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DEPARTMENT OF MINES

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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF SALTCOATS No. 213 SASKATCHEWAN

BY

B. R. MacKay, H. N. Hainstock & P. D. Bugg

Water Supply Paper No. 158

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CONTENTS

	Page
Introduction	1
Glossary of terms used	5
Names and descriptions of geological formations referred to	8
Water-bearing horizons of the municipality	10
Water-bearing horizons in the unconsolidated deposits	11
Water-bearing horizons in the bedrock	13
Ground water conditions by townships:	
Township 22, Range 1, west of 2nd meridian	14
Township 22, Range 2, " " " "	16
Township 22, Range 3, " " " "	18
Township 23, Range 1, " " " "	20
Township 23, Range 2, " " " "	21
Township 23, Range 3, " " " "	23
Township 24, Range 1, " " " "	25
Township 24, Range 2, " " " "	27
Township 24, Range 3, " " " "	29
Statistical summary of well information	31
Analyses and quality of water	32
General statement	32
Table of analyses of water samples	36
Water from the unconsolidated deposits	37
Water from the bedrock	38
Well records	39

Illustrations

Map of the municipality.

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

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

GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF SALTCOATS, NO. 213, 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 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 Saltcoats, No. 213, is an area of 324 square miles in southeastern Saskatchewan. The area consists of nine full townships described as tps. 22, 23, and 24, ranges 1, 2, and 3, W. 2nd mer. The town of Saltcoats, on the Winnipeg-Edmonton branch of the Canadian Pacific railway, lies 5½ miles south of the northern border, and 6½ miles west of the eastern border, of the municipality. The centre of the municipality lies 30 miles west of the Manitoba boundary and 137 miles north of the International Boundary.

The northeastern and southwestern parts of the municipality are mantled by moraine, and the elevation in these areas rises to 1,760 feet above sea-level. A wide, shallow depression occurs between these moraine-covered areas, and there the elevation averages 1,700 feet above sea-level. This depression is largely covered by glacial till, but two narrow belts of moraine occur in the southeastern sections, and a large deposit of glacial lake clay overlies glacial till in the northwestern part of the municipality. Glacial lake sands occur along the western edge of township 24, range 3, and two small areas of glacial outwash sands and gravels occur in the northeastern corner of township 22, range 2, and the northwestern corner of township 23, range 1. The moraine-covered areas are very rolling, and are characterized by numerous knolls, ridges, and undrained depressions. The glacial till-covered areas are slightly rolling, but contain many small sloughs. The area that is mantled by glacial lake clay is a very flat, swampy plain that is locally termed "the hay flats".

A vertical section of the glacial drift generally consists of 1 to 4 feet of sandy loam soil; 10 to 30 feet of yellow boulder clay containing scattered pockets and lenses of sand and gravel of varying thickness; and blue clay that also

contains pockets and thin, discontinuous beds of sand and gravel at different elevations. The blue clay extends to a known depth of 230 feet, and probably continues to bedrock. The glacial lake clay is 5 to 30 feet thick, and contains a few pockets of sand. A fairly continuous layer of sand also occurs at the contact of the lake clay and underlying boulder clay.

Water supplies in this municipality are obtained from Yorkton and Cutarm creeks, from several, small, intermittent creeks, from small lakes and sloughs, and from wells. Yorkton creek occurs in the northeastern part of the municipality. A small lake in secs. 1 and 2, tp. 23, range 2, and sec. 31, tp. 22, range 1, forms the headwaters of Cutarm creek, which flows in a southeasterly direction through township 22, range 1. Most of the lakes are located in the north-central part of the municipality and the intermittent creeks flow into them. These lakes contained water during the drought period, but the small sloughs were dry.

Water-bearing Horizons in the Unconsolidated Deposits

The uppermost water-bearing horizon in the glacial drift is formed by pockets of sand and gravel in the yellow boulder clay, and in the glacial lake clay, and by the discontinuous beds of sand and gravel that underlie these clays. The wells tapping this horizon are from 8 to 30 feet deep and are located in all parts of the municipality. Wells that tap the pockets or beds of sand and gravel of large areal extent yield an abundant supply of water that is generally under slight hydrostatic pressure. The water is moderately hard and is suitable for household and stock purposes. Most of the wells, however, yield supplies that are sufficient for only 5 to 20 head of stock, and in many places two or more wells are used to supply sufficient water for local needs. The water from wells that yield small supplies is more highly

mineralized than that from wells yielding large supplies, but with few exceptions it is usable for all purposes.

The area outlined by the "B" boundary line on Figure 1 of the accompanying map is the eastern extension of an area in the adjoining municipality on the west in which a number of wells obtain fairly abundant supplies of water from sand and gravel aquifers lying between beds of blue clay at depths of 45 to 165 feet. In this municipality the deepest well within this boundary is 140 feet, but there are several wells from 45 to 85 feet deep. The water-bearing horizon appears to be fairly continuous in the outlined area, but elsewhere in the municipality it is formed by local pockets of sand or gravel. The water is hard and "alkaline", but can be used for domestic purposes. It has a laxative effect on those not accustomed to the use of highly mineralized water. The hydrostatic pressure varies with the individual well, but in the shallow wells the pressure is usually sufficient to cause the water to rise to points 30 to 50 feet below the surface. In the deeper wells the pressure is sufficient to cause the water to rise to points 15 to 65 feet below the surface. The supply available from these wells is not large, but there is generally sufficient water for local needs.

In the central part of the municipality, several attempts have been made to locate water at depths of 100 to 230 feet, but all except a few wells were dry. The wells that yield small supplies of water tap thin beds of sand at depths of 150 to 200 feet. The water is very hard, and has a high iron content, and that from an individual well is not sufficient for more than 40 head of stock. Other dry holes 90 to 100 feet deep have been drilled in widely separated parts of the municipality, indicating the discontinuity of the water-bearing beds. Where water-bearing beds have been located at depth, the poor quality and small quantity of water obtained did not warrant the expense of drilling.

The best method of supplementing the supply of water is by the conservation of surface water by the construction of dams or by the excavation of dugouts. Slough basins are excellent locations for dugouts.

Water-bearing Horizons in the Bedrock

The Marine Shale series probably underlies the glacial drift throughout the municipality. A hole on the SW.$\frac{1}{4}$, sec. 22, tp. 23, range 2, did not strike bedrock at a depth of 230 feet or an elevation of 1,450 feet above sea-level. If these shale beds are encountered when drilling for water it is not advisable to continue drilling as they are usually non-water-bearing. Where water has been located at depth in the Marine Shale series in southeastern Saskatchewan it is generally so highly mineralized that it cannot be used for any farm purpose.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 22, Range 1

Water supplies in this township are obtained from Cutarm creek, a small lake, a spring, and from wells. Cutarm creek is a permanent stream that has its headwaters in a long, narrow lake, the eastern part of which lies in section 31. The spring, located in the SW.$\frac{1}{4}$, section 29, flows throughout the year, and the water is soft and usable for all farming purposes.

Small drift ridges trending in a northwest-southeast direction are quite numerous in the southwestern and north-central parts of the township. These areas are covered by moraine. The remainder of the township is mantled by boulder clay or glacial till, and its surface is slightly rolling. The elevation rises from 1,650 feet at Cutarm creek to 1,700 feet in the southeastern and northeastern parts of the township. Clumps of poplar trees and willow are common throughout the township.

The uppermost sources of ground water in the township are scattered pockets of sand and gravel in the yellow clay, and discontinuous beds of sand and gravel lying between the yellow and blue boulder clays. These water-bearing horizons are fairly continuous in the northern part of the township. Wells that tap these horizons are from 8 to 30 feet deep, and generally yield sufficient water for domestic purposes and for 10 to 25 head of stock. In a few sections a number of these shallow wells are used to obtain sufficient water for local needs. The water is moderately hard and is used for all domestic purposes. It is advisable to locate the water-bearing deposits with a small hand auger before digging a well.

Deposits of sand and gravel that occur in the blue clay at depths of 35 to 60 feet have been encountered by approximately thirty wells, most of which are situated in the southwestern

sections of the township. The supply from the individual wells is sufficient only for domestic needs, and a few head of stock. The water is hard, and it may have a slight laxative effect on those not accustomed to its use. The water from these wells in the southwestern part of the township is not under hydrostatic pressure, but in two wells in section 27 the water flowed above the surface, although in 1935 one of the wells was dry and the other caved in. The water in wells in the vicinity of section 27 rises to a point 10 to 35 feet below the surface.

Four wells, 80 to 90 feet deep, located in sections 11, 14, and 27, encountered gravel deposits from which fairly abundant supplies of water are obtained. The water is very hard, generally "alkaline", and has a high iron content. Only the water from one well is used for domestic purposes, but it has a mildly laxative effect on those not accustomed to its use. The water is under sufficient hydrostatic pressure in these wells to rise to points 14 to 50 feet below the surface. It is possible that wells sunk to similar depths in other sections of the township would encounter the same water-bearing horizon. The areal extent of the gravel deposits is not known. A well on the SE.$\frac{1}{4}$, section 26, drilled to a depth of 125 feet, obtained only a small supply of water and the well was filled in.

A fairly abundant supply of water is obtained in this township, but there is not an oversufficient supply. In many sections the small supply obtained prohibits the raising of large herds of live stock. If exceptionally large supplies are desired, a dam could be constructed across the lower part of Cutarm creek. The Canadian National Railway Company pumps water for locomotive use from this creek. It is not advisable to drill to any great depth for water in the township.

Township 22, Range 2

The surface elevation of the township rises from less than 1,700 feet at the northeastern corner to 1,750 feet above sea-level at the southwestern corner. The southern half of the township is very rolling with many northwest-southeast trending ridges, and is mantled by moraine. With the exception of a small deposit of glacial outwash sands and gravels in parts of sections 35 and 36 the northern half of the township is covered by glacial till or boulder clay. The ground surface of this till-plain is slightly rolling. The township is quite thickly wooded with small poplar and willow.

The deposits of till and moraine generally consist of 1 to 4 feet of sandy loam top-soil; 10 to 30 feet of yellow boulder clay containing scattered pockets of sand and gravel; a discontinuous bed of sand and gravel 1 to 4 feet in thickness; and a thick deposit of blue clay that also contains discontinuous deposits of sand and gravel at various elevations. The blue clay extends to a depth of at least 146 feet, and it probably continues to bedrock.

The deposits of sand and gravel in the yellow clay and the discontinuous bed of sand and gravel between the yellow and blue clays form the uppermost water-bearing horizon in the glacial drift. Wells that tap this horizon are located mainly in the northeastern and southwestern sections. A 6-foot well on the SW.$\frac{1}{4}$, section 3, and a 10-foot well on the NW.$\frac{1}{4}$, section 26, tap pockets of sand of large areal extent. The water from these wells is soft and usable for all farm purposes including irrigation. Several neighbouring farmers haul water from the 6-foot well. The supply of water from the 10-foot well is sufficient for at least 150 head of stock. Other wells tapping this horizon yield smaller supplies of water that are adequate only for a few head of stock. On some farms it is necessary to use two or more of these wells to obtain

sufficient water for local needs. The water from the wells that tap small deposits of sand is more highly mineralized, but is usable for all domestic purposes. A test auger should be used to locate a water-bearing deposit before a shallow well is dug.

Layers and pockets of sand and gravel that occur in the blue clay at depths of 35 to 64 feet form a second water-bearing horizon. This horizon is of considerable areal extent, as wells have tapped it in widely separated sections of the township. The water is generally hard, but that obtained from the larger deposits of sand is termed soft in comparison with the water from wells tapping small deposits of sand. It is usable for all domestic purposes, although in a few wells the iron content is fairly high. A 40-foot well on the NW.$\frac{1}{4}$, section 24, yields an abundant supply of water, but the other wells yield only sufficient water for local needs. The water in some of the wells is under hydrostatic pressure, and rises to points 20 to 40 feet below the surface, but in most of the wells the water does not rise above the aquifer.

Wells in the NW.$\frac{1}{4}$, section 1, the NW.$\frac{1}{4}$, section 2, and the SW.$\frac{1}{4}$, section 2, tap water-bearing beds at depths of 90, 100, and 120 feet, respectively, or at an elevation of 1,640 feet above sea-level. The 90-foot well yields 300 gallons a day; the 100-foot well yields sufficient water for 40 head of stock; and the 120-foot well yields sufficient water for local needs. The water is very hard, "alkaline", and has a laxative effect on those not accustomed to the use of highly mineralized water. It is used, however, for all domestic purposes when water of better quality is not obtainable. With the exception of a 120-foot well, the water is not under hydrostatic pressure. The areal extent of the aquifers is small, as dry holes were drilled to a depth of 100 feet in section 10. Another drilled well on the NW.$\frac{1}{4}$, section 27,

obtains an abundant supply of water at a depth of 146 feet or an elevation of 1,569 feet above sea-level. The water is under sufficient hydrostatic pressure to rise to a point 35 feet below the surface. The water was so highly mineralized, however, that the stock would not drink it, and the well is not used.

As only small quantities of highly mineralized water are derived from drilled wells, it does not appear advisable to sink other deep wells in this township. Numerous suitable locations for the construction of dams and the excavation of dugouts exist in this township, and this means of collecting and storing surface water for stock is highly recommended.

Township 22, Range 3

The southwestern and northeastern parts of this township are mantled by glacial till or boulder clay. The remainder of the area is covered by moraine which is characterized by numerous rock-strewn knolls, several northwest-southeast trending ridges, and many undrained depressions or sloughs. The elevation rises gradually from 1,700 feet in the northern part to 1,750 feet above sea-level in the southern part of the township. The upper 30 feet of the glacial drift is composed of yellow or oxidized clay, and it is underlain by blue clay to a depth of at least 140 feet. Pockets and discontinuous layers of sand and gravel occur throughout both these clay deposits.

The lenses and pockets of sand and gravel that occur within the yellow clay or that lie between the yellow and blue clays form aquifers for approximately twenty shallow wells in the township. Usually only small supplies of water are obtained from these wells, and often it is necessary to use two or more wells to obtain sufficient water for local needs. The water is moderately hard and usable for all domestic purposes. The water-bearing horizon is not continuous, and it is advisable to test with a small auger before digging a well.

A second water-bearing horizon occurs at depths of 35 to 70 feet. This aquifer is formed by discontinuous beds of sand and gravel within the blue clay. The water-bearing beds appear to be more continuous in the northern part of the township than in the southern part. The water from the wells is usually quite hard and highly mineralized, but it is usable for all domestic purposes. The hydrostatic pressure varies with the individual well, indicating that almost every well taps a localized deposit of water-bearing sand or gravel. The supply from some wells is not sufficient for local needs, and no well yields sufficient water for more than 40 head of stock. A few farmers use two or three of these wells to supply the necessary water for their farm requirements.

Several wells, 80 to 87 feet deep, tap thin beds of water-bearing sand within the blue clay. The water is very hard, and the supply is sufficient only for a few head of stock. The water in two of the wells is under slight hydrostatic pressure, and in the well in the NW.$\frac{1}{4}$, section 23, the water rises slowly to a point 15 feet below the surface. These wells are very poor sources of water. A well in the SE.$\frac{1}{4}$, section 4, taps an aquifer at a depth of 140 feet and yields a small amount of very hard water. The water has a high iron content and is usable for domestic purposes, but it cannot be used for irrigation. The extent of this aquifer is not known as no other well has been drilled to this depth. It does not appear advisable to drill deep wells in this township. If sufficient water for domestic needs can be obtained from shallow wells, dugouts or dams can be used to collect and store surface water for stock. The slightly mineralized water collected in these reservoirs is more suitable for stock than the water from deep wells.

Township 23, Range 1

The elevation throughout most of this township is approximately 1,750 feet, but in the southwestern corner it decreases to less than 1,700 feet above sea-level. Water is obtained from sloughs, and from wells dug into the glacial drift.

An area extending in a northwest-southeast direction in the central part of the township, and a narrow belt in the southwestern corner, are mantled by moraine. The southwestern half of section 21 is covered by glacial outwash sands and gravels, but the remainder of the township is overlain by boulder clay or glacial till. The moraine-covered areas are characterized by numerous rock-strewn knolls, several northeast to southwest trending ridges, and by numerous, small, undrained depressions. The ground surface of the glacial till-covered area is comparatively flat, and several sections in the eastern part of the township are marshy. In general, the deposits of moraine and till consist of 1 to 4 feet of sandy, surface soil; 10 to 30 feet of yellow clay in which scattered pockets of sand and gravel occur; and blue clay that extends to an unknown depth. In some sections thin beds of sand or gravel occur between the yellow and blue clays, and within the blue clay.

The deposits of sand and gravel in the yellow clay, and between the yellow and blue clays, form the uppermost water-bearing horizon in the glacial drift. Only one of the wells that tap this horizon yields an abundant supply of water. It is located in the NW.$\frac{1}{4}$, section 12, and yields sufficient water for at least 50 head of stock. In several of the wells the yield is not sufficient for local needs and in such cases two or more wells are used to obtain an adequate supply of water. The water is moderately hard and usable for all domestic purposes. Water from a 30-foot well in the NW.$\frac{1}{4}$, section 19, is not used as it is

contaminated by surface water. Care should be taken to see that these shallow wells do not become polluted by surface water containing animal refuse.

A number of wells throughout the township tap beds of sand and gravel in the blue clay at depths of 35 to 83 feet. The supply of water obtained from these wells is usually adequate for local needs. The water is highly mineralized, and that from the deeper wells contains more mineral salts in solution. It also contains a considerable amount of iron in solution; this settles as a reddish precipitate when the water stands in contact with the air. The hydrostatic pressure is sufficient to cause the water to rise to points 30 to 35 feet below the surface in some wells.

The deepest well in the township is a 90-foot dry hole in the NW.$\frac{1}{4}$, section 24. Water-bearing deposits probably occur below a depth of 90 feet, but it does not appear advisable to sink deep wells, as the water encountered at depth in this area will probably be very highly mineralized. Dams and dugouts are recommended as a means of collecting and storing surface water for stock.

Township 23, Range 2

Water in this township is obtained from two small lakes, an intermittent creek, sloughs, and from wells. One lake is situated in sections 1 and 2, and it contained water throughout the drought period of 1930 to 1934. Anderson lake is also a permanent body of water, and its southern end occurs in section 36. An intermittent creek flows through sections 33, 34, 35, and 36, into this lake.

With the exception of parts of sections 13 and 14 that are covered by moraine this township is mantled by glacial till or boulder clay. A thin deposit of glacial lake clay overlies the

glacial till in section 31. The ground surface is slightly rolling, and the elevation is approximately 1,700 feet above sea-level.

The uppermost source of ground water in this area is formed by pockets of sand and gravel that occur in the upper 30 feet of the glacial till and moraine. The pockets are of small areal extent, and most of the wells yield small amounts of water. The water is moderately hard and usable for all domestic purposes. Shallow wells sunk near the sloughs derive their water by seepage from the slough, and in such wells great care must be taken to see that the water is not polluted. Some difficulty is experienced in locating water-bearing pockets of sand and gravel, and in some sections a number of dry holes have been dug. Test holes should be bored with a small hand auger before a well is dug.

Deposits of sand and gravel that occur within the blue clay at depths of 35 to 60 feet have been encountered by eleven wells, at various locations in the township. The supply of water from the individual wells is sufficient for domestic use and a few head of stock. The water is very hard and slightly "alkaline", but that from most wells is used for household purposes. It would act as a laxative on one not accustomed to the use of highly mineralized water. The deposits that form the aquifers of these wells do not form a continuous water-bearing horizon, as many dry holes, particularly in the central sections of the township, have been dug to elevations below those of the producing wells. At least twelve holes have been drilled to depths of 100 to 230 feet in an attempt to locate water at depth. Three wells in the NE.$\frac{1}{4}$, section 3, the SE.$\frac{1}{4}$, section 3, and the NE.$\frac{1}{4}$, section 6, tap fairly abundant supplies of water at depths of 130, 155, and 124 feet, respectively. Water from the two deeper wells is hard and usable for domestic purposes, but that from the 124-foot well is not suitable for domestic use. The water is

under sufficient hydrostatic pressure to rise to points 15 to 75 feet below the surface. These wells yield sufficient water for local needs. Two other wells in the NW.$\frac{1}{4}$, section 28, and the NE.$\frac{1}{4}$, section 31, encounter water-bearing horizons at depths of 200 and 127 feet. These wells yield sufficient water for 40 head of stock. The water is usable for domestic purposes, although it is very hard and has a fairly high iron content. The other seven wells, located in sections 12, 21, 22, 23, 29, and 32, and drilled to depths of 100 to 230 feet, did not encounter water. Although a few wells obtained moderate supplies of water, the large number of dry holes indicate the discontinuity of the water-bearing beds. The uncertainty of obtaining water and the poor quality of water obtained, do not warrant the expense of drilling for water in this township.

The most economical method of supplementing the supply of water in this township is by collecting or impounding surface water by means of dugouts or dams. Slough basins are excellent locations for dugouts.

Township 23, Range 3

Sections 4, 5, 6, and parts of sections 7 and 8 are mantled by moraine, the surface of which is characterized by knolls and undrained depressions. Glacial till mantles the remainder of the township, but in the northern part it is overlain by 10 to 30 feet of glacial lake clay. The ground surface of the lake clay-covered area is very flat and is characterized by swampy areas that are unfit for cultivation. The glacial till-covered area is slightly rolling, and it is thickly wooded with small poplar and willow. The surface elevation varies from 1,695 to 1,720 feet above sea-level.

Two wells sunk into the glacial lake clay encountered deposits of sand in the clay at depths of 12 and 30 feet. The

water is moderately hard and usable for all domestic purposes, and the supply is sufficient for local needs. A 40-foot well in the SE.$\frac{1}{4}$, section 33, probably passed through the lake clay and obtains water from a pocket of sand in the underlying glacial till. It appears that very little water occurs within the glacial lake clay in this township.

The deposits of moraine and glacial till consist of several feet of sandy top soil; 10 to 30 feet of yellow clay containing scattered pockets of sand and gravel; a thin, discontinuous layer of sand and gravel; and at least 120 feet of impervious, blue clay. Thin beds of sand and gravel occur at various depths within the blue clay.

The deposits of sand and gravel in the yellow clay, and between the yellow and blue clays, form the aquifers for most of the wells in the southern part of the township. A few of these wells, which tap beds or pockets of sand of large areal extent, yield a supply of moderately hard water sufficient for 30 to 40 head of stock. Most of the other wells that tap this water-bearing horizon, however, do not yield as abundant a supply, and in a few instances it is necessary to use two or more of these shallow wells to obtain sufficient water for local needs. Water from all the wells is usable for domestic purposes, and in a few wells the water is under slight hydrostatic pressure.

Ten wells tap water-bearing beds of sand or gravel that occur within the blue clay at depths of 35 to 60 feet. The water in these wells is under sufficient hydrostatic pressure to rise to points 10 to 25 feet below the surface, but the seepage into some of the wells is quite slow and the supply of water is only sufficient for a few head of stock. A well that taps this water-bearing horizon in the NW.$\frac{1}{4}$, section 7, yields an abundant supply of water, and it has never been pumped dry. It is possible that

the deposits that form this horizon are of widespread occurrence and may be encountered in other sections of the township. Two wells in the NW.$\frac{1}{4}$, section 25, and the SE.$\frac{1}{4}$, section 35, tap the same water-bearing bed of sand at depths of 100 and 95 feet, respectively. The water is under hydrostatic pressure, and rises to points 50 and 12 feet below the surface, where it maintains a constant level. It is highly mineralized, and has a high iron content, but is being used for all domestic purposes. Deeper wells failed to encounter this horizon in the NW.$\frac{1}{4}$, section 36, so it is of small areal extent. The well on section 36, however, obtains an abundant supply of water from an aquifer at a depth of 150 feet. The water is under pressure, rising to a point 20 feet below the surface. It is usable for all farm purposes. Similar deposits of water-bearing sands may occur at other localities in the township. Drilling to great depth is not advised as the water will probably be too highly mineralized for domestic and even stock use.

Dugouts can be used to retain surface water for stock. Shallow wells dug beside these reservoirs yield sufficient water for household purposes.

Township 24, Range 1

This township is mantled by moraine, and the ground surface is characterized by rock-strewn knolls, several southeast-northwest trending ridges, and numerous undrained depressions. The average elevation throughout the township is 1,750 feet above sea-level. The upper 30 feet of glacial drift is composed of yellow clay, and it is underlain by impervious, blue clay to an unknown depth. Pockets or discontinuous beds of sand and gravel occur throughout the yellow and blue boulder clays.

Water is obtained in this township from Potts and Kirkham lakes, from numerous sloughs, and from wells. The lakes

are permanent bodies of water, but many of the sloughs became dry during the recent drought. Two water-bearing horizons are encountered in the glacial drift in this township. The uppermost water-bearing horizon is formed by pockets of sand and gravel that occur in the yellow clay. A 24-foot well in the SE.$\frac{1}{4}$, section 20, taps a pocket of sand of large areal extent, and this well yields an abundant supply of water and has never been pumped dry. Several of the other wells also yield sufficient water for 30 to 100 head of stock, but most of them yield small supplies. In some areas it is necessary to use two or more of these wells to obtain an adequate supply of water. The water is moderately hard, but is soft in comparison with the water from deeper wells. It is used for all domestic purposes and could be used for irrigation. The water from a few wells is under a slight hydrostatic pressure. Before digging a shallow well it is advisable to locate a pocket of sand by means of a small test auger.

The discontinuous beds of sand or gravel that occur within the impervious blue clay form a second water-bearing horizon. The wells that tap this horizon are from 35 to 75 feet deep. The water is very highly mineralized, and that from most wells is "alkaline", but with few exceptions it is usable for all domestic purposes. A few of the wells yield water that is under sufficient hydrostatic pressure to rise to points 15 to 30 feet below the surface. The supply from these wells is not abundant, and several do not yield sufficient water for local needs. Few dry holes have been dug to these depths, and it is possible that similar deposits of water-bearing sand exist at other localities in the township.

One well located in the SE.$\frac{1}{4}$, section 28, obtains water at a depth of 90 feet. This is the deepest well in the township. The water is suitable for all farm purposes. It is

possible that other water-bearing deposits could be located at depth, but it is not advisable to drill to great depths, as the water, if located, is generally very highly mineralized.

Most of the farmers in this township obtain sufficient water for their present needs, but during the drought of 1930-34 some were forced to sell live stock because there was insufficient water. Dams and dugouts can be employed to retain surface water for stock, and their use is strongly recommended.

Township 24, Range 2

The elevation in this township decreases from 1,750 feet in the east to 1,700 feet above sea-level in the west. The northeastern part of the township is mantled by moraine, and it is characterized by numerous knolls and undrained depressions. The southwestern corner of the township is covered with glacial till or boulder clay. In sections 6, 7, 18, and parts of sections 5, 8, and 19, the glacial till is overlain by 10 to 30 feet of glacial lake clay.

Four wells sunk into the glacial lake clay-covered area obtain water from beds of sand and gravel that lie between the lake clay and the underlying glacial till. Two wells on the SW.$\frac{1}{4}$, section 18, and the NE.$\frac{1}{4}$, section 18, obtain sufficient water for 80 to 100 head of stock at depths of 32 and 18 feet, respectively. The other wells yield only small supplies of water. The water is very hard and "alkaline", and that from some wells is not used for domestic purposes.

The deposits of glacial till and moraine consist in general of 1 to 4 feet of sandy loam top soil; 10 to 30 feet of yellow boulder clay in which scattered pockets of sand and gravel occur; a discontinuous layer of sand and gravel that in some areas attains a thickness of 6 feet; and at least 175 feet of blue clay. Water-bearing horizons are formed by the pockets of sand

and gravel that occur in the yellow clay, and by the beds of sand and gravel between the yellow and blue clays. Most of the water in the township is obtained from wells that encounter this horizon. The water is moderately hard, sometimes slightly "alkaline", and it is used for all farm purposes. Most of the wells yield sufficient water for present needs, but during long periods of drought, as from 1930-34, the quantity of water obtained from the individual wells was greatly reduced. A few of the wells become intermittent during the winter, and water is hauled, or snow is melted for both domestic and stock needs.

A second water-bearing horizon occurs discontinuously throughout the township at depths of 30 to 75 feet. It is formed by beds of sand or gravel in the impervious blue clay. The quantity of water obtained from it varies in the individual wells, but most of the wells yield sufficient water for 10 to 50 head of stock. The water is more highly mineralized than that obtained from the uppermost water-bearing horizon, and it has a laxative effect on those not accustomed to the use of highly mineralized water. The water in three or four of the wells is under hydrostatic pressure. The well in the SE.$\frac{1}{4}$, section 10, is a flowing artesian well. It taps a bed of gravel at a depth of 75 feet or at an elevation of 1,625 feet. The high hydrostatic pressure is probably developed by the water that seeps into the ground in the highland area to the northeast and flows underground into the water-bearing beds. The aquifer is thought to be of small areal extent.

A well on the NW.$\frac{1}{4}$, section 22, tapped a bed of sand and gravel at a depth of 80 feet, but only a small supply of water was obtained. A hole on the NW.$\frac{1}{4}$, section 21, 87 feet deep, failed to encounter water. Two wells in the NE.$\frac{1}{4}$, section 5, and SE.$\frac{1}{4}$, section 7, tapped sand aquifers at depths of 178 feet

and 194 feet, respectively. The water is under sufficient pressure to rise to points 20 and 12 feet below the surface. The large amount of mineral salts in solution renders the water unfit for domestic use, but it is suitable for stock.

Pockets of water-bearing sand and gravel probably occur at depth in other parts of the township, but the uncertainty of encountering them, and the poor quality of the water, do not appear to warrant the expense of drilling. In many sections there are suitable locations for dams or dugouts, and their use is recommended in this township.

Township 24, Range 3

The ground surface of this township is very flat and has an average elevation of 1,690 feet above sea-level. Yorkton creek, a permanent stream, flows through the northwestern corner of the township. An intermittent creek joins Yorkton creek to the north of the municipality. The greater part of the area is mantled by glacial lake clay. Small areas in the western part of the township are covered by glacial lake sand, and a small area in the northern and northeastern parts is mantled by boulder clay or glacial till. Due to the swampy nature of the lake clay-covered area, only a few sections are under cultivation, and the area is but sparsely settled.

Two wells have been dug in the glacial lake sand and they obtain fairly abundant supplies of water. The lake sand is 26 feet thick, and the base of the wells is in blue boulder clay. The water is moderately hard, and usable for all domestic purposes. Water can probably be obtained from these deposits in other parts of the township.

The glacial lake clay consists of 10 to 30 feet of black, gumbo clay that contains a few pockets of sand, and it is underlain by a thin bed of sand and gravel. Two wells located in the SW.$\frac{1}{4}$, section 4, and the NW.$\frac{1}{4}$, section 16, obtain sufficient water for

80 to 200 head of stock at depths of 26 and 20 feet, respectively. The other wells dug in these deposits yield sufficient water for 10 to 40 head of stock. The water is hard and highly mineralized. The high mineral salt content may be derived from thin layers of white mineral salts in the black clay. The water is usable for all domestic purposes, although it has a laxative effect on those not accustomed to its use. Several shallow wells have also tapped pockets of sand and gravel in the upper part of the boulder clay. The water from them is not as highly mineralized and it is reported as being soft. A well in the NW.$\frac{1}{4}$, section 32, yields an abundant supply of water, and the water-level cannot be lowered by continuous pumping. The other shallow wells yield sufficient water for 20 to 30 head of stock.

A second water-bearing horizon is formed by discontinuous beds of sand in the blue clay, at depths ranging from 35 to 55 feet. Several wells pass through 10 to 30 feet of lake clay, and strike beds of sand in the underlying blue clay. The water from most of the wells is under hydrostatic pressure, rising to points 10 to 40 feet below the surface. The water from a few wells contains a relatively large amount of iron in solution, but it is usable for domestic purposes. The supply is usually sufficient for local needs. Similar water-bearing deposits may be encountered in other parts of the township.

No attempts have been made to locate water at a greater depth than 55 feet. It is possible that water-bearing beds of sand and gravel would be encountered at depth, but the water is generally very highly mineralized, and is not suitable for stock. Most of the farmers obtain sufficient water for all local needs, although during drought periods the amount of water derived from the individual wells is apparently reduced. In some places, dugouts could be excavated to retain surface water.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF SALTCOATS, NO.213, SASKATCHEWAN

West of 2nd meridian — Township / Range	22 / 1	22 / 2	22 / 3	23 / 1	23 / 2	23 / 3	24 / 1	24 / 2	24 / 3	Total No. in municipality
Total No. of Wells in Township	84	71	53	53	93	43	52	66	31	546
No. of wells in bedrock	0	0	0	0	0	0	0	0	0	0
No. of wells in glacial drift	84	71	53	53	93	43	52	66	31	546
No. of wells in alluvium	0	0	0	0	0	0	0	0	0	0
Permanency of Water Supply										
No. with permanent supply	83	68	44	50	57	43	41	58	28	472
No. with intermittent supply	1	0	3	2	1	0	0	5	0	12
No. dry holes	0	3	6	1	35	0	11	3	3	62
Types of Wells										
No. of flowing artesian wells	0	0	0	0	0	0	0	1	0	1
No. of non-flowing artesian wells	11	13	7	12	9	22	15	4	10	103
No. of non-artesian wells	73	55	40	40	49	21	26	58	18	380
Quality of Water										
No. with hard water	75	62	45	47	53	36	40	58	26	442
No. with soft water	9	6	2	5	5	7	1	5	2	42
No. with salty water	1	0	0	0	0	0	0	2	0	3
No. with "alkaline" water	4	5	12	5	9	7	6	7	8	63
Depths of Wells										
No. from 0 to 50 feet deep	75	55	41	41	55	36	42	56	28	429
No. from 51 to 100 feet deep	8	14	11	12	20	6	10	8	3	92
No. from 101 to 150 feet deep	1	2	1	0	11	1	0	0	0	16
No. from 151 to 200 feet deep	0	0	0	0	5	0	0	2	0	7
No. from 201 to 500 feet deep	0	0	0	0	2	0	0	0	0	2
No. from 501 to 1,000 feet deep	0	0	0	0	0	0	0	0	0	0
No. over 1,000 feet deep	0	0	0	0	0	0	0	0	0	0
How the Water is Used										
No. usable for domestic purposes	67	55	36	43	40	40	36	53	24	394
No. not usable for domestic purposes	17	13	11	9	18	3	5	10	4	90
No. usable for stock	79	60	45	47	50	42	41	63	27	454
No. not usable for stock	5	8	2	5	8	1	0	0	1	30
Sufficiency of Water Supply										
No. sufficient for domestic needs	82	67	43	50	57	42	41	58	28	468
No. insufficient for domestic needs	2	1	4	2	1	1	0	5	0	16
No. sufficient for stock needs	73	53	37	40	45	38	34	32	23	375
No. insufficient for stock needs	11	15	10	12	13	5	7	31	5	109

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 Saltcoats, No. 213, Saskatchewan.

LOCATION						Depth of well, ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS									Source of Water
No.	Qtr.	Sec.	Tp.	Rge.	Mer.			Total	Perm.	Temp.	Cl.	Alkalinity	CaO	MgO	SO_4	Na_2O	Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl	$CaCl_2$	
1	NE.	23	22	2	2	23	754											(3)	(1)		(2)		(4)		(5)	*1
2	NW.	19	23	1	2	30	3,091												(2)		(3)	(4)	(1)	(5)		*1
3	NW.	19	23	1	2	24	2,566											(4)	(1)		(2)		(3)		(5)	*1
4	SE.	3	23	2	2	155	717											(3)	(1)		(2)				(4)	*1
5	NW.	36	23	3	2	150	2,188											(4)	(2)	(3)				(1)		*1
6	SW.	1	24	2	2	20	5,270											(5)	(1)		(2)		(3)		(4)	*1
7	SW.	1	24	2	2	14	1,117											(3)	(1)		(2)		(4)		(5)	*1
8	SW.	1	24	2	2	20	1,303											(5)	(1)		(2)		(4)		(3)	*1
9	NE.	5	24	2	2	178	4,540	1,500	1,400	100	1,820	125	380	187	703	1,450	4,118	125	753	214	286			2,740		*1
10	NW.	6	24	2	2	20	5,150											(4)	(1)		(2)		(3)		(5)	*1
11	NE.	34	24	2	2	30	1,174											(3)	(1)		(1)				(4)	*1
12	SW.	2	24	3	2	51	3,770											(4)	(1)		(2)		(3)		(5)	*1

Water samples indicated thus, *1, are from glacial drift.
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 ($CaCO_3$).
Analyses Nos. 1,2,3,4,5,6,7,8,9,10,11, and 12, by Provincial Analyst, Regina.
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

The analyses of twelve samples of water from the glacial drift are listed in the accompanying table. The constituent mineral salts in the waters from the drift are the same, but the amount of these mineral salts varies greatly in different localities. Nine samples of water, from wells 14 to 51 feet deep, have total dissolved solid contents of 754 to 5,270 parts per million. Samples 2, 6, 10, and 12 are very highly mineralized, and should not be used for domestic purposes; the water will act as a laxative since it contains large amounts of Glauber's salt and Epsom salts. The water from some of the shallow wells is reported as soft. Such water is usually obtained from large deposits of sand and gravel. Water from small deposits of sand or gravel, or from wells in which the water comes in contact with beds of clay, is more highly mineralized. The bacteria content in the waters analysed is very high, and in five samples bacteria coli are present. The presence of bacteria coli in water indicates that the sample is contaminated with waste matter of human or animal origin, and that dysentry, typhoid fever, or other intestinal diseases may be transmitted by the water. Great care should be taken to see that the shallow wells are not contaminated by surface waters containing sewage and the water from wells that are being used for domestic purposes should be tested frequently for bacteria.

The waters from three wells 155, 150, and 178 feet deep were also analysed. They have a total dissolved solid content of 717, 2,188, and 4,540 parts per million, respectively. The water is hard, and the predominant mineral salts present are calcium, sodium, and magnesium sulphates, calcium carbonate, and calcium chloride. The mineral salt content in sample 4 is unusually low

for water from depth in the drift. Sample 9 contains 2,740 parts per million of common salt which is also unusual for drift waters. This water is salty to the taste, and is unfit for domestic use. The water from wells sunk into the lower part of the drift is suitable for stock, but is generally too highly mineralized for household needs.

Water from the Bedrock

No wells in this municipality obtain water from the Marine Shale series. In this part of Saskatchewan, any water that has been derived from the Marine Shale series at depth has, with few exceptions, been too highly mineralized to be used for any farm purpose.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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	NW.	3	22	1	2	Dug	34	1,680	- 31	1,649	31	1,649	Glacial gravel and sand	Hard, clear		D, S	Sufficient for local needs.
2	SE.	4	"	"	"	Dug	40	1,700	- 38	1,662	38	1,662	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
3	NE.	4	"	"	"	Dug	40	1,700	- 38	1,662	38	1,662	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
4	NW.	4	"	"	"	Dug	42	1,705	- 38	1,667	38	1,667	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
5	SE.	5	"	"	"	Bored	50	1,700	- 47	1,653	47	1,653	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
6	SW.	5	"	"	"	Dug	60	1,700	- 57	1,643	57	1,643	Glacial sand	Hard, clear, iron		S	Sufficient fof local needs.
7	SE.	6	"	"	"	Dug	17	1,700	- 13	1,687	13	1,687	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
8	NW.	6	"	"	"	Dug	17	1,700	- 13	1,687	13	1,687	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
9	NE.	7	"	"	"	Dug	44	1,700	- 40	1,660	40	1,660	Glacial sand	Hard, clear		D, S	
10	NW.	8	"	"	"	Dug	48	1,700					Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	NE.	8	"	"	"	Dug	49	1,700	- 47	1,653	47	1,653	Glacial drift	Hard, clear		D, S	Insufficient for local needs.
12	NW.	9	"	"	"	Dug	8	1,640	- 6	1,634	6	1,634	Glacial gravel	Soft, clear		D, S	Sufficient for local needs; also a 30-foot well in valley.
13	NE.	9	"	"	"	Dug	8	1,640	- 6	1,634	6	1,634	Glacial gravel	Soft, clear		D	Sufficient to supply school.
14	SE.	9	"	"	"	Dug	42	1,700	- 38	1,662	38	1,662	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
15	NW.	10	"	"	"	Dug	25	1,670	- 21	1,649	21	1,649	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a 6-foot well.
16	NE.	10	"	"	"	Bored	60	1,700	- 45	1,655	60	1,640	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a 25-foot well not used.
17	SW.	11	"	"	"	Bored	80	1,695	- 50	1,645	80	1,615	Glacial gravel and sand	Hard, clear, iron		D, S	Sufficient for local needs; also a 50-foot well.
18	SW.	12	"	"	"	Dug	14	1,720	- 6	1,714	6	1,714	Glacial gravel	Hard, clear, iron		D	Sufficient for domestic needs; also an 8-foot well with good supply.
19	NE.	14	"	"	"	Bored	90	1,700	- 30	1,670	90	1,610	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for 100 head stock; also two wells 18 and 40 feet deep.
20	NW.	14	"	"	"	Bored	89	1,720	- 20	1,700	89	1,631	Glacial gravel	Soft, clear, "alkaline"		S	Sufficient for local needs; also a 32-foot well not used.
21	NW.	14	"	"	"	Dug	50	1,720	- 20	1,700	50	1,670	Glacial sand	Hard, clear, iron		D	Sufficient for domestic needs.
22	SE.	15	"	"	"	Dug	15	1,720	- 12	1,708	12	1,708	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
23	SW.	15	"	"	"	Bored	25	1,650	- 10	1,640	25	1,625	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
24	NE.	16	"	"	"	Dug	43	1,700	- 42	1,658	42	1,658	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
25	SW.	16	"	"	"	Dug	40	1,700	- 38	1,662	38	1,662	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
26	NE.	17	"	"	"	Dug	8	1,690	- 7	1,683	7	1,683	Glacial gravel	Hard, clear, iron		S	Sufficient for local needs.
27	NW.	17	"	"	"	Dug	12	1,660	- 10	1,650	10	1,650	Glacial sand	Hard, clear		S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
28	SE.	17	22	1	2	Bored	42	1,700					Glacial sand	Hard, clear		D, S	Sufficient for local needs.
29	SE.	18	"	"	"	Dug	46	1,710					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
30	NE.	18	"	"	"	Bored	35	1,690	− 32	1,658	32	1,658	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a similar well.
31	SW.	19	"	"	"	Dug	33	1,700	− 32	1,668	32	1,668	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
32	SW.	20	"	"	"	Dug	32	1,680	− 27	1,653	27	1,653	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
33	NE.	20	"	"	"	Dug	12	1,645	− 6	1,639	6	1,639	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
34	NE.	21	"	"	"	Dug	28	1,720	− 10	1,710	10	1,710	Glacial drift	Hard, clear		D, S	Sufficient for local needs; also a 7-foot well used for stock.
35	SE.	21	"	"	"	Dug	7	1,650	− 2	1,648	2	1,648	Glacial sand	Soft, clear		D, S.	Sufficient for local needs.
36	SE.	22	"	"	"	Dug	50	1,720	− 10	1,710	50	1,670	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
37	SW.	23	"	"	"	Bored	60	1,720	− 40	1,680	60	1,660	Glacial gravel	Hard, clear		D, S	Sufficient for local needs. Also a 24 foot well used for house.
38	SE.	26	"	"	"	Bored	125	1,730					Glacial drift	Hard, clear		D, S	Yields 300 gallons a day. Several other wells 17 to 125 feet deep.
39	NE.	27	"	"	"	Dug	32	1,730	− 24	1,706	32	1,698	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also was a 78-foot well now filled in.
40	SW.	27	"	"	"	Bored	80	1,730	− 14	1,716	80	1,650	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also a 40-foot well.
41	SE.	28	"	"	"	Dug	38	1,710	− 34	1,676	34	1,676	Glacial sand	Soft, clear		D, S	Sufficient for local needs; has an 18-foot well; good water.
42	SW.	28	"	"	"	Bored	45	1,710	− 38	1,672	45	1,665	Glacial drift	Hard, clear		D, S	Has two other wells 12 and 14 feet deep.
43	NW.	28	"	"	"	Dug	8	1,700	− 4	1,696	4	1,696	Glacial sand	Soft		S	Sufficient for local needs.
44	NE.	29	"	"	"	Dug	35	1,680	− 27	1,653	27	1,653	Glacial drift	Hard, clear		S	Sufficient for local needs.
45	SW.	29	"	"	"	Dug	4	1,650	0	1,650	0	1,650	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
46	SW.	30	"	"	"	Dug	8	1,670	− 5	1,665	5	1,665	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
47	SW.	31	"	"	"	Bored	35	1,690	− 30	1,660	30	1,660	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
48	NW.	31	"	"	"	Dug	15	1,660	− 12	1,648	12	1,648	Glacial drift	Hard, clear		S	Sufficient for local needs.
49	SE.	31	"	"	"	Bored	40	1,680	− 37	1,643	37	1,643	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
50	SW.	32	"	"	"	Dug	20	1,670	− 15	1,655	15	1,655	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
51	NW.	32	"	"	"	Dug	22	1,670	− 20	1,650	20	1,650	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
52	NE.	32	"	"	"	Dug	20	1,710	− 18	1,692	18	1,692	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
53	NW.	33	"	"	"	Dug	25	1,730					Glacial drift	Hard, clear		D, S	Sufficient for local needs.
54	NW.	34	"	"	"	Dug	30	1,730	− 27	1,703	27	1,703	Glacial sand	Hard, clear		D, S	Insufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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
55	SW.	34	22	1	2	Dug	30	1,730	- 22	1,708	22	1,708	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
56	SE.	34	"	"	"	Dug	30	1,735	- 20	1,715	20	1,715	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
57	NW.	35	"	"	"	Bored	30	1,735					Glacial sand	Hard, clear		D	Sufficient for local needs.
58	NW.	35	"	"	"	Dug	30	1,735	- 27	1,708	27	1,708	Glacial sand	Hard, clear		D	Sufficient for local needs.
59	NW.	35	"	"	"	Bored	25	1,735	- 21	1,714	21	1,714	Glacial sand	Hard, clear		D	Sufficient for local needs.
60	NE.	35	"	"	"	Dug	25	1,745	- 15	1,730	15	1,730	Glacial gravel	Hard, clear, salty		D, S	Sufficient for local needs.
61	SW.	36	"	"	"	Dug	12	1,740	- 10	1,730	10	1,730	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also two 40-foot wells, not used.
62	NW.	36	"	"	"	Bored	50	1,730	- 20	1,710	20	1,710	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a 40-foot well, good supply.
63	NW.	36	"	"	"	Dug	45	1,750	- 42	1,708	42	1,708	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also an 18-foot well, small supply.
1	NE.	1	22	2	2	Dug & Bored	40	1,730									Dry hole; base in glacial drift.
2	NW.	1	"	"	"	Bored	90	1,730	- 88	1,642	88	1,642	Glacial clay	Hard, clear, "alkaline"		D, S	Yields 2 barrels a day. Sufficient for 40 head stock.
3	NW.	2	"	"	"	Bored	100	1,740					Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 40 head stock; also an 85-foot well; water 30 head stock.
4	SW.	2	"	"	"	Bored	120	1,750					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a 56-foot well used for house.
5	SW.	3	"	"	"	Dug	6	1,740	- 4	1,736	4	1,736	Glacial sand	Hard, clear,		D, S	Yields 1 tank a day.
6	SE.	4	"	"	"	Dug	30	1,740					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also 3 other wells
7	NE.	4	"	"	"	Dug	13	1,735	- 9	1,726	9	1,726	Glacial sand	Hard, clear		D, S	Sufficient for local needs; was a 15-foot well now filled in.
8	NW.	4	"	"	"	Dug	6	1,730	- 3	1,727	3	1,727	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 30-foot well with small supply.
9	SE.	5	"	"	"	Dug	26	1,750	- 23	1,727	23	1,727	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
10	SE.	6	"	"	"	Bored	45	1,760					Glacial drift	Hard, clear, iron		S	Sufficient for 15 head stock.
11	SW.	6	"	"	"	Dug	49	1,750	- 40	1,710	49	1,701	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
12	NW.	6	"	"	"	Dug	13	1,750	- 9	1,741	9	1,741	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
13	NW.	7	"	"	"	Bored	30	1,740	- 20	1,720	30	1,710	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
14	NW.	8	"	"	"	Dug	25	1,735					Glacial sand	Soft, clear		D, S	Sufficient for local needs; also a similar 20-foot well.
15	SE.	10	"	"	"	Bored	100	1,735									Dry hole; base in glacial drift.
16	NE.	10	"	"	"	Dug	60	1,730									Dry hole; base in glacial drift.
17	SE.	12	"	"	"	Dug	40	1,730					Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	SE.	13	"	"	"	Dug	49	1,710	- 46	1,664	46	1,664	Glacial sand	Hard, clear		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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
19	NE.	15	22	2	2	Dug	53	1,730	- 50	1,680	50	1,680	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
20	NE.	16	"	"	"	Dug	60	1,700	- 57	1,643	57	1,643	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
21	SW.	18	"	"	"	Dug	34	1,730	- 24	1,706	34	1,696	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for local needs; also a 14-foot well used for house.
22	NE.	18	"	"	"	Bored	50	1,725	- 54	1,671	54	1,671	Glacial sand	Hard, clear	43	D, S	Sufficient for local needs.
23	SW.	19	"	"	"	Drilled	60	1,730					Glacial sand	Soft, clear		D, S	Sufficient for local needs.
24	SE.	22	"	"	"	Dug	28	1,722	- 22	1,700	28	1,694	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
25	NE.	22	"	"	"	Dug	35	1,720	- 31	1,689	31	1,689	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
26	NE.	23	"	"	"	Dug	40	1,700	- 37	1,663	37	1,663	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
27	NW.	24	"	"	"	Dug	40	1,710	- 38	1,672	38	1,672	Glacial sand	Hard, clear		D, S	Oversufficient for local needs; also a similar 36-foot well.
28	NE.	24	"	"	"	Dug	30	1,710	- 27	1,683	27	1,683	Glacial gravel and sand	Hard, clear		D, S	Sufficient for local needs; also a similar 28-foot well.
29	NE.	25	"	"	"	Dug	25	1,695	- 15	1,680	25	1,670	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
30	NW.	25	"	"	"	Bored	40	1,710	- 20	1,690	45	1,665	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also 3 wells with small supply.
31	SE.	26	"	"	"	Dug	20	1,690	- 18	1,672	18	1,672	Glacial sand	Hard, clear		D, S	Sufficient for local needs; 3 wells with small supply.
32	NW.	26	"	"	"	Dug	10	1,700	- 6	1,694	6	1,694	Glacial sand	Hard, clear		D, S	Sufficient for 150 head stock; also a similar well.
33	SE.	27	"	"	"	Dug	46	1,710	- 35	1,675	35	1,675	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
34	NW.	27	"	"	"	Drilled	146	1,715	- 35	1,680	146	1,569	Glacial drift	Hard, clear, iron		N	Has two wells 52 and 90 feet deep; water not usable; hauls water.
35	NE.	28	"	"	"	Dug	34	1,720	- 32	1,688	32	1,688	Glacial drift	Hard, clear		D	Sufficient only for domestic use. Uses a 30-foot well for stock.
36	SW.	28	"	"	"	Bored	40	1,720	- 35	1,685	35	1,685	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
37	SW.	30	"	"	"	Dug	50	1,720	- 47	1,673	47	1,673	Glacial sand	Soft, clear		D, S	Sufficient for local needs; a 26-foot well not used.
38	NW.	30	"	"	"	Dug	39	1,710	- 38	1,672	38	1,672	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
39	SW.	31	"	"	"	Dug	32	1,720	- 25	1,695	25	1,695	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also two other wells not used.
40	SE.	32	"	"	"	Dug	25	1,710	- 22	1,688	22	1,688	Glacial clay	Hard, clear		D	Insufficient for local needs.
41	NW.	34	"	"	"	Dug	15	1,700	- 10	1,690	10	1,690	Glacial sand	Hard, clear		D, S	Insufficient supply in dry years; also a similar well; hauls water.
42	NE.	34	"	"	"	Dug	30	1,700	- 25	1,675	25	1,675	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
43	NW.	36	"	"	"	Dug & Bored	34	1,710	- 25	1,685	34	1,676	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also two 24-foot wells not used.
44	NE.	36	"	"	"	Dug & Bored	52	1,710	- 3	1,707	52	1,658	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
45	SE.	36	"	"	"	Dug	30	1,710	- 24	1,686	30	1,680	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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	NW.	2	22	3	2	Dug	43	1,740					Glacial gravel	Hard, clear		D, S	Well has not been used for 3 years and is now caving in.
2	SE.	3	"	"	"	Dug	26	1,740	- 20	1,720	20	1,720	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
3	SE.	4	"	"	"	Drilled	140	1,760					Glacial drift	Hard, iron, rusty		D, S	Sufficient for 13 head stock.
4	NE.	4	"	"	"	Dug	85	1,740	- 70	1,670	70	1,670	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for local needs.
5	NE.	6	"	"	"	Dug	20	1,750	- 17	1,733	17	1,733	Glacial gravel	Hard, clear		S	Insufficient for local needs; an 8-foot well used for stock.
6	NE.	9	"	"	"	Dug	60	1,750	- 57	1,693	57	1,693	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
7	NW.	10	"	"	"	Dug	12	1,740					Glacial sandy clay	Hard, clear		N	
8	SW.	10	"	"	"	Dug	70	1,750	- 67	1,683	67	1,683	Glacial sand	Hard, clear, iron		D, S	Just sufficient for local needs.
9	SE.	10	"	"	"	Bored	85	1,735	- 65	1,670	85	1,650	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
10	SW.	12	"	"	"	Dug	25	1,740	- 18	1,722	18	1,722	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for local needs; also two wells 32 and 20 feet deep of better quality water.
11	SE.	12	"	"	"	Dug	40	1,740	- 20	1,720	39	1,701	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Insufficient for local needs; has an 38-foot well, strongly "alkaline", used for stock.
12	SW.	13	"	"	"	Dug	40	1,740	- 24	1,716	24	1,716	Glacial drift	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs; also has an old well almost dry.
13	NE.	14	"	"	"	Dug	14	1,730									Dry hole base in glacial drift; hauls water.
14	SE.	18	"	"	"	Dug	18	1,740					Glacial drift	Hard, clear		D, S	Sufficient for local needs.
15	SW.	18	"	"	"	Dug	20	1,740					Glacial drift	Hard, iron, "alkaline"		S	Has a similar 16-foot well for stock; hauls drinking water.
16	NW.	19	"	"	"	Bored	70	1,720					Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 25-foot well, very "alkaline".
17	NE.	19	"	"	"	Dug	12	1,720					Glacial drift	Hard, clear		D, S	Intermittent supply; also has two other "alkaline" wells used for stock.
18	SE.	22	"	"	"	Dug	58	1,720	- 55	1,665	55	1,665	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
19	NW.	23	"	"	"	Dug	80	1,720	- 15	1,705			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply; also two dry holes 50 feet deep.
20	NW.	24	"	"	"	Dug	41	1,720	- 37	1,683	37	1,683	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a similar 41-foot well.
21	SE.	24	"	"	"	Dug	45	1,730	- 41	1,689	41	1,689	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
22	NE.	25	"	"	"	Dug	45	1,730	- 42	1,688	42	1,688	Glacial sand	Hard, clear		D, S	Insufficient for local needs; other similar wells filled in.
23	SE.	26	"	"	"	Dug	40	1,730	- 37	1,693	37	1,693	Glacial sand	Hard, clear		D, S	Sufficient for local needs; a 22-foot well has filled in.
24	NE.	26	"	"	"	Bored	32	1,710	- 26	1,684	32	1,678	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs; also a 50-foot well, small yield and several holes filled in.
25	NW.	26	"	"	"	Dug	30	1,700	- 25	1,675	25	1,675	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
26	SW.	27	"	"	"	Drilled	72	1,710	- 70	1,640	70	1,640	Glacial sand	Hard, clear		D	Sufficient for school.

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 SALTCOATS, NO. 213, 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
27	NW.	27	22	3	2	Dug	45	1,725	- 40	1,685	40	1,685	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
28	NE.	28	"	"	"	Dug	38	1,720	- 32	1,688	32	1,688	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
29	NW.	28	"	"	"	Drilled	62	1,720	- 40	1,680	40	1,680	Glacial sand	Hard, clear		D, S	Sufficient for 40 head stock.
30	SW.	28	"	"	"	Drilled	87	1,720	- 65	1,655	87	1,633	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a 50-foot seepage well and several dry holes.
31	SW.	29	"	"	"	Dug	45	1,720	- 25	1,695	25	1,695	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
32	NW.	30	"	"	"	Bored	60	1,720	- 52	1,668	60	1,660	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
33	SE.	32	"	"	"	Dug	42	1,710	- 39	1,771	39	1,771	Glacial sand	Hard, clear		D, S	Sufficient supply form this well; and a 42-foot similar well.
34	SE.	34	"	"	"	Dug	30	1,700	- 25	1,675	25	1,675	Glacial sand	Hard, clear			
35	SE.	35	"	"	"	Dug	10	1,700	- 7	1,693	7	1,693	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
1	SW.	2	23	1	2	Dug	40	1,750	- 37	1,713	37	1,713	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
2	SW.	2	"	"	"	Bored	33	1,745	- 31	1,714	31	1,714	Glacial sand	Hard, clear		D,	Sufficient for domestic needs.
3	NE.	2	"	"	"	Dug	55	1,760	- 30	1,730	55	1,705	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
4	SE.	3	"	"	"	Dug	32	1,735	- 30	1,705	30	1,705	Glacial sand	Soft, clear	45	D, S	Sufficient for local needs.
5	SW.	4	"	"	"	Dug	24	1,720	- 20	1,700			Glacial drift	Hard, clear	42	D, S	Sufficient for local needs.
6	SW.	5	"	"	"	Bored	23	1,705	- 21	1,684	21	1,684	Glacial gravel and sand	Hard, clear		D	Sufficient for local needs; a 60-foot well gave good supply; now filled in.
7	SE.	6	"	"	"	Dug	30	1,695	- 26	1,669	26	1,669	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
8	NE.	6	"	"	"	Dug	24	1,700	- 18	1,682	18	1,682	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also an 11-foot seepage well and a 26-foot well not usable.
9	SE.	8	"	"	"	Dug	30	1,720	- 26	1,694	26	1,694	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
10	SW.	9	"	"	"	Dug	30	1,725	- 27	1,698	27	1,698	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
11	NW.	9	"	"	"	Bored	36	1,735					Glacial sand	Soft, clear		D, S	Sufficient for local needs.
12	NW.	12	"	"	"	Dug	12	1,750	- 5	1,745	5	1,745	Glacial sand and gravel	Hard, clear, "alkaline"		S	Sufficient for 50 head stock; also two 21-foot wells used for house.
13	SE.	14	"	"	"	Bored	80	1,750	- 50	1,700	80	1,670	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	NE.	14	"	"	"	Bored	25	1,750	- 22	1,728	22	1,728	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
15	SW.	16	"	"	"	Dug	25	1,740	- 20	1,720	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 10-foot with good yields.
16	NW.	16	"	"	"	Dug	60	1,745					Glacial sand	Hard, clear		D, S	Insufficient for local needs; hauls water.
17	SE.	18	"	"	"	Dug	45	1,720					Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a similar 35-foot well.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
18	SW.	18	23	1	2	Dug	22	1,715	- 10	1,705	10	1,705	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
19	NW.	19	"	"	"	Dug	30	1,720					Glacial gravel	Hard, clear, "alkaline"		N	Not usable; also a 30-foot well not usable; hauls water supply. #.
20	NW.	20	"	"	"	Bored	28	1,750	- 14	1,736	24	1,726	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
21	SE.	20	"	"	"	Bored	47	1,740	- 40	1,700	40	1,700	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
22	SE.	21	"	"	"	Bored	63	1,760	- 51	1,709	63	1,697	Glacial sand	Hard, iron		N	Well is now plugged with sand; hauls water supply.
23	SW.	22	"	"	"	Dug	8	1,750	- 4	1,746	4	1,746	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also has a 60-foot well.
24	NW.	22	"	"	"	Dug	10	1,750	- 5	1,745	5	1,745	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 24-foot intermittent well.
25	NW.	24	"	"	"	Dug	16	1,750	- 11	1,739	11	1,739	Glacial gravel	Hard, black, "alkaline", iron		N	Not usable; has a 90-foot dry hole; hauls water.
26	NW.	27	"	"	"	Dug	24	1,760	- 10	1,750	22	1,738	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
27	NW.	28	"	"	"	Dug	53	1,760	- 20	1,740	20	1,740	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
28	NE.	29	"	"	"	Bored	80	1,760	- 55	1,705	80	1,680	Glacial sand	Hard, clear		D, S	Sufficient for local needs; has three 20-foot wells with small supply.
29	SW.	30	"	"	"	Dug	16	1,725	- 13	1,712	13	1,712	Glacial sand	Hard, clear		D, S	Sufficient for local needs; two wells 16 and 10 feet deep; good supply.
30	NW.	30	"	"	"	Dug	30	1,730	- 20	1,710	30	1,700	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
31	SW.	32	"	"	"	Bored	60	1,760	- 30	1,730	60	1,700	Glacial sand	Hard, clear		D, S	Sufficient for local needs; has a 45-foot well used for stock.
32	NE.	34	"	"	"	Dug	15	1,760	- 13	1,747	13	1,747	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
33	NW.	35	"	"	"	Bored	80	1,765	- 29	1,736	80	1,785	Glacial sand	Hard, clear, iron		D, S	Oversufficient for local needs.
34	NW.	36	"	"	"	Dug & Bored	57	1,770	- 30	1,740	50	1,720	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; a 20-foot well is not used.
35	NE.	36	"	"	"	Bored	83	1,770	- 35	1,735	83	1,687	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs; a 20-foot well has a small supply.
1	NE.	1	23	2	2	Bored	20	1,700	- 15	1,685	15	1,685	Glacial sand	Hard, clear, "alkaline"		S	Insufficient for local needs; also a 20-foot well with good supply.
2	NE.	2	"	"	"	Dug	26	1,690	- 20	1,670	20	1,670	Glacial sand	Hard, clear		D, S	Insufficient supply in winter; uses creek also for stock.
3	SE.	2	"	"	"	Dug	9	1,680					Glacial sand	Soft, clear		S	Sufficient for local needs.
4	SW.	2	"	"	"	Bored	38	1,670	- 30	1,640	30	1,640	Glacial drift	Hard, clear, iron		D, S	Insufficient for local needs; also uses a 7-foot well in winter.
5	SE.	3	"	"	"	Drilled	155	1,675	- 75	1,600	155	1,520	Glacial sand	Hard, clear		D, S	Sufficient for local needs; #.
6	NE.	3	"	"	"	Bored	130	1,680	- 15	1,665	130	1,550	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs; another 22-foot well yields a small supply.
7	NE.	4	"	"	"	Bored	60	1,700					Glacial drift	Hard, clear, iron		S	Insufficient for 20 head stock; also a 90-foot dry hole.
8	NW.	4	"	"	"	Dug	8	1,710	- 5	1,705	5	1,705	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.

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

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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
9	SE.	5	23	2	2	Bored	55	1,710	- 52	1,658	52	1,658	Glacial gravel	Hard, clear, iron		S	Small supply; hauls water; has a 25-foot dry hole.
10	NE.	6	"	"	"	Bored	124	1,710	- 48	1,662	124	1,586	Glacial gravel	Hard, iron		S	Sufficient for local needs.
11	NE.	7	"	"	"	Dug	20	1,700	- 17	1,683	17	1,683	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
12	SE.	8	"	"	"	Dug	12	1,700	- 8	1,692	8	1,692	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
13	NE.	8	"	"	"	Dug	26	1,705	- 25	1,680	25	1,680	Glacial clay	Hard, clear		D	Sufficient for domestic needs.
14	SW.	9	"	"	"	Dug	10	1,710	- 5	1,705	5	1,705	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
15	NW.	9	"	"	"	Dug	10	1,690	- 7	1,683	7	1,683	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
16	SE.	9	"	"	"	Bored	60	1,700	- 30	1,670	60	1,610	Glacial sand	Hard, clear, iron		S	Sufficient for local needs; a 7-foot well in pasture for stock.
17	SE.	10	"	"	"	Dug	34	1,730	- 30	1,700	30	1,700	Glacial gravel	Hard, clear		D, S	Good supply; farm deserted at present; also a similar well.
18	SW.	11	"	"	"	Dug	30	1,700	- 10	1,690	10	1,690	Glacial clay	Hard, clear, "alkaline"		N	Has a seepage well for house and hauls water from slough for stock.
19	SE.	12	"	"	"	Dug	35	1,710	- 10	1,700	30	1,680	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for local needs; also two 16-foot wells.
20	NE.	12	"	"	"	Dug	16	1,710	- 5	1,705	5	1,705	Glacial sand	Hard, clear		S	Sufficient for 16 head stock.
21	NW.	13	"	"	"	Dug	12	1,700	- 10	1,690	10	1,690	Glacial sand	Soft, clear		S	Sufficient for 10 head stock.
22	NE.	14	"	"	"	Dug	30	1,700	- 24	1,676	24	1,676	Glacial sandy clay	Hard, clear		D, S	Sufficient for only 4 head stock.
23	SW.	14	"	"	"	Dug	45	1,700	- 25	1,675	25	1,675	Glacial clay	Hard, clear, iron		D, S	Small supply; has dry holes as deep as 60 feet.
24	NE.	15	"	"	"	Drilled	209	1,720									Dry hole; base in glacial drift; other similar dry holes.
25	NW.	15	"	"	"	Bored	70	1,690									Dry hole; base in glacial drift; several dry holes; hauls water.
26	NE.	16	"	"	"	Dug	22	1,690	- 17	1,673	17	1,673	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a 48-foot well.
27	NW.	16	"	"	"	Bored	22	1,690	- 18	1,672	18	1,672	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs in wet years; other similar wells caved in.
28	SE.	18	"	"	"	Dug	20	1,700	- 17	1,683	17	1,683	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
29	NE.	18	"	"	"	Dug	40	1,700	- 30	1,670	30	1,670	Glacial clay	Hard, clear, "alkaline"		N	Fair supply; farm deserted.
30	SE.	19	"	"	"	Bored	60	1,700	- 20	1,680	60	1,640	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
31	SE.	20	"	"	"	Dug	16	1,690	- 12	1,678	12	1,678	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs; also a 25-foot well not used.
32	NE.	21	"	"	"	Dug	120	1,700									Dry hole in glacial drift; several other dry holes.
33	SE.	22	"	"	"	Drilled	230	1,680									Dry hole in glacial drift; several other dry holes.
34	NW.	23	"	"	"		103	1,710									Dry hole base in glacial drift; also 6 other dry holes 40 to 70 feet deep.
35	NW.	24	"	"	"	Dug	10	1,720	- 5	1,715	5	1,715	Glacial sand	Hard, clear		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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	SW.	24	23	2	2	Dug	30	1,700	- 27	1,673	27	1,673	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
37	SE.	24	"	"	"	Dug	20	1,710	- 10	1,700	-18	1,692	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient supply except in winter when snow is melted.
38	SE.	25	"	"	"	Dug	18	1,730	- 13	1,717	13	1,717	Glacial gravel	Hard, clear, "alkaline"		D, S	Insufficient supply in winter; two other wells used in winter.
39	SE.	26	"	"	"	Dug	10	1,710	- 8	1,702	8	1,702	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also another well similar.
40	NE.	26	"	"	"	Dug	12	1,720	- 8	1,712	8	1,712	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs; also another well not used.
41	NE.	28	"	"	"	Dug	35	1,700					Glacial drift	Hard, clear, "alkaline"		N	Good supply; not in use.
42	SE.	28	"	"	"	Dug & Bored	100	1,700									Dry hole; base in glacial drift.
43	SW.	28	"	"	"	Dug	20	1,700					Glacial drift	Hard, clear, "alkaline"		N	Several dry holes.
44	NW.	28	"	"	"	Drilled	200	1,700					Glacial drift	Hard, iron		D, S	Sufficient for local needs; also several shallow wells not used.
45	NE.	29	"	"	"	Drilled		1,700									Dry hole; base probably in glacial drift.
46	NE.	31	"	"	"	Drilled	127	1,685	-123	1,562	123	1,562	Glacial drift	Hard, clear, iron		D, S	Sufficient for 40 head stock.
47	SE.	32	"	"	"	Drilled	175	1,700									Dry hole; base in glacial drift.
48	NW.	32	"	"	"	Dug	32	1,730	- 14	1,716			Glacial drift	Hard, clear		D, S	Intermittent supply.
49	SE.	35	"	"	"	Bored	60	1,735	- 4	1,731	60	1,675	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
50	NW.	36	"	"	"	Dug	12	1,735	- 7	1,728	7	1,728	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
1	SE.	2	"	"	"	Dug	30	1,700					Glacial sand	Soft, clear		D, S	Sufficient for 13 head stock.
2	NE.	2	"	"	"	Dug	30	1,700					Glacial sand	Hard, clear, iron		D, S	Sufficient for 60 head stock.
3	SW.	3	"	"	"	Dug	20	1,700					Glacial sand	Hard, clear, iron		D, S	Sufficient for 40 head stock.
4	SE.	4	"	"	"	Dug	20	1,720	- 16	1,704	16	1,704	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	SW.	5	"	"	"	Drilled	94	1,735	- 40	1,695	164	1,571	Glacial gravel	Hard, clear, iron		D, S	
6	SE.	6	"	"	"	Dug	25	1,720	- 15	1,705	23	1,697	Glacial sand	Hard, clear,		D, S	Sufficient for local needs.
7	NW.	7	"	"	"	Dug & Drilled	44	1,695	- 24	1,671	40	1,655	Glacial gravel	Hard, clear		D, S	Oversufficient for local needs.
8	NE.	8	"	"	"	Dug	20	1,705	- 2	1,703	2	1,703	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
9	SE.	8	"	"	"	Bored	30	1,700	- 15	1,685	30	1,670	Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs.
10	SE.	9	"	"	"	Dug	12	1,690					Glacial sand	Hard, clear		D, S	Sufficient for local needs; also an 18-foot well not used.
11	NW.	10	"	"	"	Dug	20	1,695	- 13	1,682	20	1,675	Glacial sand	Soft, clear		D, S	Oversufficient for local needs.
12	SE.	10	"	"	"	Dug	18	1,695	- 12	1,683	18	1,677	Glacial sand	Hard, clear		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
13	NW.	11	23	3	2	Bored	42	1,700	- 17	1,683	42	1,658	Glacial sand	Hard, brown, iron		D, S	Sufficient for local needs.
14	SE.	11	"	"	"	Dug	28	1,700	- 10	1,690	28	1,672	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
15	SW.	12	"	"	"	Dug	28	1,700	- 22	1,678	22	1,678	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
16	NW.	12	"	"	"	Dug	45	1,720	- 25	1,695	45	1,675	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
17	SE.	12	"	"	"	Dug	28	1,720	- 20	1,700	20	1,700	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
18	NE.	12	"	"	"	Bored	30	1,710	- 25	1,685	25	1,685	Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs.
19	NE.	14	"	"	"	Bored	60	1,700	- 20	1,680	60	1,640	Glacial sand	Hard, iron, "alkaline"		D, S	Sufficient for local needs.
20	SW.	14	"	"	"	Dug	30	1,720	- 24	1,696	24	1,696	Glacial drift	Soft, clear		D, S	Sufficient for local needs; also a 36-foot well used for stock.
21	SW.	16	"	"	"	Dug	17	1,690					Glacial drift	Hard, clear		S	Sufficient for local needs.
22	SE.	18	"	"	"	Dug	18	1,690	- 13	1,677	18	1,672	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
23	SW.	19	"	"	"	Dug	20	1,695	- 17	1,678	17	1,678	Glacial gravel	Soft, clear		D, S	Sufficient for local needs; also a similar well in house.
24	SW.	20	"	"	"	Dug	35	1,695	- 10	1,685	35	1,660	Glacial gravel	Hard, clear, iron		D, S	Insufficient for local needs; also two similar wells.
25	SW.	21	"	"	"	Dug	25	1,695	- 8	1,687	25	1,670	Glacial gravel	Hard, clear		D, S	Oversufficient for local needs.
26	SW.	22	"	"	"	Dug	30	1,700	- 25	1,675	25	1,675	Glacial sand	Hard, clear		D	Sufficient for school use.
27	SW.	22	"	"	"	Dug	32	1,690	- 20	1,670	20	1,670	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs; also a similar 30-foot well.
28	NW.	24	"	"	"	Dug	60	1,700	- 50	1,650	60	1,640	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs; also a similar 50-foot well.
29	NW.	25	"	"	"	Bored	100	1,695	- 12	1,683	100	1,595	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
30	NE.	32	"	"	"	Dug	30	1,690					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a similar well.
31	SE.	33	"	"	"	Bored	40	1,695					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
32	SW.	34	"	"	"	Dug	12	1,695	- 2	1,693	2	1,693	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
33	SE.	35	"	"	"	Dug & Bored	90	1,695	- 50	1,645	90	1,605	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
34	NW.	36	"	"	"	Drilled	150	1,690	- 20	1,670	150	1,540	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a similar 75-foot well; #.
1	SE.	4	24	1	2	Dug	23	1,750	- 20	1,730	20	1,730	Glacial sand	Hard, clear, iron		D, S	Sufficient for 50 head stock.
2	NE.	4	"	"	"	Dug	26	1,750	- 20	1,730	26	1,724	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also another well in pasture for stock.
3	NW.	4	"	"	"	Dug	28	1,750	- 12	1,738	28	1,722	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
4	NW.	5	"	"	"	Dug	16	1,760	- 13	1,747	13	1,747	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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	SW.	6	24	1	2	Dug	25	1,740	- 20	1,720	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock; also a similar well.
6	NE.	6	"	"	"	Dug	70	1,750	- 66	1,684	66	1,684	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
7	NW.	6	"	"	"	Dug	26	1,750	- 24	1,726	24	1,726	Glacial sand	Hard, clear		D, S	Sufficient for 100 head stock.
8	SW.	7	"	"	"	Bored	70	1,750	- 20	1,730	70	1,680	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
9	NW.¼	7	"	"	"	Bored	90	1,750	- 50	1,700	50	1,700	Glacial drift	Hard, clear, "alkaline"		D, S	Insufficient supply in winter.
10	SE.	10	"	"	"	Dug & Bored	44	1,750	- 40	1,710	40	1,710	Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs; also a 54-foot well caved in.
11	NE.	10	"	"	"	Dug	40	1,760	- 32	1,728	32	1,728	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
12	SE.	12	"	"	"	Dug	56	1,760	- 20	1,740	56	1,704	Glacial sand	Hard, clear, sulphur, "alkaline"		D, S	Sufficient supply of poor quality water; also 10 dry holes.
13	NE.	12	"	"	"	Dug	30	1,760					Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
14	SE.	14	"	"	"	Dug	50	1,750	- 35	1,715	50	1,700	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
15	NE.	14	"	"	"	Dug	20	1,750	- 15	1,735	15	1,735	Glacial drift	Hard, clear		D, S	Oversufficient for local needs.
16	NW.	14	"	"	"	Dug	26	1,750	- 22	1,728	22	1,728	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
17	NW.	15	"	"	"	Dug	35	1,740	- 30	1,710	30	1,710	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
18	SW.	17	"	"	"	Dug	22	1,750	- 16	1,734	16	1,734	Glacial gravel	Soft, clear		D, S	Sufficient forlocal needs.
19	NW.	18	"	"	"	Dug	40	1,750	- 10	1,740			Glacial sand	Hard, clear		D, S	Insufficient supply in winter.
20	SE.	20	"	"	"	Dug	24	1,740	- 20	1,720	20	1,720	Glacial sand	Hard, clear		D, S	Oversufficient for local needs.
21	NE.	20	"	"	"	Dug & Bored	55	1,760	- 10	1,750	55	1,705	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
22	SW.	22	"	"	"	Dug	40	1,750					Glacial sand	Hard, clear		D, S	Sufficient for local needs.
23	SW.	23	"	"	"	Dug	22	1,750	- 19	1,731	19	1,731	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
24	SE.	24	"	"	"	Dug & Bored	60	1,760	- 50	1,710	50	1,710	Glacial sand	Hard, clear, iron		S	Insufficient supply in winter; use snow and haul water; were 11 holes now filled in.
25	NE.	24	"	"	"	Bored	22	1,750	- 14	1,736	22	1,728	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
26	NE.	26	"	"	"	Bored	73	1,760	- 25	1,735			Glacial drift	Hard, brown, iron, "alkaline"		S	Sufficient for local needs; hauls drinking water.
27	SE.	28	"	"	"	Bored	90	1,740	- 25	1,715	90	1,650	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
28	NE.	28	"	"	"	Dug	50	1,740	- 17	1,723	45	1,695	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also a 27-foot well with small supply.
29	NW.	28	"	"	"	Dug	22	1,740	- 18	1,722	18	1,722	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a dry hole.
30	SW.	30	"	"	"	Bored	25	1,750	- 12	1,738	12	1,728	Glacial drift	Hard, clear			Insufficient supply; also a similar well; hauls water.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
31	NW.	30	24	1	2	Dug	30	1,750	− 2	1,748			Glacial sand	Hard, clear		D, S	Insufficient supply in winter.
32	SW.	31	"	"	"	Bored	30	1,750	− 15	1,735	30	1,720	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
33	SW.	32	"	"	"	Dug	30	1,750	− 20	1,730	30	1,720	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
34	NE.	33	"	"	"	Dug & Bored	60	1,750	− 53	1,697	53	1,697	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
35	NW.	34	"	"	"	Dug	30	1,750	− 16	1,734	30	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
36	SE.	36	"	"	"	Dug & Bored	35	1,750	− 12	1,738	20	1,730	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
37	NE.	36	"	"	"	Dug	12	1,750	− 8	1,742	12	1,738	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
1	SW.	1	24	2	2	Dug	17	1,740	− 14	1,726	14	1,726	Glacial gravel	Hard, clear, iron		D	Used by town of Saltcoats together with several other wells; #.
2	SW.	1	"	"	"	Dug	14	1,740	− 12	1,728	12	1,728	Glacial drift	Hard, clear		D	Sufficient only for domestic needs: #.
3	NW.	1	"	"	"	Drilled	35	1,735	− 15	1,720	35	1,700	Glacial sand	Hard, clear		D	Sufficient for only domestic needs.
4	NW.	1	"	"	"	Dug	30	1,735	− 20	1,715	20	1,715	Glacial drift	Hard, clear		D	Sufficient only for domestic needs; other similar wells.
5	NW.	1	"	"	"	Dug	26	1,735	− 22	1,713	22	1,713	Glacial drift	Hard, clear, "alkaline"		D	Sufficient only for domestic needs.
6	SE.	3	"	"	"	Dug	10	1,700	− 6	1,694	6	1,694	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
7	NE.	3	"	"	"	Dug	16	1,720	− 6	1,714	6	1,714	Glacial sand	Soft, clear		D, S	Insufficient for local needs.
8	NW.	3	"	"	"	Dug	8	1,700	− 6	1,694			Glacial gravel				Oversufficient for local needs.
9	NW.	3	"	"	"	Dug	8	1,700	− 4	1,696	4	1,696	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
10	NE.	4	"	"	"	Dug	18	1,700	− 15	1,685	15	1,685	Glacial drift	Hard, clear		D, S	Intermittent supply; hauls water.
11	NE.	5	"	"	"	Drilled	178	1,690	− 20	1,670	178	1,512	Glacial sand	Hard, red, iron, salty		S	Insufficient for local needs; #. Also a 16-foot intermittent well.
12	NE.	6	"	"	"	Dug	60	1,710	− 58	1,652	58	1,652	Glacial gravel and sand	Hard, clear		S	Yields barrels a day; water hauled for drinking.
13	NW.	6	"	"	"	Dug	20	1,700	− 13	1,687	13	1,687	Glacial gravel and sand	Hard, clear, "alkaline"		S	Yields 6 barrels a day; #.
14	SE.	7	"	"	"	Drilled	194	1,710	− 12	1,698	194	1,516	Glacial gravel	Hard, clear, iron, salty		S	Sufficient for local needs; water hauled for drinking.
15	SW.	10	"	"	"	Drilled	75	1,700	+ 6	1,706	71	1,629	Glacial gravel	Hard, clear, iron	40	D, S	Flows 20 gallons a minute.
16	NE.	11	"	"	"	Dug	25	1,730	− 5	1,725			Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
17	SW.	12	"	"	"	Dug	12	1,735	− 6	1,729	6	1,729	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also two wells 40 and 20 feet deep.
18	SE.	12	"	"	"	Dug	12	1,740	− 6	1,734	6	1,734	Glacial sand	Hard, clear		D, S	Sufficient for 8 head stock.
19	NE.	14	"	"	"	Dug	4	1,750	− 14	1,736	14	1,736	Glacial sand	Hard, clear		D, S	Sufficient supply except in dry years.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, 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
20	NE.	17	24	2	2	Dug	16	1,700	− 4	1,696			Glacial drift	Hard, clear		D, S	Intermittent supply.
21	NE.	18	"	"	"	Dug	18	1,690	− 8	1,682			Glacial sand	Hard, clear, iron		D, S	Sufficient for 80 head stock.
22	SW.	18	"	"	"	Dug	32	1,700	− 28	1,672	28	1,672	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for 100 head stock.
23	NW.	18	"	"	"	Dug	18	1,700	− 12	1,688	12	1,688	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
24	NE.	19	"	"	"	Dug	32	1,700	− 29	1,671	29	1,671	Glacial sand	Hard, clear		D, S	Sufficient for local needs in years of normal rainfall.
25	NW.	20	"	"	"	Dug	30	1,705	− 28	1,677	28	1,677	Glacial gravel	Hard, clear		D	Sufficient for domestic needs.
26	NW.	20	"	"	"	Dug	32	1,705	− 30	1,675	30	1,675	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
27	NE.	20	"	"	"	Dug	40	1,700	− 30	1,670	30	1,670	Glacial drift	Hard, clear, "alkaline"		N	Good supply of usable water, but farm abandoned and well caving in.
28	NW.	21	"	"	"	Dug	14	1,720	− 5	1,715	5	1,715	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also an 87-foot dry hole.
29	NW.	22	"	"	"	Dug	80	1,720	− 8	1,712			Glacial sand	Hard, clear, "alkaline"		S	Insufficient supply in dry years; 24-foot well used for house.
30	NW.	24	"	"	"	Dug	60	1,750	− 10	1,740			Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs; 2 other wells similar.
31	SW.	26	"	"	"	Bored	65	1,740					Glacial sand	Hard, clear, iron		D, S	Sufficient for 50 head stock.
32	NE.	28	"	"	"	Dug	38	1,720	− 10	1,710			Glacial drift	Hard, clear		D, S	Insufficient for local needs.
33	SW.	28	"	"	"	Dug	18	1,720	− 6	1,714	6	1,714	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
34	NE.	29	"	"	"	Dug	14	1,700	− 12	1,688	12	1,688	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
35	SW.	29	"	"	"	Dug	20	1,700	− 19	1,681	19	1,681	Glacial sand	Hard, clear		D	Insufficient for local needs; a 30-foot well is now filled in.
36	NW.	29	"	"	"	Bored	40	1,700	− 35	1,665	35	1,665	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
37	SE.	30	"	"	"	Dug	28	1,700					Glacial sand	Hard, clear		D, S	Sufficient for local needs.
38	NW.	30	"	"	"	Dug	17	1,700					Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
39	NW.	31	"	"	"	Dug	13	1,700	− 10	1,690			Glacial drift	Soft, clear		D, S	Sufficient for local needs.
40	NE.	31	"	"	"	Dug	25	1,710	− 9	1,701			Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 27-foot well used for stock.
41	NW.	32	"	"	"	Bored	45	1,710	− 25	1,685			Glacial clay	Hard, clear		D	Sufficient for domestic needs; a 41-foot well is used for stock.
42	SW.	32	"	"	"	Dug	24	1,710	− 20	1,690	20	1,690	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also two 30-foot dry holes.
43	SW.	33	"	"	"	Dug	25	1,720	− 12	1,708	12	1,708	Glacial drift	Hard, clear		D, S	Intermittent supply; also a 48-foot well; hauls water from lake.
44	NE.	34	"	"	"	Dug	50	1,725					Glacial sand	Hard, clear		D	Sufficient for domestic needs; two 40-foot wells and sloughs used for stock; #.
1	SW.	2	24	3	2	Bored	55	1,700	− 40	1,660	40	1,660	Glacial sand	Hard, clear, iron		D, S	Insufficient for local needs; also two wells 27 and 50 feet deep; #.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of SALTCOATS, NO. 213, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
2	SE.	3	24	3	2	Dug	40	1,700	- 20	1,680			Glacial drift	Hard, clear, iron		D, S	Sufficient for 26 head stock.
3	NW.	3	"	"	"	Drilled	51	1,700	- 30	1,670	51	1,649	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient forlocal needs; also a 25-foot well in pasture.
4	SW.	4	"	"	"	Dug	26	1,700	- 12	1,688	26	1,674	Glacial sand	Hard, clear, iron		D, S	Sufficient for 80 head stock; also a similar well.
5	NW.	7	"	"	"	Dug	26	1,685	- 16	1,669	16	1,669	Glacial sand	Hard, clear		N	Farm deserted.
6	NW.	9	"	"	"	Dug	24	1,690	- 12	1,678	24	1,666	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
7	SE.	9	"	"	"	Drilled	52	1,700	- 18	1,682	52	1,648	Glacial gravel	Hard, clear, iron, "alkaline"		D	Sufficient for school.
8	SW.	10	"	"	"	Dug	20	1,690	- 18	1,672	18	1,672	Glacial drift	Hard, clear		D, S	Insufficient for local needs.
9	NW.	16	"	"	"	Dug	20	1,690					Glacial sand	Hard, clear, "alkaline"	40	D,S	Sufficient for 200 head stock; also a 20-foot dry hole.
10	NW.	17	"	"	"	Dug	38	1,685	- 16	1,669	32	1,653	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a 50-foot well not used.
11	NW.	19	"	"	"	Dug	43	1,685	- 33	1,652	33	1,652	Glacial drift	Hard, red, iron, "alkaline"		S	Sufficient for local needs; also an 18-foot well used for house.
12	SW.	20	"	"	"	Dug	30	1,690	- 20	1,670	30	1,660	Glacial sand	Hard, clear		D,S	Sufficient for local needs.
13	SE.	20	"	"	"	Dug	30	1,690					Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
14	NE.	20	"	"	"	Dug	50	1,690	- 20	1,670	50	1,640	Glacial drift	Hard, iron, odour		S	
15	SW.	21	"	"	"	Bored	20	1,690									Dry hole; base in glacial drift.
16	SE.	24	"	"	"	Dug	45	1,690									Dry hole; base in glacial drift; also 5 seepage wells not usable.
17	NW.	28	"	"	"	Dug	42	1,685	- 10	1,675	42	1,643	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
18	SE.	30	"	"	"	Dug	25	1,700	- 4	1,696			Glacial sand			D,S	Sufficient for local needs.
19	SW.	31	"	"	"	Dug	30	1,690	- 10	1,680	10	1,680	Glacial gravel and sand	Soft, clear		D, S	
20	NW.	32	"	"	"	Dug	22	1,695	- 20	1,675	20	1,675	Glacial sand	Hard, clear, iron		D	Oversufficient for local needs.
21	NW.	34	"	"	"	Dug	45	1,695	- 28	1,667	28	1,667	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
22	NW.	35	"	"	"	Dug & Bored	30	1,700	- 13	1,687	13	1,687	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for 50 head stock.
23	NE.	35	"	"	"	Dug	12	1,700	- 10	1,690	10	1,690	Glacial sand	Hard, yellow, "alkaline"		D, S	Sufficient for local needs.
24	NE.	36	"	"	"	Dug	12	1,700					Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock.

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