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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 WALLACE No. 243 SASKATCHEWAN

BY

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

Water Supply Paper No. 177

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF WALLACE NO. 243 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 rests upon the Ravenscrag or older formations. The formation is 30 to 125 feet thick.

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

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

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

Bearpaw Formation. The Bearpaw consists mostly of incoherent dark grey to dark brownish grey, partly bentonitic shales, weathering light grey, or, in places where much iron

is present, buff. Beds of sand occur in places in the lower part of the formation. It forms the uppermost bedrock formation over much of western and southwestern Saskatchewan and has a maximum thickness of 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 Wallace, No. 243, is an area of 324 square miles in southeastern Saskatchewan. It is composed of nine full townships, described as tps. 25, 26, and 27, ranges 1, 2, and 3, W. 2nd mer. The centre of the municipality lies 35 miles west of the Manitoba border and 136 miles north of the International Boundary. Branch lines of the Canadian National railways pass through the northeastern and southern parts of the municipality. A branch line of the Canadian Pacific railway traverses the southwestern part, and the village of Rokeby, on this line, is situated 7 miles southeast of the city of Yorkton.

The elevation rises from 1,595 feet in the northwest to 1,750 feet above sea-level in the southeast. Wallace creek drains part of the north-central area, and intermittent tributaries of Yorkton creek drain the western sections. Many small lakes occur in the southwestern and northeastern parts of the area, and small sloughs and undrained marshy areas are common in all parts of the township. The greater part of the township is very flat to slightly rolling and is poorly drained. The northeastern corner and a large area in the southeastern corner are mantled by moraine, the ground surface of which is rough and characterized by knolls and undrained depressions. Parts of secs. 3, 4, and 6, tp. 25, range 3, are covered by glacial lake clays only a few feet thick. Glacial till mantles the remainder of the municipality.

The moraine and glacial till deposits are quite similar in composition, and in general consist of a weathered or oxidized zone composed of several feet of sandy soil and 10 to 40 feet of yellow boulder clay; and an unweathered zone of blue boulder clay that extends to a depth of at least 220 feet and probably to bedrock, which is thought to occur at an elevation of approximately 1,050 feet above sea-level. Scattered deposits of sand and gravel occur in the weathered and unweathered clays.

Water-bearing Horizons in the Unconsolidated Deposits

The glacial lake clays are non-water bearing. The uppermost water-bearing horizon occurs in the upper 10 to 35 feet of the glacial drift. The horizon is not continuous and is formed by scattered pockets of sand and gravel that occur within the yellow clay, or by discontinuous layers of sand and gravel that lie between the yellow and blue boulder clays. Little difficulty is experienced in locating water at shallow depth except in the area bounded by the "A" boundary line, Figure 1. Most of the shallow wells yield sufficient water for domestic needs and for 10 to 50 head of stock. In some sections it is necessary to use two or more wells in order to obtain sufficient water. Some of the wells yield constant supplies of water that is under hydrostatic pressure, whereas other wells yield intermittent supplies that are readily affected by drought conditions. The lakes, sloughs, and creeks are used to supplement the supply from the intermittent shallow wells. The water that is derived from wells yielding fairly abundant supplies is moderately hard and is usable for all general farm purposes, including irrigation. Locally it is often termed "soft" when compared with water from other wells. Water from wells yielding less abundant supplies is generally more highly mineralized, but it is usable for all domestic and stock purposes. It is advisable to locate the water-bearing deposits by means of a small auger before digging shallow wells. If shallow wells are used, it is advisable to have the wells for the domestic supply located some distance from the barns and outbuildings, so that there is no chance of the water being contaminated by surface water containing animal refuse. Water that is being used for drinking should be frequently tested for bacteria content.

A second, discontinuous, water-bearing horizon occurs at depths of 35 to 75 feet in the glacial drift. This horizon is formed by deposits of sand that occur in the unweathered or blue boulder clay.

With the exception of township 25, range 1, this water-bearing horizon has been tapped in all parts of the municipality, the greater number of wells occurring in townships 26, ranges 1 and 2, and township 27, range 1. The water is usually very hard and "alkaline", but that from most wells is usable for domestic purposes. It will have a laxative effect on persons not accustomed to the use of highly mineralized water. The hydrostatic pressure varies with the individual well, but in most wells it is sufficient to cause the water to rise to points 15 to 30 feet below the surface.

At least fourteen wells, ranging from 80 to 600 feet deep, have been sunk in this municipality, and six encountered deposits of water-bearing sand or gravel. With the exception of the 220-foot well in the NE. $\frac{1}{4}$, sec. 5, tp. 26, range 3, the producing wells are from 80 to 120 feet deep, and are located in the southeastern corner of township 27, range 1, and the northeastern corner of township 26, range 1. The supply of water from these wells is adequate for local needs, but it is not sufficient for large herds of stock. The water is very hard, usually "alkaline", and that from some wells is not usable for drinking. The water, except in one well, is under sufficient hydrostatic pressure to rise to points 20 to 45 feet below the surface.

Within the area outlined by the "A" boundary line (Figure 1) it is difficult to locate water at any depth. Eight dry holes have been drilled to depths of 80 to 600 feet, and numerous dry holes 10 to 50 feet deep have been sunk in this area. The unweathered blue boulder clay occurs near the surface and contains few pockets or layers of sand and gravel. It is not advisable to drill for water within the outlined area, but in other sections of the municipality it is possible that water-bearing deposits may be encountered at various depths. Due to the poor quality of water and the uncertainty of encountering water-bearing deposits, it is questionable if deep drilling should be undertaken throughout the municipality.

Most of the residents of this municipality, with the exception of those living within the area outlined by the "A" boundary line, are able to obtain sufficient water for local needs, but if more water were available larger herds of stock would be kept. The most economical method of increasing water supplies in this municipality is by the excavation of dugouts or the construction of dams. The water retained by these artificial reservoirs is more beneficial to stock than that from deep wells, as it is not so highly mineralized.

Water-bearing Horizons in the Bedrock

The Marine Shale series underlies the glacial drift in this part of Saskatchewan. It is thought that the 600-foot hole in the NW. $\frac{1}{4}$, sec. 16, tp. 26, range 3, encounters the Marine Shale, but the elevation at which it is encountered is not known. When the Marine Shale series is struck it is advisable to discontinue drilling operations, as it is generally considered to be practically non-water bearing. Water that has been obtained from the shale at depth is too highly mineralized for general farming purposes.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 25, Range 1

The southwestern part of this township is slightly rolling, with several small knolls, and is mantled by moraine. The remainder of the township is mantled with glacial till or boulder clay. Swampy, undrained areas, which are unfit for agricultural purposes, are common in both the moraine and glacial till-covered areas. The maximum elevation of 1,750 feet above sea-level is attained in the moraine-covered area, and from this point the elevation decreases towards the north to 1,724 feet at Barvas, at the northern boundary.

The supply of water is derived entirely from wells, and throughout the township little difficulty is experienced in obtaining an abundant supply of usable water from shallow wells. The water is derived from pockets of sand and gravel in the weathered or yellow boulder clay, and from layers of sand and gravel that lie between the yellow and the underlying blue boulder clay. These two aquifers form an almost continuous water-bearing horizon in this township. The wells are from 10 to 30 feet deep, and usually yield sufficient water for all local needs. In a few sections it is necessary to use two or more wells to supply adequate water for domestic needs and for 20 to 50 head of stock. The water is moderately hard and usable for all general farm purposes. The water in some of the wells is under slight hydrostatic pressure, sufficient to keep it at a constant level 6 to 15 feet below the surface.

Two wells, 36 and 44 feet deep, have encountered layers of sand in the blue clay, from which fairly large supplies of water are obtained. The water is highly mineralized and "alkaline", but it is usable for household purposes. It is possible that other water-bearing beds of sand and gravel would be located at depth in the glacial drift. It is not considered advisable to sink deep holes, however, as the uncertainty of obtaining water, and the poor quality if located, do not

warrant the expense of drilling. In this township shallow wells will usually yield sufficient water for 10 to 50 head of stock, and if greater quantities of water are required, several shallow wells could be used, or surface water could be conserved by the use of dugouts. It is advisable before digging a well to locate the water-bearing deposits by means of a small auger, and unless a water-bearing deposit of sand and gravel is encountered it is useless to dig in that location.

Township 25, Range 2

The township is mantled by glacial till and moraine. The moraine-covered areas are quite rolling with irregular surface features, although the elevation does not vary greatly from 1,740 feet above sea-level. The glacial till-covered areas are flat and contain many poorly drained, swampy depressions, which are unfit for agricultural purposes. The elevation of the till-covered areas varies from 1,700 to 1,725 feet above sea-level. The greater part of the township is heavily wooded with small poplar and willow.

The deposits of moraine and till are similar in composition, and consist of 1 to 4 feet of sandy top soil; 10 to 30 feet of weathered or yellow clay containing scattered pockets of sand and gravel; a discontinuous layer of sand and gravel; and unweathered blue clay that probably extends to the bedrock. Discontinuous layers of sand and gravel occur at various elevations within the blue clay.

The principal and uppermost water-bearing horizon occurs in the weathered zone of the drift and is formed by the pockets of sand and gravel and by the layer of sand and gravel that lies between the yellow and blue clay. This horizon is fairly continuous throughout the township, as no dry holes were recorded. The water is moderately hard and is suitable for all general farm purposes, including irrigation. Some of the wells yield large supplies of water, sufficient for 50 to 120 head of stock. The supply from most of the

wells, however, is sufficient for only household needs and a few head of stock. By using several wells an adequate supply of water is obtained.

Several wells from 35 to 50 feet deep have encountered deposits of sand in the blue boulder clay and yield fair amounts of very highly mineralized water. These wells are located mainly in the northwestern sections. The supply of water from the individual wells is sufficient for local needs, but there is not an abundant supply. The water in most wells is under hydrostatic pressure and rises to points 20 to 25 feet below the surface. It is probable that wells to similar depths in other parts of the township would locate the same water-bearing horizon.

The township does not experience a shortage of water, and the supply could probably be increased by digging more shallow wells. Undoubtedly water-bearing sands or gravels occur at depth in the glacial drift, but due to the uncertainty of encountering them, and the poor quality of the water if located, it does not seem advisable to drill for water in this township. Dugouts could be used to advantage to retain surface water for stock use.

Township 25, Range 3

The ground surface of the township is very flat and is characterized by many undrained, marshy areas, and several small, shallow lakes. The western sections are drained by Yorkton creek which flows in a northerly direction through a shallow valley. Small, intermittent creeks occur in the western part of the area, and drainage ditches have been dug in sections 7 and 18. The elevation decreases in a northwesterly direction from 1,700 feet to 1,650 feet above sea-level.

Parts of sections 3 and 4, and section 6, are covered by a thin veneer of glacial lake clays. The northern half of section 36 is mantled by moraine, and the remainder of the township is covered by boulder clay or glacial till. The glacial lake clays do not contain

water, but water-bearing deposits occur in the underlying boulder clay. Little difficulty is experienced in obtaining abundant supplies of water in this township. In some sections stock are watered at the small lakes or creeks. In the NW. $\frac{1}{4}$, section 34, a spring yields an abundant supply of moderately hard water that can be used for all general farm purposes.

The main supply of water in this township is obtained from wells, 10 to 30 feet deep, that tap pockets of sand and gravel scattered throughout the yellow clay, or discontinuous layers of sand and gravel that lie between the yellow and blue boulder clays. Most of the wells tap aquifers of large areal extent and yield sufficient water for domestic purposes and for 10 to 50 head of stock. The water from the wells is moderately hard and is suitable for all farm purposes, including irrigation. Several of the wells yield water that is under hydrostatic pressure and rises to points 5 to 15 feet below the surface.

In a few sections farmers have been unable to locate adequate supplies of water in the upper part of the drift. In these sections water is obtained from deposits of sand in the blue clay at depths of 40 to 75 feet. No dry holes have been sunk and it appears that the water-bearing deposits are fairly numerous; ten wells in widely separated sections of the township tap this water-bearing horizon. The water is very highly mineralized, and that from some of the wells should not be used for drinking. The water would have a strong laxative effect on those not accustomed to the use of highly mineralized water. The water is commonly termed "alkaline", and it contains a considerable amount of iron. The iron settles out as a reddish precipitate of iron oxide when the water is exposed to light and air. Wells sunk to similar depths in other sections of the township would probably encounter water-bearing deposits.

The supply of water in this township is adequate for the present needs. Prior to digging shallow wells, the water-bearing deposits should be located by means of a small test auger. Water-bearing horizons may occur at depth in the drift, but the poor quality of water to be obtained and the uncertainty of encountering an adequate supply do not warrant the expense of drilling. The excavation of dugouts to collect and retain surface water for stock use is less expensive than deep wells, and the slightly mineralized surface water is more beneficial to stock than the water from deep wells.

Township 26, Range 1

Approximately 6 square miles in the northeastern corner of the township are covered by moraine, and the ground surface is characterized by knolls and depressions. The remainder of the township is mantled by glacial till or boulder clay, and is fairly flat. Marshes are common in the southern sections and many undrained depressions occur in all parts of the township. Approximately one-third of the township is covered with a thick growth of poplar and willow.

Most of the water is derived from wells that tap pockets of sand and gravel in the upper or weathered zone of the drift. These deposits do not form a continuous water-bearing horizon, as in some sections dry holes have failed to strike sand or gravel aquifers. Most of the producing wells yield sufficient water for local needs, but with an increase in the number of stock the water supply would not be adequate. Some farmers use two or more wells to supply sufficient water and others are forced to haul from neighbouring wells. The water is moderately hard and is suitable for all farm purposes. Shallow wells are more numerous in the southern sections of the township.

A second discontinuous water-bearing horizon is tapped at depths of 40 to 87 feet in widely separated parts of the township. The aquifer is formed by thin layers of sand in the blue boulder clay and the water is very highly mineralized. It is being used for domestic

purposes where other water is not obtainable, but it is "alkaline" and has a slight laxative effect on those not accustomed to its use. It is probable that wells to similar depths in other sections of the township would encounter this water-bearing horizon.

Two wells in the NW. $\frac{1}{4}$, section 35, and SW. $\frac{1}{4}$, section 36, encounter sand or gravel aquifers at depths of 100 and 120 feet, respectively, or at an elevation of 1,620 feet above sea-level. The water is very hard, but usable for domestic purposes, although that from the 120-foot well is not used for drinking. The hydrostatic pressure is sufficient to cause the water to rise to points 40 and 20 feet, respectively, below the surface, where it maintains constant levels. It is very improbable that this water-bearing horizon is continuous, but it is possible that other holes to similar depths in other sections would encounter water-bearing sands and gravels.

This township has not an abundant supply of water and a few farms are inadequately supplied throughout part of the year. In such instances water is hauled from neighbouring wells that yield an abundant supply, or stock is watered at sloughs. The construction of dams and the excavation of dugouts for the retention of surface water is recommended.

Township 26, Range 2

The ground surface of this township is quite flat. Several shallow lakes, sloughs, and marshy areas occur, but the difference in surface elevation is less than 20 feet. Wallace creek has its headwaters in the shallow lakes and marshy area in sections 27 and 34. Approximately one-half of the township is thickly wooded with poplar and willow.

The entire township is mantled with glacial till or boulder clay which consists of: 10 to 40 feet of weathered or yellow boulder clay that contains scattered pockets of sand and gravel; a thin discontinuous layer of sand and gravel; and unweathered, blue clay that

extends to an unknown depth. Deposits of sand and gravel occur at various elevations in the blue clay.

A number of wells, 10 to 35 feet deep, tap the pockets of sand and gravel in the yellow clay, or the discontinuous layers of sand and gravel lying between the yellow and the blue boulder clays. Most of these wells yield sufficient water for domestic use and 10 to 40 head of stock. The water is moderately hard and is suitable for all farm purposes, including irrigation. The water in shallow wells can easily become contaminated by surface sewage water, and care should be taken to see that such waters do not enter the well. The water should be frequently analysed for bacteria content. The water-bearing deposits at shallow depth should be located by means of a small auger before digging wells.

A second water-bearing horizon occurs at depths of 40 to 73 feet. This aquifer is formed by thin beds of sand or gravel in the blue clay, and the water from this horizon is very highly mineralized. It is usually "alkaline", but usable for domestic purposes. It may have a slight laxative effect on those not accustomed to the use of highly mineralized waters. Many of the wells yield water that is under hydrostatic pressure. The well in the SE. $\frac{1}{4}$, section 8, yields an abundance of water, and the water-level cannot be lowered by pumping. It is probable that other wells to these depths in other sections of the township would encounter water-bearing deposits.

This township does not experience a shortage of water for present needs. It should not be difficult to locate water at depths of 10 to 50 feet. Water-bearing deposits probably occur at depth in the drift, but drilling is not advised. Dugouts could be advantageously used to collect and store surface water for stock use. Sloughs are excellent locations for these artificial reservoirs.

Township 26, Range 3

The elevation in this township decreases from 1,700 feet in the east to 1,600 feet in the northwestern corner. Several intermittent

creeks flow in a northwesterly direction into Yorkton creek, which flows along the western border of the township. The entire township is mantled by glacial till or boulder clay. It consists of 10 to 35 feet of weathered or yellow boulder clay that is underlain by blue boulder clay which extends to a depth of at least 220 feet.

The main supply of water is obtained from isolated pockets of sand and gravel that occur in the yellow clay, and from discontinuous layers of sand and gravel that lie between the yellow and blue boulder clays. Several of the wells that tap beds of sand and gravel of large areal extent yield an abundant supply of slightly mineralized water, sufficient for 50 to 60 head of stock. Shallow wells that tap small pockets of sand and gravel yield smaller supplies of more highly mineralized water. Some of the wells are intermittent and yield enough water for only a few head of stock. In some sections two to five shallow wells are used to obtain sufficient water. Sloughs are used for stock and often some water is hauled. The water from the shallow wells is usable for domestic purposes, but care should be taken to see that it does not become contaminated by surface waters containing animal refuse.

A few wells from 35 to 60 feet deep have been dug and encounter beds of water-bearing sand in the blue boulder clay. The water is very highly mineralized, but with the exception of that from one well it is being used for domestic and stock purposes with no apparent ill effects. It has a laxative effect on those not accustomed to highly mineralized water. The water in most of the wells is not under hydrostatic pressure.

Five attempts have been made to locate water at depths ranging from 85 to 600 feet, but with the exception of the one in the NE. $\frac{1}{4}$, section 5, they did not encounter water. The well in section 5 encountered a bed of water-bearing sand at a depth of 220 feet. The water contains a large amount of mineral salts in solution, but is usable for domestic purposes. It contains iron that stains the containers. The hydrostatic pressure is sufficient to cause the water to rise to a point 20 feet below

the surface, where it maintains a constant level. The supply is abundant and the water is quite suitable for stock. The other dry holes were entirely in blue boulder clay. The 600-foot hole in the NW. $\frac{1}{4}$, section 16, possibly entered the bedrock or Marine Shale series.

The supply of water on most farms in this township is adequate for the present needs, but it is not sufficient to allow the raising of large herds of live stock. It appears advisable to excavate dugouts or construct dams to retain surface water for stock use, rather than to drill deep wells.

Township 27, Range 1

The southwestern corner of this township is mantled by glacial till, and the remainder of the area is overlain by part of a large moraine. The moraine-covered area is characterized by numerous, small, rock-strewn knolls and ridges, and by many undrained depressions or sloughs. A shallow valley extends south from the north-central part of the township to sections 8 and 9, where it turns abruptly to the west. This valley is occupied by several shallow, permanent lakes that are separated by marshy areas. The average elevation of the township is 1,700 feet above sea-level.

The glacial till and moraine though differing in topographic expression are similar in composition, and consist, in general, of: 2 to 7 feet of sandy loam or top soil; 10 to 30 feet of yellow or oxidized boulder clay containing scattered pockets of sand and gravel; thin discontinuous beds of sand and gravel; and blue clay that extends to a depth of at least 108 feet and probably to the bedrock. Discontinuous layers of sand occur at various elevations in the blue boulder clay.

Most of the water is derived from wells 8 to 30 feet deep that tap pockets of sand and gravel in the yellow clay, or the thin layer of sand and gravel that occurs between the yellow and blue boulder clays. The wells usually yield sufficient water for local needs throughout the year, but a few freeze up during the winter, and water

must be hauled from neighbouring wells yielding abundant supplies. The water is moderately hard and is suitable for all farm purposes. There should be no difficulty in obtaining water at shallow depth in this township.

In several sections wells have been sunk to depths of 40 to 78 feet in attempts to locate larger and more permanent supplies of water. The wells tapped sand aquifers within the blue clay and supplies of water sufficient for 20 to 60 head of stock were obtained. The water is very highly mineralized, due to the proximity of the blue clay. The water is used for household purposes if water of better quality is not obtainable, although it is very hard and acts as a laxative on those not accustomed to the use of highly mineralized water. The water is usually under sufficient hydrostatic pressure to rise to points 10 to 30 feet below the surface where it maintains a constant level. Water-bearing deposits should be located at similar depths in other parts of the township.

A well in the SE. $\frac{1}{4}$, section 23, encountered a gravel bed at a depth of 80 feet, or at an elevation of 1,600 feet above sea-level. It yields an abundant supply of hard, "alkaline" water that is used for all farm purposes except irrigation. The water rises to a point 22 feet below the surface where it maintains a constant level. A 108-foot well in the SE. $\frac{1}{4}$, section 3, tapped a bed of water-bearing sand that yields an abundance of water of similar quality. It is not thought, however, that this bed of water-bearing sand and gravel is continuous, but it is probable that other aquifers would be encountered at similar depths in other localities in the township.

Possibly holes drilled to greater depths would encounter water-bearing horizons, but it is not advisable to sink deep holes, since the water obtained at depth is highly mineralized, and is unfit for use in some instances. In this township water supplies can be increased by digging more shallow wells and by the conservation of surface water by dams or dugouts.

Township 27, Range 2

The northeastern corner of this township is mantled by moraine and the ground surface is rolling and rough. The remainder of the area is very flat and is covered by glacial till or boulder clay. The elevation varies from 1,700 to 1,640 feet above sea-level.

Many swampy and undrained areas occur in all parts of the township. A shallow lake is located in sections 23 and 24, and Wallace creek, with its several small tributaries, flows intermittently across the township in a northwesterly direction. The lake, creeks, and several sloughs are used for watering stock during the spring and summer months.

The uppermost source of ground water in this area is formed by scattered pockets of sand and gravel that occur in the weathered or yellow clay. Most of the wells are from 10 to 35 feet deep and yield an abundant supply of water that is usable for all farm purposes, including irrigation. A few wells freeze up in winters, and are readily affected by drought conditions. In such instances water is hauled from wells yielding abundant supplies. Not more than four farmers, however, experience a shortage of water. Water is usually readily obtained at shallow depth and farmers often use two or more wells. The residents of the village of Rhein obtain their water supply from fifty or more 18- to 20-foot wells that tap fine sand. The water is moderately hard and usable for all purposes. It is important to see that water from shallow wells does not become polluted with sewage. The water should be frequently analysed for bacteria. The water supply of this township can be increased by digging more shallow wells.

Unweathered, blue boulder clay underlies the yellow clay to an unknown depth, and probably extends to the bedrock. Thin layers of sand occur at various elevations in this blue boulder clay. Nine wells, from 40 to 60 feet deep, have encountered these sand beds and yield small supplies of very highly mineralized water. The water is not used

for domestic purposes if other water is obtainable. It is usually termed "alkaline" and contains iron that settles out as a reddish precipitate of iron oxide when the water comes in contact with the air. Other wells to similar depths in various localities in the township should encounter similar aquifers.

Dugouts or dams to collect or impound surface water for stock use are recommended, and they are less expensive than deep, drilled wells.

Township 27, Range 3

With the exception of parts of sections 34 and 35 that are mantled by moraine, this township is covered with glacial till or boulder clay. The ground surface is very rolling in the southern part and several small hills that rise to an elevation of 1,700 feet above sea-level occur in the southeastern corner of the area. From these hills the surface elevation slopes in an easterly and northerly direction to a minimum of 1,595 feet above sea-level in section 31. The glacial till and moraine are similar in composition and are at least 125 feet thick. They consist of: a thin layer of loam top soil; 2 to 30 feet of yellow clay containing scattered pockets of sand and gravel; a thin, discontinuous layer of sand and gravel; and blue clay that contains very few deposits of sand. Within the "A" boundary line the blue clay occurs very near the surface and many dry holes from 30 to 125 feet deep have been sunk. Very few wells that are located within the outlined area yield sufficient water for local needs.

Water supplies are obtained from several intermittent creeks, a spring, sloughs, and wells. The spring is located in the SE. $\frac{1}{4}$, section 25, near Wallace creek, and yields an abundant supply of moderately hard water throughout the year. Several farmers haul from this spring. Sloughs and intermittent creeks are used to supply water for stock during part of the year. Some farmers are forced to haul water for all farm needs.

The main supply of water in this township is obtained from the pockets of sand and gravel in the yellow clay, and from the discontinuous layer of sand and gravel that occurs between the yellow and the underlying blue boulder clays. A few shallow wells tap aquifers of large areal extent and yield sufficient water for three or four farms. The best well is a 20-foot well in the SE. $\frac{1}{4}$, section 23. The water from these wells is moderately hard and is suitable for all farm purposes, including irrigation. Most of the wells, however, that tap the pockets of sand and gravel yield smaller supplies of more highly mineralized water. Several of the farmers use two or more wells to obtain sufficient water for a few head of stock. During the winter months the water supply decreases and water is either hauled or snow is melted. Many dry holes have been dug in an effort to locate water-bearing beds in the upper part of the glacial drift. A great deal of labour and expense can be saved if the water-bearing deposits are located by means of a small auger before digging the well.

Many attempts have been made to locate water at depths of 35 to 125 feet in all parts of the township, and not more than five wells from 40 to 60 feet deep have encountered aquifers that yielded usable water. The water is very highly mineralized, "alkaline", and acts as a laxative on those not accustomed to the use of such water. No deeper wells encounter water-bearing sands or gravels and, therefore, it is not advisable to drill for water in this township. Deposits of water-bearing sand or gravel may be encountered at depth, but the uncertainty of obtaining an adequate supply of water, and the usual poor quality of water if located, do not warrant the expense of drilling.

This township experiences a shortage of water. Dams and dugouts are recommended as the best means of increasing the supply of water for stock purposes.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF WALLACE, NO. 243, SASKATCHEWAN

West of 2nd meridian — Township / Range	25 / 1	25 / 2	25 / 3	26 / 1	26 / 2	26 / 3	27 / 1	27 / 2	27 / 3	Total No. in Municipality
Total No. of Wells in Township	27	44	41	55	56	48	68	107	136	582
No. of wells in bedrock	0	0	0	0	0	1	0	0	0	1
No. of wells in glacial drift	27	44	41	55	56	47	68	107	136	581
No. of wells in alluvium	0	0	0	0	0	0	0	0	0	0
Permanency of Water Supply										
No. with permanent supply	26	43	41	46	55	38	61	101	36	447
No. with intermittent supply	1	1	0	6	1	4	5	3	6	27
No. dry holes	0	0	0	3	0	6	2	3	94	108
Types of Wells										
No. of flowing artesian wells	0	0	0	0	0	0	0	0	0	0
No. of non-flowing artesian wells	14	12	10	19	15	3	15	5	8	101
No. of non-artesian wells	13	32	31	33	41	39	51	99	34	373
Quality of Water										
No. with hard water	26	41	40	49	52	37	54	98	38	435
No. with soft water	1	3	1	3	4	5	12	6	4	39
No. with salty water	0	0	0	0	0	0	1	0	0	1
No. with "alkaline" water	3	0	8	24	11	8	12	8	9	83
Depths of Wells										
No. from 0 to 50 feet deep	27	44	38	46	53	41	58	104	91	502
No. from 51 to 100 feet deep	0	0	3	8	3	3	9	3	42	71
No. from 101 to 150 feet deep	0	0	0	1	0	1	1	0	3	6
No. from 151 to 200 feet deep	0	0	0	0	0	1	0	0	0	1
No. from 201 to 500 feet deep	0	0	0	0	0	1	0	0	0	1
No. from 501 to 1,000 feet deep	0	0	0	0	0	1	0	0	0	1
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	26	44	35	38	45	36	56	96	33	409
No. not usable for domestic purposes	1	0	6	14	11	6	10	8	9	65
No. usable for stock	27	44	38	50	53	41	66	102	40	461
No. not usable for stock	0	0	3	2	3	1	0	2	2	13
Sufficiency of Water Supply										
No. sufficient for domestic needs	26	43	41	46	55	38	61	101	36	447
No. insufficient for domestic needs	1	1	0	6	1	4	5	3	6	27
No. sufficient for stock needs	25	41	37	42	40	36	51	94	27	393
No. insufficient for stock needs	2	3	4	10	16	6	15	10	15	81

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 Wallace, No. 243, Saskatchewan.

LOCATION						Depth of Well, Ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS									Source of Water
No.	Qtr.	Sec.	Tp.	Rge.	Mer.			Total	Perm.	Temp.	Cl.	Alka-linity	CaO	MgO	SO_4	Na_2O	Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl	$MgCl_2$	
1	SW.	30	25	2	2	10	740	600	325	275	47	340	170	94	184	41	647	303		31			236	77		* 1
2	SW.	10	20	3	2	30	1,600	900	900	Nil	37	85	270	140	955	185	1,454	85	539		417		352	61		* 1
3	SE.	11	27	1	2	25	320	350	300	50	9	215	30	94	90	22	322	54		136	86		31	15		* 1
4	NE.	22	27	2	2	13	340	350	350	Nil	20	235	30	94	21	261	261	54		153	28				28	* 1

Water samples indicated thus, * 1, are from glacial drift.
Hardness is the soap hardness expressed as calcium carbonate ($CaCO_3$).
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

Four samples of water from the glacial drift of the municipality of Wallace were analysed and the results are listed in the accompanying table. Samples 1, 3, and 4 were taken from wells that tap pockets or lenses or beds of sand and gravel in the yellow clay at depths of 16, 14, and 13 feet, respectively. They have a total dissolved solid content of 740, 320, and 340 parts per million, respectively, which is considered to be low for water in this part of Saskatchewan. The hardness is from 350 to 600 parts per million, and the water is quite hard although locally it is often termed moderately hard or soft. The predominant mineral salts in solution are the sulphates of calcium, magnesium, and sodium, and magnesium carbonate. This water is suitable for domestic purposes and for stock. It can also be used for irrigation. Sample 2 is taken from a 30-foot well and the total dissolved solid content is 1,600 parts per million. This water is very hard, but it is usable for all farm purposes. It is a "sulphate" or "alkaline" water. These samples of water are representative of the many shallow wells in the municipality.

The deeper wells probably contain the same salts in solution, but in greater quantities, as they are usually termed "alkaline", and have a laxative effect on those not accustomed to the use of highly mineralized water. This is due to the presence of magnesium sulphate (Epsom salts) and sodium sulphate (Glauber's salt). Water from the deeper wells should not be used for drinking if other water is available.

Water from the Bedrock

No water is obtained from the Marine Shale series in this municipality. Water from the Marine Shale in this part of Saskatchewan is usually too highly mineralized to be used for any farm purposes.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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	SE.	1	25	1	2	Dug	27	1,750	− 17	1,733	27	1,723	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
2	NE.	1	"	"	"	Dug	28	1,750	− 6	1,744	28	1,722	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
3	NW.	6	"	"	"	Dug	44	1,750	− 14	1,736	44	1,706	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
4	SE.	7	"	"	"	Dug	10	1,745	− 2	1,743	7	1,738	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	NW.	7	"	"	"	Dug	11	1,740	0	1,740			Glacial gravelly clay	Hard, clear		D, S	Sufficient for 50 head stock.
6	SE.	9	"	"	"	Dug	30	1,745	− 5	1,740	30	1,715	Glacial sand	Hard, clear		D, S	
7	NW.	11	"	"	"	Dug	18	1,745	− 15	1,730	15	1,730	Glacial sand	Hard, clear		D, S	Sufficient for local needs; another similar well.
8	SE.	12	"	"	"	Dug	20	1,740	− 12	1,728	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
9	SE.	14	"	"	"	Dug	16	1,745	− 16	1,729	16	1,729	Glacial sand	Hard, clear		D, S	A constant water-level.
10	NE.	14	"	"	"	Dug	18	1,735	− 8	1,727	18	1,717	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	SE.	16	"	"	"	Dug	14	1,735	− 7	1,728			Glacial sand	Soft, clear		D, S	Intermittent supply.
12	NW.	18	"	"	"	Dug	30	1,740	− 10	1,730	27	1,713	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
13	SE.	22	"	"	"	Dug	18	1,740	− 15	1,725	15	1,725	Glacial sand	Hard, clear		S	A constant water-level; another well 16 feet deep is used for domestic needs.
14	NW.	22	"	"	"	Bored	28	1,730	− 18	1,712	28	1,702	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
15	NW.	24	"	"	"	Dug	36	1,740	− 20	1,720			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
16	SW.	27	"	"	"	Dug	14	1,730	0	1,730	12	1,718	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
17	NW.	28	"	"	"	Dug	20	1,730	− 16	1,714	18	1,712	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	NE.	29	"	"	"	Dug	20	1,724	− 8	1,716	20	1,704	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
19	SW.	32	"	"	"	Dug	25	1,725	− 15	1,710	25	1,700	Glacial sand	Hard, clear		D, S	A constant water-level.
20	NE.	32	"	"	"	Dug	30	1,724	− 20	1,704	20	1,704	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
21	NW.	33	"	"	"	Dug	26	1,725	− 17	1,708	26	1,699	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
22	NE.	34	"	"	"	Dug	20	1,730	− 10	1,720	20	1,710	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
23	SW.	35	"	"	"	Dug	24	1,730	− 12	1,718	24	1,706	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
24	NE.	35	"	"	"	Dug	21	1,745	− 15	1,730	21	1,724	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
25	SW.	36	"	"	"	Dug	20	1,745	− 10	1,735	20	1,725	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
1	NW.	4	25	2	2	Dug	50	1,725	− 25	1,700	50	1,675	Glacial sand	Hard		D, S	Sufficient for local needs.
2	NW.	5	"	"	"	Dug	39	1,710	− 37	1,673	37	1,673	Glacial sand and gravel	Soft, clear		D, S	Sufficient for 120 head stock.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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
3	NE.	5	25	2	2	Dug	33	1,720	- 30	1,690	30	1,690	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
4	SW.	6	"	"	"	Dug	17	1,700	- 14	1,686	16	1,684	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	SE.	7	"	"	"	Dug	37	1,720	- 34	1,686	34	1,686	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
6	NW.	8	"	"	"	Dug	22	1,720	- 14	1,706	18	1,702	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also two other similar wells.
7	SE.	12	"	"	"	Dug	44	1,740	- 14	1,726	44	1,696	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
8	NE.	12	"	"	"	Dug	31	1,740	- 14	1,726	31	1,709	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
9	SW.	13	"	"	"	Dug	16	1,740	- 13	1,727	13	1,727	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
10	NW.	13	"	"	"	Dug	18	1,740	- 15	1,725	15	1,725	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	NE.	14	"	"	"	Dug	16	1,740	- 13	1,727	13	1,727	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
12	NE.	15	"	"	"	Dug	26	1,740	- 16	1,724	22	1,718	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
13	NW.	16	"	"	"	Dug	17	1,720	- 14	1,706	14	1,706	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	SW.	17	"	"	"	Dug	25	1,710	- 20	1,690	24	1,686	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
15	NE.	18	"	"	"	Dug	16	1,700	- 13	1,687	13	1,687	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
16	SE.	19	"	"	"	Dug	15	1,700	- 12	1,688	12	1,688	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
17	SE.	20	"	"	"	Dug	10	1,725	- 8	1,717	8	1,717	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
18	SW.	21	"	"	"	Dug	21	1,700	- 12	1,688	18	1,682	Glacial sand	Hard, clear		D, S	
19	SE.	22	"	"	"	Dug	25	1,740	- 23	1,717	23	1,717	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
20	NE.	22	"	"	"	Bored	42	1,740	- 28	1,712	42	1,698	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
21	SE.	23	"	"	"	Dug	15	1,740	- 13	1,727	13	1,727	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
22	NW.	24	"	"	"	Dug	18	1,740	- 16	1,724	16	1,724	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
23	NE.	24	"	"	"	Dug	25	1,730	- 15	1,715	20	1,710	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
24	NW.	25	"	"	"	Dug	40	1,740	- 5	1,735	40	1,700	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
25	SW.	26	"	"	"	Dug	22	1,740	- 17	1,723	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
26	SW.	27	"	"	"	Bored	22	1,740	- 12	1,728	22	1,718	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
27	NW.	27	"	"	"	Bored	22	1,740	- 16	1,724	20	1,720	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
28	NW.	28	"	"	"	Dug	45	1,725	- 25	1,700	45	1,680	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
29	NE.	28	"	"	"	Dug	32	1,740	- 24	1,716	32	1,708	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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
30	NW.	29	25	2	2	Bored	36	1,700	− 8	1,692			Glacial drift	Hard, clear, iron	36	D, S	Sufficient for local needs.
31	SW.	30	"	"	"	Dug	32	1,690	− 20	1,670	30	1,660	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; another similar well 48 feet deep.
32	NW.	30	"	"	"	Bored	42	1,695	− 22	1,673	42	1,653	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
33	NE.	31	"	"	"	Bored	17	1,710	− 12	1,698	17	1,693	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
34	SE.	32	"	"	"	Bored	40	1,730	− 30	1,700			Glacial gravel	Hard, iron, rusty		D, S	Sufficient for local needs.
35	NW.	32	"	"	"	Dug	35	1,725	− 25	1,700	30	1,695	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
36	NE.	33	"	"	"	Dug	25	1,717	− 15	1,702			Glacial gravel	Hard, clear		D, S	Intermittent supply.
37	SE.	34	"	"	"	Dug	45	1,740	− 30	1,710	45	1,695	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
38	NW.	34	"	"	"	Dug	15	1,717	− 5	1,702	10	1,707	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
39	SE.	35	"	"	"	Dug	19	1,740	− 10	1,730	19	1,721	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
40	SW.	36	"	"	"	Dug	16	1,740	− 10	1,730	14	1,726	Glacial gravel	Hard, rusty, iron		D, S	Sufficient for local needs. #.
1	SE.	1	25	3	2	Dug	17	1,700	− 15	1,685	15	1,685	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
2	SE.	2	"	"	"	Bored	48	1,695	− 18	1,677	48	1,647	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
3	SW.	2	"	"	"	Dug	26	1,686	− 20	1,666	24	1,662	Glacial gravel	Hard, clear, iron, "alkaline"		S	Sufficient for local needs.
4	NW.	2	"	"	"	Dug	35	1,686	− 20	1,666	35	1,651	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; village of Rokeby obtains its water supply from this well; several other wells unfit for use.
5	NE.	2	"	"	"	Dug	14	1,685	− 10	1,675	10	1,675	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
6	SW.	6	"	"	"	Dug	20	1,640	− 17	1,623	17	1,623	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
7	NW.	6	"	"	"	Dug	42	1,640	− 41	1,599	41	1,599	Glacial sand	Hard, clear	40	D, S	Sufficient for local needs.
8	NW.	7	"	"	"	Dug	32	1,650	− 24	1,626	30	1,620	Glacial gravel	Hard, dark		D, S	Sufficient for local needs.
9	NE.	9	"	"	"	Bored	40	1,685	− 20	1,665	40	1,645	Glacial sand	Hard, clear, iron		S	Sufficient for local needs; another 16-foot well is used for domestic needs.
10	SE.	10	"	"	"	Dug	32	1,685	− 15	1,670			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	SE.	12	"	"	"	Dug	25	1,700	− 20	1,680	23	1,677	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
12	SE.	13	"	"	"	Dug	52	1,700	− 34	1,666			Glacial drift	Hard, clear		D, S	Water-level constant.
13	NE.	14	"	"	"	Dug	18	1,700	− 15	1,685	15	1,685	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	SE.	15	"	"	"	Bored	40	1,675	− 20	1,655			Glacial clay	Hard, clear, iron, "alkaline"		S	Sufficient for stock needs; haul water from section 9 for domestic needs.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
15	SW.	17	25	3	2	Dug	30	1,670	- 25	1,645	28	1,642	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs; also another shallow well.
16	NE.	18	"	"	"	Dug	75	1,670	- 73	1,597	73	1,597	Glacial sand	Hard, clear		D, S	Insufficient for local needs; most of the stock is watered at sloughs.
17	SW.	19	"	"	"	Dug	40	1,660	- 30	1,630	40	1,620	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
18	SW.	20	"	"	"	Dug	12	1,660	- 10	1,650	10	1,650	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
19	SE.	20	"	"	"	Dug	22	1,650	- 17	1,633			Glacial sand	Hard, clear, iron, "alkaline"		D, S	Constant water supply.
20	NW.	21	"	"	"	Dug	30	1,670	- 15	1,655	30	1,640	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
21	NE.	22	"	"	"	Bored	29	1,690	- 25	1,665	25	1,665	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
22	NW.	23	"	"	"	Dug	27	1,680	- 18	1,662	23	1,657	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
23	SE.	25	"	"	"	Dug	53	1,700	- 43	1,657	53	1,647	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
24	NE.	25	"	"	"	Bored	40	1,690	- 20	1,670	40	1,650	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
25	SE.	27	"	"	"	Dug	20	1,695	- 15	1,680	15	1,680	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
26	NE.	28	"	"	"	Dug	30	1,660	- 27	1,633	27	1,633	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
27	SW.	29	"	"	"	Dug	15	1,670	- 11	1,659	11	1,659	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
28	SE.	32	"	"	"	Dug	35	1,650	- 30	1,620	33	1,617	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
29	NE.	32	"	"	"	Dug	16	1,650	- 13	1,637	13	1,637	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
30	SW.	33	"	"	"	Dug	16	1,640	- 12	1,628	14	1,626	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
31	NW.	34	"	"	"	Dug	10	1,666	- 8	1,658	8	1,658	Glacial gravel	Hard, clear		D	Sufficient for local needs.
32	NE.	34	"	"	"	Dug	18	1,650	- 16	1,634	16	1,634	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a spring on farm.
33	SW.	35	"	"	"	Dug	32	1,670	- 29	1,641			Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
34	SW.	36	"	"	"	Bored	45	1,700	- 35	1,665	45	1,655	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; also a 35-foot well is used for domestic needs.
1	NE.	1	26	1	2	Drilled	87	1,740	- 25	1,715	87	1,653	Glacial sand	Hard, clear, iron		D, S	Constant water-level.
2	NE.	2	"	"	"	Bored	45	1,740	- 25	1,715	45	1,695	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
3	NW.	2	"	"	"	Bored	22	1,740	- 16	1,724	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
4	SE.	3	"	"	"	Dug	13	1,725	- 7	1,718			Glacial gravel	Hard, iron, cloudy		D,S	Sufficient for local needs.
5	NW.	4	"	"	"	Bored	60	1,745	- 17	1,728	60	1,685	Glacial fine sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
6	SW.	5	"	"	"	Dug	30	1,715	- 20	1,695	25	1,690	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
7	SE.	6	26	1	2	Dug and Bored	36	1,720	- 4	1,716	36	1,684	Glacial sand	Hard, clear, "alkaline"	38	D, S	Sufficient for local needs.
8	NE.	7	"	"	"	Dug and Bored	36	1,705	- 10	1,695	36	1,669	Glacial sand	Hard, clear, "alkaline"		S	Constant water-level.
9	NE.	8	"	"	"	Dug	22	1,745	- 12	1,733			Glacial sand	Hard, clear		D, S	Intermittent supply.
10	NW.	9	"	"	"	Bored	28	1,745	- 14	1,731	28	1,717	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	SW.	9	"	"	"			1,745					Glacial drift	Hard, "alkaline"			
12	SE.	10	"	"	"	Dug	27	1,745	- 16	1,729	27	1,718	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
13	NW.	10	"	"	"	Dug	12	1,740	- 9	1,731	9	1,731	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
14	SW.	11	"	"	"	Dug	21	1,740	0	1,740			Glacial gravel	Hard, clear		D, S	Sufficient forlocal needs.
15	NE.	11	"	"	"	Dug	22	1,740	- 18	1,722	20	1,720	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
16	SW.	12	"	"	"	Bored	61	1,740	- 58	1,682			Glacial sand	Hard, clear		D, S	Intermittent supply.
17	NE.	12	"	"	"	Bored	30	1,740	- 20	1,720	25	1,715	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	SE.	14	"	"	"	Dug	25	1,730	- 20	1,710	22	1,708	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
19	SE.	15	"	"	"	Dug	25	1,735	- 21	1,714	21	1,714	Glacial sand	Hard, "alkaline"		D	Constant water-level.
20	NW.	16	"	"	"	Bored	50	1,745	- 35	1,710	50	1,695	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
21	SE.	18	"	"	"	Dug and Bored	36	1,705	- 12	1,693	36	1,669	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
22	SE.	20	"	"	"	Bored	50	1,745	- 20	1,725			Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs. Another similar well is used for domestic needs.
23	NE.	20	"	"	"	Dug	44	1,738	- 24	1,714	44	1,694	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
24	SW.	22	"	"	"	Bored	50	1,735	- 20	1,715	50	1,685	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for local needs. A shallow well is used for domestic needs.
25	SE.	22	"	"	"	Bored	50	1,720	- 30	1,690	50	1,670	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
26	NE.	26	"	"	"	Dug	30	1,730	- 20	1,710	30	1,700	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
27	NW.	26	"	"	"	Dug	30	1,720	- 24	1,696			Glacial sand	Hard, clear, "alkaline"		D, S	Intermittent supply; also several dry holes from 30 to 45 feet deep.
28	SW.	28	"	"	"	Dug	8	1,735	0	1,735	0	1,735	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
29	SE.	30	"	"	"	Dug and Bored	44	1,700	- 15	1,685	44	1,656	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; another well 45 feet deep is not used.
30	SW.	30	"	"	"	Dug	35	1,695	- 20	1,675			Glacial sand	Hard, clear, "alkaline"		D, S	Intermittent supply; another well 26 feet deep is used for stock.
31	SE.	32	"	"	"	Dug	40	1,710	- 20	1,690	30	1,680	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for stock needs; haul drinking water.
32	SW.	32	"	"	"	Bored	75	1,710	- 60	1,650			Glacial drift	Soft, rusty, iron		D, S	Sufficient for local needs; another well 40 feet deep is used for stock use.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
33	SW.	33	26	1	2	Dug and Bored	65	1,715	- 35	1,680	65	1,650	Glacial gravel	Hard, clear, "alkaline"		S	Constant water-level; another well 25 feet deep is used for domestic needs.
34	NW.	34	"	"	"	Dug	24	1,720	- 14	1,706	18	1,702	Glacial drift	Hard, clear		D, S	Sufficient for local needs.
35	NW.	35	"	"	"	Drilled	100	1,725	- 40	1,685	100	1,625	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
36	NE.	35	"	"	"	Dug	20	1,725	- 12	1,713			Glacial drift	Hard, clear, "alkaline"		S	Sufficient for stock needs; several other similar wells in village of Stornoway; drinking water hauled.
37	NE.	35	"	"	"	Drilled	70	1,725	- 20	1,705	70	1,655	Glacial drift	Hard, cloudy, "alkaline"		M	Used only for fire prevention.
38	NW.	36	"	"	"	Dug	30	1,730	- 25	1,705			Glacial sand	Hard, "alkaline"		D, S	Intermittent supply.
39	SW.	36	"	"	"	Bored	120	1,730	- 20	1,710	120	1,610	Glacial gravel	Hard, clear		S	Sufficient for local needs; another well 16 feet deep is used for domestic needs.
40	SE.	36	"	"	"	Bored	60	1,720	- 30	1,690			Glacial drift	Hard, "alkaline"		D, S	Intermittent supply; another well 27 feet deep is used for stock.
1	SW.	1	26	2	2	Bored	35	1,710	- 25	1,685	35	1,675	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
2	SE.	2	"	"	"	Dug	16	1,715	- 5	1,710	11	1,704	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
3	SE.	3	"	"	"	Dug	17	1,715	- 12	1,703	12	1,703	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
4	SW.	3	"	"	"	Dug	6	1,710	- 2	1,708	2	1,708	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	NE.	4	"	"	"	Bored	60	1,710	- 20	1,690	60	1,650	Glacial gravel	Hard,		N	Not used at present; needs cleaning.
6	SW.	4	"	"	"	Dug	16	1,700	- 6	1,694			Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
7	NW.	4	"	"	"	Dug and Bored	26	1,700	- 18	1,682			Glacial sand	Hard, clear		D, S	Insufficient for local needs; also another well 40 feet deep.
8	SE.	6	"	"	"	Bored	55	1,700	- 25	1,675	55	1,645	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
9	SW.	6	"	"	"	Dug	35	1,700	- 25	1,675	35	1,665	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
10	SW.	7	"	"	"	Bored	42	1,690	- 37	1,653			Glacial gravel	Hard, clear, iron		D, S	Intermittent supply.
11	NW.	8	"	"	"	Bored	26	1,700	- 15	1,685	20	1,680	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
12	SE.	8	"	"	"	Bored	45	1,700	- 13	1,687	45	1,655	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
13	SE.	9	"	"	"	Bored	40	1,710	- 20	1,690	40	1,670	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
14	NW.	10	"	"	"	Dug	25	1,710	- 10	1,700	25	1,685	Glacial coarse gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
15	SE.	10	"	"	"	Bored	30	1,710	- 10	1,700	30	1,680	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
16	NE.	11	"	"	"	Dug	12	1,715	- 9	1,706	9	1,706	Glacial sand	Soft, clear		D, S	Constant water-level.
17	SW.	13	"	"	"	Dug	18	1,710	- 10	1,700			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	NE.	14	"	"	"	Dug	35	1,700	- 29	1,671	32	1,668	Glacial sand	Hard, clear		D	Sufficient for domestic needs; another well 18 feet deep is used for stock needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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	NW.	14	26	2	2	Dug and Bored	30	1,700	− 18	1,682	30	1,670	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
20	NE.	16	"	"	"	Dug	20	1,710	− 15	1,695	17	1,693	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
21	NW.	16	"	"	"	Dug	14	1,700	− 10	1,690	10	1,690	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
22	NW.	17	"	"	"	Dug	30	1,700	− 18	1,682	18	1,682	Glacial gravel	Hard, clear, iron		D, S	Sufficient for local needs.
23	SE.	18	"	"	"	Bored	50	1,700	− 24	1,676	50	1,650	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
24	NE.	18	"	"	"	Dug and Bored	35	1,705	− 15	1,690	35	1,670	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
25	NE.	19	"	"	"	Bored	30	1,700	− 25	1,675	25	1,675	Glacial gravel	Hard, clear		S	Constant water-level; a similar well is used for domestic needs.
26	NW.	20	"	"	"	Dug	30	1,705	− 27	1,678	27	1,678	Glacial gravel	Hard, clear		D	Sufficient only for domestic needs; another well is used for stock needs.
27	SW.	23	"	"	"	Bored	41	1,700	− 6	1,694	41	1,659	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for stock needs.
28	NW.	23	"	"	"	Dug	20	1,695	− 12	1,683			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
29	NE.	23	"	"	"	Dug and Bored	40	1,690	− 35	1,655	38	1,652	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
30	SE.	24	"	"	"	Dug and Bored	40	1,695	− 10	1,685	40	1,655	Glacial sand	Hard, clear		S	Sufficient for stock needs.
31	SE.	25	"	"	"	Bored	50	1,690	− 35	1,655			Glacial clay	Hard, clear		D, S	Insufficient for local needs; three other wells 45, 42, and 25 feet deep
32	NW.	2	"	"	"	Dug	16	1,690	− 12	1,673	12	1,673	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
33	NE.	26	"	"	"	Dug	18	1,690	− 16	1,674	16	1,674	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
34	SW.	26	"	"	"	Dug and Bored	50	1,680	− 20	1,660	50	1,630	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
35	SE.	27	"	"	"	Dug	36	1,680	− 16	1,664			Glacial drift	Hard, clear, "alkaline"		S	Insufficient supply; a 35-foot well is used for domestic needs; a 60-foot well not used.
36	NE.	28	"	"	"	Dug and Bored	73	1,670	− 35	1,635	38	1,632	Glacial sand	Hard, iron, cloudy		D, S	Sufficient for local needs.
37	NW.	30	"	"	"	Dug	35	1,700	− 28	1,672	28	1,672	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
38	NE.	31	"	"	"	Dug	20	1,675	− 18	1,657	18	1,657	Glacial gravel	Hard, clear		D	Sufficient for domestic needs; another well 18 feet deep is used for stock.
39	NE.	32	"	"	"	Dug	20	1,675	− 15	1,660	15	1,660	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
40	SW.	34	"	"	"	Dug	22	1,670	− 10	1,660	18	1,652	Glacial sand	Hard, clear, iron		D	Sufficient for domestic needs; another well 17 feet deep is used for stock.
41	SW.	36	"	"	"	Dug	16	1,690	− 12	1,678	14	1,676	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
42	SW.	36	"	"	"	Dug and Bored	35	1,690	− 8	1,682	35	1,655	Glacial sand and gravel	Hard, clear		D	Sufficient for local needs.
43	SE.	36	"	"	"	Dug	14	1,690	− 10	1,680	12	1,678	Glacial sand	Hard, clear		D, S	Sufficient for local needs; another similar well not used at present.

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 WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
44	NE.	36	26	2	2	Dug	13	1,690	− 13	1,677	17	1,673	Glacial sand	Soft, clear		S	Insufficient for local needs.
1	SE.	1	26	3	2	Bored	44	1,700	− 18	1,682	44	1,656	Glacial gravel	Hard, clear		D, S	Constant water-level; another well 17 feet deep is used for stock.
2	SE.	2	"	"	"	Dug	35	1,660	− 21	1,639	35	1,625	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
3	SW.	2	"	"	"	Dug	15	1,650	− 11	1,639	11	1,639	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
4	SE.	3	"	"	"	Dug	35	1,660	− 33	1,627	33	1,627	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
5	SW.	3	"	"	"	Dug	10	1,650	− 7	1,643	7	1,643	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
6	SW.	4	"	"	"	Dug	20	1,650	− 18	1,632	18	1,632	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
7	NW.	4	"	"	"	Dug	30	1,660	− 28	1,632	28	1,632	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
8	SE.	5	"	"	"	Dug	25	1,650	− 23	1,627	23	1,627	Glacial sand	Hard, clear		D	Sufficient for domestic needs; another similar well is used for stock.
9	NE.	5	26	"	"	Drilled	220	1,650	− 20	1,630	220	1,430	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
10	SW.	5	"	"	"	Dug	15	1,640	− 13	1,627	13	1,627	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	NW.	6	"	"	"	Dug	37	1,650	− 34	1,616	34	1,616	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
12	SE.	7	"	"	"	Dug	12	1,650	− 9	1,641	11	1,639	Glacial gravel	Hard, clear		D, S	Insufficient for local needs; several dry holes, the deepest being 110 feet.
13	SW.	7	"	"	"	Dug	60	1,650	− 40	1,610			Glacial clay	Hard, cloudy, "alkaline"		N	
14	NE.	8	"	"	"	Dug	14	1,640	− 9	1,631	12	1,628	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
15	SW.	10	"	"	"	Dug	30	1,650	− 26	1,624	26	1,624	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs. #.
16	NW.	11	"	"	"	Bored	32	1,650	− 20	1,630	20	1,630	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
17	SW.	12	"	"	"	Bored	15	1,690	− 11	1,679	11	1,679	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
18	NW.	12	"	"	"	Dug	25	1,675	− 21	1,654	21	1,654	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
19	NE.	13	"	"	"	Dug	38	1,700	− 36	1,664	36	1,664	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
20	SE.	14	"	"	"	Dug	22	1,675	− 19	1,656	19	1,656	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
21	SW.	14	"	"	"	Dug	16	1,650	− 16	1,634	16	1,634	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
22	NE.	14	"	"	"	Dug	10	1,650	− 8	1,642	8	1,642	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
23	SE.	15	"	"	"	Dug	13	1,660	− 16	1,644	16	1,644	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs; also another well 19 feet deep.
24	SW.	15	"	"	"	Bored	26	1,650	− 16	1,634	16	1,634	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
25	SE.	16	"	"	"	Dug	9	1,650	− 4	1,646	4	1,646	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
26	SW.	16	"	"	"	Dug	22	1,650	− 17	1,633			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply.
27	NW.	16	"	"	"	Drilled	600	1,650									Dry hole; base in Marine shale.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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	NW.	16	26	3	2	Dug	10	1,650	− 6	1,644			Glacial clay	Hard, clear, "alkaline"		S	Sufficient for stock needs; haul drinking water.
29	NE.	18	"	"	"	Dug	40	1,650	− 37	1,613	37	1,613	Glacial sand and gravel	Hard, clear		S	Sufficient for stock needs; haul drinking water.
30	SW.	19	"	"	"	Dug	14	1,640	− 3	1,637			Glacial sand	Soft, clear		D, S	
31	NW.	19	"	"	"	Dug	12	1,600	− 6	1,594			Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
32	NE.	20	"	"	"	Dug	14	1,600	0	1,600			Glacial clay	Soft, clear		D, S	Intermittent supply.
33	SW.	21	"	"	"	Dug	18	1,650	− 15	1,635			Glacial clay	Hard, clear		D, S	Intermittent supply.
34	SE.	24	"	"	"	Dug	26	1,700	− 24	1,676	24	1,676	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
35	SE.	24	"	"	"	Dug	40	1,675	− 36	1,639	36	1,639	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
36	SW.	26	"	"	"	Dug	7	1,650	0	1,650			Glacial sand	Soft, clear		D, S	Sufficient for local needs.
37	SW.	30	"	"	"	Bored	50	1,600	− 40	1,560			Glacial drift	Hard, clear, "alkaline"		S	Intermittent supply; haul drinking water.
38	SW.	30	"	"	"	Dug	85	1,600									Dry hole; base in glacial blue clay.
39	SW.	33	"	"	"	Bored	180	1,620									Dry hole; base in glacial blue clay,
40	SW.	35	"	"	"	Dug	40	1,660	− 36	1,624	36	1,624	Glacial gravel	Hard, clear, iron		S	Sufficient for stock needs; haul drinking water.
41	SE.	36	"	"	"	Dug	20	1,650	− 18	1,632	18	1,632	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
42	NE.	36	"	"	"	Dug	23	1,700	− 21	1,679	21	1,679	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
1	SE.	1	27	1	2	Bored	84	1,730	− 44	1,686			Glacial drift	Hard, cloudy, "alkaline"		S	Insufficient for stock needs; haul drinking water.
2	NW.	1	"	"	"	Dug	16	1,720	− 9	1,711	12	1,708	Glacial sand and gravel	Soft, clear		D, S	Sufficient for local needs.
3	NE.	1	"	"	"	Dug	46	1,720	− 26	1,694			Glacial drift	Hard, clear, "alkaline"		S	Sufficient for stock needs; a 12-foot well is used for domestic needs.
4	SW.	2	"	"	"	Dug	26	1,730	− 17	1,713			Glacial clay	Hard, clear		D	Sufficient for domestic needs; a 12-foot well is used for stock needs.
5	NW.	2	"	"	"	Dug	24	1,730	− 20	1,710			Glacial clay	Hard, clear, "alkaline"		S	Intermittent supply; haul drinking water.
6	SE.	3	"	"	"	Drilled	108	1,725	40	1,685	108	1,617	Glacial sand	Hard, salty, "alkaline"		S	Sufficient for stock needs; another well 12 feet deep is used for domestic needs.
7	SW.	4	"	"	"	Bored	60	1,700	− 50	1,650	60	1,640	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
8	NW.	4	"	"	"	Dug	36	1,710	− 27	1,683	32	1,678	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
9	NE.	4	"	"	"	Dug	34	1,710	− 18	1,692	33	1,677	Glacial sand	Hard, clear, bitter		D, S	Sufficient for local needs.
10	NW.	5	"	"	"	Dug	45	1,710	− 37	1,673	45	1,665	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; two other wells.
11	NE.	6	"	"	"	Dug	20	1,700	− 15	1,685	18	1,682	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
12	SE.	7	"	"	"	Bored	30	1,700	− 24	1,676			Glacial sand	Hard, clear		D	Sufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
13	SE.	7	27	1	2	Bored	60	1,700	− 30	1,670			Glacial drift	Hard, yellow, "alkaline"		S	Constant water-level
14	NE.	7	"	"	"	Bored	60	1,700	− 40	1,660			Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
15	NE.	7	"	"	"	Dug	20	1,700	− 17	1,683	17	1,683	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
16	SW.	8	"	"	"	Dug	30	1,700	− 20	1,680	30	1,670	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
17	SW.	9	"	"	"	Bored	56	1,710	− 27	1,683	56	1,654	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
18	SE.	10	"	"	"	Bored	34	1,700	− 12	1,688			Glacial drift	Hard, red, "alkaline"		D	Constant water-level.
19	NE.	10	"	"	"	Dug	15	1,700	− 8	1,692	10	1,690	Glacial sand	Soft, clear		D	Sufficient for local needs.
20	NE.	10	"	"	"	Dug	35	1,700	− 15	1,685	20	1,680	Glacial sand	Hard, clear		S	Sufficient for local needs.
21	SE.	11	"	"	"	Dug	25	1,720	− 15	1,705	20	1,700	Glacial sand	Hard, clear		D, S	Sufficient for local needs; village of Stornoway obtains its water supply from this well. #.
22	SW.	11	"	"	"	Bored	43	1,700	− 8	1,692	43	1,657	Glacial gravel	Hard, clear		S	Sufficient for local needs.
23	NE.	11	"	"	"	Dug	12	1,720	− 5	1,715			Glacial sand	Hard, clear, "alkaline"		S	Sufficient for local needs.
24	SE.	12	"	"	"	Dug	13	1,720	− 8	1,712			Glacial clay	Soft, clear		D, S	Sufficient for local needs; also another similar well.
25	SW.	12	"	"	"	Dug	24	1,730	− 16	1,714			Glacial clay	Hard, clear		D, S	Intermittent supply.
26	SW.	13	"	"	"	Dug	30	1,730									Dry hole; base in glacial blue clay; also a shallow well in a ravine from which a supply is obtained.
27	NE.	13	"	"	"	Dug	8	1,680	− 3	1,677	3	1,677	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
28	NE.	14	"	"	"	Dug	30	1,740	− 27	1,713	27	1,713	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
29	NW.	14	"	"	"	Dug	42	1,700	− 32	1,668	42	1,658	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
30	NW.	15	"	"	"	Dug	20	1,700	− 16	1,684	16	1,684	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
31	SW.	16	"	"	"	Dug	20	1,700									Dry hole; base in glacial clay.
32	NW.	16	"	"	"	Dug	54	1,700	− 34	1,666	54	1,646	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs; use lake for stock during summer.
33	NE.	18	"	"	"	Dug	23	1,700	− 15	1,685			Glacial drift	Soft, clear		D, S	Sufficient for local needs.
34	NW.	18	"	"	"	Dug	20	1,700	− 16	1,684	16	1,684	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
35	NW.	19	"	"	"	Dug	27	1,700	− 14	1,686			Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
36	SW.	20	"	"	"	Dug	19	1,680	− 15	1,665	15	1,665	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
37	NW.	20	"	"	"	Bored	32	1,680	− 17	1,663	32	1,648	Glacial sand	Hard, clear		D, S	Sufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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
38	NE.	20	27	1	2	Dug	25	1,690	- 20	1,670	20	1,670	Glacial sand	Hard, clear		S	Sufficient for stock needs; a similar well is used for domestic needs.
39	SW.	22	"	"	"	Dug	26	1,700	- 22	1,678			Glacial gravel	Hard, clear, "alkaline"		D, S	Intermittent supply.
40	SE.	22	"	"	"	Dug	25	1,700	- 18	1,682	22	1,678	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
41	NW.	22	"	"	"	Dug	25	1,700	- 21	1,679			Glacial drift	Hard, clear		D, S	Sufficient for local needs.
42	NE.	22	"	"	"	Dug	24	1,700	- 20	1,680	22	1,678	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
43	SE.	23	"	"	"	Dug	80	1,680	- 22	1,658	80	1,600	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs.
44	SW.	23	"	"	"	Bored	65	1,700	- 10	1,690	65	1,635	Glacial sand and gravel	Hard, clear, iron		D, S	Sufficient for local needs.
45	SW.	24	"	"	"	Dug	30	1,700	- 21	1,679			Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
46	NW.	25	"	"	"	Dug	12	1,710	0	1,710	0	1,710	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
47	NE.	26	"	"	"	Dug	16	1,710	- 12	1,698	14	1,696	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
48	SW.	28	"	"	"	Dug	25	1,690	- 13	1,677	21	1,669	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
49	SW.	29	"	"	"	Bored	78	1,680	- 43	1,637	78	1,602	Glacial gravel	Hard, dark		D, S	Sufficient for local needs.
50	SE.	30	"	"	"	Dug	18	1,680	- 13	1,667	13	1,667	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
51	NW.	30	"	"	"	Dug	20	1,700	- 14	1,686	17	1,683	Glacial gravel	Hard, clear, "alkaline"		D, S	
52	SE.	31	"	"	"	Dug	25	1,700	- 17	1,683			Glacial drift	Hard, clear		D, S	Intermittent supply.
53	SW.	34	"	"	"	Dug	10	1,680	- 4	1,676	6	1,674	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also a 24-foot well with intermittent supply.
54	SE.	34	"	"	"	Dug	24	1,700	- 14	1,686			Glacial clay	Hard, clear		D	Sufficient for domestic needs; water stock at lake.
55	NW.	34	"	"	"	Dug	14	1,700	- 8	1,692	12	1,688	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
56	NE.	34	"	"	"	Dug	12	1,700	- 9	1,691	9	1,691	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
57	SW.	36	"	"	"	Dug	16	1,710	- 6	1,704			Glacial sand	Hard, clear		D, S	Sufficient for local needs; also another shallow well for domestic needs.
58	NE.	36	"	W	"	Dug	13	1,710	- 10	1,700	10	1,700	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
1	NE.	1	27	2	2	Bored	53	1,690	- 28	1,662	53	1,637	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
2	NE.	3	"	"	"		40	1,680	- 37	1,643	37	1,643	Glacial sand	Hard, cloudy		D, S	Sufficient for local needs.
3	SE.	4	"	"	"	Dug	30	1,690	- 15	1,675	25	1,665	Glacial gravel	Soft, clear		D	Sufficient for domestic needs; a similar well is used for stock.
4	NW.	6	"	"	"	Dug	32	1,690	- 28	1,662	30	1,660	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
5	SE.	7	"	"	"	Dug	23	1,690	- 21	1,669	21	1,669	Glacial sand	Hard, 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 WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
6	NE.	7	27	2	2	Dug	58	1,675	- 18	1,657	40	1,635	Glacial gravel	Hard, green, iron, "alkaline"		D, S	Sufficient for local needs; also used shallow well.
7	SW.	8	"	"	"	Bored	28	1,680	- 20	1,660	25	1,655	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
8	NE.	8	"	"	"	Dug	20	1,690	- 17	1,673	17	1,673	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also use a creek for stock.
9	SE.	10	"	"	"	Dug	32	1,700	- 30	1,670	30	1,670	Glacial sand	Hard, clear		D	Sufficient for domestic needs; a similar well is used for stock.
10	NE.	10	"	"	"	Dug	10	1,690	- 9	1,681	9	1,681	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
11	SW.	11	"	"	"	Dug	34	1,690	- 31	1,659	31	1,659	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
12	NE.	12	"	"	"	Bored	60	1,700	- 20	1,680	60	1,640	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for stock needs; haul drinking water.
13	SW.	12	"	"	"	Bored	47	1,690	- 37	1,653			Glacial clay	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
14	NW.	13	"	"	"	Dug	20	1,690	- 7	1,683	16	1,674	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
15	NE.	14	"	"	"	Bored	27	1,690	- 22	1,668	24	1,666	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
16	NW.	15	"	"	"	Dug	21	1,680	- 12	1,668	16	1,664	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
17	NW.	15	"	"	"	Dug	30	1,680	- 24	1,656			Glacial sand	Hard, clear		D	Sufficient for domestic needs; uses creek for stock.
18	SW.	16	"	"	"	Dug	18	1,680	- 15	1,665	15	1,665	Glacial sand	Hard, clear		D	Sufficient for domestic needs; a similar well is used for stock.
19	SE.	17	"	"	"	Dug	19	1,680	- 17	1,663	17	1,663	Glacial sand	Hard, clear		D	Sufficient for domestic needs; a similar well is used for stock.
20	SW.	20	"	"	"	Dug	35	1,660	- 29	1,631			Glacial sand	Hard, clear		D, S	Insufficient for local needs; also a 40-foot well which is being abandoned.
21	NE.	20	"	"	"	Dug	12	1,670	- 10	1,660	10	1,660	Glacial sand	Hard, clear		S	Sufficient for local needs.
22	SW.	22	"	"	"	Drilled	35	1,680	- 25	1,655			Glacial clay	Hard, clear		D, S	Sufficient for local needs.
23	NW.	22	"	"	"	Dug	21	1,680	- 15	1,665	19	1,661	Glacial gravel	Hard, clear		S	Sufficient for stock needs; another well 17 feet deep is used for domestic needs.
24	NE.	22	"	"	"	Dug	13	1,686	- 10	1,676	10	1,676	Glacial sand	Hard, clear		D	Sufficient for local needs; #.
25	NE.	22	"	"	"	Dug	15	1,680	- 8	1,672	13	1,667	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
26	SE.	23	"	"	"	Dug	36	1,690	- 28	1,662			Glacial drift	Hard, clear		D, S	Sufficient for local needs.
27	NW.	23	"	"	"	Dug	14	1,686	- 4	1,682	10	1,676	Glacial sand	Hard, clear		D, S	Sufficient for local needs; about 50 other wells in village of Rhein are similar.
28	NW.	24	"	"	"	Dug	36	1,700	- 31	1,669			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
29	SE.	25	"	"	"	Dug	40	1,690	- 25	1,665	38	1,652	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
30	SW.	25	"	"	"	Dug	48	1,690	- 10	1,680	48	1,642	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
31	NW.	26	"	"	"	Dug	118	1,690	- 15	1,675	15	1,675	Glacial sand	Hard		D, S	Sufficient for local needs.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
32	SW.	27	27	2	2	Dug	21	1,700	- 9	1,691	18	1,682	Glacial sand	Hard, clear		S	Sufficient for local needs.
33	NE.	27	"	"	"	Dug	22	1,690	- 19	1,671	19	1,671	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
34	SW.	28	"	"	"	Dug	20	1,670	- 14	1,656	18	1,652	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
35	NE.	28	"	"	"	Dug	14	1,680	- 8	1,672	12	1,668	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
36	SE.	29	"	"	"	Dug	22	1,660	- 20	1,640	20	1,640	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
37	SE.	30	"	"	"	Dug	20	1,650	- 15	1,635	18	1,632	Glacial sand	Soft, clear		D	Sufficient for domestic needs; another well 20 feet deep is used for stock.
38	SE.	31	"	"	"	Bored	18	1,650	- 8	1,642	14	1,636	Glacial sand	Hard, clear		D, S	Sufficient for local needs; also several dry holes.
39	NW.	31	"	"	"	Dug	20	1,640	- 10	1,630			Glacial clay	Hard, "alkaline"		N	Intermittent supply and unfit for use; all water hauled.
40	SW.	32	"	"	"	Dug	18	1,650	- 10	1,640	14	1,636	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
41	NE.	32	"	"	"	Dug	25	1,650	- 17	1,633			Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs.
42	NE.	34	"	"	"	Dug	22	1,690	- 17	1,673	17	1,673	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
43	SE.	35	"	"	"	Dug	40	1,690	- 15	1,675			Glacial sand	Hard, clear		D, S	Sufficient for local needs.
44	NW.	35	"	"	"	Bored	35	1,690	0	1,690	35	1,655	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
45	SW.	36	"	"	"	Dug	25	1,690	- 21	1,669			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
46	SW.	36	"	"	"	Dug	28	1,690	- 10	1,680			Glacial sand and gravel	Soft, clear		S	Sufficient for local needs.
1	SE.	1	"	3	"	Dug	26	1,690	- 23	1,667	23	1,667	Glacial gravel	Hard, clear		S	Sufficient for stock needs; another similar well is used for domestic needs.
2	NW.	2	"	"	"	Dug	22	1,660	- 11	1,649			Glacial sand	Hard, clear		D, S	Intermittent supply.
3	SW.	3	"	"	"	Dug	35	1,640	- 32	1,608			Glacial drift	Hard, clear, "alkaline"		D, S	Insufficient for local needs.
4	SW.	4	"	"	"	Dug	15	1,625	- 13	1,612			Glacial drift	Hard, clear, "alkaline"		N	Intermittent supply.
5	NE.	4	"	"	"	Dug	20	1,600	- 17	1,583	17	1,583	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
6	SE.	5	"	"	"	Dug	21	1,600	- 9	1,591	21	1,579	Glacial sand	Hard, clear, "alkaline"		D, S	Constant water-level
7	SW.	5	"	"	"	Dug	38	1,600	- 24	1,576	24	1,576	Glacial sand	Hard, clear		S	Sufficient for local needs.
8	SW.	5	"	"	"	Dug	30	1,600	- 20	1,580	30	1,570	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
9	SE.	6	"	"	"	Dug	18	1,600	- 14	1,586	16	1,584	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
10	SW.	7	"	"	"	Dug	20	1,590	- 17	1,573	17	1,573	Glacial gravelly clay	Hard, clear		D, S	Sufficient for local needs.
11	SE.	8	"	"	"	Bored	80	1,600									Sixty dry holes from 30 to 80 feet deep; base in glacial blue clay.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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
12	SW.	9	27	3	2	Dug	30	1,600									Dry hole; base in glacial blue clay.
13	SE.	12	"	"	"	Dug	25	1,690	- 17	1,673	23	1,667	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
14	NE.	12	"	"	"	Dug	30	1,690									Dry hole; base in glacial clay.
15	NW.	12	"	"	"	Dug	19	1,650	- 4	1,646	4	1,646	Glacial gravel	Hard, clear		S	Intermittent supply; another well 12 feet deep is used for domestic needs.
16	NE.	13	"	"	"	Bored	35	1,680	- 30	1,650	30	1,650	Glacial sand	Soft, clear		D	Sufficient for domestic needs; another similar well is used for stock.
17	NE.	15	"	"	"	Dug	21	1,650	- 19	1,631	19	1,631	Glacial sand	Hard, clear, "alkaline"		D, S	Intermittent supply.
18	NE.	16	"	"	"	Dug	20	1,610	- 19	1,591	19	1,591	Glacial clay	Hard, clear		D, S	Sufficient for local needs.
19	SW.	17	"	"	"	Dug	10	1,600									Dry hole; base in glacial clay.
20	SE.	18	"	"	"	Bored	50	1,600	- 35	1,565	50	1,550	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
21	SW.	18	"	"	"	Bored	40	1,600	- 8	1,592	40	1,560	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
22	SW.	18	"	"	"	Dug	58	1,620	- 30	1,590	58	1,562	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
23	NE.	18	"	"	"	Bored	29	1,600	- 11	1,589	29	1,571	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
24	NE.	19	"	"	"	Bored	40	1,600	- 20	1,580			Glacial drift	Hard, clear, "alkaline"		D, S	Intermittent supply.
25	NW.	20	"	"	"	Bored	117	1,600									Several dry holes; base in glacial blue clay
26	NW.	21	"	"	"	Dug	50	1,600									Dry hole; base in glacial blue clay.
27	SE.	22	"	"	"	Dug	21	1,650	- 14	1,636	14	1,636	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
28	NE.	22	"	"	"	Dug	21	1,645	- 17	1,628	17	1,628	Glacial sand and gravel	Hard, clear		D, S	Insufficient for local needs.
29	SE.	23	"	"	"	Dug	20	1,660	- 10	1,650	18	1,642	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; several neighbours haul water from this well.
30	SW.	23	"	"	"	Bored	56	1,650									Dry hole; base in glacial blue clay.
31	NW.	23	"	"	"	Bored	125	1,650									Several dry holes; base in glacial blue clay.
32	NW.	23	"	"	"	Bored	45	1,650	- 17	1,633			Glacial drift	Hard, clear	42	D, S	Intermittent supply.
33	NE.	24	"	"	"	Dug	45	1,650	- 39	1,611	45	1,605	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs; another well 12 feet deep is used for domestic needs.
34	SE.	25	"	"	"	Dug	12	1,650	- 6	1,644	9	1,641	Glacial gravel	Hard, clear		D	Sufficient for local needs; also a spring on farm.
35	SE.	26	"	"	"	Bored	40	1,650	- 30	1,620	40	1,610	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for stock needs; haul drinking water.
36	SW.	27	"	"	"	Dug	60	1,625									Dry hole; base in glacial blue clay.
37	SE.	28	"	"	"	Dug	33	1,630									Several dry holes; base in glacial blue clay.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of WALLACE, NO. 243, 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
38	NW.	28	27	3	2	Bored	40	1,600									Dry hole ; base in glacial blue clay.
39	SW.	29	"	"	"	Dug	20	1,600	- 14	1,586	14	1,586	Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
40	SE.	31	"	"	"	Dug	9	1,595	- 5	1,590	5	1,590	Glacial sand	Hard, clear		S	Sufficient for local needs.
41	SE.	31	"	"	"	Bored	50	1,595	- 25	1,570			Glacial drift	Hard, clear, "alkaline"		N	Unfit for use.
42	NW.	32	"	"	"	Dug	12	1,600	- 10	1,590	10	1,590	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
43	NE.	32	"	"	"	Dug	12	1,600	- 6	1,594	9	1,591	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
44	SE.	34	"	"	"	Bored	55	1,625									Dry hole; base in glacial blue clay; three other dry holes.
45	NE.	34	"	"	"	Dug	15	1,635									Dry hole; base in glacial clay.
46	SE.	35	"	"	"	Bored	50	1,640									Dry hole; base in glacial blue clay.
47	SE.	36	"	"	"	Dug	14	1,640	- 8	1,632	8	1,632	Glacial gravel	Hard, clear		D, S	Sufficient for local needs; another well 10 feet deep is used for stock.
48	SW.	36	"	"	"	Dug	25	1,640									Several dry holes; base in glacial clay.
49	NW.	36	"	"	"	Dug	18	1,640	- 11	1,629	14	1,626	Glacial sand	Hard, clear		D, S	Sufficient for local needs.
50	NE.	36	"	"	"	Dug	12	1,640	- 6	1,634	6	1,634	Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
51	NE.	36	"	"	"	Dug	30	1,650									Dry hole; base in glacial clay; also a shallow seepage well.

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(#) Sample taken for analysis.