CANADA
DEPARTMENT OF MINES

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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF ELCAPO No. 154 SASKATCHEWAN

BY

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

Water Supply Paper No. 97

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GROUND WATER RESOURCES OF THE RURAL MUNICIPALITY OF ELCAPO, NO. 154 SASKATCHEWAN

INTRODUCTION

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

Publication of Results

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

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

How to Use the Report

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

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

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

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

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

GLOSSARY OF TERMS USED

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

is present, buff. Beds of sand occur in places in the lower part of the formation. It forms the uppermost bedrock formation over much of western and southwestern Saskatchewan and has a maximum thickness of 700 feet or somewhat more.

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

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

WATER-BEARING HORIZONS OF THE MUNICIPALITY

The rural municipality of Elcapo, No. 154, is an area of approximately 339 square miles in southeastern Saskatchewan, lying to the west of the Second meridian. It consists of eight full townships described as townships 16, ranges 4, 5, 6, and 7; township 17, ranges 5, 6, and 7; and township 18, range 7; two fractional townships described as township 17, range 4, and township 19A, range 7; and that part of township 19, range 7, that lies to the south of Qu'Appelle river. The centre of the municipality lies approximately 51 miles west of the Manitoba boundary and 98 miles north of the International Boundary line. The town of Broadview, on the main line of the Canadian Pacific railway, is situated in the southeastern part of the municipality, 5 miles north of the southern boundary.

The municipality is bounded on the north by Indian reserves Nos. 71, 72, 73, and 74, ranges 4, 5, and 6, and by Qu'Appelle river in township 19, range 7. The general drainage of the municipality is northward through the Indian reserves into Qu'Appelle river and Crooked lake. In the southwestern corner a maximum elevation of 2,150 feet is attained, but throughout the remainder of the municipality the elevation varies from 1,900 to 2,000 feet above sea-level. Several small lakes are situated in different parts of the municipality, the largest being Ekapo and Marston lakes in township 16, ranges 5 and 6.

The municipality is mantled by glacial drift that attains a thickness of at least 350 to 400 feet. Part of a large moraine extends from the east into the central part of the municipality, and smaller areas of moraine occur in the western and southwestern parts. Boulder clay or glacial till mantles the remainder of the

municipality. Glacial outwash sands and gravels occur in several extensive areas in the central and west-central parts of the municipality. The flood-plain of Qu'Appelle river in township 19, range 7, consists of Recent alluvium 10 to 30 feet thick. A wide, deeply buried, pre-glacial valley occurs along the northern part of the municipality into the glacial drift of which Qu'Appelle river has cut its present channel.

Water-bearing Horizons in the Unconsolidated Deposits

With the exception of the area outlined by the "A" boundary line, water-bearing horizons occur discontinuously throughout the glacial drift mantling this municipality. It is not suprising, therefore, that many dry holes have been dug bored or drilled in an attempt to locate these water-bearing beds, but a dry hole does not necessarily indicate widespread non-water-bearing conditions, as dry holes have been made in the vicinity of producing wells.

The uppermost water-bearing horizon in the glacial drift is formed by the deposits of glacial outwash sands and gravels and by isolated pockets of sand and gravel that occur within the upper 30 feet of the drift. Water that is obtained from the larger sand and gravel pockets and the glacial outwash sands and gravels, is soft to moderately hard and is usable for all farm purposes. The supply is fairly abundant and is but slightly affected by drought. Wells that have tapped smaller pockets of sand and gravel usually yield intermittent supplies of more highly mineralized water. In such localities the farmers are forced to haul water from wells yielding a permanent supply or to use a number of these intermittent wells in order to obtain a sufficient supply for their stock. In many places dams and dugouts are being used to supplement the supply of well water.

The second water-bearing horizon occurs at a depth of 40 to 60 feet and is formed by sand or gravel beds that occur between beds of impervious, blue clay. This horizon is also discontinuous, but has a larger areal extent than the uppermost water-bearing horizon. Due to the proximity of the blue clay the water is very highly mineralized. The water from most of the wells is used for domestic purposes, but it may have a laxative effect on those not accustomed to its use. The best supply of water from this horizon is obtained in townships 16 and 17, range 4.

A third water-bearing horizon has been tapped at depths ranging from 80 to 100 feet, in several of the townships. This aquifer is a bed of sand that varies in thickness, and is absent in some localities. The water is very highly mineralized, "alkaline", and has a very high content of iron which settles as a red sediment of iron oxide.when the water stands in contact with the air. This water is being used for household purposes where water of better quality is not obtainable. The hydrostatic pressure varies, but in most places is sufficient to cause the water to rise to a point 50 to 80 feet below the surface. Several dry holes, 250 to 328 feet deep, have been drilled in different parts of the municipality. It does not seem advisable to drill to depths in excess of 200 feet in search of a supply of water, although water-bearing horizons may exist at depth in the glacial drift.

Water-bearing Horizons in the Bedrock

There are no bedrock outcrops along Qu'Appelle valley and no producing wells or dry holes have encountered a bedrock formation. However, the glacial drift is believed to be underlain throughout the municipality by the Marine Shale series.

The glacial drift in the NW. $\frac{1}{4}$, sec. 6, tp. 17, range 6, is at least 328 feet thick. Little or no water may be expected to occur in the Marine Shale in this area.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 16, Range 4

With the exception of a small area of glacial till in section 6 the whole township is mantled by part of a moraine. The ground surface of the moraine is very rough, with many small hills and ridges and numerous undrained depressions. The elevation rises from approximately 1,950 feet in the southwest to 2,050 feet above sea-level in the east.

Only a few wells have tapped sand or gravel pockets within the upper 20 feet of glacial drift. A shallow well on the SW.$\frac{1}{4}$, section 14, yields an abundant supply of medium hard water sufficient for at least 500 head of stock. Other shallow wells encountering sand and gravel pockets yield intermittent supplies or become completely dry during periods of drought.

A water-bearing horizon is known to occur at a depth of 35 to 65 feet and this yields large supplies of highly mineralized water. The aquifer is formed by a bed of sand and gravel that is underlain by blue clay and overlain by 2 to 3 feet of "hardpan". The water is very hard and contains a considerable amount of iron that precipitates as a red sediment on standing in contact with the air. The water is used for all domestic purposes, but it is unsatisfactory for irrigation. The hydrostatic pressure is sufficient to cause the water to rise to a point 20 to 40 feet below the surface. The individual wells will supply at least 40 to 70 head of stock with water throughout the year.

A second water-bearing horizon is encountered at depths ranging from 91 to 159 feet, or at an elevation of 1,960 to 1,870 feet above sea-level, the rise in elevation

toward the east corresponding to the rise in surface elevation. The aquifer is a bed of fine sand that is overlain and underlain by beds of impervious, blue clay and unless care is taken this fine sand often plugs the well casings. This horizon yields an abundance of highly mineralized water that has a high iron content and which is locally termed very "alkaline". The water from most of the wells is unsuitable for domestic purposes, but since water of better quality cannot be obtained it is being used. However, after one becomes accustomed to the laxative effect of the dissolved salts in the water, it apparently has no ill effects on the human system. The water rises to a point 30 to 60 feet below the surface and in most of these wells remains at this level. The individual wells will supply 60 to 200 head of stock with water.

A 192-foot well on the NE.$\frac{1}{4}$, section 12, tapped an abundance of water in a fine sand aquifer. This is the only well to this depth in the township, so that no statement can be made as to the areal extent of the water-bearing bed. The fine sand tends to plug the well casings and shuts off the water supply. The water is too highly mineralized to be usable for domestic purposes. It does not seem advisable to drill to this depth in this township for water. Little trouble should be experienced in obtaining adequate supplies of water from the water-bearing beds that occur at depths of 30 to 65, and 100 to 160 feet, in the glacial drift.

The bedrock Marine Shale series underlies the glacial drift throughout the township, but no wells have encountered it. It is inadvisable to drill into the shale as it rarely contains usable water.

Township 16, Range 5

The average elevation of the land surface in this township is 1,950 feet above sea-level, but in section 6, it reaches a maximum of 2,100 feet above sea-level. A deep, narrow valley extends in a northerly direction along the eastern side of the township to section 23, where it swings to the northwest. A long, narrow body of water known as Ekapo lake occupies this valley from sections 1 to 22, and an intermittent creek flows from this lake northwesterly to cross the northern boundary of the township in section 31.

The north and northeastern parts of the township are mantled by part of a glacial moraine and the ground surface is very hilly and contains numerous depressions. A large area in the southwestern part and a smaller area in the north-central part of the township are overlain by glacial outwash sands and gravels. The remainder of the township is covered by glacial till or boulder clay.

An abundant supply of moderately hard water is obtained by wells that are dug to depths of 20 feet in the glacial outwash deposits. In the moraine and glacial till-covered areas, wells 20 feet deep have tapped isolated pockets of sand and gravel that yield smaller supplies of water. Generally, several holes are dug before the sand and gravel pockets are located. Water from the sand and gravel pockets in the boulder clay is more highly mineralized and the quantity is more variable than that from the glacial outwash deposits. The water from these sources is used for all domestic purposes and forms the main supply of the township.

Where it has been necessary to sink deeper wells in search of larger supplies of water a water-bearing gravel bed has been tapped at depths ranging from 30 to 70 feet. The gravel bed varies in thickness and occurs between

beds of impervious, blue clay. The water is very highly mineralized, turns reddish on standing in contact with the air due to its high iron content, and is locally termed very "alkaline". It is used for all domestic purposes, although it would act as a laxative upon those who are not accustomed to the use of highly mineralized water. The individual wells will supply from 30 to 80 head of stock. The hydrostatic pressure is sufficient to cause the water to rise to a point 6 to 20 feet below the surface.

Several wells in widely separated sections of the township are obtaining moderate supplies of water from a sand aquifer at depths ranging from 90 to 135 feet. The water is highly mineralized and has a high iron content, but is usable for domestic purposes. It rises to a point 20 to 70 feet below the surface and the individual wells will supply at least 35 to 50 head of stock. It is possible that this water-bearing horizon extends throughout the township.

The Marine Shale series is believed to underlie the glacial drift in this township, but it has not been encountered by any wells. It is probable that the glacial drift is 300 to 400 feet thick. It is highly improbable that any usable water will be obtained from the shale.

Township 16, Range 6

The elevation in this township rises from 1,950 feet in the northern part to 2,150 feet above sea-level in the southern part. The ground surface is very rough and is cut by numerous valleys and ravines. Pipestone valley passes through section 6, and contains several pot-holes of water that are fed by springs. The valley of Marston lake crosses sections 13, 14, 15, 21, 20, 19,

and 30, and is 150 to 200 feet wide, with abruptly rising slopes. The lake has never been known to become completely dry. The area to the south of this valley is more undulating than that to the north and is covered by a dense growth of poplar.

Part of a large moraine occurs in the northeastern corner, and sections 18 and 19 are covered by part of a smaller moraine. Glacial outwash sands and gravels cover a small area in the southwestern corner and a similar area in the east-central part of the township. The remainder of the township is mantled by boulder clay or glacial till.

Water is being derived from wells ranging up to 30 feet in depth sunk in the glacial outwash deposits, or that tap pockets of sand and gravel in the deposits of moraine and till; from the numerous springs located along the valleys, and from small lakes, and numerous sloughs. The spring water and the water from the glacial outwash sands and gravels are moderately hard and are used for all farm purposes including irrigation. There is generally an abundant supply from these sources. Water from the isolated sand and gravel pockets is more highly mineralized and the quantity varies with the individual well, but is not large. The lakes and some of the sloughs are fed by numerous springs as well as by run-off water, but the water is only suitable for stock use.

The second source of water in this township is a discontinuous, water-bearing sand bed that occurs between beds of blue clay at a depth ranging from 35 to 70 feet. The water is highly mineralized, has a high iron content, and is generally termed as very hard and "alkaline". It is usable for stock, but in a few cases is not being used for any household purposes. The majority of these wells yield sufficient water for 30 to 80 head of stock. The hydrostatic pressure is sufficient to cause the water to rise to a point 15 to 20 feet below the surface.

Wells on the SE.¼, section 9, the SW.¼, section 15, and the SE.¼, section 36, tap water-bearing beds of sand and gravel at a depth of 80 to 90 feet. Each well yields an abundance of highly mineralized water that is not suitable for domestic purposes. It is quite "alkaline" and has a strong laxative effect on those not accustomed to its use. The hydrostatic pressure varies with the individual well, the water rising to a point 8 feet below the surface in the well on the SE.¼, section 36, and 30 to 70 feet below the surface in the other two wells.

No well has encountered the bedrock but the Marine Shale series is believed to underlie the glacial drift throughout this township. It is probable that the overlying drift is from 300 to 400 feet thick and it is improbable that any usable water can be obtained from the bedrock at this depth.

Township 16, Range 7

The elevation at the northern border of the township is 2,000 feet above sea-level, but in the southern part it increases to 2,150 feet. Pipestone valley runs in a southeasterly direction through the southern part of the township and is occupied by Pipestone lake in sections 8 and 9. This lake is spring fed and has never become dry, although during periods of drought it does not hold more than 1 to 2 feet of water. The ground surface of the township is very undulating and is characterized by many valleys, knolls, and numerous undrained depressions.

Parts of sections 5 and 6, and the greater part of the north-central area of the township, are covered by moraine. The remainder of the township is mantled with glacial till or boulder clay except in section 1, where glacial outwash sand and gravels overlie the deposits of glacial till.

An abundance of medium hard water is obtained from the numerous springs and from several of the shallow wells that have tapped large pockets of sand and gravel within the upper 20 feet of the drift. Many of the wells that tap pockets of sand and gravel of smaller areal extent yield supplies of water that are only sufficient for general household use. In such localities the supply of water for stock use is obtained from dams or sloughs. The water from the upper part of the drift varies greatly in quality within short distances. Some of the water was reported as being bitter and unfit for farm use, whereas water from other wells nearby was analysed and found to be satisfactory for all farm purposes.

The second water-bearing horizon occurs at a depth of 40 to 75 feet and has been tapped at widely separated localities in the township. The aquifer, which is a bed of sand and gravel, is discontinuous or becomes non-water-bearing in some areas as holes in sections 12, 20, and 30, drilled to depths of 100 feet, did not locate water. The water from this aquifer is very highly mineralized, has a high iron content, and is "alkaline". Most of it is being used for domestic purposes since water of better quality is not obtainable, but it should only be used for stock. The supply varies with the individual wells, but is generally sufficient for at least 35 head of stock. Although a supply of good drinking water is difficult to obtain in this township, adequate supplies for stock use can be obtained from springs, lakes, and sloughs.

The glacial drift is underlain by the Marine Shale, but the drift is possibly 400 feet thick and the bedrock was not encountered at any locality. The shale bedrock if encountered is almost certain to be non-water-bearing.

Township 17, Range 4

This fractional township comprises an area of 25½ square miles. The surface elevation rises from 2,000 feet in the west to 2,050 feet above sea-level in the southern and eastern sections of the township. The whole area is very rolling, with numerous hills and depressions, and is mantled by part of a moraine. Large glacial boulders are common in parts of this moraine. In seasons of normal rainfall the depressions contain water.

A few wells have tapped isolated pockets of sand and gravel in the upper 30 feet of the glacial drift. These pockets yield small supplies of water that varies in quality. A well on the NW.¼, section 33, is reported as yielding soft water, whereas one on the NW.¼, section 7, yields water that is very bitter and unfit for domestic use. The supply of water from this type of well is usually inadequate for farm requirements.

At depths of 30 to 80 feet in different sections of the township a few wells have tapped a sand aquifer from which large supplies of highly mineralized water are obtained. This sand bed is not continuous throughout the township as many of the wells obtain only small seepages of water and many holes to this depth were completely dry. Wells in sections 28, 29, and 32 supply sufficient water for 50 to 60 head of stock, but others yield supplies that are barely sufficient for household purposes. The water is very hard, has a high iron content, and is locally termed "alkaline". It is used for domestic purposes since water of better quality is not obtainable.

A grave shortage of water is experienced in most sections of this township. Many of the residents have constructed small dams or excavated small dugouts, but they do not retain a sufficient

supply of water during periods of drought. There is nothing to indicate that water can or can not be located at depth in the glacial drift. Probably the best method for the conservation of water is by the construction of dams or the excavation of large, deep dugouts.

The Marine Shale series underlies the glacial drift of this township, but it has not been encountered by any well. Where it is located at depth in adjacent municipalities it is usually non-water-bearing.

Township 17, Range 5

The elevation rises gradually from 1,900 feet above sea-level in the northwestern corner to approximately 2,000 feet along the eastern boundary of the township. The whole area is very rolling with numerous hills and undrained depressions, especially in the southeastern corner. Several intermittent creeks, the largest of which is Ekapo, flow northwards into Qu'Appelle river.

Glacial till or boulder clay mantles the north-central and east-central parts of the township. The remainder of the township is overlain by part of a large moraine. Fair supplies of water are obtained from several springs and from wells that have tapped isolated pockets of sand and gravel at depths of 20 to 30 feet in the glacial drift. The water is hard and has a fairly high mineral salt content, but is used for all domestic purposes.

A second water-bearing horizon occurs at a depth ranging from 30 to 60 feet. The aquifer is a bed of sand that is discontinuous or becomes so thin that some wells obtain only small seepages of water. Several of the wells yield sufficient water for 100 head of stock, but the majority will only supply 20

to 30 head. The water is very highly mineralized, has a high iron content, and is strongly "alkaline". It cannot be used for drinking in some cases, wheras in others it is being used since water of better quality is not available.

A well on the NW.¼, section 32, 130 feet deep, derives a fair supply of water that is only suitable for stock use. It is possible that other wells may locate water at this depth or at greater depths in other sections, but there is no evidence of such water-bearing horizon at the present time.

The glacial drift is underlain by the Marine Shale series. The exact elevation at which this formation occurs is unknown, but it is probable that the glacial drift is from 300 to 400 feet thick. The shale beds if penetrated at this depth would be non-water-bearing.

Township 17, Range 6

The ground surface of this township is relatively flat, the elevation rising from 1,900 feet in the north to 1,950 feet in the southern part of the area. A number of small valleys that contain intermittent creeks occur in the northern sections of the township.

With the exception of an area in sections 1, 2, 3, and 4 that is covered by part of a glacial moraine, the township is mantled by glacial till or boulder clay. A small deposit of glacial outwash sands and gravels overlies the glacial till in an area in the northwestern part of the township.

Wells sunk to a depth of 10 to 20 feet in the glacial outwash deposits obtain good supplies of medium hard water that can be used for all farming purposes, including irrigation. Other wells of similar depth in the glacial till and moraine-

covered areas have tapped isolated pockets of sand and gravel from which small supplies of very hard water are obtained. The wells that tap these pockets are not dependable and during periods of drought may become dry. A better supply is obtained from this horizon in the northern part of the township than in the southern part.

At depths of 35 to 60 feet in some sections of the township fair supplies of a highly mineralized water are derived from beds of gravel and sand that occur between layers of impervious blue clay. This aquifer is not continuous as a number of holes have been dug without encountering water. The water obtained in some wells is not usable for drinking, whereas in others it is being used since water of better quality is not available, but it has a strong laxative effect on those who are not accustomed to the use of highly mineralized water. The water rises to a point 10 to 20 feet below the surface and the individual wells will supply 10 to 50 head of stock throughout the year.

A number of wells 70 to 100 feet deep have tapped a discontinuous bed of sand and gravel from which large supplies of water are obtained. This is particularly true in the western part of the township. The discontinuity of the aquifer is shown by the number of dry holes that have been dug. The water has a high total dissolved mineral salt content, is very hard, and contains a considerable amount of iron in solution. However, it is usable for domestic purposes, but is disagreeable to those unaccustomed to its use. The hydrostatic pressure varies in the individual wells, but it is generally sufficient to cause the water to rise to a point 4 to 20 feet below the surface.

The glacial drift of this township is underlain by the Marine Shale series, but it has not been encountered as yet, and a dry hole on the NW.$\frac{1}{4}$, section 6, 328 feet deep, is still in

glacial drift. Should the shale beds be encountered at such a depth they would probably be non-water-bearing and further drilling is not advised. Due to the discontinuity of the water-bearing beds no definite depth can be stated at which water can be located, but there seems to be little probability that water will be located below a depth of 200 feet or an elevation of 1,700 feet above sea-level. The best methods for the conservation of water would be by the excavating of dugouts, or by the construction of dams across some valleys and a supply of run-off water retained for stock use.

Township 17, Range 7

This township is a relatively flat plain, the elevation rising gradually from 1,900 feet in the northeastern part to 2,000 feet above sea-level in the southwestern part. A small, intermittent creek that flows in a northeasterly direction drains a marshy area in the central part of the township.

The entire township is mantled by glacial till or boulder clay, but in the northern and central parts, deposits of glacial outwash sands and gravels overlie the till.

The uppermost water-bearing horizon is formed by the deposits of glacial outwash and wells tapping this aquifer are from 4 to 12 feet in depth. The wells yield an abundant supply of slightly mineralized water that is locally often termed as being soft. It is used for all farm purposes and the individual wells yield a supply that is sufficient for 50 to 80 head of stock.

A second water-bearing horizon is located in the southern part of the township at a depth of 30 to 60 feet. The aquifer is a discontinuous bed of sand and gravel that occurs between beds of blue clay. The water is very highly mineralized due to its

coming in contact with the blue clay and the high iron content makes it very unsuitable for drinking or laundering purposes. The water from a few wells is unsuitable for domestic purposes, but some of the residents are using it since water of better quality is not obtainable. The hydrostatic pressure is quite high in some wells and very low in others.

A few wells in widely separated sections have tapped moderate supplies of water at a depth ranging from 80 to 100 feet. The aquifer is formed by a bed of gravel or fine sand, but it is not continuous as deeper holes in other sections do not tap a water-bearing horizon at this depth. The water is very hard and contains a large amount of mineral salts in solution, but it is usable for domestic purposes. The water rises to a point 50 to 60 feet below the surface where it maintains a constant level.

Fair supplies of water are being derived from a bed of gravel that is tapped at depths of 130 to 150 feet in sections 9, 14, 16, and 30. This aquifer is not of large areal extent, as a hole drilled to 200 feet on the SE.$\frac{1}{4}$, section 17, was dry. The water derived from this horizon is very highly mineralized, but is usable for household purposes.

No wells have encountered the bedrock in this municipality, so that the exact elevation at which the shale occurs is not known. The glacial drift is known to be at least 250 feet thick and it probably attains a thickness of 400 feet. The Marine Shale when encountered at this depth is usually non-water-bearing.

Township 18, Range 7

This township is a rolling plain and the elevation of the ground surface varies from 1,900 to 1,950 feet above sea-level. It is mantled throughout by glacial till or boulder clay,

the upper 30 feet of which is composed of yellow clay and contains scattered pockets of sand and gravel. An unknown thickness of blue clay underlies the yellow clay. No creeks or lakes occur in this township, so that the water supply is derived from wells or is stored by means of dams and dugouts.

Numerous holes have been dug in the yellow clay in an effort to locate the pockets of sand and gravel, but only a few have encountered a supply of water that can be relied upon during periods of drought. Most of these wells yield intermittent supplies and were practically dry during the drought of 1930 to 1934. The water that is derived mainly by seepage from the clay is very highly mineralized, but that derived from the pockets of sand or gravel contains lesser amounts of mineral salts in solution. In almost every instance the water is being used for domestic purposes since water of better quality cannot be obtained.

No continuous water-bearing horizon occurs between a depth of 40 to 300 feet in the glacial drift. A number of holes have been dug, bored, or drilled to this depth without obtaining any water, and those that have encountered water only yield very small supplies. The majority of the residents in this township use dams or dugouts as a means of collecting and storing run-off water for stock use. This supply, however, only lasts for part of the year, and during some of the summer and autumn months water must be hauled. During the winter snow is melted for stock use.

It does not appear advisable to drill for water in this township. The most satisfactory method of obtaining a supply for stock use is by the excavation of dugouts. These dugouts should be made at least 12 feet deep in order to retain a supply that will last during the greater part of the year. A sufficient supply for domestic purposes can usually be obtained from shallow dug wells.

Township 19A, Range 7

This fractional township comprises an area of 9 square miles and is composed of sections 1 to 6, and the southern halves of sections 7 to 12. It is mantled by boulder clay and the ground surface is gently undulating.

The supply of ground water obtained in this fractional township is limited. Numerous holes have been dug into the upper 30 feet of the glacial drift, but only a few have tapped pockets of sand and gravel. The water is usually highly mineralized and is only sufficient for household use. Water for stock is obtained from sloughs or dugouts, or hauled from wells that yield a permanent supply.

A few attempts have been made to locate water at depths ranging from 50 to 100 feet, but the holes were dry. From information obtained from surrounding townships it is improbable that an adequate supply of water will be obtained at depth in the glacial drift in this township. Dugouts or dams can be used as a means of collecting and storing run-off waters for stock use, and there are many suitable locations throughout the township for dams and dugouts.

The Marine Shale series underlies the glacial drift of this township, but as yet it has not been encountered by any well. It is not advisable to drill into the shale as it will probably be non-water-bearing.

Township 19, Range 7

Only that part of township 19, range 7 that lies to the south of Qu'Appelle river is discussed in this report. Any one desiring information regarding water conditions in the northern part of this township should obtain the report on the rural municipality of MacLeod, No. 185.

The elevation of the land surface decreases gradually from 1,950 feet in the southern part to 1,900 feet at the edge of the valley, and then decreases abruptly to 1,500 feet at the river. The valley is floored with Recent deposits of silts and sands. Glacial till or boulder clay mantled the remainder of the township.

Residents located in Qu'Appelle valley use springs or shallow dug wells for household purposes and water their stock at the river. On the plain above the valley numerous holes from 10 to 30 feet deep have been dug into the drift and a few have encountered large supplies of water in pockets of sand and gravel that occur in the yellow clay. Most of these wells, however, yield intermittent supplies of highly mineralized water. The water from all wells is used for household purposes, as water of better quality is not available.

In several sections holes from 60 to 180 feet deep have been drilled in an attempt to locate larger supplies of water, but they did not encounter water-bearing deposits. It is inadvisable to drill to depths for water in this area. The best method of obtaining a suitable supply of water for stock use is to collect the run-off waters by dams or dugouts. Should dugouts be excavated, they should be at least 12 feet deep in order to retain a supply that will last for the greater part of the year.

This township is underlain by the Marine Shale series. The shale does not outcrop along the valley and is not encountered in any well in this part of the township, so that the overlying glacial drift is exceptionally thick. It is doubtful if the shale contains any usable water.

Indian Reserves

Ochapowace Indian Reserve No. 71

The ground surface of the part of this Indian reserve that is included with the municipality of Elcapo, No. 154, is very undulating and is characterized by many hills and valleys. In some parts numerous large boulders were observed. The southern half of that part of the reserve under discussion is mantled by part of a moraine and the northern half, to Qu'Appelle valley, is covered by glacial till. The valley itself is floored with Recent sands and silts.

A few wells have tapped isolated pockets of sand and gravel in the upper 10 to 30 feet of the glacial drift and yield intermittent supplies of highly mineralized water. This water is being used for all purposes without any apparent ill effects. A few wells have tapped a sand and gravel bed at depths of 60 to 73 feet and yield large supplies of water that is used for all purposes. There is no shortage of water in this reserve.

Kahkewistahaw Indian Reserve No. 72

This Indian reserve is bounded on the north by Qu'Appelle river, on the west by Cowessess Indian reserve, and on the east by Ochapowace Indian reserve. The whole area is dissected by numerous valleys and ravines and the land surface is rolling. Numerous, large boulders occur throughout the area. A few small lakes occur throughout the reserve.

The southeastern corner of the reserve is mantled by part of a moraine. Recent deposits of sand and silt occur on the flood-plain of the river and the remainder of the area is mantled by boulder clay or glacial till.

The water supply in this reserve is derived from wells that tap pockets of sand and gravel within the upper 15 to 30 feet of the drift, and also at depths of 40 to 60 feet. The water is highly mineralized, but is being used for domestic purposes. The small lakes and Qu'Appelle river serve as sources of water for stock use. The supply of ground water obtained in this township is sufficient for local requirements.

Cowessess Indian Reserve No. 73

This Indian reserve is $6\frac{1}{4}$ miles wide and approximately 8 miles long. It is bounded on the north by Crooked lake and Qu'Appelle river. The reserve is drained by numerous intermittent creeks, the majority of which flow into a deep valley that extends from the southwestern corner to Qu'Appelle river. A number of small lakes are situated in the southeastern part of the reserve. The flood-plains of Qu'Appelle river and a few of its tributaries consist of Recent alluvium. The remainder of the area under discussion is mantled by boulder clay or glacial till.

Qu'Appelle river, creeks, lakes, and springs are the main source of water supply for the inhabitants of this reserve. However, a number of wells have been dug to depths of 10 to 30 feet and tap sand and gravel pockets that yield a sufficient supply of water for local needs. Several wells 50 to 65 feet in depth are supplying several families with water that can be used for all purposes. A well drilled by the Provincial Government tapped an abundant supply of highly mineralized water at a depth of 106 feet. The water has a high iron content, but is being used for all local purposes with no apparent ill effects. The hydrostatic pressure is sufficient to cause the water to rise to a point 42 feet below the surface where it maintains a constant level.

The Marine Shale series underlies the glacial drift of this area. This shale has not been encountered by any wells and it is thought that the drift is approximately 400 feet thick. Water-bearing horizons are not thought to occur in this bedrock formation.

Sakimay Indian Reserve No. 74

This Indian reserve is bounded on the north by Qu'Appelle river and Crooked lake. The land surface is very undulating with several abrupt hills and knolls and the average elevation is 1,900 feet above sea-level. An intermittent creek cuts across the southeastern corner of the reserve and a permanent lake known as Goose lake is situated in the south-central part of the area. The reserve is covered with glacial till.

Outside the area outlined by the "A" boundary line, good supplies of water are easily obtained from shallow wells that tap deposits of sand or gravel. Within the outlined area, however, numerous dry holes have been dug from 10 to 175 feet in depth. In the deeper holes a fine white sand was encountered, but it was absolutely dry. Some of the Indians residing in this outlined area haul water from wells that yield a permanent supply.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF ELCAPO, NO. 154, SASKATCHEWAN

West of 2nd. meridian	Township / Range	16 / 4	16 / 5	16 / 6	16 / 7	17 / 4	17 / 5	17 / 6	17 / 7	18 / 7	19A / 7	19 / 7	Total No. in municipality
Total No. of Wells in Township		120	98	83	158	54	37	96	84	99	16	24	869
No. of wells in bedrock		0	0	0	0	0	0	0	0	0	0	0	0
No. of wells in glacial drift		120	98	83	158	54	37	96	84	99	16	17	862
No. of wells in alluvium		0	0	0	0	0	0	0	0	0	0	7	7
Permanency of Water Supply													
No. with permanent supply		70	65	59	77	36	33	82	66	46	10	16	560
No. with intermittent supply		15	2	1	3	3	2	0	0	23	3	4	56
No. dry holes		35	31	23	78	15	2	14	18	30	3	4	253
Types of Wells													
No. of flowing artesian wells		0	0	0	0	0	0	0	0	0	0	0	0
No. of non-flowing artesian wells		41	31	12	21	17	11	14	22	2	0	0	171
No. of non-artesian wells		44	36	48	59	22	24	68	44	67	13	20	445
Quality of Water.													
No. with hard water		85	65	58	78	36	35	65	55	67	13	18	575
No. with soft water		0	2	2	2	3	0	17	11	2	0	2	41
No. with salty water		0	2	0	0	0	0	0	0	0	0	0	2
No. with "alkaline" water		46	39	3	13	11	12	15	17	20	6	9	191
Depths of Wells													
No. from 0 to 50 feet deep		56	75	66	105	41	19	66	49	77	14	20	588
No. from 51 to 100 feet deep		46	21	13	49	13	17	27	28	18	2	2	236
No. from 101 to 150 feet deep		15	2	4	4	0	1	2	5	2	0	1	36
No. from 151 to 200 feet deep		3	0	0	0	0	0	0	1	0	0	1	5
No. from 201 to 500 feet deep		0	0	0	0	0	0	1	1	2	0	0	4
No. from 501 to 1,000 feet deep		0	0	0	0	0	0	0	0	0	0	0	0
No. over 1,000 feet deep		0	0	0	0	0	0	0	0	0	0	0	0
How the Water is Used													
No. usable for domestic purposes		79	55	54	63	34	30	64	53	53	12	20	517
No. not usable for domestic purposes		6	12	6	17	5	5	18	13	16	1	0	99
No. usable for stock		82	63	60	70	39	34	73	63	59	13	20	576
No. not usable for stock		3	4	0	10	0	1	9	3	10	0	0	40
Sufficiency of Water Supply													
No. sufficient for domestic needs		69	65	59	77	35	32	82	66	46	10	16	557
No. insufficient for domestic needs.		16	2	1	3	4	3	0	0	23	3	4	59
No. sufficient for stock needs		52	50	51	71	26	22	58	49	21	3	11	414
No. insufficient for stock needs		33	17	9	9	13	13	24	17	48	10	9	202

STATISTICAL SUMMARY OF WELL INFORMATION IN
INDIAN RESERVES, NOS. 71, 72, 73, 74, SASKATCHEWAN

West of 2nd meridian	71	72	73	74	Total No. in Indian Reserves
Total No. of Wells in Indian Reserve	6	6	7	26	45
No. of wells in bedrock	0	0	0	0	0
No. of wells in glacial drift	6	6	7	26	45
No. of wells in alluvium	0	0	0	0	0
Permanency of Water Supply					
No. with permanent supply	5	6	7	14	32
No. with intermittent supply	1	0	0	0	1
No. dry holes	0	0	0	12	12
Types of Wells					
No. of flowing artesian wells	0	0	0	0	0
No. of non-flowing artesian wells	4	1	3	0	8
No. of non-artesian wells	2	5	4	14	25
Quality of Water					
No. with hard water	6	6	4	14	30
No. with soft water	0	0	3	0	3
No. with salty water	0	0	0	0	0
No. with "alkaline" water	1	1	0	0	2
Depths of Wells					
No. from 0 to 50 feet deep	5	4	4	20	33
No. from 51 to 100 feet deep	1	2	3	0	6
No. from 101 to 150 feet deep	0	0	0	3	3
No. from 151 to 200 feet deep	0	0	0	3	3
No. from 201 to 500 feet deep	0	0	0	0	0
No. from 501 to 1,000 feet deep	0	0	0	0	0
No. over 1,000 feet deep	0	0	0	0	0
How the Water is Used					
No. usable for domestic purposes	6	5	7	14	32
No. not usable for domestic purposes	0	1	0	0	1
No. usable for stock	6	6	7	14	33
No. not usable for stock	0	0	0	0	0
Sufficiency of Water Supply					
No. sufficient for domestic needs	4	6	7	14	31
No. insufficient for domestic needs	2	0	0	0	2
No. sufficient for stock needs	3	6	7	14	30
No. insufficient for stock needs	3	0	0	0	3

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 Elcapo, No. 154, Saskatchewan

LOCATION						Depth of Well, Ft.	Total dis'vd solids	HARDNESS			CONSTITUENTS AS ANALYSED						CONSTITUENTS AS CALCULATED IN ASSUMED COMBINATIONS									Source of Water
No.	Qtr.	Sec.	Tp.	Rge.	Mer.			Total	Perm.	Temp	Cl	Alkalinity	CaO	MgO	SO_4	Na_2O	Solids	$CaCO_3$	$CaSO_4$	$MgCO_3$	$MgSO_4$	Na_2CO_3	Na_2SO_4	NaCl	$CaCl_2$	
1	NW.	18	16	4	2	91	1,100	950	900	50	31	85	170	187	681	43	1,026	85	296		557		37	51		*1
2	SE.	26	16	5	2	18	311										311	(3)	(1)		(2)				(4)	*1
3	SE.	9	17	5	2	70	3,380	2,500	2,500	Nil	69	325	330	569	972		Anomalous									*1
4	SE.	8	17	7	2	27	2,503										2,503	(3)	(1)		(2)				(4)	*1
5	SW.	15	17	7	2	56	3,131										3,131	(3)	(1)		(2)				(4)	*1
6	NE.	19	17	7	2	80	1,508										1,508	(4)	(1)		(2)		(3)		(5)	*1
7	Indian reserve No. 73					106	840	700	550	150	11	160	70	122	344	56	623	125		29	322		129		18	*1

Water samples indicated thus, *1, are from glacial drift.
Analyses are reported in parts per million; where numbers (1), (2), (3), (4), and (5) are used instead of parts per million, they represent the relative amounts in which the five main constituents are present in the water.

Hardness is the soap hardness expressed as calcium carbonate ($CaCO_3$).
Analyses Nos. 2, 4, 5, and 6, by the Provincial Analyst, Regina.
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsolidated Deposits

Seven samples of water from the glacial drift of the municipality of Elcapo and the Cowessess Indian reserve were analysed and the results are listed in the accompanying table. Sample No. 2 is taken from a well dug in glacial outwash sands and gravels and has a total dissolved solid content of 311 parts per million. This is exceptionally low for water in this municipality and in comparison with water from deeper wells it is termed "soft". It is used for all purposes including irrigation. Samples Nos. 3 and 5, from wells 70 and 56 feet in depth, respectively, have a total dissolved mineral salt content exceeding 3,000 parts per million. Water that has such a high content of salts in solution should not be used for domestic purposes, although in many places it is being used with no apparent ill effects. Sample No. 3 is termed anomalous. This sample probably contains nitrates or nitrites, and is possibly being contaminated by surface waters, that contain animal refuse. Water from this well should be examined for bacteria. Samples Nos. 1 and 6 are from wells 91 and 80 feet in depth, and the total dissolved solid content is 1,100 and 1,508 parts per million, respectively. Water from these wells can be used with no harmful effects, although at first it may have a slight laxative effect on those not accustomed to its use. Sample No. 7, from a well 106 feet deep, has a total dissolved solid content of 840 parts per million. This is very low for water that comes from this depth. Water from the deeper wells contains small amounts of sodium sulphate (Glauber's salt) which is not found in the water from the shallow wells. The salts that are found in the greatest abundance in the other samples are calcium sulphate and magnesium sulphate. (Epsom salts).

The water from most of the wells over 40 feet deep in this municipality contains a relatively large amount of iron. When the water stands in contact with the air the iron is oxidized and precipitates as a reddish sediment. If the iron content is sufficiently high to render the water unsuitable for domestic use, the water should be aerated, and filtered through a fine sand filter in order to remove the precipitated iron.

Water from the Bedrock

No water is being derived from the Marine Shale bedrock of this municipality. Any water that is derived from this formation at places where it is overlain by a thick deposit of drift is usually too highly mineralized to be used for any farm purpose.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	NW.	2	16	4	2	Bored	60	1,975	- 53	1,922	58	1,917	Glacial sand	Hard, clear, iron, "alkaline"		D, S, I	Insufficient for local needs; also uses 3 intermittent wells.
2	SW.	4	"	"	"	Bored	35	1,980	- 15	1,965			Glacial sand	Hard, clear, iron		D, S, I	Sufficient for 30 head stock. Had to haul during summer of 1933.
3	NW.	4	"	"	"	Bored	42	1,985	- 27	1,958	42	1,943	Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock.
4	SW.	5	"	"	"	Bored	65	1,970	- 20	1,950	65	1,905	Glacial gravel	Hard, clear, iron, sulphur	42	D, S, I	Oversufficient for local needs.
5	NE.	6	"	"	"	Bored	45	1,980	- 40	1,940	40	1,940	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Insufficient for local needs. A dam in ravine for stock.
6	NW.	8	"	"	"	Bored	40	2,000	- 18	1,982	40	1,960	Glacial gravel	Hard, clear, iron		D, S	Sufficient for 40 head stock; 2 other wells 85 and 60 feet deep.
7	NW.	9	"	"	"	Bored	46	2,000	- 20	1,980			Glacial gravel	Hard, clear, iron		D, S, I	Sufficient for 100 head stock.
8	SW.	10	"	"	"	Drilled	110	2,010			110	1,900	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Oversufficient for local needs.
9	SE.	10	"	"	"	Bored	40	2,020	- 28	1,992	40	1,980	Glacial sand	Hard, clear, "alkaline"		D, S, I	Sufficient for local needs; another similar well.
10	SW.	11	"	"	"	Bored	81	2,025	- 40	1,985	81	1,944	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Insufficient for stock in dry years. Also 5 dry holes over 100 feet deep.
11	NE.	11	"	"	"	Drilled	159	2,040	- 59	1,981	159	1,881	Glacial sand	Hard, clear, iron		D, S	Sufficient for 100 head stock; also a 90 foot seepage well.
12	SE.	12	"	"	"	Bored	90	2,060									Dry hole; glacial clay to base. There are 3 other dry holes.
13	NE.	12	"	"	"	Drilled	192	2,060	- 60	2,000	192	1,868	Glacial sand	Hard, clear, iron, "alkaline"		S	Sufficient for stock needs. A 45 foot well is used for household.
14	SE	14	"	"	"	Dug	19	2,050	- 11	2,039	19	2,031	Glacial sand	Hard, clear		D, S, I	Sufficient, cannot be emptied. A 45 foot well gave fair supply, filled in.
15	SW.	14	"	"	"	Bored	57	2,055	- 47	2,008	55	2,000	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 30 head stock. Also an intermittent well 70 feet deep.
16	NW.	15	"	"	"	Bored	70	2,020	- 48	1,972	70	1,950	Glacial sand	Hard, clear, iron			Good water and good supply; but does not need the well.
17	NE.	16	"	"	"	Bored	56	2,010	- 46	1,964	53	1,957	Glacial sand and gravel	Hard, clear iron		D, S	Sufficient for local needs.
18	SW.	16	"	"	"	Bored	60	2,000	- 40	1,960	60	1,940	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
19	SE.	18	"	"	"	Bored	92	1,980	- 22	1,958	90	1,890	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 50 head stock. There was a 100 foot seepage well now filled in.
20	NW.	18	"	"	"	Drilled	91	1,961	- 29	1,932	89	1,872	Glacial sand	Hard, clear, iron, sulphur		D, S, I	Sufficient for 35 head stock. #
21	SW.	20	"	"	"	Bored	64	1,970	- 30	1,940	64	1,906	Glacial sand	Hard, clear, iron		D, S	Sufficient for 15 head stock. Also a 35 foot well with excellent supply.
22	NW.	20	"	"	"	Bored	136	1,980	- 56	1,924	136	1,844	Glacial sand	Hard, clear, iron		D, S	Insufficient for 20 head stock. Also a 40 foot well with fair supply.

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

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

WELL RECORDS—Rural Municipality of ELCAPO NO. 154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
23	NE.	20	16	4	2	Bored	51	2,000	- 16	1,984	49	1,951	Glacial gravel	Hard, clear, iron		D, S	Oversufficient for local needs; also a 40 foot seepage well.
24	SE.	20	"	"	"	Dug	53	1,980	- 37	1,943	53	1,927	Glacial gravel	Hard, clear		D, S	Oversufficient for local needs.
25	NW.	21	"	"	"	Drilled	120	2,020	- 55	1,965	102	1,918	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 45 head stock.
26	SE.	21	"	"	"	Bored	60	2,000	- 48	1,952	60	1,940	Glacial sand	Hard, clear, "alkaline"		D, S, I	Sufficient for 40 head stock.
27	NW.	22	"	"	"	Drilled	129	2,030	- 55	1,975	129	1,901	Glacial sea sand	Hard, clear, iron		D, S, I	Sufficient for 60 head stock. 7 seepage wells from 16 feet to 60 feet deep.
28	NE.	22	"	"	"	Bored	23	2,050	- 7	2,043	23	1,927	Glacial sand	Hard, "alkaline"		S	Intermittent supply; hauls water for household use.
29	SW.	24	"	"	"	Bored	60	2,050	- 40	2,010			Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock.
30	SE.	24	"	"	"	Drilled	155	2,050	-100	1,950	155	1,895	Glacial gravel	Hard, clear, iron		D, S	Sufficient for 60 head stock. Numerous seepage wells from 15 feet to 100 feet deep.
31	NE.	24	"	"	"	Bored	20	2,050	- 12	2,038			Glacial clay	Hard, clear		D	Intermittent supply.
32	NE.	24	"	"	"	Bored	143	2,050	- 60	1,990	133	1,917	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Oversufficient for local needs.
33	SE.	25	"	"	"	Drilled	128	2,055	- 60	1,995	126	1,929	Glacial sand	Hard, clear, iron		D, S	Oversufficient for local needs.
34	NE.	26	"	"	"	Drilled	128	2,058	- 80	1,978	128	1,930	Glacial sand	Hard, clear, iron, "alkaline"		S	Insufficient due to plugging with sand. 2 seepage wells 40 feet deep.
35	SE.	28	"	"	"	Bored	32	2,032	- 27	2,005	30	2,002	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 30 head stock. A seepage well also 18 feet deep.
36	SW.	28	"	"	"	Dug	40	2,010	- 37	1,973	40	1,970	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient now, would be alright if cleaned out.
37	NW.	28	"	"	"	Bored	60	2,025	- 53	1,972	58	1,967	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 50 head stock.
38	SE.	30	"	"	"	Bored	40	1,980	- 24	1,956	40	1,940	Glacial gravel	Hard, clear		D, S	Sufficient for 30 head stock; also a 60 foot bored well not used.
39	NW.	31	"	"	"	Dug	16	1,980	- 12	1,968	12	1,968	Glacial gravel	Hard, clear		D, S	Sufficient for 30 head stock.
40	NE.	31	"	"	"	Bored	60	2,000	- 30	1,970	60	1,940	Glacial sand and gravel	Hard, clear, "alkaline"		D, S, I	Sufficient for 30 head stock.
41	SW.	31	"	"	"		6	1,990					Glacial sand	Hard			
42	SE.	31	"	"	"	Bored	50	1,990	- 30	1,960	36	1,954	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 30 head stock; with another well 6 feet deep on SW. ¼.
43	NW.	32	"	"	"	Bored	64	2,010	- 44	1,966	54	1,956	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 50 head stock.
44	NE.	32	"	"	"	Dug	35	2,025	- 27	1,998	27	1,998	Glacial gravel	Hard, clear		D, S	Sufficient for 20 head stock.
45	SE.	32	"	"	"	Bored	60	2,020	- 28	1,992	60	1,960	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 60 head stock. A similar well 50 feet deep, not used.
46	SW.	33	"	"	"	Bored	105	2,040	- 30	2,010	105	1,935	Glacial sand and gravel	Hard, clear		D, S	Oversufficient for local needs.
47	NE.	33	"	"	"	Dug	30	2,060	- 18	2,042	18	2,042	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 25 head stock; numerous dry holes.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, 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
48	SW.	34	16	4	2	Bored	65	2,065	- 60	2,005	60	2,005	Glacial sand	Hard, clear "alkaline"		D, S	Sufficient for local needs.
49	SE.	34	"	"	"	Bored	90	2,060	- 85	1,975	90	1,970	Glacial sand and gravel	Hard, clear, "alkaline"		D, S	Insufficient; enough for 20 head stock; 20 dry holes as deep as 100 feet.
50	NE.	34	"	"	"	Bored	88	2,060	- 76	1,984	88	1,972	Glacial sand	Hard, clear, "alkaline"		D, S, I	Oversufficient for local needs; also a 40 foot dry hole.
51	SW.	36	"	"	"	Drilled	105	2,065	- 50	2,015	100	1,965	Glacial gravel	Hard, clear, iron		D, S	Oversufficient for local needs.
52	SE.	36	"	"	"	Drilled	103	2,055	- 43	2,012	102	1,953	Glacial sand	Hard, clear, iron		D, S	Oversufficient for local needs; also a 40 foot intermittent well.
1	NE.	1	16	5	2	Bored	50	1,960	- 20	1,940	47	1,913	Glacial white sand	Hard, clear, "alkaline"		D, S	Intermittent supply. Also a 12 foot seepage well and a 60 foot dry hole.
2	SE.	2	"	"	"	Dug	50	1,960	- 17	1,943	50	1,910	Glacial sand	Hard, clear, iron		D, S, I	Oversufficient for local needs. Also 7 seepage wells 10 feet to 35 feet deep.
3	NW.	2	"	"	"	Bored	34	1,960			34	1,926	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for local needs. A similar well was filled in.
4	NW.	3	"	"	"	Bored	40	1,975	- 20	1,955	40	1,935	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 60 head stock.
5	SW.	4	"	"	"	Dug	30	2,000	- 15	1,985	30	1,970	Glacial sand	Hard, clear, iron		D, S	Oversufficient for local needs. 2 other similar wells 25 feet deep and a dry hole 14 feet deep.
6	NW.	5	"	"	"	Bored	55	1,980	- 20	1,960	20	1,960	Glacial sand	Hard, clear, iron		D, S	Sufficient for 25 head stock; also a dry hole 15 feet deep.
7	SW.	6	"	"	"	Bored	65	2,025	- 50	1,975	60	1,965	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 50 head stock; another similar well 12 feet deep.
8	NE.	7	"	"	"	Dug	4	1,980	- 2	1,978	2	1,978	Glacial sand	Soft, clear		D, S, I	Oversufficient for local needs.
9	SE.	10	"	"	"	Bored	50	1,950	- 25	1,925	50	1,900	Glacial gravel	Hard, clear, "alkaline"		D, S	Insufficient in 1934; another well 28 feet deep, seepage; poor supply.
10	NW.	10	"	"	"	Bored	30	1,970	- 20	1,950			Glacial drift	Hard, clear, "alkaline"		S	Sufficient for 25 head stock. A 22 foot well used for household needs.
11	SE.	12	"	"	"	Bored	34	1,960	- 26	1,934	31	1,929	Glacial gravel	Hard, clear		D, S, I	Intermittent supply.
12	SW.	12	"	"	"	Bored	55	1,955	- 40	1,915	55	1,900	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 35 head stock.
13	NW.	13	"	"	"	Bored	42	1,955	- 6	1,949	42	1,913	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 20 head stock; another similar well plugged up.
14	NW.	14	"	"	"	Bored	16	1,956	- 6	1,950	16	1,940	Glacial sand	Clear, iron, "alkaline"		D, S	Sufficient for 40 head stock.
15	SW.	15	"	"	"	Dug	26	1,970	- 24	1,946			Glacial gravel	Hard, clear		D, S	Sufficient for local needs.
16	NE.	16	"	"	"	Bored	35	1,955	- 20	1,935	35	1,920	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 75 head stock. A similar well caved in. A seepage well filled in.
17	SW.	16	"	"	"	Bored	20	1,980	- 14	1,966	20	1,960	Glacial sand	Hard, clear, iron, "alkaline; salty		S	Insufficient for local needs; another similar well 20 feet deep.
18	SW.	18	"	"	"	Bored	20	2,000	- 18	1,982	18	1,982	Glacial sand	Hard, clear		D, I	Sufficient for household needs only. A 90 foot bored well used for stock.
19	SE.	20	"	"	"	Bored	38	1,970	- 36	1,934	36	1,934	Glacial clay	Hard, clear, iron		D	Sufficient for household needs only;
20	SW.	20	"	"	"		10	1,970	- 7	1,963			Glacial drift	Soft		S	Good supply.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
21	NW.	20	16	5	2	Dug	12	1,960	- 8	1,952	9	1,951	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock. A 60 foot bored well is not used now.
22	NE.	21	"	"	"	Bored	60	1,960	- 35	1,925			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 10 head stock.
23	NW.	21	"	"	"	Dug	6	1,950	+ 1	1,951	2	1,948	Glacial sand	Hard, clear, iron		D, S	Sufficient for 35 head stock; also 6 dry holes on farm.
24	SE.	23	"	"	"	Dug	25	1,955	- 20	1,935	22	1,933	Glacial sand	Hard, clear		D	Sufficient for household needs. A spring is used for stock.
25	NE.	24	"	"	"	Drilled	135	1,975	- 35	1,940			Glacial drift	Hard, clear, "alkaline"		D, S, I	Oversufficient for local needs.
26	SE.	24	"	"	"	Dug	30	1,970	- 20	1,950	26	1,944	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Oversufficient for local needs. 2 other similar wells 60 feet deep.
27	NW.	25	"	"	"	Dug	30	1,969	- 5	1,964			Glacial drift	Hard, clear		D, S	The water became too hard for use.
28	SE.	26	"	"	"	Dug	18	1,969	- 14	1,955	14	1,955	Glacial gravel	Hard, clear		D, I	Sufficient for the town of Broadview. Another similar well became too hard for use. #
29	NE.	26	"	"	"	Bored	93	1,975	- 33	1,942			Glacial sand and clay	Hard, clear		D, S	50 barrels a day.
30	SE.	27	"	"	"	Dug	20	1,950	- 8	1,942	19	1,931	Glacial gravel	Hard, clear, odour, "alkaline"		D, S	Sufficient for 15 head stock.
31	SW.	28	"	"	"	Bored	50	1,950	- 45	1,905	50	1,900	Glacial sand	Hard, clear, iron, "alkaline"		S	Sufficient, uses creek for stock now. Also a 12 foot well on farm.
32	SW.	29	"	"	"	Bored	40	1,990	- 10	1,980	40	1,950	Glacial clay and gravel	Hard, clear, iron, "alkaline", odour		S	Sufficient for 20 head stock.
33	SW.	30	"	"	"	Dug	20	1,940	- 17	1,923	17	1,923	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock.
34	SW.	31	"	"	"	Drilled	110	1,950	- 20	1,930	104	1,846	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 35 head stock. A seepage well with poor supply filled in.
35	NW.	31	"	"	"			1,945					Glacial drift	Hard, "alkaline"		S	
36	SE.	32	"	"	"	Bored	32	1,950	- 22	1,928	32	1,918	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 35 head stock.
37	SW.	32	"	"	"	Bored	100	1,950	- 70	1,880			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 25 head stock; also a 50 foot well, not used.
38	SW.	33	"	"	"	Bored	45	1,955	- 25	1,930	45	1,910	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 30 head stock.
39	SE.	34	"	"	"	Bored	35	1,950	- 20	1,930			Glacial gravel	Hard, clear, "alkaline"		D	Sufficient for household needs only. A 75 foot bored well used for stock; also about 18 dry holes.
40	SW.	34	"	"	"	Bored	70	1,970	- 64	1,906	70	1,900	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for local needs.
41	SW.	35	"	"	"	Dug	30	1,950	- 10	1,940	15	1,935	Glacial gravel	Hard, clear		D	Sufficient household needs only.
42	NW.	35	"	"	"	Dug	22	1,965	- 18	1,947	18	1,947	Glacial sand	Hard, clear, iron		D, S, I	Oversufficient for local needs; another similar well filled in.
1	SW.	2	16	6	2	Dug	22	2,150	- 18	2,132	22	2,128	Glacial sandy gravel	Hard, clear		D, S	Sufficient for 24 head stock.
2	NW.	3	"	"	"	Dug	22	2,140	- 10	2,130			Glacial sand?	Hard, clear		D, S	Insufficient for local needs. 2 dry holes 20 feet deep.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO. 154, 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	SE.	4	16	6	2	Dug	38	2,165	- 35	2,130	35	2,130	Glacial fine sand	Hard, clear		D, S	Sufficient for 40 head stock. Another well 26 feet deep. Also a spring.
4	NE.	6	"	"	"	Bored	55	2,160	- 48	2,112			Glacial drift	Hard, clear, iron		D, S	Sufficient for local needs; also 2 springs on farm.
5	NW.	8	"	"	"	Dug	38	2,130									Dry hole, glacial blue clay at base; also a spring on farm. Hauls water.
6	SE.	9	"	"	"	Bored	80	2,125	- 30	2,095	75	2,050	Glacial gravel	Hard, clear, "alkaline"		S	Sufficient for 21 head stock. A 33 foot well is used for household needs. Also an 80 foot dry hole.
7	NE.	9	"	"	"	Dug	20	2,180	0	2,180	16	2,164	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for more than 12 head stock. A 40 foot dry hole.
8	NW.	10	"	"	"	Bored	60	2,080	- 20	2,060	50	2,030	Glacial black sand	Hard, clear, iron		D, S	Sufficient for 35 head stock; another well 63 feet deep.
9	NE.	10	"	"	"	Dug	45	2,070	- 27	2,043	40	2,030	Glacial sand	Hard, clear, iron, red sediment		D, S	Sufficient for 30 head stock; also numerous springs.
10	NW.	12	"	"	"	Dug	13	1,985	- 6	1,979	12	1,973	Glacial gravel	Hard, clear		D, S	Intermittent supply. Also a dry hole 14 feet deep.
11	NE.	14	"	"	"	Bored	36	2,000	- 19	1,981	30	1,970	Glacial sand	Hard, cloudy, iron, "alkaline"		D, S	Sufficient for local needs.
12	SW.	14	"	"	"	Dug	35	2,050	- 33	2,017	33	2,017	Glacial gravel	Hard, clear		D, S	Sufficient for 16 head stock. Also a spring and dry hole.
13	SW.	15	"	"	"	Bored	90	2,075	- 70	2,005	80	1,995	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 60 head stock.
14	NE.	16	"	"	"	Dug	19	2,060					Glacial clay			S	Was sufficient for 10 head stock. Caved in.
15	NW.	16	"	"	"	Bored	35	2,050	- 15	2,035	30	2,020	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for 12 head stock. Also a well 47 feet deep used for household. A spring in pasture.
16	NW.	18	"	"	"	Bored	73	2,110	- 14	2,096	70	2,040	Glacial sand	Hard, clear, iron, sulphur		D, S	Sufficient for 40 head stock. Also many dry holes to 35 feet deep.
17	NW.	19	"	"	"	Dug	7	2,000	- 3	1,997	3	1,997	Glacial fine sand	Soft, clear		D, S, I	Sufficient for 30 head stock.
18	SE.	20	"	"	"	Dug	12	1,990	- 9	1,981	9	1,981	Glacial sand	Hard, clear		D	Sufficient for 40 head stock; but only used for house. Numerous springs on farm.
19	NE.	21	"	"	"	Dug	5	2,000	0.	2,000	4	1,996	Glacial gravel	Hard, clear, "alkaline"		D, S, I	Sufficient for 30 head stock.
20	NW.	22	"	"	"	?	70	2,020									Dry hole; glacial blue clay at base; 2 other dry holes 36 feet and 40 feet deep. A small seepage well for house needs.
21	SE.	24	"	"	"	Bored	10	1,980	- 3	1,977	7	1,973	Glacial gravel	Hard, clear		D, S	Sufficient for 40 head stock. Also a spring on farm.
22	NE.	26	"	"	"	Bored	60	1,975					Glacial drift	Hard, cloudy, yellow sediment, "alkaline"		D, S	Sufficient for local needs.
23	NW.	27	"	"	"	Bored	50	2,020	- 20	2,000	50	1,970	Glacial sand	Hard, clear, "alkaline"		D, S, I	Sufficient for 24 head stock.
24	NW.	28	"	"	"	Bored	30	2,000	- 8	1,992	24	1,976	Glacial sand	Hard, clear		D, S	Insufficient for 41 head stock. Also 4 dry holes to 112 feet deep.
25	SE.	30	"	"	"	Dug	10	1,990	- 4	1,986	6	1,984	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 30 head stock; also a dry hole.

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

WELL RECORDS—Rural Municipality of ELCAPO NO.154, 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
26	NE.	30	16	6	2	Bored	50	2,050	- 23	2,027			Glacial drift	Hard, clear, iron, odour		D, S	Sufficient for local needs.
27	NE.	32	"	"	"	Bored	56	2,000					Glacial drift	Hard, red		D, S	Insufficient for 25 head stock
28	NE.	32	"	"	"	Bored	73	1,980	- 20	1,960	73	1,907	Glacial sand	Hard, clear, soda		D, S	Sufficient for 34 head stock. 2 dry holes to a depth of 30 feet.
29	SE.	33	"	"	"	Dug	16	2,000	- 10	1,990	10	1,990	Glacial sandy gravel	Hard, clear		S	Sufficient for 30 head stock. 2 other wells 40 and 25 feet deep.
30	NE.	33	"	"	"	Dug	23	1,980	- 16	1,964	20	1,960	Glacial sand and gravel	Hard, clear, "alkaline"		D, S, I	Sufficient for 18 head stock.
31	SE.	34	"	"	"	Dug	20	1,980	0	1,980	18	1,962	Glacial sand	Hard, clear		D, S	Sufficient for 30 head stock. Also a dry hole 90 feet deep.
32	NE.	34	"	"	"	Dug	37	1,980	- 34	1,946	34	1,946	Glacial fine sand	Hard, clear		D, S	Sufficient for 28 head stock.
33	SW.	36	"	"	"	Dug	12	1,940	- 6	1,934	6	1,934	Glacial sand	Hard, clear, iron		D, S, I	Sufficient for 18 head stock.
34	SE.	36	"	"	"	Bored	80	1,940	- 8	1,932	80	1,860	Glacial sand?	Hard, cloudy, "alkaline"		D, S, I	Sufficient for 22 head stock.
1		2	16	7	2	Spring		2,150					Glacial drift				Flows both in winter and summer.
2	SE.	4	"	"	"	Dug	40	2,175	- 34	2,141	40	2,135	Glacial sand ?	Hard, clear, iron		D, S	Sufficient for 11 head stock.
3	NW.	4	"	"	"	Bored	42	2,150	- 35	2,115	42	2,108	Glacial grey sand	Hard			
4	NE.	5	"	"	"	Bored	27	2,160	- 10	2,150	18	2,142	Glacial sand	Hard, "alkaline"			Abandoned on account of bad water.
5	NE.	5	"	"	"	Bored	46	2,160	- 15	2,145	35	2,125	Glacial drift				Supplies 80 gallons a day.
6	NE.	6	"	"	"	Dug	60	2,170	- 46	2,124	60	2,110	Glacial sand and clay	Hard, cloudy, iron		D, S	Sufficient for 32 head stock.
7	SW.	7	"	"	"	Dug	17	2,160									Dry hole, glacial clay at base.
8	NE.	7	"	"	"	Bored	40	2,150	- 30	2,120	38	2,112	Glacial sand	Hard, clear		D, S	Insufficient for 40 head stock. 10 dry holes to depth of 40 feet.
9	NW.	8	"	"	"	Dug	4	2,080	+ 1	2,081	0	2,080	Glacial gravel	Hard, clear, iron, "alkaline"		D, S	Sufficient for 40 head stock. Another well 21 feet deep not fit for use.
10	SW.	10	"	"	"	Dug	10	2,090	0	2,090	0	2,090	Glacial gravel	Hard, clear		D, S	Sufficient for 9 head stock.
11	SE.	10	"	"	"	Bored	45	2,140	- 35	2,105	40	2,100	Glacial sand	Soft, clear		D, S	Sufficient for 20 head stock.
12	NW.	12	"	"	"	Dug	24	2,135	- 10	2,125			Glacial drift	Hard, clear		D, S, I	Sufficient for 20 head stock. 5 dry holes up to 40 feet deep.
13	NE.	12	"	"	"	Bored	82	2,160					Glacial sand	Hard, clear, "alkaline"		D, S	Well caved in.
14	SW.	14	"	"	"	Dug	14	2,145	- 11	2,134			Glacial yellow clay	Hard, clear		D, S	Sufficient for 6 head stock.
15	SW.	15	"	"	"	Dug	20	2,145	- 16	2,129			Glacial sand	Hard, cloudy, iron, "alkaline"		S	Intermittent supply.
16	NW.	16	"	"	"	Bored	52	2,145	- 27	2,118	52	2,093	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for 35 head stock. Another well 27 feet deep used for house.
17	NE.	17	"	"	"	Dug	30	2,150	- 28	2,122	28	2,122	Glacial gravel	Hard, clear		D, S, I	Sufficient for 20 head stock.
18	NW.	17	"	"	"	Dug	40	2,160	- 38	2,122	39	2,121	Glacial sand	Hard, clear, iron, red sediment		S	Intermittent supply; 2 dry holes.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
19	NE.	18	16	7	2	Dug	36	2,150	- 34	2,116	34	2,116	Glacial gravel	Hard, clear		D, S	Insufficient for 40 head stock.
20	NW.	19	"	"	"	Bored	30	2,100			28	2,072	Glacial sand	Hard, clear, "alkaline"		D, S, I	Sufficient for 33 head stock. 1 dry hole 10 feet deep. Also springs on farm.
21	NE.	19	"	"	"	Bored	70	2,110	- 25	2,085	70	2,040	Glacial sand?	Hard, clear, iron		D, S	Sufficient for 75 head stock.
22	SW.	20	"	"	"	Bored	56	2,140	- 42	2,098	51	2,089	Glacial green clay	Hard, clear, iron		D, S	Sufficient for 24 head stock. 2 other wells 60 feet deep not used; 20 dry holes to 100 feet.
23	NW.	21	"	"	"	Dug	42	2,160	- 31	2,129			Glacial gravel	Hard, clear		D, S, I	Sufficient for 55 head stock.
24	NE.	21	"	"	"	Bored	39	2,130	- 13	2,117	38	2,092	Glacial gravel	Hard, clear, iron		D, S, I	Sufficient for 37 head stock. A dry hole 40 feet deep.
25	NW.	22	"	"	"	Bored	37	2,115	- 17	2,098			Glacial drift	Hard, clear, iron		D, S	Sufficient for 45 head stock. Another well 14 feet deep.
26	SW.	23	"	"	"	Dug	20	2,130	- 14	2,116	20	2,110	Glacial gravel	Hard, clear		D, S	Sufficient for 40 head stock. Another well 20 feet deep.
27	NE.	25	"	"	"	Bored	49	2,015	- 22	1,993	46	1,969	Glacial sand	Hard, clear		D, S	Sufficient for 45 head stock. Many shallow dry holes.
28	NE.	26	"	"	"	Dug	22	2,000	- 12	1,988	12	1,988	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 35 head stock. Also an intermittent well.
29	NW.	26	"	"	"	Bored	63	2,075	- 50	2,025			Glacial sand	Hard		D, S, I	Sufficient for 12 head stock.
30	SE.	28	"	"	"	Dug	8	2,125	- 5	2,120	5	2,120	Glacial sand and gravel	Hard, clear, iron		D, S, I	Sufficient for 20 head stock.
31	SE.	28	"	"	"	Dug	25	2,090	- 20	2,070			Glacial sand	Hard, clear		D, S, I	Sufficient for 30 head stock.
32	SW.	28	"	"	"	Dug	29	2,145	- 18	2,127			Glacial drift	Hard, clear		D, S	Sufficient for 24 head stock; another well 11 feet deep.
33	NW.	29	"	"	"	Bored	58	2,110	- 22	2,088	46	2,064	Glacial sand	Hard, clear, iron		D, S	Sufficient for 30 head stock. Dug dry holes to a depth of 50 feet.
34	SE.	29	"	"	"	Spring		2,150					Glacial drift				Good supply of water.
35	NE.	30	"	"	"	Dug	14	2,075	- 1	2,074	13	2,062	Glacial sand	Hard, clear		S	Sufficient for 50 head stock. 3 dry holes 60 feet, 90 feet and 100 feet deep. A 20 foot well used for house; also a spring on farm.
36	SW.	30	"	"	"	Dug	12	2,090	- 8	2,082	8	2,082	Glacial gravel	Hard, clear		D, S	Insufficient for 17 head stock. Numerous dry holes. Also springs on farm.
37	NW.	30	"	"	"	Dug	7	2,080	- 2	2,078	2	2,078	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 50 head stock.
38	SE.	31	"	"	"	Dug	60	2,050	- 55	1,995			Glacial sand?	Hard, clear		D, S	Sufficient for 10 head stock; numerous springs on farm.
39	SE.	32	"	"	"	Bored	58	2,055	- 46	2,009	50	2,005	Glacial gravel	Hard			Also 3 dry holes 57 feet, 85 feet and 106 feet deep.
40	NE.	32	"	"	"	Bored	73	2,030	- 55	1,975	73	1,957	Glacial sand	Hard, clear, iron, "alkaline"		S	Insufficient for 47 head stock; another well 11 feet deep. 7 dry holes as deep as 108 feet.
41	SW.	34	"	"	"	Bored	60	2,050	- 12	2,038			Glacial yellow clay	Hard			
42	NE.	35	"	"	"	Bored	69	1,985	- 31	1,954	68	1,917	Glacial gravel	Hard, clear		S	Sufficient for 55 head stock. 2 other wells one 55 feet deep and used for house, other well 90 feet deep. 18 dry holes to a depth of 117 feet.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO. 154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	NE.	3	17	4	2	Bored	78	2,050	- 73	1,977	73	1,977	Glacial clay	Hard, clear		D	Sufficient for household needs only.
2	SW.	4	"	"	"	Bored	42	2,045	- 38	2,007	38	2,007	Glacial sand	Hard, clear		D, S	Sufficient for 10 head stock if watered at intervals. Also a 50 foot intermittent well.
3	SE.	5	"	"	"	Bored	50	2,030									Dry hole, glacial to base. 2 other dry holes 30 feet deep.
4	SW.	5	"	"	"	Bored	29	2,015	- 22	1,993	22	1,993	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 50 head stock. Another well 45 feet deep now caved in.
5	NW.	7	"	"	"	Dug	23	1,998	- 13	1,985	23	1,975	Glacial gravel	Hard, iron, red sediment "alkaline"		S	Sufficient for 17 head stock. A 38 foot well is used for household.
6	NE.	7	"	"	"	Dug	27	2,003	- 12	1,991	27	1,976	Glacial gravel	Hard, clear		D, S	Sufficient, large supply.
7	NE.	9	"	"	"	Bored	65	2,050	- 59	1,991	59	1,991	Glacial brownish clay	Hard, clear		D, S	Insufficient from the one well, but by using another 44 foot well the supply is then sufficient.
8	SE.	10	"	"	"	Bored	78	2,050	- 71	1,979	71	1,979	Glacial clay	Hard, clear		D, S	Sufficient for 19 head stock.
9	NW.	11	"	"	"	Bored	65	2,050	- 45	2,005	65	1,985	Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock.
10	SE.	11	"	"	"	Bored	80	2,050	- 50	2,000	80	1,970	Glacial sand	Hard, clear, iron red sediment		D, S	Sufficient for 15 head stock.
11	NW.	12	"	"	"	Bored	40	2,040	- 35	2,005	35	2,005	Glacial sand	Hard, clear		D, S	Sufficient for 6 head stock.
12	SE.	14	"	"	"	Bored	60	2,040	- 55	1,985	60	1,980	Glacial gravel	Hard, clear		D, S	Sufficient for 10 head stock.
13	NW.	14	"	"	"	Bored	52	2,025	- 50	1,975			Glacial clay	Hard, "alkaline"		S	Insufficient for 10 head stock. 7 dry holes.
14	NE.	15	"	"	"	Bored	53	2,040									Dry hole, glacial clay at base. A 15 foot well gave sufficient supply in normal years.
15	SE.	16	"	"	"	Bored	65	2,045	- 45	2,000	65	1,980	Glacial sand	Hard, clear		D, S	Sufficient for 20 to 30 head stock.
16	SW.	16	"	"	"	Bored	58	2,035	- 46	1,989	58	1,977	Glacial sand	Hard, clear, iron, red sediment "alkaline"		D, S	Sufficient for local needs. A 38 foot well failed in dry years.
17	NW.	16	"	"	"	Bored	40	2,030	- 20	2,010	20	2,010	Glacial clay	Hard, clear, iron, "alkaline"		D, S	Insufficient for 35 head stock. 2 dry holes 70 feet and 40 feet deep. A 36 foot well gives poor supply.
18	SW.	18	"	"	"	Bored	28	1,998	- 13	1,985	28	1,970	Glacial gravel?	Hard, clear		D, S	Sufficient; abundant supply.
19	NW.	19	"	"	"	Bored	50	1,990	- 49	1,941	49	1,941	Glacial clay	Hard, clear, "alkaline"		S	Insufficient for 7 head stock.
20	SE.	19	"	"	"	Bored	23	2,005	- 20	1,985	21	1,984	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 25 head stock.
21	SW.	20	"	"	"	Dug	21	2,015	- 16	1,999	16	1,999	Glacial clay	Hard, clear		D, S	Sufficient for 15 head stock.
22	NW.	20	"	"	"	Bored	50	2,005	- 25	1,980	50	1,955	Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 70 head stock. Another 50 foot well used occasionally.
23	NW.	28	"	"	"	Bored	38	2,005	- 20	1,985	38	1,967	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 18 head stock.
24	SE.	29	"	"	"	Dug	30	2,010	- 18	1,992	30	1,980	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
25	NE.	29	17	4	2	Bored	38	2,005	- 24	1,981	38	1,967	Glacial sand	Hard,"alkaline"		D, S	Sufficient for 60 head stock.
26	NW.	29	"	"	"	Dug	37	2,005	- 17	1,988	37	1,968	Glacial coarse gravel	Hard, clear, iron, red sediment		D, S	Sufficient for local needs. A 23 foot well was practically dry in dry seasons.
27	SE.	30	"	"	"	Bored	40	2,002	- 20	1,982	20	1,982	Glacial drift	Hard, clear, "alkaline"		S	Sufficient for 50 head stock.
28	NW.	30	"	"	"	Dug	14	1,995	- 5	1,990	10	1,985	Glacial sand	Soft, clear		D, S	Sufficient for 37 head stock.
29	SE.	32	"	"	"	Bored	66	2,000	- 51	1,949	66	1,934	Glacial fine sand	Hard, iron, red sediment "alkaline"		D, S	Sufficient; large supply.
30	NE.	32	"	"	"	Dug	12	2,000	- 6	1,994	6	1,994	Glacial gravel	Soft, clear		D, S	Sufficient for 40 head stock.
31	NW.	33	"	"	"	Bored	88	2,000	- 58	1,942	88	1,912	Glacial gravel	Hard,iron, "alkaline"		S	Sufficient for 20 head stock. A 13 foot well is used for household.
1	NE.	5	17	5	2	Dug	35	1,940	- 23	1,917	35	1,905	Glacial drift	Hard, clear		D, S	Sufficient for 20 head stock.
2	SW.	6	"	"	"	?	80	1,950									Dry hole, glacial at base.
3	SW.	7	"	"	"	Bored	40	1,920	- 10	1,910	36	1,884	Glacial sand	Hard, clear		D, S	Sufficient for 15 head stock.
4	SE.	9	"	"	"	Bored	70	1,950	- 35	1,915	35	1,915	Glacial drift	Hard, clear, "alkaline"		D, S	Insufficient for 20 head stock.
5	NE.	9	"	"	"	Spring		1,950					Glacial drift			S	Flows all year.
6	SE.	12	"	"	"	Bored	90	1,980	- 60	1,920	60	1,920	Glacial drift	Hard, clear		D, S	Intermittent supply. There are several 85 foot to 90 foot wells on farm.
7	NE.	13	"	"	"	Bored	40	1,975	- 24	1,951	40	1,935	Glacial sand	Hard, clear, iron,"alkaline"		D, S	Sufficient for 22 head stock.
8	NW.	13	"	"	"	Bored	50	1,975	- 30	1,945	50	1,925	Glacial sand	Hard, clear, iron		D, S	Sufficient for 19 head stock.
9	NW.	15	"	"	"	Bored	32	1,950	- 17	1,933	17	1,933	Glacial clay	Hard,iron, "alkaline"		S	Sufficient for 20 head stock. A 60 foot well not fit for use.
10	SW.	16	"	"	"	Spring		1,950					Glacial drift				
11	SW.	18	"	"	"	Bored	67	1,910	- 60	1,850	67	1,843	Glacial sand and gravel	Hard, iron, "alkaline"		S	Also have a 7 foot well.
12	NW.	18	"	"	"	Spring		1,900					Glacial drift	Hard, clear			Flows continually.
13	NE.	18	"	"	"	Bored	60	1,900	- 20	1,880	60	1,840	Glacial fine sand	Hard, clear, iron,red sediment, sulphur, "alkaline"		D, S	Sufficient for 40 head stock.
14	NW.	19	"	"	"	Spring		1,900					Glacial drift				Plentiful supply of water.
15	SE.	20	"	"	"	Bored	80	1,900	- 20	1,880	20	1,880	Glacial clay	Hard, clear, "alkaline"		D, S	Insufficient for 70 head stock in winter.
16	SE.	21	"	"	"	Bored	25	1,940	- 5	1,935	5	1,935	Glacial sand	Hard, clear		D, S	Sufficient for 40 head stock. Neighbours use well also.
17	NE.	21	"	"	"	?	25	1,940	- 20	1,920	20	1,920	Glacial drift	Hard, clear		D, S	Insufficient for 25 head stock.

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WELL RECORDS—Rural Municipality of ELCAPO NO. 154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
18	NE.	26	17	5	2	Bored	86	1,965	- 16	1,949	86	1,879	Glacial sand ?	Hard, clear		D, S	Sufficient for 100 head stock. A 36 foot well failed in dry years.
19	SW.	27	"	"	"	Bored	45	1,950	- 25	1,925	45	1,905	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 100 head stock.
20	SE.	28	"	"	"	Dug	32	1,940	- 26	1,914	26	1,914	Glacial drift	Hard, clear, iron		D, S	Sufficient for 25 head stock.
21	SE.	29	"	"	"	Bored	50	1,920	- 44	1,876			Glacial sand ?	Hard, clear, iron		D, S	Insufficient for 20 head stock.
22	SW.	29	"	"	"	Bored	52	1,920					Glacial bluish sand	Hard, "alkaline"		D, S	Sufficient for 60 head stock.
23	SW.	30	"	"	"	Dug	30	1,900	- 26	1,874	26	1,874	Glacial clay	Hard, clear, iron, "alkaline"		D, S	Sufficient for 25 head stock.
24	SE.	31	"	"	"	Dug	14	1,910	- 6	1,904	6	1,904	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 15 head stock.
25	SW.	31	"	"	"			1,900					Glacial drift			D, S	Farmer on NW. 32, hauls household water from this well.
26	NW.	32	"	"	"	Bored	130	1,905	- 70	1,835			Glacial drift	Hard, "alkaline", strong odour		S	Sufficient for 30 head stock. An 80 foot well is not sufficient even for household needs in dry seasons.
27	NE.	33	"	"	"	Bored	75	1,920	- 40	1,880	40	1,880	Glacial drift	Hard, iron, clear, "alkaline"		S	Insufficient for 21 head stock.
28	NE.	34	"	"	"	Bored	50	1,930	- 25	1,905	25	1,905	Glacial drift	Hard, clear, red sediment, iron		D, S	Insufficient for 40 head stock.
29	SE.	36	"	"	"	Bored	60	1,970	- 27	1,943	60	1,910	Glacial sand	Hard		D	Sufficient; abundant supply.
1	SE.	1	17	6	2	Bored	53	1,950									Dry hole, glacial blue clay at base.
2	SE.	2	"	"	"	Dug	42	1,945	- 12	1,933	42	1,903	Glacial gravel	Hard, clear		D, S	Sufficient, cannot be pumped dry.
3	NW.	2	"	"	"	Bored	37	1,940	- 20	1,920			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 25 head stock.
4	SE.	3	"	"	"	Dug	45	1,955	- 40	1,915	40	1,915	Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock.
5	NW.	3	"	"	"	Dug	28	1,950	- 21	1,929			Glacial sand and gravel	Hard, clear		D, S	Sufficient for local needs.
6	NE.	4	"	"	"	Dug	32	1,950	- 20	1,930	20	1,930	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 100 head stock. A 25 foot similar well.
7	NW.	5	"	"	"	Bored	50	1,950	- 10	1,940			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 40 head stock.
8	NW.	6	"	"	"	Bored	40	1,950	- 20	1,930	40	1,910	Glacial sand and gravel	Hard, iron		D, S	Sufficient for 40 head stock. A 328 foot dry hole in blue clay
9	NW.	7	"	"	"	?	84	1,960									Dry hole; glacial at base.
10	SE.	7	"	"	"	Dug	16	1,945	- 12	1,933	12	1,933	Glacial yellow sand	Soft, clear		D	Abundant supply for house.
11	SE.	7	"	"	"	Bored	72	1,945	- 17	1,928	70	1,875	Glacial gravel	Hard, clear		S	Abundant supply for 24 head stock.
12	SW.	7	"	"	"	Bored	88	1,950	- 25	1,925	84	1,866	Glacial sand	Hard, clear, iron		D, S	Sufficient for 35 head stock. Wells 72 feet 60 feet and 65 feet deep have very little water.
13	SW.	8	"	"	"	?	88	1,950	- 72	1,878			Glacial drift	Hard,			

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, 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
14	SW.	12	17	6	2	Dug	32	1,930									Dry hole; glacial at base.
15	NW.	12	"	"	"	Dug	8	1,930	- 6	1,924	6	1,924	Glacial sand	Soft, clear		D, S	Sufficient for local needs.
16	SE.	13	"	"	"	Bored	61	1,915	- 7	1,908	61	1,854	Glacial sand ?	Hard, clear		D, S	Sufficient for 10 head stock.
17	SW.	14	"	"	"	Bored	60	1,910	- 10	1,900			Glacial gravel	Hard, clear		D, S	Sufficient for 20 head stock.
18	NW.	15	"	"	"	Bored	55	1,925	- 40	1,885	55	1,870	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for 19 head stock. Another well 30 feet deep. Also 2 dry holes.
19	SE.	16	"	"	"	Bored	45	1,930	- 24	1,906	24	1,906	Glacial gravel	Soft, clear		D, S	Sufficient for 20 head stock. Several dry holes.
20	NW.	17	"	"	"	Bored	70	1,930	- 20	1,910	70	1,860	Glacial sand	Hard, clear		D, S	Sufficient for 40 head stock.
21	NE.	17	"	"	"	Bored	78	1,930	- 4	1,926	78	1,852	Glacial sand?	Hard, clear		D, S	Sufficient for 78 head stock. A 10 foot well with mineralized water. A 40 foot dry hole.
22	SW.	18	"	"	"	Bored	72	1,935	- 60	1,875	70	1,865	Glacial gravel	Hard, clear, iron	41	D, S	Sufficient for 50 head stock. 2 similar wells.
23	NW.	18	"	"	"	Bored	85	1,915			85	1,830	Glacial gravel	Hard, clear, iron	41	D, S	Sufficient for 65 head stock.
24	NE.	19	"	"	"	Dug	6	1,920	0	1,920			Glacial sand	Soft		D, S	Sufficient; large supply.
25	SE.	21	"	"	"	Dug	14	1,925	- 12	1,913	12	1,913	Glacial gravel	Soft, clear		S	Insufficient in dry years. From 4 wells there is not sufficient for 30 head stock.
26	SW.	21	"	"	"	Bored	92	1,920	- 20	1,900	70	1,850	Glacial gravel	Hard, clear		D, S	Insufficient for local needs.
27	SW.	21	"	"	"	Dug	22	1,925	- 4	1,921	10	1,915	Glacial gravel	Soft, clear		D, S	Insufficient for local needs in winter.
28	NW.	21	"	"	"	Bored	42	1,920	- 38	1,882			Glacial drift	Hard, clear, "alkaline"		S	Poor supply.
29	SE.	22	"	"	"	Bored	40	1,920	- 25	1,895			Glacial drift	Hard, clear, "alkaline"		S	Sufficient for 12 head stock.
30	SW.	24	"	"	"	Spring	3	1,905	0	1,905	0	1,905	Glacial soft boggy black clay	Hard, clear, "alkaline"		S	Sufficient; several springs on farm.
31	SE.	25	"	"	"	Bored	24	1,900	- 18	1,882	18	1,882	Glacial drift	Hard, clear		S	Sufficient for 70 head cattle and 150 head hogs.
32	SE.	26	"	"	"	Bored	107	1,900	- 60	1,840	60	1,840	Glacial fine sand	Hard, clear, "alkaline"		S	Water only good for pigs. Another well 69 feet deep is similar. A seepage well gives good house water.
33	SW.	27	"	"	"	Dug	26	1,920	- 23	1,897	23	1,897	Glacial gravel	Soft, clear		D, S	Sufficient for 27 head stock.
34	SW.	27	"	"	"	Dug	8	1,920	- 5	1,915	5	1,915	Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
35	NW.	27	"	"	"	Dug	20	1,920	- 8	1,912	8	1,912	Glacial clay	Hard, clear, "alkaline"		S	Used only for pigs.
36	NW.	27	"	"	"	Dug	12	1,920	- 8	1,912	8	1,912	Glacial sand	Hard, clear		D, S	Sufficient for 42 head stock.
37	SW.	28	"	"	"	Dug	8	1,910	- 5	1,905	5	1,905	Glacial gravel	Soft		D, S	Sufficient for local needs.
38	NW.	28	"	"	"	Dug	10	1,910	- 7	1,903	7	1,903	Glacial gravel	Hard		D, S	Sufficient for 25 head stock.
39	NE.	28	"	"	"	Dug	9	1,910	- 5	1,905	8	1,902	Glacial gravel	Hard, clear		D, S, I	

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 ELCAPO NO. 154, 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
40	SE.	29	17	6	2	Bored	80	1,915					Glacial stones	Hard, "alkaline"		N	Not used, small supply. Another well 8 feet deep also gives small supply.
41	NW.	29	"	"	"	Dug	12	1,915	- 9	1,906	9	1,906	Glacial sand	Hard, clear		D, S	Sufficient for 25 head stock. Another well 80 feet deep not fit for use.
42	NE.	30	"	"	"	Dug	7	1,905	- 4	1,901	4	1,901	Glacial sand and gravel	Soft		D, S	Sufficient for 30 head stock. 2 other similar wells.
43	NW.	31	"	"	"	Dug	6	1,890	0	1,890	0	1,890	Glacial gravel	Hard, clear		D, S	Sufficient for 25 head stock. A number of similar wells filled in.
44	SW.	33	"	"	"	?	70	1,920					Glacial drift				
45	NW.	33	"	"	"	Dug	7	1,900	- 4	1,896	6	1,894	Glacial gravel	Soft			Sufficient for 40 head stock.
46	NE.	34	"	"	"	Dug	12	1,860	- 7	1,853	7	1,853	Glacial sand	Hard, clear		D, S	Sufficient for 20 head stock.
47	NW.	35	"	"	"	Dug	10	1,850	- 8	1,842	8	1,842	Glacial sand	Hard, clear		S	Sufficient for 15 head stock.
48	NE.	35	"	"	"	Dug	16	1,875	- 8	1,867	15	1,860	Glacial gravel	Hard, clear		D, S	Sufficient for household needs.
49	SW.	36	"	"	"	Dug	80	1,850					Glacial sand	Hard, "alkaline"		D, S	Sufficient in wet years. 3 intermittent wells 40 feet, 40 feet and 60 feet deep. 2 dry holes 90 feet and 107 feet.
50	NW.	36	"	"	"	Spring	6	1,850	- 2	1,848	2	1,848	Glacial coarse gravel	Soft, clear		D, S	Oversufficient for local needs.
1	NE.	1	17	7	2	Bored	48	1,950					Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 25 head stock.
2	NW.	3	"	"	"	Bored	80	1,980					Glacial drift	Hard, dark, odour	42	S	Sufficient for 50 head stock. Drinking water hauled from Grenfell.
3	SE.	6	"	"	"	Bored	58	2,000	- 6	1,994	58	1,942	Glacial gravel	Hard, clear		D, S	Sufficient for 40 head stock in winter. Another well 70 feet deep.
4	NE.	6	"	"	"	Bored	52	1,955	- 44	1,911	52	1,903	Glacial sand	Hard, clear, "alkaline"	44	D, S	Sufficient for 25 head stock. Another well 48 feet deep; poor supply; not used.
5	NE.	7	"	"	"	Bored	45	1,940	- 12	1,928			Glacial drift	Hard, clear, iron, "alkaline"		D, S	Sufficient for 35 head stock.
6	SE.	8	"	"	"	Bored	27	1,964	- 17	1,947	27	1,937	Glacial sand	Hard, clear, "alkaline"		D	Sufficient for about 15 families. #
7	SE.	8	"	"	"	Drilled	84	1,964	- 34	1,930	84	1,880	Glacial gravel	Hard, clear, "alkaline"		D, S	30 barrels a day. One of the best supplies in town.
8	NW.	9	"	"	"	Bored	60	1,955	- 20	1,935	60	1,895	Glacial gravel	Hard, clear, iron	42	D, S	Sufficient for 60 head stock. Also a 150 foot well.
9	SE.	10	"	"	"	Bored	98	1,960	- 78	1,882	98	1,862	Glacial gravel	Hard, clear, iron		D, S	Sufficient for 44 head stock. A 90 foot well has a poor supply of poor water.
10	SE.	12	"	"	"	Bored	60	1,950	- 20	1,930	60	1,890	Glacial gravel	Hard, "alkaline"		S	Sufficient for 40 head stock.
11	SE.	12	"	"	"	Bored	30	1,950	- 25	1,925	25	1,925	Glacial sand	Soft, clear,		D	Sufficient for household needs.
12	SW.	14	"	"	"	Bored	130	1,930					Glacial clay ?	Hard, iron, "alkaline"		D, S	Insufficient for local needs.
13	SW.	14	"	"	"	Dug	20	1,930	- 10	1,920			Glacial yellow clay	Hard, clear		D	Sufficient for household needs.
14	NE.	14	"	"	"	Dug	12	1,930	0	1,930			Glacial gravel	Hard, clear		D, S	Sufficient for 60 head stock.
15	NE.	14	"	"	"	Spring	8	1,925	- 5	1,920	5	1,920	Glacial sandy clay	Soft, clear		S	Sufficient for 58 head stock.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, 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
16	SW.	15	17	7	2	Bored	56	1,945	- 32	1,913	56	1,889	Glacial gravel	Hard, clear, odour, "alkaline", white sediment		S	Sufficient for 15 head stock. #
17	NW.	15	"	"	"	Drilled	45	1,925	- 15	1,910	45	1,880	Glacial gravel	Hard, iron, red sediment		D, S	Sufficient for 50 head stock.
18	SE.	16	"	"	"	Drilled	140	1,950	- 80	1,870	140	1,810	Glacial gravel	Hard, clear, iron		D, S	Sufficient for 60 head stock. 1 dry hole 90 feet deep; 2 other dry holes not as deep.
19	SW.	16	"	"	"	Dug	60	1,915	- 35	1,880	35	1,880	Glacial sand ?	Hard, clear, odour, "alkaline"		S	Insufficient for 8 head cattle. Another similar well.
20	SE.	17	"	"	"	Bored	50	1,950	- 35	1,915	50	1,900	Glacial sand and gravel	Hard, clear, iron, "alkaline"		S	Sufficient for 100 head stock. A 75 foot test hole found water in gravel. Also a 200 foot dry hole.
21	SE.	18	"	"	"	Bored	60	1,945					Glacial drift	Hard, clear, iron, "alkaline"		S	Sufficient; cannot be pumped dry.
22	SW.	18	"	"	"	Bored	60	1,940	- 30	1,910			Glacial drift	Hard, clear, iron, "alkaline"		D, S	Sufficient in wet years.
23	NE.	19	"	"	"	Bored	80	1,925	- 55	1,870	80	1,845	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 30 head stock. #
24	SE.	22	"	"	"	Bored	40	1,920	- 20	1,900	20	1,900	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 30 head stock. Also an 85 foot dry hole.
25	SW.	22	"	"	"	Dug	4	1,910	- 3	1,907	3	1,907	Glacial gravel	Soft		D, S	Sufficient for over 100 head stock in 1934.
26	NE.	22	"	"	"	Dug	20	1,950	- 12	1,938			Glacial gravel	Hard, clear	44	D, S	
27	SW.	23	"	"	"	Dug	12	1,915	- 10	1,905	10	1,905	Glacial fine sand	Soft, clear		D, S	Sufficient; only used for engine. Too far from house.
28	NW.	23	"	"	"	Bored	38	1,900	- 18	1,882	38	1,862	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 60 head stock.
29	SE.	27	"	"	"	Dug	12	1,900	- 2	1,898	2	1,898	Glacial gravel	Soft, clear		D, S	Sufficient for 54 head stock. 2 other similar wells.
30	NE.	29	"	"	"	Dug	18	1,920	- 9	1,911	9	1,911	Glacial gravel	Soft, clear		D, S	Sufficient; several neighbours haul from this well.
31	SE.	30	"	"	"	Drilled	140	1,940	- 80	1,860	140	1,800	Glacial gravel	Hard, clear		S	Sufficient, never has been pumped dry. A number of shallow wells. Also a number of dry holes 50 feet to 70 feet deep.
32	SW.	30	"	"	"	Bored	100	1,940			100	1,840	Glacial sand	Hard, clear, iron		D, S	Sufficient for 30 head stock. A number of shallow dry holes.
33	SE.	31	"	"	"	Dug	20	1,940					Glacial clay	Hard, clear		D, S	Sufficient for household needs.
34	SW.	32	"	"	"	Dug	19	1,925	- 9	1,916	19	1,906	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 50 head stock. 2 dry holes 250 feet and 120 feet deep.
35	SE.	33	"	"	"	Dug	8	1,910	- 4	1,906	4	1,906	Glacial fine white sand	Hard, clear		D, S	Sufficient for local needs.
36	SE.	33	"	"	"	Dug	12	1,910	- 10	1,900	10	1,900	Glacial coarse gravel	Soft, clear		D, S	Sufficient for 75 head stock.
37	NW.	33	"	"	"	Bored	50	1,920									Dry hole; glacial at base. Several dry holes 25 feet deep.
38	SW.	34	"	"	"	Dug	16	1,910	- 11	1,899	14	1,896	Glacial sand	Hard, clear		S	Good supply. Numerous similar wells.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
39	NW.	34	17	7	2	Bored	65	1,915	- 14	1,901	14	1,901	Glacial sand	Hard, clear, "alkaline"		D	Sufficient; only used for house.
40	NW.	34	"	"	"	Dug	12	1,910	- 2	1,908	11	1,899	Glacial sand	Hard, clear		D, S	Sufficient for 26 head stock; another similar well.
41	NW.	35	"	"	"								Glacial gravel				Farmer on SE. 2/18/7. Hauls water from here.
42	SE.	35	"	"	"	Dug	7	1,905	- 4	1,901	4	1,901	Glacial sand	Soft, clear		D, S	Sufficient for 12 head stock.
43	NE.	36	"	"	"	Bored	18	1,905					Glacial sand	Hard		D, S	Sufficient for local needs.
1	SE.	1	18	7	2	?	85	1,950	- 10	1,940	73	1,877	Glacial drift			D, S	Sufficient for local needs.
2	SW.	1	"	"	"	Dug	7	1,910	- 3	1,907	6	1,904	Glacial sand	Soft, clear		D, S	Sufficient for 50 head stock.
3	SE.	2	"	"	"	Bored	90	1,910	- 50	1,860	5	1,905	Glacial sand	Hard, clear		D, S	Insufficient for local needs.
4	NE.	2	"	"	"	?	115	1,925									Dry hole; glacial at base.
5	SE.	3	"	"	"	Dug	6	1,910	0	1,910	2	1,908	Glacial sand	Hard, clear, iron		D, S	Sufficient for local needs.
6	SW.	3	"	"	"	Dug	10	1,915	- 6	1,909	5	1,910	Glacial gravel	Hard, clear, iron		D, S	Sufficient for 30 head stock.
7	NW.	3	"	"	"	Dug	20	1,915	- 10	1,905			Glacial clay	Hard, clear		S	Intermittent supply.
8	NW.	3	"	"	"	Bored	30	1,920	- 15	1,905	15	1,905	Glacial yellow clay	Hard, clear		D	Intermittent supply, a dry hole 80 feet deep.
9	SW.	4	"	"	"	Bored	47	1,950									Dry hole, glacial at base.
10	NE.	4	"	"	"	Dug	20	1,920	- 18	1,902	18	1,902	Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient for 50 head stock.
11	SE.	5	"	"	"	Dug	22	1,920	- 12	1,908			Glacial blue clay	Hard, clear		D, S	Intermittent supply. Also a 90 foot dry hole.
12	SW.	6	"	"	"	Dug	18	1,945	- 6	1,939	6	1,939	Glacial sand	Hard, clear		D,	Another similar well 22 feet deep. The two wells and a dugout are sufficient. Also a 100 foot dry hole.
13	SE.	7	"	"	"	Dug	18	1,930					Glacial clay	Hard		D, S	Intermittent supply. 3 dry holes 30 feet deep.
14	NE.	7	"	"	"	Dug	10	1,930	- 9	1,921	9	1,921	Glacial gravel	Hard, clear		D	Sufficient for household needs. Also a dry hole.
15	SE.	8	"	"	"	Dug	4	1,930	- 3	1,927			Glacial blue clay	Hard, clear		D	Intermittent supply, also dry holes.
16	NE.	8	"	"	"	Dug	10	1,930	- 2	1,928	2	1,928	Glacial sandy clay	Hard, clear		S	Sufficient for 40 head stock.
17	SW.	9	"	"	"	Dug	13	1,920	- 10	1,910	10	1,910	Glacial brown clay and sand	Hard, clear		D, S	Insufficient for local needs.
18	SW.	9	"	"	"	Dug	40	1,925	- 20	1,905	28	1,897	Glacial sand	Hard		D, S	Insufficient in recent years.
19	NW.	10	"	"	"	Bored	42	1,925					Glacial black clay	Hard, black, "alkaline"		N	Small supply. Never used.
20	NW.	10	"	"	"	Dug	16	1,920	- 8	1,912	8	1,912	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for 22 head stock. Hauls drinking water.
21	NW.	11	"	"	"	Dug	20	1,920	- 15	1,905			Glacial blue clay	Hard, clear		D, S	Sufficient for household; 2 dry holes 100 feet and 75 feet deep.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ELCAPO NO.154, 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
22	SE.	12	18	7	2	Dug	10	1,910	0	1,910	0	1,910	Glacial sand	Soft		D, S	Sufficient for 4 farmers.
23	NE.	12	"	"	"	Dug	9	1,900	- 4	1,896	4	1,896	Glacial gravel	Hard, clear		D, S	Sufficient for 23 head stock.
24	SE.	13	"	"	"	Bored	90	1,905					Glacial clay			N	Insufficient and not fit to use. Several dry holes.
25	NW.	14	"	"	"	Dug	20	1,920	- 14	1,906	14	1,906	Glacial sand	Hard, clear, "alkaline"		D, S	Intermittent supply. Several dry holes 75 feet deep and less.
26	SW.	20	"	"	"	Dug	13	1,940	- 4	1,936			Glacial sand and gravel	Hard, clear	46	D, S	Sufficient for 20 head stock. 2 similar wells Neighbours haul from here.
27	NE.	22	"	"	"	Dug	20	1,930	- 17	1,913			Glacial clay	Hard, clear		D, S	Sufficient with dugout.
28	NE.	24	"	"	"	Dug	35	1,905	- 33	1,872	33	1,872	Glacial gravel	Hard, "alkaline"		S	Only used occasionally for stock. A 15 foot well not fit for use. Drinking water from another shallow well.
29	SE.	26	"	"	"	Bored	70	1,920	- 61	1,859	65	1,855	Glacialgravel	Hard, clear, iron, "alkaline "		N	Not fit for use. 2 dry holes 100 feet and 72 feet deep. Also a shallow seepage well.
30	NW.	26	"	"	"	Dug	20	1,930	- 12	1,918			Glacial blue clay	Hard, clear, "alkaline"		D, S	Intermittent supply. Also a 30 foot well not fit for use.
31	SE.	27	"	"	"	Dug	22	1,930	- 7	1,923	7	1,923	Glacial sand	Hard, clear, iron, "alkaline"		D, S	Intermittent supply.
32	SW.	27	"	"	"	Dug	16	1,935	- 9	1,926			Glacial clay	Hard, clear, "alkaline"		D, S	Intermittent supply.
33	NW.	28	"	"	"	Bored	20	1,950	- 15	1,935	15	1,935	Glaical clay	Hard, clear, "alkaline"		D, S	Intermittent supply. A 70 foot well not fit for use.
34	SW.	30	"	"	"	Dug	20	1,940	- 12	1,928	12	1,928	Glacial sand	Hard, clear		D, S	Insufficient; 4 similar wells.
35	SW.	30	"	"	"	Drilled	130	1,945									Dry hole; glacial blue clay at base.
36	SW.	30	"	"	"	Dug	20	1,940	- 9	1,931			Glacial gravel	Hard, clear		D, S	Insufficient; good supply in spring.
37	SW.	31	"	"	"	Dug	8	1,950	- 4	1,946	6	1,944	Glacial sand	Hard, clear		S	Sufficient for 39 head stock.
38	SW.	31	"	"	"	Drilled	300	1,945									Dry hole; glacial blue clay to base.
39	NW.	31	"	"	"	Dug	14	1,950	- 10	1,940	10	1,940	Glacial sand and gravel	Hard, clear		D	Sufficient for household needs.
40	SE.	32	"	"	"	Dug	12	1,955	- 8	1,947	8	1,947	Glacial sand	Hard, "alkaline"		D	Sufficient for household needs only. 2 similar wells, water too mineralized for use.
41	SW.	32	"	"	"	Dug	20	1,950	- 10	1,940			Glacial drift	Hard, clear		D, S	Insufficient in winter. Also a dry hole.
42	SE.	33	"	"	"	Dug	10	1,945	- 7	1,938			Glacial clay	Hard, clear, "alkaline"		D	Sufficient for household needs.
43	NE.	33	"	"	"	Dug	24	1,950	- 18	1,932	18	1,932	Glacial gravel	Hard, clear, "alkaline"		D, S	Sufficient for 100 head stock. 4 farmers use this well. Also a 14 foot intermittent well not used.
44	NW.	34	"	"	"	Bored	75	1,940	- 35	1,905	75	1,865	Glacial sand	Hard, clear, "alkaline"		D, S	Sufficient for 20 head stock. A 16 foot well supplies house needs. Also 4 intermittent shallow wells.
45	NW.	34	"	"	"	Dug	11	1,940	- 3	1,937	3	1,937	Glacial gravel	Hard, clear, "alkaline"		D, S	Intermittent supply. 3 similar wells.

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 ELCAPO NO.154, 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
46	NE.	34	18	7	2	Drilled	210	1,935					Glacial black clay	Hard, bitter		N	Insufficient; never used. Also a 30 foot intermittent well.
47	NW.	36	"	"	"	Dug	18	1,910	- 6	1,904	6	1,904	Glacial sandy clay	Hard		D, S	Sufficient this year(1935) dry in (1934). Several similar wells.
48	NE.	36	"	"	"	Dug	30	1,900					Glacial clay	Hard		D, S	Intermittent supply. Several dry holes 80 feet to 90 feet deep.
1	SW.	1	19a	7	2	Dug	15	1,915	- 5	1,910			Glacial drift	Hard, clear, "alkaline"		D, S	Sufficient for 14 head stock. Another similar well 10 feet deep.
2	SW.	2	"	"	"	Dug	12	1,930	- 6	1,924			Glacial gravel	Hard, clear "alkaline"		D	Sufficient for household needs. Numerous intermittent wells. Also a 100 foot dry hole.
3	NW.	3	"	"	"	Dug	12	1,945	- 8	1,937	8	1,937	Glacial clay	Hard, clear	48	D, S	Sufficient for house needs only. 2 similar wells used for stock.
4	SE.	4	"	"	"	Dug	16	1,950	0	1,950			Glacial blue clay	Hard, clear, "alkaline"		D	Intermittent supply. A seepage well for stock.
5	NW.	6	"	"	"	Dug	14	1,920	- 9	1,911	9	1,911	Glacial sand	Hard, clear, "alkaline"		D	Intermittent supply.
6	NE.	6	"	"	"	Dug	20	1,940	- 15	1,925	15	1,925	Glacial gravel	Hard, "alkaline"	48	D	Sufficient for household needs. 2 similar wells supply stock needs.
7	SE.	9	"	"	"	Dug	12	1,940	0	1,940			Glacial blue clay	Hard, clear, "alkaline"		S	Intermittent supply. 2 dry holes 50 feet to 60 feet deep.
8	SE.	10	"	"	"	Dug	20	1,940	- 14	1,926	14	1,926	Glacial sand	Hard, clear		D	Sufficient for household needs.
1	SW.	1	19	7	2	Dug	9	1,905	- 4	1,901	4	1,901	Glacial sand and gravel	Hard, clear		D, S	Sufficient for 70 head stock. Neighbours used well during dry years. A dry hole 180 feet deep.
2	SE.	2	"	"	"	Dug	14	1,925	- 11	1,914	11	1,914	Glacial sand and gravel	Hard, clear, "alkaline"		D, S	Sufficient for 30 head stock. several shallow wells.
3	NE.	2	"	"	"	Dug	25	1,950									Dry hole; Glacial black clay to base.
4	NE.	3	"	"	"	Dug	20	1,920					Glacial clay	Hard, clear		D, S	Intermittent supply; also a 114 foot dry hole.
5	SE.	4	"	"	"	Bored	55	1,940	- 30	1,910	30	1,910	Glacial clay	Hard, clear		D	Intermittent supply. A 34 foot well had lots of water but fills with sand.
6	SW.	4	"	"	"	Dug	14	1,910	0	1,910			Glacial blue clay	Hard, clear, "alkaline"		D, S	Intermittent supply.
7	SE.	7	"	"	"	Dug	14	1,540	- 10	1,530	10	1,530	Recent sand	Hard, clear, iron, "alkaline"		D, S	Sufficient for 40 head stock. Several similar wells.
8	SW.	8	"	"	"	Dug	20	1,550	- 17	1,533	17	1,533	Recent clay	Hard, odour		D	Sufficient for household stock use river.
9	NE.	8	"	"	"	Dug	6	1,550	- 3	1,547	3	1,547	Recent sand	Hard, clear		D	Sufficient for household, stock use river.
10	SW.	10	"	"	"	Dug	11	1,915	- 7	1,908			Glacial sand	Hard, clear, "alkaline"		D, S	Insufficient in winter. Also a 11 foot intermittent well and a 70 foot dry hole.
11	NE.	10	"	"	"	Dug	12	1,910	- 6	1,904	6	1,904	Glacial gravel	Hard, clear		D, S	Sufficient for 100 head stock.
12	SW.	11	"	"	"	Dug	10	1,920	- 8	1,912	8	1,912	Glacial sand	Hard, clear		D, S	Sufficient for 50 head stock.
13	SW.	12	"	"	"	Dug	?	1,905					Glacial sand				Farm deserted; but always had plenty of water.
14	NE.	12	"	"	"	Dug	8	1,900	- 4	1,896	4	1,896	Glacial sand	Soft, clear		D, S	Sufficient; cannot be pumped dry. Another similar well.
15	NE.	15	"	"	"	Dug	4	1,600	- 1	1,599	1	1,599	Glacial gravel and clay	Hard, clear, lime		D, S, I	Sufficient for 50 head stock.
16	NW.	16	"	"	"	Dug	14	1,520	- 11	1,509	11	1,509	Recent sand	Hard, "alkaline"		D	Enough for house. Two similar wells, stock use river.
17	NE.	16	"	"	"	Dug	16	1,500	- 10	1,490			Recent clay	Hard, clear, "alkaline"		D, S	Sufficient for house and 15 horses.

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 INDIAN RESERVES

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	Ochapowace NO. 71						30	2,030	- 24	2,006	30	2,000	Glacial gravel	Hard		D, S	Insufficient for local needs.
2	Ochapowace NO. 71						26	2,030	- 20	2,010	26	2,004	Glacial sand and gravel	Hard		D, S	Sufficient for local needs.
3	Ochapowace NO. 71						73	1,925	- 30	1,895	73	1,852	Glacial sand and gravel	Hard		D, S	Sufficient; large supply.
4	Ochapowace NO. 71						31	1,925	- 27	1,898			Glacial gravel	Hard		D	Insufficient for local needs.
5	Ochapowace NO. 71						44	2,000	- 29	1,971	44	1,956	Glacial gravel	Hard, iron, "alkaline"		D, S	Sufficient; bad effects.
6	Ochapowace NO. 71						15	1,950	- 14	1,936	15	1,935	Glacial drift	Hard		D	Intermittent supply.
1	Kahkewistahaw NO. 72						52	2,000	- 13	1,987			Glacial gravel			D, S	Sufficient for local needs.
2	Kahkewistahaw NO. 72						30	2,000	- 27	1,973			Glacial fine sand			D, S	Sufficient for local needs.
3	Kahkewistahaw NO. 72						18	1,950	- 14	1,936			Glacial coarse gravel			D, S	Sufficient for local needs.
4	Kahkewistahaw NO. 72						44	1,950	- 38	1,912			Glacial sand and gravel			D, S	Sufficient for local needs.
5	Kahkewistahaw NO. 72					Bored	60	1,910	- 45	1,865	60	1,850	Glacial sand	Hard, clear, "alkaline"		S	Sufficient for 10 head stock. Also a spring with good supply.
1	Cowessess NO. 73					Bored	106	1,900	- 42	1,858	106	1,794	Glacial sand	Hard, iron rod sediment		D, S	Sufficient, cannot be pumped dry. #
2	Cowessess NO. 73					Bored	65	1,900	- 59	1,841	59	1,841	Glacial sand	Hard, clear		D, S	Sufficient for 8 head stock.
3	Cowessess NO. 73					Bored	90	1,900	- 20	1,880	90	1,810	Glacial drift	Hard, clear		D, S	Was sufficient, caved in now.
4	Cowessess NO. 73					Spring	5	1,950	0	1,950			Glacial gravel	Soft, clear		D, S	Sufficient for local needs.
5	Cowessess NO. 73					Spring		1,800					Glacial fine sand	Soft, clear		D, S	Sufficient for local needs.
6	Cowessess NO. 73					Dug	12	1,490	- 4	1,486	4	1,486	Recent sand and gravel	Soft, clear		D, S	Sufficient for local needs.
7	Cowessess NO. 73					Bored	50	1,900	- 38	1,862	50	1,850	Glacial sand	Hard, clear		D, S	3 farms are supplied by this well.
1	Sakimay NO. 74					Dug	50	1,900									Dry hole; glacial to base. Several other dry holes.
2	Sakimay NO. 74					Dug	9	1,900					Glacial sand	Hard		D, S	Good water supply around Goose lake.
3	Sakimay NO. 74					Dug	9	1,900					Glacial sand	Hard		D, S	Sufficient for local needs.
4	Sakimay NO. 74					Bored	175	1,900									Dry hole; glacial to base. Several other dry holes from 125 feet to 175 feet deep.
5	Sakimay NO. 74					Dug	12	1,900					Glacial sand			D, S	Sufficient for local needs. Several similar wells.
6	Sakimay NO. 74					Spring		1,900					Glacial sand			D, S	Several similar springs.

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

WELL RECORDS—Rural Municipality of EL CAPO No. 154 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
	NE	1	17	4	2		90	2050	-45	2005	90	1960	Glacial sand	Fresh			No other information.
	NE	11	16	4	2		160	2050	-92	1958	160	1890	" gravel	"			" " "
	SW	3	17	6	2		29	1950	-25	1925	25	1925	" "	"			" " "
	NE	5	17	7	2		30	2350	-15	2335	28	2322	" sand	Alkaline			" " "
	NE	5	17	7	2		32	2000			20	1880	" "				" " "
	NW	3	17	7	2		66	2000	-20	1980	56	1944	" "	Fresh			" " "
	SE	26	17	7	2		10	1900			10	1890	" clay	"			" " "
	NE	7	18	7	2		15	1950			15	1935	" sand	"			Hole #1
	NE	7	18	2	2		10	1950			10	1940	" clay	"			Hole # 2
	SE	18	18	7	2		20	1950			20	1930	" gravel	Alkaline			No other information
	NW	1	19	7	2		11	1900	-4	1896	11	1889	" "	Fresh			" " "

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.