37	26	62	54	225
No. not usable for stock	2	0	2	2	1	1	8
Sufficiency of Water Supply							
No. sufficient for domestic needs	16	25	37	25	55	52	210
No. insufficient for domestic needs	4	3	2	3	8	3	23
No. sufficient for stock needs	15	23	31	23	46	47	185
No. insufficient for stock needs	5	5	8	5	17	8	48

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 consituents 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. Resident

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 Foam Lake, No. 306, 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	NW.	16	31	12	2nd	125	709												(1)		(3)	(2)		(4)	*1

Water samples indicated thus, *1, are from glacial drift.
The numbers (1), (2), (3), and (4) are used to represent the relative amounts in which the four 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 this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

No analyses of water from wells that tap deposits of sand or gravel above the blue boulder clay in this municipality are available. The water from the shallow wells in this area is usually hard, but rarely "alkaline". It can be used for drinking as well as for stock. The water from wells that tap the extensive deposit of gravel in the area outlined by the "A" boundary line, is slightly mineralized and is locally termed soft. Care should be taken to see that the water in the shallow wells in this outlined area do not become contaminated by polluted surface waters.

A sample of water from a 125-foot well, which derives water from an aquifer in the blue boulder clay, was analysed and the results are listed in the accompanying table. It contains 769 parts per million of total dissolved solids, which is quite low for water from the lower part of the glacial drift. Calcium sulphate, sodium carbonate, magnesium sulphate, and sodium chloride are the chief mineral salts in solution, their abundance decreasing in the order given. The water is termed "alkaline", but is being used for drinking and for stock. It may prove to be unsatisfactory for irrigation as it contains a relatively large amount of sodium carbonate or "black alkali". The water from wells that tap aquifers in the blue boulder clay in this municipality is much more highly mineralized than that from wells tapping aquifers above the blue boulder clay. It will probably be suitable for stock, but may not be usable for drinking.

Water from the Bedrock

No water is obtained from the bedrock in this municipality. On the rare occasions when water has been obtained from the Marine Shale series in this part of Saskatchewan, it is usually so highly mineralized that it cannot be used for any farm purpose.

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WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	NE.	14	31	10	2	Dug	30	1,795					Glacial sand	Hard		D, S	Sufficient supply.
2	SW.	14	"	"	"	Dug	14	1,800	- 4	1,796			Glacial yellow sand	Hard		D, S	Sufficient supply.
3	NE.	16	"	"	"	Dug	20	1,815									Dry hole in glacial drift.
4	SW.	17	"	"	"	Dug	14	1,830	- 10	1,820	13	1,817	Glacial white sand	Hard		D, S	Sufficient for 20 head stock.
5	SW.	18	"	"	"	Dug	14	1,835	- 9	1,826	9	1,826	Glacial gravel	Soft		D, S	Sufficient supply.
6	NE.	18	"	"	"	Drilled	50	1,830	- 15	1,815	50	1,780	Glacial sand and gravel	Hard		D, S	Abundant supply.
7	SE.	20	"	"	"	Bored	58	1,825	- 20	1,805	50	1,775	Glacial fine sand	Hard		D, S	Abundant supply.
8	SW.	21	"	"	"	Bored	90	1,815	- 70	1,745			Bedrock Marine Shale	Hard		S	Intermittent supply; uses a cistern and sloughs; several dry holes.
9	NW.	21	"	"	"	Dug	12	1,810	- 5	1,805			Glacial drift	Hard		D	Intermittent supply.
10	NE.	21	"	"	"	Dug	10	1,805									Dry hole in glacial drift; hauls water.
11	SW.	22	"	"	"	Dug	15	1,810	- 9	1,801	9	1,801	Glacial sand	Soft		D, S	Sufficient supply.
12	SW.	24	"	"	"	Dug	10	1,790	- 8	1,782			Glacial drift	Hard		N	Hauls water and uses lakes and sloughs.
13	NW.	24	"	"	"	Dug	10	1,770	- 7	1,763	7	1,763	Glacial sand	Hard		D	A lake is used for stock.
14	SW.	25	"	"	"	Dug	16	1,775	0	1,775	0	1,775	Glacial sand	Soft		D, S	Sufficient supply.
15	NE.	26	"	"	"	Dug	15	1,775	- 7	1,768			Glacial sand	Soft		D, S	Sufficient, but supply decreases in drought years.
16	SW.	28	"	"	"	Dug	70	1,805									Dry hole in glacial drift.
17	NW.	29	"	"	"	Drilled	60	1,805	- 40	1,765			Glacial drift	Hard, "alkaline"		N	Water is too highly mineralized for use.
18	SE.	30	"	"	"	Drilled	76	1,815	- 36	1,779	76	1,739	Glacial gravel	Hard, iron, "alkaline"		D, S	Good supply, but the water acts as a laxative.
19	NE.	30	"	"	"	Bored	76	1,810	- 66	1,744			Bedrock Marine Shale	Hard, "alkaline"		S	Intermittent supply in winter; uses sloughs for stock and hauls drinking water.
20	NW.	32	"	"	"	Dug	14	1,795	- 11	1,784	11	1,784	Glacial gravel	Hard		D, S	Sufficient supply.
21	NW.	34	"	"	"	Dug	12	1,775	- 4	1,771	9	1,766	Glacial gravel	Soft		D, S	Sufficient supply.
22	NE.	34	"	"	"	Dug	12	1,770	- 8	1,762	8	1,762	Glacial gravel	Soft		D, S	Sufficient supply.
23	SE.	35	"	"	"	Dug	5	1,760	0	1,760	0	1,760	Glacial gravel	Hard, "alkaline"		S	Sufficient for stock; hauls water for house.
1	SW.	13	31	11	2	Dug	18	1,845	- 10	1,835			Glacial drift	Hard		D, S	Intermittent supply.
2	NE.	14	"	"	"	Dug	7	1,840	0	1,840	3	1,837	Glacial fine sand	Hard		D, S	Sufficient supply.
3	SW.	14	"	"	"	Dug	24	1,845	- 18	1,827	18	1,827	Glacial gravel	Hard		D, S	A 16-foot well, that yields a good supply of water is also used for stock.
4	NW.	15	"	"	"	Dug	8	1,830	- 4	1,826	4	1,826	Glacial sand	Soft		S	Sufficient 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.

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R. 7526

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
5	SE.	18	31	11	2	Dug	12	1,825	- 6	1,819			Glacial sand	Hard		D, S	Sufficient supply.
6	SW.	19	"	"	"	Spring		1,810	0	1,810	0	1,810	Glacial gravel	Hard		S	Good supply.
7	NE.	20	"	"	"	Dug	40	1,800	- 36	1,764			Glacial sand	Hard," alkaline"		D	Very poor supply; stock use sloughs in summer and water is hauled from a spring in winter; several dry holes.
8	NW.	20	"	"	"	Borod	65	1,800	- 25	1,775	65	1,735	Glacial sand	Hard,iron, "alkaline"		S	Abundant supply; drinking water is hauled from Foam Lake.
9	NE.	21	"	"	"	Dug	5	1,805	- 4	1,801	4	1,801	Glacial fine sand	Hard		S	Abundant supply for 100 head stock.
10	SW.	22	"	"	"	Dug	8	1,815	- 4	1,811	4	1,811	Glacial sand	Soft		D, S	Sufficient supply.
11	NW.	22	"	"	"	Borod	70	1,810									The deepest of several dry hole in glacial drift.
12	NE.	22	"	"	"	Borod	36	1,810	- 16	1,794	36	1,774	Glacial sand	Hard		D, S	Abundant supply; a 5-foot well also yields a good supply of water.
13	SW.	24	"	"	"	Borod	64	1,825	- 20	1,805	64	1,761	Glacial sand	Hard,iron, "alkaline"		D, S	Oversufficient for 200 head stock.
14	SW.	25	"	"	"	Borod	36	1,810	- 21	1,789	36	1,774	Glacial sand	Hard		S	Sufficient supply.
15	SE.	25	"	"	"	Borod	40	1,815	- 30	1,785			Glacial sand	Hard		D, S	Insufficient supply.
16	NW.	26	"	"	"	Dug	20	1,810									One of several shallow dry holes in glacial drift.
17	NE.	26	"	"	"	Borod	30	1,800	- 16	1,784			Glacial gravel	Hard		D, S	Sufficient supply.
18	SE.	27	"	"	"	Dug	9	1,800	- 5	1,795	5	1,795	Glacial sand	Soft		D, S	Sufficient supply.
19	SW.	29	"	"	"	Dug	50	1,805	- 35	1,770			Glacial drift	Hard		D, S	Intermittent supply; uses well in the NW.¼, section 20; and tanks water from sloughs.
20	NW.	30	"	"	"	Borod	75	1,795									Dry hole in Bedrock Marine Shale; hauls water from springs for stock and from Foam Lake for the house.
21	SW.	30	"	"	"	Borod	80	1,795									Dry hole in glacial drift; uses springs for stock and hauls from Foam Lake for the house.
22	NW.	32	"	"	"	Dug	16	1,790	- 10	1,780	12	1,778	Glacial sand	Hard		D, S	Sufficient supply.
23	SW.	34	"	"	"	Dug	8	1,795	0	1,795			Glacial drift			S	Intermittent supply; hauls drinking water from SE.¼, section 27.
24	NW.	35	"	"	"	Spring		1,800	0	1,800			Glacial drift	Hard		S	The water from this spring collects in a slough; abundant supply for stock.
25	SE.	35	"	"	"	Dug	18	1,810	- 15	1,795	15	1,795	Glacial sand	Soft		D, S	Well pumps dry but refills rapidly; sufficient supply.
26	NW.	36	"	"	"	Dug	14	1,795	- 7	1,788			Glacial gravel	Hard,"alkaline"		D, S	Sufficient for 20 head stock; several shallow dry holes.
27	SW.	36	"	"	"	Dug	8	1,800	- 4	1,796	4	1,796	Glacial sand	Soft		D, S	Sufficient supply.
1	SE.	13	31	12	2	Dug	10	1,800	0	1,800			Glacial gravel	Hard,"alkaline"		S	Intermittent supply; also uses a 6-foot well for stock and hauls drinking water from Foam Lake.
2	SW.	14	"	"	"	Dug	25	1,810	- 15	1,795			Glacial drift	Hard		D, S	Insufficient supply in dry years; several shallow dry holes.

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

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

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

B 4-4
R. 7526

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
3	SE.	15	31	12	2	Dug	6	1,805	0	1,805	4	1,801	Glacial gravel	Hard		D, S	Sufficient supply.
4	NW.	16	"	"	"	Drilled	125	1,855	- 10	1,845	125	1,730	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply. #
5	SE.	17	"	"	"	Dug	10	1,880	- 4	1,876	4	1,876	Glacial gravel	Hard		D, S	Sufficient supply.
6	SE.	18	"	"	"	Dug	8	1,900	- 4	1,896	4	1,896	Glacial gravel	Soft		D, S	Sufficient supply.
7	NW.	18	"	"	"	Bored	45	1,900									One of several dry holes in glacial drift; hauls water from the well in SE.¼, section 18.
8	SE.	19	"	"	"	Dug	8	1,875	- 4	1,871	4	1,871	Glacial fine sand	Hard		D, S	Oversufficient; although supply decreased during the drought.
9	NE.	19	"	"	"	Dug	10	1,850	- 7	1,843	7	1,843	Glacial fine sand	Hard,		D, S	Sufficient supply.
10	NW.	19	"	"	"	Drilled	126	1,855	- 12	1,843	126	1,729	Glacial coarse sand	Hard, iron, "alkaline"		S	Abundant supply for stock; one dry hole 90 feet deep.
11	NW.	20	"	"	"	Dug	10	1,845	- 7	1,838	7	1,838	Glacial fine sand	Hard		S	Abundant supply; a 40-foot well yield sufficient water for the house.
12	SE.	20	"	"	"	Bored	90	1,860	- 40	1,820	90	1,770	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply; an 8-foot well in a ravine yields a good supply, but it is an inconvenient distance away.
13	NW.	21	"	"	"	Dug	14	1,830	- 10	1,820	10	1,820	Glacial gravel	Hard		D, S	Oversufficient supply.
14	SW.	21	"	"	"	Spring		1,815					Glacial drift	Hard, "alkaline"		S	Good supply.
15	NE.	22	"	"	"	Bored	60	1,790	- 50	1,740			Glacial sand	Hard		N	Water has been contaminated; a well dug in a slough is used.
16	NW.	22	"	"	"	Bored	45	1,790									Dry hole in glacial drift; stock water at sloughs.
17	NE.	23	"	"	"	Dug	12	1,785	- 8	1,777	8	1,777	Glacial sand	Soft		S	A 12-foot well in basement of house is used for drinking; dams Beckett brook every spring.
18	SW.	24	"	"	"	Dug	30	1,795	- 27	1,768	27	1,768	Glacial sandy clay	Hard, "alkaline"		S	Sufficient supply; hauls drinking water; has dug several wells that yield poor supply of water.
19	SW.	27	"	"	"	Dug	14	1,790	0	1,790			Glacial drift	Hard, "alkaline"		D, S	Sufficient for 12 head stock in winter; stock also use sloughs in summer.
20	SW.	28	"	"	"	Dug	35	1,815	- 15	1,800			Glacial drift	Hard		D, S	Intermittent supply; stock use sloughs in summer and water is hauled in winter.
21	NW.	28	"	"	"	Dug	18	1,815	- 15	1,800	15	1,800	Glacial sand	Hard		D, S	Insufficient supply; a lake is used for watering-bearing stock.
22	NE.	28	"	"	"	Dug	23	1,790	- 19	1,771	19	1,771	Glacial sand	Hard		D, S	Oversufficient supply.
23	SE.	30	"	"	"	Bored	63	1,840	- 20	1,820	63	1,777	Glacial sand	Hard, iron, "alkaline"		D, S	Oversufficient supply.
24	NW.	30	"	"	"	Dug	15	1,845	- 13	1,832	13	1,832	Glacial sand	Hard, "alkaline"		S	Sufficient supply; hauls drinking water.
25	SW.	31	"	"	"	Dug	11	1,835	- 7	1,828	7	1,828	Glacial gravel	Hard, "alkaline"		D, S	Plenty of water.
26	NW.	31	"	"	"	Dug	8	1,815	- 6	1,809	6	1,809	Glacial gravel	Soft		D, S	Sufficient supply.
27	NW.	32	"	"	"	Dug	9	1,800	- 6	1,794	6	1,794	Glacial gravel	Soft		D, S	Sufficient supply; also owns two wells 30 and 42 feet deep.
28	SE.	32	"	"	"	Dug	3	1,805	- 2	1,803	2	1,803	Glacial gravel	Hard		S	Oversufficient 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.

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
29	SW.	32	31	12	2	Bored	52	1,810	- 48	1,762			Glacial drift	Hard,"alkaline"		D, S	Poor and insufficient supply.
30	NW.	34	"	"	"	Dug	14	1,785	- 9	1,776	9	1,776	Glacial sand	Hard,"alkaline"		N	Water can easily be found on this point; stock water at the lake.
31	SE.	36	"	"	"	Bored	46	1,785	- 12	1,773	46	1,739	Glacial sand	Hard		D, S	Abundant supply; several dry holes in bedrock Marine Shale.
1	SW.	3	32	10	2	Dug	7	1,770	- 5	1,765	5	1,765	Glacial gravel	Hard		D, S	Sufficient supply.
2	NW.	3	"	"	"	Dug	6	1,765	- 3	1,762	3	1,762	Glacial gravel	Hard		D, S	Sufficient supply.
3	NE.	4	"	"	"	Dug	8	1,770	- 4	1,766	4	1,766	Glacial gravel	Hard		D, S	Sufficient for 100 head stock.
4	NW.	4	"	"	"	Dug	5	1,780	- 2	1,778	2	1,778	Glacial gravel	Hard		D, S	Sufficient supply.
5	SW.	4	"	"	"	Dug	6	1,785	- 3	1,782	3	1,782	Glacial gravel	Hard		D, S	Sufficient supply.
6	SE.	5	"	"	"	Dug	10	1,790	- 6	1,784	6	1,784	Glacial gravel	Hard		D, S	Sufficient supply.
7	SW.	5	"	"	"	Dug	6	1,790	- 4	1,786	4	1,786	Glacial gravel	Soft		D, S	Sufficient supply.
8	SE.	6	"	"	"	Dug	15	1,795	- 11	1,784	11	1,784	Glacial gravel	Hard		D, S	Sufficient supply.
9	NW.	7	"	"	"	Dug	6	1,775	- 3	1,772	3	1,772	Glacial gravel	Hard		D, S	Sufficient supply!
10	SE.	7	"	"	"	Dug	6	1,780	- 3	1,777	3	1,777	Glacial gravel	Hard		D, S	Sufficient supply.
11	SW.	8	"	"	"	Dug	6	1,780	- 3	1,777	3	1,777	Glacial gravel	Soft		D, S	Plenty of water.
12	NW.	9	"	"	"	Dug	30	1,770									Dry hole in glacial drift.
13	SE.	9	"	"	"	Dug	8	1,770	- 3	1,767	3	1,767	Glacial gravel	Soft		D, S	Sufficient supply.
14	SW.	10	"	"	"	Spring		1,765					Glacial gravel	Hard		S	Sufficient supply.
15	SE.	15	"	"	"	Dug	52	1,755	- 36	1,719			Glacial drift	Hard,"alkaline"		S	Poor supply; hauls water from White Sand lake.
16	NE.	15	"	"	"	Dug	26	1,750	- 22	1,728			Glacial drift	Hard,"alkaline"		S	Intermittent supply.
17	NW.	15	"	"	"	Dug	20	1,755									Dry hole in glacial drift.
18	SW.	18	"	"	"	Dug	40	1,770			40	1,730	Glacial gravel	Hard		D, S	Abundant supply.
19	NW.	21	"	"	"	Dug	10	1,750	- 5	1,745	4	1,746	Glacial gravel	Hard,"alkaline"		D, S	Well is dry in winters; stock water at White Sand lake.
20	NE.	21	"	"	"	Dug	20	1,740	- 12	1,728	12	1,728	Glacial sand	Hard,"alkaline"		D, S	Sufficient supply.
21	SE.	25	"	"	"	Dug	8	1,745	0	1,745	0	1,745	Glacial sand	Hard,iron		D, S	Abundant supply.
22	SW.	25	"	"	"	Dug	8	1,740	- 4	1,736	4	1,736	Glacial sand	Soft		D, S	Sufficient supply.
23	NE.	26	"	"	"	Dug	16	1,750	- 4	1,746	4	1,746	Glacial fine sand	Hard		D, S	Sufficient supply.
24	SE.	28	"	"	"	Bored	31	1,740	- 20	1,720	20	1,720	Glacial gravel	Hard,iron		D, S	Sufficient 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.

B 4-4
R. 7526

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
25	NW.	28	32	10	2	Bored	50	1,745	- 40	1,705			Glacial gravel	Hard, "alkaline", bitter		N	Stock refuse to drink this water.
26	NE.	30	"	"	"	Dug	7	1,745	- 3	1,742	3	1,742	Glacial fine sand	Hard, "alkaline"		D, S	Sufficient supply.
27	SE.	30	"	"	"	Bored	125	1,755	- 95	1,660			Glacial drift	Hard, iron		N	Very small supply and water contains much iron.
28	SW.	30	"	"	"	Bored	65	1,750	- 35	1,715	64	1,686	Glacial gravel	Hard, "alkaline"		D, S	Sufficient supply; a 60-foot well has caved in.
29	SW.	31	"	"	"	Dug	50	1,745	- 20	1,725	5	1,740	Glacial gravel	Hard, "alkaline"		D, S	Insufficient supply in winter; well becomes dry in March.
30	SE.	35	"	"	"	Bored	60	1,750	+ 15	1,765	60	1,690	Glacial sand	Hard, iron		D, S	Abundant supply.
1	SW.	1	32	11	2	Spring		1,795	+ 13	1,808			Glacial drift	Hard, iron, "alkaline"		M	Municipal artesian spring; the usual water-level is 10 feet above the surface; discovered in 1908.
2	SE.	1	"	"	"	Dug	12	1,795	0	1,795	0	1,795	Glacial gravel	Soft		D, S	Good supply, but water freezes in winter; several farmers use this well.
3	SE.	2	"	"	"	Dug	21	1,795	- 12	1,783	21	1,774	Glacial sand	Hard, iron, "alkaline"		D, S	Plenty of water.
4	SW.	2	"	"	"	Dug	13	1,795	- 5	1,790	5	1,790	Glacial sand	Hard		D, S	Oversufficient for 30 head stock.
5	SW.	3	"	"	"	Dug	16	1,795	- 6	1,789	6	1,789	Glacial fine sand	Hard		D, S	Sufficient for 30 head stock; sand often washes in at base of well.
6	NW.	3	"	"	"	Dug	12	1,790	- 10	1,780	10	1,780	Glacial sand	Soft		D, S	Sufficient but supply decreased during the drought.
7	SW.	4	"	"	"	Dug	12	1,780	- 8	1,772	10	1,770	Glacial gravel	Hard, "alkaline"		S	Oversufficient supply for stock; hauls drinking water.
8	NW.	4	"	"	"	Dug	6	1,775	- 4	1,771	4	1,771	Glacial fine sand	Hard, "alkaline"		S	Oversufficient supply.
9	SW.	5	"	"	"	Dug	9	1,785	- 5	1,780	5	1,780	Glacial sand	Soft		S	Sufficient supply; a 12-foot well is used for drinking water.
10	SE.	5	"	"	"	Bored	67	1,785	- 10	1,775	67	1,718	Glacial sand	Hard, iron		S	Abundant supply for stock; water is a laxative on humans.
11	NE.	5	"	"	"	Dug	10	1,775	0	1,775			Glacial drift	Hard		S	Intermittent supply.
12	NE.	6	"	"	"	Bored	65	1,780	- 40	1,740	63	1,717	Glacial sand	Hard, iron, odour		S	Insufficient supply in winter; hauls drinking water from the SW.¼, section 5.
13	SW.	6	"	"	"	Bored	40	1,780									Dry hole in glacial drift; hauls water from Foam Lake.
14	SE.	6	"	"	"	Dug	15	1,780	- 10	1,770			Glacial drift	Hard		S	Intermittent supply; hauls water from Foam Lake.
15	NW.	6	"	"	"	Bored	45	1,780									Dry hole in glacial drift; hauls water from Foam Lake.
16	SE.	7	"	"	"	Dug	10	1,775	0	1,775			Glacial drift	Hard, cloudy		S	Intermittent supply.
17	SE.	9	"	"	"	Dug	14	1,775	- 11	1,764	11	1,764	Glacial fine sand	Soft		D, S	Sufficient for 60 head stock.
18	NW.	10	"	"	"	Dug	20	1,770	- 13	1,757			Glacial gravel	Hard		D, S	Oversufficient but supply decreased during the drought.
19	SW.	10	"	"	"	Dug	15	1,775	- 10	1,765	10	1,765	Glacial sand	Soft		D, S	Sufficient for 30 head stock.
20	SE.	10	"	"	"	Dug	14	1,775	- 7	1,768	11	1,764	Glacial sand	Hard		D, S	Sufficient 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.

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
21	SE.	12	32	11	2	Dug	6	1,785	0	1,785			Glacial sand	Soft		D, S	Intermittent supply; a 14-foot well also yields a poor supply
22	NE.	13	"	"	"	Dug	20	1,770									One of several dry holes in glacial drift.
23	NW.	13	"	"	"	Bored	42	1,770	- 15	1,755	42	1,728	Glacial fine sand	Hard		D, S	Oversufficient supply.
24	SW.	13	"	"	"	Drilled	85	1,775	- 15	1,760	85	1,690	Glacial fine sand	Hard, iron, "alkaline"		D, S	Oversufficient for 30 head stock; usually hauls drinking water.
25	SE.	14	"	"	"	Dug	14	1,775	- 10	1,765			Glacial gravel	Hard, cloudy		S	Sufficient supply.
26	NE.	14	"	"	"	Dug	8	1,770	- 4	1,766	4	1,766	Glacial gravel	Soft		D, S	Sufficient for 30 head stock.
27	NW.	14	"	"	"	Dug	24	1,770	- 20	1,750	20	1,750	Glacial gravel	Hard		D, S	Sufficient supply.
28	SE.	15	"	"	"	Dug	12	1,770	- 10	1,760	10	1,760	Glacial gravel	Soft		D, S	Sufficient for 20 head stock.
29	NE.	15	"	"	"	Dug	17	1,775	- 10	1,765	10	1,765	Glacial gravel	Soft		D, S	Sufficiant supply.
30	SW.	15	"	"	"	Dug	14	1,765	- 11	1,754	12	1,753	Glacial gravel	Hard		D, S	Sufficient supply.
31	SW.	16	"	"	"	Dug	6	1,755	- 1	1,754	1	1,754	Glacial sand and gravel	Soft		D, S	Oversufficient for 65 head stock; a 55-foot well yields a very small supply of poor water.
32	NW.	16	"	"	"	Dug	6	1,755	- 4	1,751	4	1,751	Glacial gravel	Hard		S	Oversufficient supply.
33	NE.	16	"	"	"	Bored	70	1,760	- 67	1,693			Glacial drift	Hard		D, S	Intermittent supply; uses well in the SW.¼, section 15, several dry holes.
34	SE.	17	"	"	"	Dug	20	1,760	- 17	1,743	17	1,743	Glacial sandy gravel	Soft		D, S	Good supply.
35	SW.	17	"	"	"	Dug	14	1,760	- 9	1,751	9	1,751	Glacial sand	Soft		D, S	Sufficient in normal years; hauls water in drought years.
36	SW.	18	"	"	"	Dug	14	1,755	- 8	1,747	8	1,747	Glacial sand	Hard		D, S	Oversufficient supply.
37	SE.	19	"	"	"	Dug	24	1,750	- 10	1,740			Glacial gravel	Hard		D, S	Oversufficient supply.
38	SW.	20	"	"	"	Dug	16	1,755	- 12	1,743	12	1,743	Glacial gravel	Hard		D, S	Pumps dry, but refills in two hours; sufficient supply.
39	SE.	20	"	"	"	Dug	12	1,750	- 8	1,742	8	1,742	Glacial gravel	Hard		D, S	Sufficient supply.
40	NE.	21	"	"	"	Bored	50	1,765	- 25	1,740	50	1,715	Glacial sand	Hard		D, S	Constant supply.
41	NW.	21	"	"	"	Dug	5	1,760	- 3	1,757	3	1,757	Glacial fine sand	Soft		D, S	Oversufficient for 13 head stock.
42	SW.	21	"	"	"	Dug	4	1,755	0	1,755			Glacial drift	Hard		D, S	Intermittent supply; several dry holes 15 to 20 feet deep.
43	SE.	22	"	"	"	Dug	14	1,765	- 11	1,754	11	1,754	Glacial gravel	Soft		D, S	Sufficient supply.
44	NE.	22	"	"	"	Dug	12	1,760	- 10	1,750			Glacial drift	Hard, "alkaline"		D, S	Intermittent supply.
45	SE.	23	"	"	"	Dug	8	1,765	- 3	1,762	3	1,762	Glacial gravel	Soft		D, S	Oversufficient for 80 head stock.
46	NE.	25	"	"	"	Dug	10	1,750	- 3	1,747			Glacial gravel	Hard		D, S	Insufficient supply; hauls water from a neighbours well.

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 FOAM LAKE NO. 306, SASKATCHEWAN

B 4-4
R. 7526

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
47	NW.	25	32	11	2	Dug	20	1,750	- 18	1,732	18	1,732	Glacial sand	Hard		D, S	Barely sufficient for 15 head stock; in some cases melts snow in winter.
48	NW.	26	"	"	"	Dug	24	1,750									One of six dry holes in glacial drift.
49	NE.	26	"	"	"	Dug	30	1,745									Dry hole in glacial drift; hauls water.
50	NE.	27	"	"	"	Dug	7	1,745	- 2	1,743	2	1,743	Glacial gravel	Hard, iron		D, S	Sufficient supply.
51	SW.	27	"	"	"	Dug	35	1,755									One of six dry holes in glacial drift.
52	NW.	28	"	"	"	Dug	10	1,750	- 5	1,745	5	1,745	Glacial sand	Hard		D, S	Oversufficient, but supply decreased slightly during the drought.
53	SE.	29	"	"	"	Dug	30	1,768	- 20	1,748			Glacial sand	Hard		D	Well at section house in Edfield.
54	SW.	29	"	"	"	Dug	34	1,765	- 18	1,747	30	1,735	Glacial sand	Hard		D, S	Sufficient supply.
55	SW.	30	"	"	"	Dug	14	1,755	- 8	1,747			Glacial sand	Hard		D, S	Sufficient for 60 head stock; a similar well was dug in the basement.
56	NE.	30	"	"	"	Bored	45	1,760	- 35	1,725	45	1,715	Glacial fine sand	Hard, "alkaline"		D, S	Oversufficient supply.
57	NE.	31	"	"	"	Dug	9	1,755	- 6	1,749	6	1,749	Glacial sand	Hard		D, S	Sufficient supply.
58	SW.	31	"	"	"	Dug	9	1,760	- 6	1,754	6	1,754	Glacial sand	Hard		S	Sufficient for stock.
59	NW.	31	"	"	"	Dug	26	1,760	- 23	1,737	23	1,737	Glacial sand	Hard		D, S	Sufficient for 30 head stock.
60	SW.	32	"	"	"	Dug	40	1,755	- 36	1,719			Glacial sand	Hard		D, S	Insufficient supply; also uses a 19-foot well for stock.
61	NW.	32	"	"	"	Dug	14	1,760	- 10	1,750	10	1,750	Glacial fine sand	Soft		D, S	Oversufficient supply.
62	SW.	33	"	"	"	Bored	110	1,750	- 60	1,690	50	1,700	Glacial sand	Hard		D, S	Poor supply; owns a shallow well located half mile from buildings.
63	SE.	34	"	"	"	Dug	14	1,745	- 10	1,735	10	1,735	Glacial sand	Hard		D, S	Intermittent supply.
64	SE.	36	"	"	"	Dug	14	1,740	- 5	1,735	5	1,735	Glacial sand	Hard		D, S	Sufficient, but supply decreases in winter.
1	SW.	4	32	12	2	Dug	10	1,780	- 4	1,776	4	1,776	Glacial sand	Hard		D, S	Owns several similar wells. Abundant supply; stock water at Foam Lake in summer.
2	SE.	5	"	"	"	Dug	6	1,790	- 4	1,786	4	1,786	Glacial fine sand	Hard		D, S	This well cannot be pumped dry.
3	SW.	5	"	"	"	Bored	42	1,795	- 22	1,773	42	1,753	Glacial sand	Hard, iron, "alkaline"		S	Abundant supply; hauls drinking water.
4	SW.	6	"	"	"	Dug	22	1,805	- 11	1,794	22	1,783	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply.
5	NW.	6	"	"	"	Dug	14	1,795	- 10	1,785	10	1,785	Glacial sand	Hard		S	Sufficient supply.
6	NE.	6	"	"	"	Dug	30	1,795	- 20	1,775			Glacial sand	Hard		D, S	Sufficient for 35 head stock.
7	SE.	7	"	"	"	Dug	10	1,790	- 4	1,786	4	1,786	Glacial sand	Hard		D, S	Oversufficient supply.
8	NW.	7	"	"	"	Dug	8	1,785	- 4	1,781	4	1,781	Glacial sand	Soft		D, S	One of two similar wells.
9	SE.	8	"	"	"	Dug	18	1,785	- 14	1,771	14	1,771	Glacial sand	Hard, "alkaline"		D, S	Sufficient for 50 head stock.

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

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

WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
10	NE.	9	32	12	2	Dug	12	1,780	- 5	1,775	5	1,775	Glacial sand	Soft		D, S	Sufficient for 15 head stock.
11	NW.	9	"	"	"	Dug	8	1,785	- 4	1,781	4	1,781	Glacial sand	Hard		S	Sufficient supply.
12	NE.	10	"	"	"	Dug	27	1,780	- 21	1,759			Glacial sand	Hard, "alkaline"		D, S	Sufficient supply; analyst reported water unfit for use.
13	NE.	12	"	"	"	Bored	70	1,780									One of several dry holes; hauls water from Foam Lake.
14	SW.	14	"	"	"	Dug	9	1,785	- 2	1,783	2	1,783	Glacial sand	Hard		D, S	Oversufficient supply.
15	SE.	14	"	"	"	Dug	30	1,775	- 25	1,750			Glacial sandy clay	Hard		D	Intermittent supply; two well 9 and 16 feet deep, yield plenty of water for stock.
16	NE.	15	"	"	"	Dug	18	1,775	- 12	1,763			Glacial sand	Hard		D, S	Sufficient supply.
17	SW.	16	"	"	"	Dug	12	1,780	- 8	1,772	8	1,772	Glacial sand	Soft		D, S	Oversufficient supply.
18	NW.	16	"	"	"	Dug	30	1,780	- 26	1,754			Glacial drift	Soft		D	Poor supply; a 14-foot well dug to gravel yields water for stock.
19	SW.	17	"	"	"	Dug	18	1,780	- 14	1,766	14	1,766	Glacial sand	Hard		D, S	Plenty of water.
20	SW.	18	"	"	"	Dug	24	1,785	- 21	1,764	21	1,764	Glacial sand	Hard, "alkaline"		D, S	Sufficient supply.
21	NW.	19	"	"	"	Bored	80	1,775									Dry hole in glacial drift; hauls water.
22	SW.	19	"	"	"	Dug	20	1,775					Glacial sand			N	Well became dry several years ago.
23	SE.	20	"	"	"	Dug	17	1,770	- 12	1,758	12	1,758	Glacial gravel	Hard, "alkaline"		D, S	Intermittent supply; another 17-foot well yields sufficient water.
24	NE.	20	"	"	"	Bored	65	1,765	- 15	1,750	65	1,700	Glacial sand	Soft		D, S	Abundant supply.
25	NW.	20	"	"	"	Dug	55	1,765	- 10	1,755	10	1,755	Glacial gravel	Hard		D, S	Poor supply; well becomes almost dry in some years.
26	NW.	21	"	"	"	Dug	13	1,765	- 10	1,755	10	1,755	Glacial sand	Hard, iron, "alkaline"		S	Pumps dry and refills slowly; water is a laxative.
27	NW.	23	"	"	"	Dug	20	1,755	- 10	1,745			Glacial gravel	Hard		D, S	Sufficient for 50 head stock.
28	SE.	24	"	"	"	Dug	14	1,755	- 7	1,748			Glacial sand	Hard		S	Sufficient supply.
29	SW.	24	"	"	"	Dug	12	1,760	- 8	1,752	8	1,752	Glacial sand	Soft		D, S	Sufficient , but supply decreased during the drought.
30	NE.	25	"	"	"	Bored	14	1,755	- 11	1,744	11	1,744	Glacial sand	Hard		D, S	Sufficient for 30 head stock.
31	NE.	26	"	"	"	Dug	25	1,745	- 10	1,735			Glacial sand	Hard		D, S	Sufficient supply.
32	SE.	27	"	"	"	Dug	12	1,755	- 6	1,749	6	1,749	Glacial fine sand	Hard		D, S	Sufficient for 60 head stock.
33	NE.	27	"	"	"	Dug	30	1,750	- 10	1,740	30	1,720	Glacial sand	Soft		D, S	Sufficient for 50 head stock.
34	SW.	27	"	"	"	Dug	14	1,760	- 10	1,750	10	1,750	Glacial sand	Hard		D, S	Sufficient supply.
35	SE.	28	"	"	"	Bored	25	1,765									Dry hole in glacial drift; hauls water from the SW. ¼, section 27.

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.

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WELL RECORDS—Rural Municipality of FOAM LAKE NO. 306, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
36	NW.	28	32	12	2	Dug	35	1,760	- 20	1,740			Glacial sand and gravel	Hard, "alkaline"		D, S	Good supply; several wells yield highly mineralized water.
37	SW.	28	"	"	"	Dug	10	1,765	- 7	1,758	7	1,758	Glacial gravel	Soft		D, S	Sufficient supply.
38	SW.	29	"	"	"	Bored	45	1,765	- 20	1,745			Glacial gravel	Hard		S	Sufficient, but supply has decreased in the past few years.
39	SE.	30	"	"	"	Dug	15	1,760	- 10	1,750			Glacial sand	Hard		S	Sufficient supply.
40	NW.	30	"	"	"	Drilled	184	1,760	- 20	1,740	184	1,576	Glacial sand	Hard, iron, "alkaline"		D, S	Abundant supply; about 25 dry holes 40 to 125 feet deep.
41	NE.	30	"	"	"	Bored	90	1,760	- 85	1,675			Glacial sand	Hard, iron, "alkaline"		D, S	Poor supply; hauls water from the NE¼, section 25.
42	NW.	31	"	"	"	Dug	8	1,760	- 4	1,756	4	1,756	Glacial fine sand	Soft		D, S	Very good supply.
43	SE.	32	"	"	"	Bored	70	1,755	- 45	1,710	70	1,685	Glacial sand	Hard, iron, "alkaline"		D, S	Oversufficient supply.
44	NW.	32	"	"	"	Bored	70	1,755	- 30	1,725	70	1,685	Glacial fine sand	Hard, iron, "alkaline"		D, S	Well has been plugged by sand; uses a shallow well; one dry hole 90 feet deep.
45	SE.	33	"	"	"	Dug	10	1,755	- 6	1,749	6	1,749	Glacial gravel	Hard		D, S	Oversufficient supply.
46	NE.	33	"	"	"	Dug	15	1,750	- 10	1,740			Glacial sand	Hard		S	Sufficient supply.
47	NE.	36	"	"	"	Dug	16	1,755	- 12	1,743	12	1,743	Glacial sand	Hard		D, S	Sufficient supply.
48	SE.	36	"	"	"	Dug	14	1,755	- 11	1,744	11	1,744	Glacial sand	Hard		D, S	Insufficient for 40 head stock.
	NE	12	33	11	2		90		-50		90		" clay	Fresh			No other information.
	NW	24	33	11	2		18	1800			18	1782	" "				" " "
	NE	9	33	10	2		57	1799					" boulder clay				To rocky to drill further.
	SE	13	33	11	2		88	1750	-80	1670	88	1662	" sand				No other information.
	SE	8	32	12	2		8½	1800	- 5	1795	8½	1791½	" "	Fresh		"	" "
	SE	8	32	12	2		8	1800	- 6	1794	6½	1793½	" gravel	"		"	" "
	SW	29	32	12	2		44	1750			44	1706	" clay			"	" "

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.