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DEPARTMENT OF MINES

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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

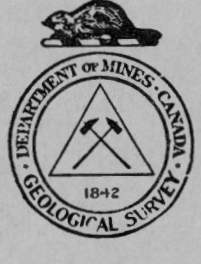
PRELIMINARY REPORT

GROUND-WATER RESOURCES OF THE RURAL MUNICIPALITY OF ENFIELD No. 194 SASKATCHEWAN

BY

B. R. MacKay & D. C. Maddox

Water Supply Paper No. 57



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INTRODUCTION

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

Publication of Results

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

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

How to Use the Report

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

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

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

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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 Enfield, No. 194 includes the nine townships designated as tps. 19, 20, and 21, ranges 4, 5, and 6, W. 3rd mer. The centre of the municipality is about 52 miles northwest of Moose Jaw. Central Butte, on the Canadian National Railways in the northeast part of the municipality, is the only town.

The valley of Thunder creek passes in a sinuous course through the municipality from the northwest to the southeast. The valley flattens out at the northwest to a low marshy area which lies a little over 2,000 feet above sea-level. Three lakes, two of which were dry in 1935, lie in the river valley. There are a few small lakes at the south boundary of township 19, range 4. Thunder creek drains most of the municipality, but in the northeast and east some of the land slopes east to the valley of Ridge creek. There are no permanent streams in the municipality. North of Thunder creek the country is generally of the rolling type, but in township 21, range 6, there are low hills. About 1½ miles west of Central Butte village a small elevation, which gives the name to the locality, rises rather abruptly for 100 feet from prairie level, its summit being over 2,200 feet above sea-level. The origin of this hill is not known, but it is probably one of several in the municipality formed by glacial deposits. The Missouri coteau occupies most of the area south of Thunder creek, where the country is much more hilly. Vermilion hills extend into the municipality on the west where elevations exceed 2,400 feet above sea-level. In township 19, range 4, a summit on the coteau rises to over 2,250 feet above sea-level. The valley of Thunder creek is floored with alluvial deposits of silt and sand. South of Thunder creek, on and

near the northern half of the eastern boundary of township 19, range 6, an irregular-shaped area of about 4 square miles is underlain by glacial outwash deposits of sand and gravel that were derived from the coteau during the melting of the ice-sheet. A small area of outwash deposits occupies most of sec. 6, tp. 19, range 5. A small area in township 21, range 6, in the upper part of the valley of Thunder creek, is underlain by glacial lake deposits, chiefly clay. Except for the deposits noted above the northern third of the municipality is underlain entirely by glacial till and the southern two-thirds by terminal moraine. Considerable variation exists in the thickness of the unconsolidated deposits. Bedrock outcrops in the valley of Thunder creek in range 4. In the central part of the municipality two wells show the depth to the bedrock to be 60 feet; in the northeast corner of the municipality one well shows a depth to bedrock of 25 feet. Several other wells have been drilled to depths of over 100 feet without encountering bedrock.

Water-Bearing Horizons in the Unconsolidated Deposits

Ground water will probably be found at slight depths in the alluvium of Thunder Creek valley and in the areas underlain by outwash deposits. In the glacial lake clays conditions are usually unfavourable for ground water, but the clays in this municipality are close to the old shore of the glacial lake and are, consequently, rather sandy. In the remainder of the municipality ground water will be found only in beds or lenses of sand and gravel that occur in the boulder clay and terminal moraine. The distribution of the water-bearing sands and gravels in this is usually very irregular and the extent of the deposits is usually small. The topographical relief of the

terminal moraine covered areas, and the depth to the water-bearing pockets, vary so greatly in this municipality that it is difficult to outline any large areas within which ground water will be found within certain depths below the surface, or any horizons at which ground water may be expected with reasonable certainty.

Water-bearing Horizons in the Bedrock

The Bearpaw formation consists chiefly of dark grey shale, but contains sandy beds at or near the base. It underlies the unconsolidated deposits over almost all of the eastern two-thirds and a large part of the western third of this municipality. In a part of the western third the Eastend formation lies between the Bearpaw formation and the glacial deposits. The Eastend consists of shales that are generally lighter in colour than the Bearpaw shales, and of beds of sandstone. The contact between the two formations in Vermilion hills is about 2,220 feet above sea-level, and at elevations much below 2,220 feet above sea-level in this municipality the Eastend formation will be absent. The shale of the Bearpaw formation is nearly impermeable and contains very little ground water. The sandy beds at or near the base of the Bearpaw, however, are water-bearing, and a number of wells in this municipality obtain soft water from these sands. Outcrops of the Bearpaw formation occur on both sides of the valley of Thunder creek, in township 19, range 4, and north of the lake, in township 20, range 4. Thirty-five wells in this municipality obtain water from the Bearpaw sands. The depth to the water sand varies from 297 feet to 640 feet. There seems to be several water sands in the Bearpaw, the elevation of the bottom of the wells in this municipality ranging from 1,499 feet to 1,884 feet above sea-level. Elevation of water level in the deep wells ranges from 1,960

feet to 2,119 feet above sea-level, but in most of the wells it is between 1,975 feet and 2,010 feet above sea-level. There are a few flowing wells in the northeast corner of the municipality.

No wells obtain water from the Belly River formation which underlies the Bearpaw formation, but a well, now abandoned, at Central Butte obtained rather salty water at 800 feet in the Belly River sands. No deep wells have been drilled into the Bearpaw formation in this municipality in township 19, but it is probable that the deep soft water sands extend as far south as the south boundary of this township.

GROUND WATER CONDITIONS BY TOWNSHIPS

Township 19, Range 4

The valley of Thunder creek passes through the north part of this township and a lake, which was dry in 1935, occupies the western 3 miles of this valley. There are several small, undrained lakes in the southern part that catch some of the surface run-off water, but the drainage of the remainder of the municipality is to Thunder creek. The western half of the township is rolling and the eastern part is hilly. The township is underlain by the terminal moraine, except the valley of Thunder creek which is floored by alluvium, chiefly sand and silt.

Depth of the wells in this township ranges from 6 feet to 120 feet. In the valley of Thunder creek water is found at shallow depths. Within a distance of about 1½ miles south of Thunder creek the wells are 20 feet deep or less, and many of them obtain their water supply from the gravel benches. Several seepage wells in the vicinity of the small lakes in the southeast are 10 to 15 feet deep. There are no extensive water-bearing horizons in the glacial drift. The water in most of the wells is hard and in a few it is "alkaline". The yield of water from most of the wells is not very large, and ground water conditions generally are poor. No dry holes are reported, but at one farm water is hauled. There is a spring in the valley of a tributary to Thunder creek in NW.¼, section 22. No well has reached bedrock in this township and depth to bedrock over most of the municipality is not known. In the eastern part of the valley of Thunder creek the Bearpaw shale outcrops at several points, but in NE.¼, section 2, the depth to bedrock is over 120 feet and in NE.¼, section 19, is over 100 feet.

Township 19, Range 5

The valley of Thunder creek passes through the northern part of the township. It is joined by three small tributary valleys, one from the north and two from the south. The lake in the northwest corner of the township was very shallow in 1935. Drainage and general slope of the land surface is towards the valley of Thunder creek, although a small, irregular-shaped lake in sections 10 and 11, which was dry in 1935, may accomodate surface run-off in its vicinity. In most of the township the country is of the rolling type, but there are fairly steep slopes to Thunder creek, which lies almost 200 feet below prairie level. This valley is underlain by alluvial deposits of sand and silt. Glacial outwash deposits cover about 2 square miles south of the lake in Thunder Creek valley, and most of section 6. The remainder of the township is underlain by terminal moraine.

The depth of the wells in this township ranges from 8 feet to 140 feet and no continuous water-bearing horizons can be outlined. In the alluvium of Thunder Creek valley water would probably be found near the surface, but no wells appear to have been put down in the valley floor. Ground water is found in the gravel of the two stream valleys south of Thunder creek and in the gravel benches that in places border the valley of this creek. In a well located in SE.$\frac{1}{4}$, section 9, there was a bed of sand 30 feet thick below 12 feet of clay, but the sand deposit was apparently a pocket of very limited extent as a well 28 feet deep located on the same quarter section obtained no water. Springs occur in the northeast part of the township in the bed of a valley that joins the south end of the lake. Springs also occur in the valleys of the creeks that join Thunder creek from the south. Several dry holes ranging up to 140 feet deep were put down on the northeast

quarter of section 10. The water encountered in most of the wells is hard and fit for human use but there are five wells in the southern half of the township in which the water is too "alkaline" for human consumption, and in most of the wells over 50 feet deep the water is "alkaline". The supply of ground water in this township is not very satisfactory. No wells have been drilled into the bedrock.

Township 19, Range 6

Most of this township lies within the Missouri Coteau region in which low, rounded hills, comparatively gentle slopes, and undrained hollows are characteristic. The valley of Thunder creek passes through the northeast corner of the township and drains most of the area; valleys of several creeks lead into the main valley. A small lake in section 30 and a marshy area in section 7 probably accomodate surface run-off in their vicinity. Elevations range from about 1,966 feet above sea-level in Thunder Creek valley to over 2,450 feet above sea-level in the south. The alluvial deposits of Thunder creek occupy the northeast quarter of section 36. In the northeast part of the township an area of about 2 square miles, underlain by glacial outwash deposits of sand and gravel from the Coteau, lies between the valley of Thunder creek and the Coteau country to the west. A small part of the eastern half of section 1 is also underlain by glacial outwash deposits. The remainder of the township is underlain by terminal moraine.

The outwash deposits consists largely of sand and gravel, and water is found in them at depths of less than 15 feet. No wells have been put down in the valley floor of Thunder creek but should such be sunk water would probably be struck close to the surface. On the margins of the creeks that join Thunder creek water is usually found at slight depths in the alluvium, but in a well in

SE.¼, section 33, the supply of water was soon exhausted. In the terminal moraine the occurrence of ground water is irregular and the range of surface elevations is so great that no definite aquifers can be outlined nor can any zones of depth to ground water be drawn; the depth of the wells in the morainal deposits ranges from 6 feet to 150 feet. The depth to bedrock is not known; a well in SW.¼, section 3, 150 feet deep, did not reach bedrock. The water in it was very hard, contained little chlorine, and was quite unlike the water from bedrock wells. The water supply from wells is augmented by springs, of which there are several in Thunder creek and its tributary valleys. Dugouts are used in some places. Two dry holes have been put down. Most of the well water is hard and is reported as being fit for human use. Wells with "alkaline" water occur, but in only one case was the water too laxative for drinking. The supply in many cases is not sufficient for all purposes.

The Eastend formation underlies the unconsolidated deposits over most of the western half of the township; over the remainder of the township the drift is underlain by the Bearpaw formation.

Township 20, Range 4

In this township the topography is of the gently rolling type, slopes seldom exceeding 50 feet to the mile except in the vicinity of Thunder creek at the southern edge of the township. Elevations range from 1,950 feet above sea-level in the valley of Thunder creek to a little over 2,100 feet above sea-level in the northwest. The general slope of the surface over most of the township is eastward. There are no streams in the township but surface run-off, in the southern part at least, is to the valley of Thunder creek. The northern part of the

township is underlain by boulder clay; the remainder is underlain by terminal moraine. The materials of the two types of glacial deposits are generally similar, both being largely composed of clay with discontinuous layers or pockets of sand and gravel in which ground water is usually present. The Bearpaw formation underlies the unconsolidated deposits over the entire township. The sands at or near the base of the Bearpaw formation supply water to six wells in the township, and it seems probable that these sands underlie the entire township.

The wells in the unconsolidated deposits range from 6 feet to 45 feet deep in the southern half of the township and from 10 to 85 feet deep in the northern half. In sections 33, 34, and 35 there are five wells 14 to 15 feet deep, but in three of them the supply is insufficient for farm requirements. The water in most of the wells is hard, but fit for drinking. In four wells the water is "alkaline", and "alkaline" water is reported to have been found at considerable depths in several wells that are now abandoned. Three dry holes were put down in the southeastern part of the township. At a well located in NW.$\frac{1}{4}$, section 24, a sand-point was used but the supply of water was not large. Wells located in SE.$\frac{1}{4}$, section 1, NE.$\frac{1}{4}$, section 20, and SE.$\frac{1}{4}$, section 24, yield large supplies of water, but the water from the first mentioned well is "alkaline". The thickness of the unconsolidated deposits in the vicinity of the well located in SE.$\frac{1}{4}$, section 13, is 60 feet. The thickness elsewhere in the township is not known, but it is apparently over 80 feet in the centre of the township. The water supply from the unconsolidated deposits is not very satisfactory.

The depth of the wells that have been drilled to the sands of the Bearpaw formation ranges from 416 feet to 552 feet. The elevation of the water-bearing sands ranges from 1,547 to 1,592 feet above sea-level. Elevation of water level in the wells

in bedrock ranges from 1,994 feet above sea-level to 2,031 feet above sea-level. None of the wells flow over the casing, but in a well located in NE.$\frac{1}{4}$, section 24, the water rises just to the surface. It is tapped a few feet below the surface and flows into a depression near the well.

Township 20, Range 5

The ground surface is gently rolling, elevations range from a little less than 2,000 feet above sea-level in the southeast to a little over 2,150 feet above sea-level. The greater part of the township is between 2,100 feet and 2,150 feet above sea-level. General slope of the surface in the southern and western parts is towards the valley of Thunder creek. There are no streams or lakes in the township. A small depressed area in section 25 and one in section 36 probably provide for surface run-off in the vicinity. Boulder clay underlies the northern part, and terminal moraine underlies the remainder of the township. Ground water in both these types of glacial deposits is found in lenses, pockets, or discontinuous beds of sand and gravel, which occur rather erratically distributed through the clay. Three wells located in the western central part of the township and two wells in the southern third of the township yield water that is too "alkaline" for human use. A well located in SE.$\frac{1}{4}$, section 22, yields hard, salty water. There are springs in the vicinity of the wells located in NW.$\frac{1}{4}$, section 4. A well located in SE.$\frac{1}{4}$, section 6, obtains water from alluvial deposits in a valley tributary to Thunder creek. The supply of water from many wells in the unconsolidated deposits is not satisfactory.

A well 400 feet deep located in SE.$\frac{1}{4}$, section 15, and one 512 feet deep in SW.$\frac{1}{4}$, section 25, have been drilled into the sands of the Bearpaw formation. The elevation of the water-bearing sand in the first mentioned is 1,750 and in the second is 1,614 feet above sea-level. The water level in the first is 2,030 feet

and in the second 2,006 feet above sea-level. No wells have been drilled to the Bearpaw sands in the western half of the township, but it is probable that these sands are continuous over the entire township. The thickness of the drift is not known, but is probably at least 40 feet in the northern two-thirds of the township.

Township 20, Range 6

The valley of Thunder creek passes from north to south through the eastern part of the township. A lake which was dry in 1935 occupies the northern 3½ miles of this valley. A small valley joins the main valley from the west, but there are no permanent streams in the township . General slope of the surface is towards the valley of Thunder creek, but in the southwest there are many undrained depressions which are marshy in wet seasons. In the eastern part of the township the topography is generally of the rolling type except in the valley of Thunder creek, the sides of which are in many places comparatively steep. In the western part there is a rather abrupt rise from general prairie level to the coteau country, which in the northwest is called Vermilion hills. The western part of the township is high and hilly, with elevations of over 2,400 feet above sea-level. Thunder Creek valley in the south has an elevation of 1,970 feet above sea-level. The valley of Thunder creek is floored with alluvial deposits, chiefly silt and sand, in which ground water occurs within 20 feet from the surface. Most of the northern third of the township is underlain by boulder clay or till. The hilly areas in the west and south are underlain by terminal moraine. In both these types of glacial deposits ground water occurrences will be confined to irregular beds, lenses, and pockets of sand and gravel which are surrounded by clay; the presence of these aquifers is generally only proved by digging.

In Thunder Creek valley and east of it the wells are 10 feet to 26 feet deep, but the supply of water in most of the wells

is not sufficient for all purposes, and in one well located on NE.¼, section 13, the water is too "alkaline" for human use, although the well is sunk for 34 feet in sand. West of Thunder creek most of the wells are less than 35 feet deep but in the northwest and southwest parts there are several wells ranging from 43 to 85 feet deep. Conditions for ground water in the southern part of the township are not good; dry holes to 85 feet deep have been put down, and in several wells the water was too "alkaline" even for stock use. Shallow wells located in SE.¼, section 17, and NE.¼, section 18, are in a coulee and obtain fairly soft water from bedrock shale, which is close to the surface in this coulee. A well located in NW.¼, section 7, 80 feet deep, and a well in SE.¼, section 31, 85 feet deep, both obtain large supplies of good water, but not from the same glacial aquifer. There are many springs in the valley of Thunder creek and in the valleys in the hilly country in the western part of the township. Near the western boundary the thickness of the drift seems to be considerable, as two wells 85 feet deep did not reach bedrock. A well located in NW.¼, section 20, and 606 feet deep, is the only one that was put down to the sands in the Bearpaw formation. The water sand in this well was very fine and the well is not now in use, although the water was formerly used for all purposes. Water level in this well is 2,114 feet above sea-level.

Township 21, Range 4

In this township the country is gently rolling, the only important elevation being a small hill about 1½ miles west of Central Butte, which rises about 100 feet above general prairie level to a little over 2,200 feet above sea-level. General slope of the surface is towards the east and northeast. There are no streams in this township, but direction of surface run-off is towards the valley of Ridge creek, which lies to the east of the township. The entire township is underlain by boulder clay which

is generally impervious but which contains pockets or irregular beds of sand and gravel that may contain ground water. No widespread ground water horizons can be traced. The water in seven of the drift wells in this township is "alkaline", but in four of those wells east of the small hill the water is drinkable. The supply of water from most of the wells in the drift is not sufficient for all purposes, although in the southeast there are some good wells with large supplies of water.

The sands in the Bearpaw formation underlie the whole township and eighteen wells obtain water from them. In a small area in the east the wells flow. There appears to be several water sands in the Bearpaw within the township, as the elevation of the bottom of the wells ranges from 1,499 feet to 1,651 feet above sea-level. In most of the wells, however, the elevation of the base of the wells is between 1,525 feet and 1,560 feet above sea-level. The elevation of water level in the non-flowing, deep, soft water wells within the township ranges from about 1,936 feet above sea-level in the northeast to 2,014 feet above sea-level in the southwest.

Township 21, Range 5

The country in this township is generally flat to very gently rolling. A low ridge extends for about 2 miles northeast from about the centre of the western boundary. There are no permanent streams, and drainage is aimless except in the southwest where a small, intermittent tributary flows to Thunder creek. In the northeast the ground slopes at less than 50 feet to a mile towards the valley of Ridge creek. Elevations range from a little less than 2,050 feet in the northeast to a little over 2,150 feet above sea-level in the mid-west. The entire township is underlain by boulder clay in which ground water occurs in irregular, discontinuous layers or beds of sand and gravel. Wells in the drift

are less than 35 feet deep, except for a well in NE.$\frac{1}{4}$, section 10, which is 45 feet deep, and one in SE.$\frac{1}{4}$, section 20, which is 52 feet deep. In both these wells the water is "alkaline" and in the first mentioned well the water is not usable. The ground water supply is not very satisfactory; many dugouts are used to supplement the supply, and many of the wells are supplied by seepage from dams or dugouts. In many wells a thickness of 10 feet to 15 feet of yellow clay overlies the blue clay.

Six wells have been drilled to the Bearpaw sands. Depth of these wells ranges from 510 feet to 640 feet, elevation of water sand from 1,537 feet to 1,598 feet above sea-level, and elevation of water level from 1,947 feet to 2,015 feet above sea-level. It is possible that wells near the western boundary of this township might obtain water from these sands at comparatively shallow depths as a well in SE.$\frac{1}{4}$, sec. 24, tp. 21, range 6, obtained soft water in bedrock at 297 feet.

Township 21, Range 6

The valley of Thunder creek crosses the southwestern part of the township. The upper 4 miles of the valley is a flat area about $\frac{1}{2}$ mile wide which in wet seasons is marshy and contains a few small lakes. An intermittent tributary joins Thunder creek in the southeast. Most of the northern half of the township is rolling country. Vermilion hills occupy the southwest part of the township and rise to over 2,350 feet above sea-level. A ridge near the centre of the eastern boundary of the township rises to a little over 2,200 feet above sea-level. The southeastern part of the valley of Thunder creek and the valley of the creek joining it from the east are underlain by alluvial deposits in which water will probably be found at slight depths. The low, flat area in the upper part of the valley of Thunder creek mentioned above is under-

lain by glacial lake clays with some water-bearing sands and gravels. The remainder of the township is underlain by boulder clay in which the occurrence of ground water is very erratic and uncertain.

The depth of wells in the drift in this township ranges from 12 feet to 180 feet, and no well-defined aquifers exist. A well in SE.$\frac{1}{4}$, section 32, 180 feet deep, obtained water too salty for use; the well is reported as penetrating bedrock, but no details are available. The water in a well in NE.$\frac{1}{4}$, section 25, is too "alkaline" for human use and in a well in SW.$\frac{1}{4}$, section 14, the water contained so much magnesium sulphate that it was not usable.

The Bearpaw water sands probably underlie the whole township; depth to the sands is 180 to 550 feet. Ground water conditions are fairly satisfactory, but several dry holes were put down in the northern third of the township. South of Thunder creek there are a few springs which supplement the supply of well water.

STATISTICAL SUMMARY OF WELL INFORMATION IN RURAL MUNICIPALITY OF ENFIELD, NO. 194, SASKATCHEWAN

Township	19	19	19	20	20	20	21	21	21	Total No. in Municipality
West of 3rd mer. Range	4	5	6	4	5	6	4	5	6	
Total No. of Wells in Township	27	66	64	79	78	67	69	69	27	546
No. of wells in bedrock	0	0	0	7	2	3	18	8	6	44
No. of wells in glacial drift	27	62	64	71	74	60	51	60	21	490
No. of wells in alluvium	0	4	0	0	4	4	0	0	0	12
Permanency of Water Supply										
No. with permanent supply	24	46	49	64	54	53	61	38	21	410
No. with intermittent supply	3	5	7	1	1	0	5	28	5	55
No. dry holes	0	15	8	14	23	14	3	3	1	81
Types of Wells										
No. of flowing artesian wells	0	0	0	1	0	0	4	0	0	5
No. of non-flowing artesian wells	3	26	12	28	26	10	23	14	9	151
No. of non-artesian wells	24	25	44	37	29	43	39	52	17	310
Quality of Water										
No. with hard water	27	49	48	56	54	45	48	56	15	398
No. with soft water	0	2	8	9	1	8	18	10	11	67
No. with salty water	0	0	0	0	0	0	1	1	1	3
No. with "alkaline" water	4	18	20	11	18	12	16	20	6	125
Depths of Wells										
No. from 0 to 50 feet deep	21	51	56	69	63	59	50	58	19	446
No. from 51 to 100 feet deep	5	14	7	3	13	7	1	2	2	54
No. from 101 to 150 feet deep	1	1	2	0	0	0	0	0	1	5
No. from 151 to 200 feet deep	0	0	0	0	0	0	0	0	1	1
No. from 201 to 500 feet deep	0	0	0	3	1	0	11	0	3	18
No. from 501 to 1,000 feet deep	0	0	0	4	1	1	7	8	2	23
No. over 1,000 feet deep	0	0	0	0	0	0	0	0	0	0
How the water is used										
No. usable for domestic purposes	16	34	45	48	40	45	38	42	23	331
No. not usable for domestic purposes	11	17	11	17	15	8	28	24	3	134
No. usable for stock	27	49	55	64	55	52	64	56	24	446
No. not usable for stock	0	2	1	1	0	1	2	10	2	19
Sufficiency of Water Supply										
No sufficient for domestic needs	27	49	56	65	55	53	66	66	24	461
No. insufficient for domestic needs	0	2	0	0	0	0	0	0	2	4
No. sufficient for stock needs	13	29	43	35	30	25	46	31	18	270
No. insufficient for stock needs	14	22	13	30	25	28	20	35	8	195

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 **Enfield**, No. 194, 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	
1.	SW.	16	19	5	3	55	2,660	1,700	1,700	0	38	275	220	338	1,743	563	2,723		535		1,006	291	826	63	x 1
2.	SW.	3	19	6	3	150	1,650	1,100	600	500	12	415	140	166	832	392	1,585	250		139	296		878	20	x 1
3.	NE.	24	20	4	3	416	1,600				114	485										(2)	(1)	(3)	x 2
4.	NE.	29	20	4	3	520	1,160	20			36	715	10	7	172	650	1,232	18		15		720	255	224	x 2
5.	SE.	15	20	5	3	400	1,554															(2)	(1)	(3)	x 2
6.	SW.	15	20	5	3	39	2,600	650	550	100	25	665	40	119	1283	1033	2,577	72			355	391	1,480	41	x 1
7.	SW.	25	20	5	3	512	1,580	30			59	555	40	7	558	699	1,503	72		15		493	820	97	x 2
8.	NE.	16	20	6	3	8	1,300	80			12	335	60	25	681	553	1,363	107		52		176	1,008	20	x 2
9.	NE.	31	20	6	3		540	200	200	0	8	320	50	29	172	215	585		122		89	339	2?	13	Spring
10.	NW.	35	20	6	3	10	320	220	140	80	7	120	50	40	119	40	268	90		25	83		78	12	x 1
11.	NW.	2	21	4	3	512	1,470															(2)	(1)	(3)	x 2
12.	SW.	21	21	4	3	500	1,690				146	660										(2)	(1)	(3)	x 2
13.	SE.	25	21	4	3	419	1,500				118	590										(2)	(1)	(3)	x 2
14.	NW.	27	21	4	3	440	1,500	60	20	40	140	630	20	14	418	739	1,509	36		29		593	620	231	x 2
15.	NE.	36	21	4	3	405	1,540				125	595										(2)	(1)	(3)	x 2
16.	SW.	2	21	5	3		1,640	30			101	430	20	7	738	796	1,709	36		15		399	1,092	167	x 2
17.	NE.	12	21	5	3	519	1,740				137	690										(2)	(1)	(3)	x 2
18.	SW.	20	21	5	3	517	1,720				130	705										(2)	(1)	(3)	x 2
19.	NW.	1	21	6	3	400	1,460	15			89	605	10	14	508	748	1,531	18		24		585	752	147	x 2
20.	SE.	20	21	6	3	550	1,900				130	760										(2)	(1)	(3)	x 2

Water samples indicated thus, x 1, are **from glacial drift or other unconsolidated deposits.**
Water samples indicated thus, x 2, are from bedrock, Bearpaw **formation.**
Analyses are reported in parts per million; where numbers (1), (2), **and** (3) 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. 11, 13, **15, 17, 18** and 20 by **Provincial Analyst, Regina.**
For interpretation of this table read the section on Analyses and Quality of Water.

Water from the Unconsoldiated Deposits

The chemical nature of ground water is controlled by a number of conditions of which the chief are the original composition of the water, the nature and texture of the sediments with which the water comes in contact, and the length of time that the water and sediment have been in contact, this latter condition being dependant chiefly on the rapidity of circulation of ground water through the sediments. The glacial deposits contain material that differs widely in chemical composition, texture, and origin, and ground water in these deposits would be expected to vary widely in composition. Water from the melting ice-sheet was fresh and water from the streams and rivers that resulted from the melting of the ice probably did not contain much dissolved matter, and rain water is practically free from dissolved mineral matter. The clays of the glacial deposits are thought to contain some rock flour which was ground off fresh rock surfaces over which the ice-sheets passed; this rock flour had not been previously leached by water and ground water might take up mineral matter from it freely. The sands are much coarser grained than the clays, and they usually contain minerals that are comparatively insoluble in water, so that ground water would generally dissolve less material from the sands than from the clays. The sands are often enclosed in clay, however, and water in the sands may contain mineral matter derived from the clays. In this municipality drainage conditions are poor and circulation of ground water is slow; even Thunder creek is not a permanent stream. Because of the small rainfall and consequent lack of through-flowing streams, salts tend to accumulate and remain in solution in the ground water.

The table of analyses shows that there are two general types of water in the glacial deposits: (1) the comparatively soft water of springs, and shallow wells on valley slopes probably fed by springs, represented by analyses Nos. 9 and 10 in which total solids are less than 600 parts per million; and in which the chlorine is less than 10 parts per million; and (2) the water in

the usual types of glacial deposits which is very hard and contains a little more chlorine and much more total solids than the spring water.

Water from the Bedrock

The water from the sands in the Bearpaw is soft and usually contains in solution sodium sulphate, sodium carbonate, and sodium chloride, occurring in relative abundance in the order given. This municipality is in the Darmody-Riverhurst artesian area, in which soft water is obtained from sands in the Bearpaw formation. Except in the marginal parts of this artesian area the water is fairly uniform in composition, total solids ranging from 1,300 to 1,600 parts per million. Analysis No. 8, is of water from a shallow well in a coulee where the Eastend formation is close to the surface, the water is comparatively soft and contains much less chloride than the water from the Bearpaw sands.

The analyses show that sodium sulphate, Na_2SO_4, is present in all the waters and in most cases is the chief constituent. The amount of sodium sulphate in most of these waters is not enough to make them too laxative for human use unless large amounts of the water are drunk, but in analysis No. 6 the water contains 1,480 parts per million of sodium sulphate and 355 parts of magnesium sulphate, and in analysis No. 1 the water contains over 1,000 parts of magnesium sulphate, in addition to 824 parts of sodium sulphate, and these waters would be rather laxative. The water of analysis No. 1, would also probably be slightly bitter, Magnesium sulphate is not present in large amounts in the other waters analysed. Water from the Bearpaw sands in not suitable for irrigation purposes as it is fairly highly mineralized and contains a large proportion of "black alkali" and "white alkali". The water from the glacial deposits usually contains both "black alkali" and "white alkali", but some of these waters are not highly

mineralized and are better adapted for irrigation than are the soft waters from the Bearpaw sands although the supply available is usually too small for irrigation except on a very small scale. The small rainfall and the generally poor drainage conditions in this municipality are not favourable to irrigation, as the salts derived from well waters used for this purpose would tend to accumulate in the soil and would eventually prove injurious to vegetation.

WELL RECORDS—Rural Municipality of ENFIELD NO. 194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
1	SE.	1	19	4	3	Dug	11	2,190	- 7	2,183	11	2,179	Glacial sand	Hard, clear	43	D, S	Insufficient supply.
2	NE.	1	"	"	"	"	9	2,160	- 5	2,155	9	2,151	" clay	" "	45	D, S	Sufficient " .
3	SW.	2	"	"	"	"	12	2,140	- 8	2,132	12	2,128	" "	" "	44	D, S	Insufficient " .
4	SE.	4	"	"	"	"	12	2,090	- 10	2,080	12	2,178	" "	" "	44	D, S	Sufficient " .
5	SE.	4	"	"	"	"	12	2,090	- 10	2,080	12	2,078	" "	" "	44	D, S	Insufficient " .
6	NE.	2	"	"	"	Bored	120	2,170	- 20	2,150	120	2,050	" "	" "	42	D, S	Sufficient " .
7	NE.	4	"	"	"	"	38	2,090	- 34	2,056	38	2,052	" "	"alkaline" Hard, clear	43	D, S	" for stock.
8	NE.	4	"	"	"	Dug	14	2,090	- 12	2,078	14	2,076	" "	" "	44	D	" " house only.
9	SW.	6	"	"	"	Bored	70	2,200	- 61	2,139	70	2,130	" "	" "	41	S	" supply for stock.
10	SW.	6	"	"	"	"	45	2,200					" "	" "		N	Insufficient supply; poor quality.
11	NE.	7	"	"	"	Dug	12	2,110	- 11	2,099	12	2,098	" "	" "		D, S	Sufficient supply.
12	SW.	15	"	"	"	Bored	40	2,120	- 36	2,084	40	2,080	" "	" "	43	D	Insufficient " .
13	SW.	15	"	"	"	Dug	12	2,120	- 8	2,112	12	2,108	" "	" "		S	" " .
14	NW.	17	"	"	"	"	16	2,070	- 12	2,058	16	2,05	" clay and and gravel"	" "		D, S	Just sufficient supply.
15	NW.	17	"	"	"	"	16	2,070	- 12	2,058	16	2,054	Glacial clay and gravel"	" "		D, S	Sufficient supply.
16	NE.	18	"	"	"	Bored	65	2,100	- 24	2,076	65	2,035	Glacial clay	" "	42	D, S	No information.
17	SW.	18	"	"	"	"	98	2,180	- 40	2,140	98	2,082	" "	" "		S	Fair supply.
18	NE.	19	"	"	"	Dug	100	2,115	- 28	2,087	100	2,015	" clay,sand	"alkaline"	43	S	Insufficient supply.
19	SE.	21	"	"	"	"	12	2,020	- 6	2,014	12	2,008	" "	" clear		S	" " .
20	NW.	22	"	"	"	"	14	2,000	- 5	1,995	14	1,986	" white gravel	" "		D, S	Sufficient supply.
21	SE.	24	"	"	"	"	14	2,010	- 4	2,006	14	1,996	Glacial clay	" cloudy		S	Fair supply.
22	NE.	25	"	"	"	"	11	1,990	- 9	1,981	11	1,979	" "	" "		N	Water is stagnant.
23	SW.	26	"	"	"	"	6	1,950	0	1,950	- 6	1,944	" sand and gravel	" "	42	D, S	Sufficient supply.
24	SW.	27	"	"	"	"	20	2,020	- 8	2,012	-20	2,000	Glacial clay	" clear		D	Fair supply for house use.
25	SE.	29	"	"	"	"	13	2,085	- 10	2,075	13	2,072	" "	" "		D	Only sufficient for drinking.
26	SE.	29	"	"	"	Bored	80	2,085	- 50	2,035	80	2,005	" quicksand	" "		S	Insufficient for stock.
27	NW.	30	"	"	"	Dug	17	2,161	- 5	2,156	12	2,149	" clay	"alkaline"	44	D, S	Sufficient supply.

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

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

WELL RECORDS—Rural Municipality of ENFIELD NO. 194, 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	SW.	1	19	5	3	Spring	5	2,170	0	2,170	5	2,165	Glacial clay	Hard, clear	43	D, S	Good supply.
2	SE.	1	"	"	"	Bored	50	2,200	- 41	2,159	50	2,150	" black sand	Hard, iron		D, S	Sufficient supply.
3	SE.	2	"	"	"	Dug	35	2,190	- 20	2,170	35	2,155	" drift	" " iron		D, S	Sufficient supply; also use springs.
4	NW.	2	"	"	"	Bored	45	2,175			45	2,130	" clay	Hard, iron		N	Insufficient supply.
5	SW.	4	"	"	"	"	35	2,225	- 10	2,215	35	2,190	" "	" "		N	Poor water.
6	NW.	4	"	"	"	"	125	2,160					" drift			N	Several dry holes.
7	SE.	5	"	"	"	"	48	2,190	- 35	2,155	48	2,142	" sand	Hard, clear	42	D, S	Sufficient supply.
8	SW.	5	"	"	"	"	26	2,240	- 24	2,216	26	2,214	" drift	"	42		Insufficient supply.
9	NW.	6	"	"	"	"	13	2,155	- 6	2,149	13	2,142	" clay	" clear, alkaline		D, S	Sufficient supply.
10	SE.	6	"	"	"	Dug	12	2,190	- 10	2,180	12	2,178	" drift	Hard,			Insufficient supply.
11	SW.	7	"	"	"	"	18	2,235	- 16	2,219	18	2,217	" gravel	Hard,	40	D, S	Sufficient supply; also a well 80 feet deep.
12	SW.	9	"	"	"	Bored	40	2,150	-,38	2,112	40	2,110	" " sand	" clear	42	D, S	Waters 10 head stock and supplies household.
13	SE.	9	"	"	"	"	37	2,145	- 29	2,116	26	2,119	" black sand	" "	42	D, S	Sufficient supply; also 28 foot dry hole.
14	NE.	10	"	"	"	Dug	32	2,140	- 22	2,118	32	2,108	" gravel	" "	42	D, S	Several other wells to 88 feet, either dry or very alkaline water.
15	SE.	10	"	"	"	Bored	48	2,150					" drift				Dry hole.
16	NW.	11	"	"	"	Dug							" drift				" " .
17	NW.	12	"	"	"	"	24	2,150	- 16	2,134	24	2,126	" drift	Hard, "alkaline"		N	Poor quality.
18	SW.	12	"	"	"	Bored	58	2,175	- 32	2,143	58	2,117	" sand	Hard, "alkaline"		D,	Sufficient supply; not good for drinking.
19	NW.	13	"	"	"	"	67	2,150	- 33	2,117	67	2,083	" sand	Hard, clear		S	Another well 30 feet deep for house use.
20	SW.	13	"	"	"	Dug	15	2,150	- 9	2,141	15	2,135	" sand	" "alkaline"		D, S	Two other well together yield sufficient supply for stock and house use.
21	NE.	14	"	"	"	"	24	2,140	- 8	2,132	24	2,116	" yellow clay	" "		D, S	Also one 12 foot well; both insufficient for stock. another well 14 feet in pasture.
22	SE.	14	"	"	"	"	13	2,140	- 12	2,128	13	2,127	Glacial gravel	"		S	Waters 6 head stock.
23	SW.	14	"	"	"	"	14	2,140	- 13	2,127	14	2,126	" "	" clear		D	Only house supply, 4 dry holes 80 feet deep.
24	SE.	15	"	"	"	"	20	2,150	- 17	2,133	20	2,130	" drift	" sediment	40		No information.
25	NE.	16	"	"	"	"	8	2,150	- 7	2,143	8	2,142	" sand	" clear		D, S	Insufficient for house use; another well in pasture for stock use.
26	SE.	16	"	"	"	Bored	14	2,150					" drift	Very hard	54	S	Fair supply.
27	SW.	16	"	"	"	"	55	2,150	- 3	2,147	50	2,100	" sand	Hard, "alkaline"	54	S	Sufficient for stock; another well 25 feet deep, #.
28	NE.	17	"	"	"	"	70	2,160	- 50	2,110	70	2,090	" quicksand	Hard, clear, "alkaline"	42	D, S	Sufficient supply; original well was 90 feet deep but sand fills in 20 feet.

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

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

B 4-4

WELL RECORDS—Rural Municipality of ENFIELD NO. 194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
29	SE.	18	19	5	3	Bored	70	2,150					Glacial drift			N	Well never any good except for stock.
30	SW.	19	"	"	"	"	60	2,090					" drift			N	Dry hole.
31	NW.	19	"	"	"	Dug	12	2,040	- 6	2,034	12	2,028	Recent alluvium	Hard, alkaline, clear	44	D, S	Sufficient supply, also use spring.
32	NE.	19	"	"	"	Bored	32	2,025	- 16	2,009	32	1,993	" "	Hard, clear, alkaline	41	D	Sufficient supply; another well 16 feet deep for stock.
33	SW.	20	"	"	"	Dug	14	2,100	- 7	2,093	12	2,088	Glacial quicksand	Hard, clear		D, S	Sufficient supply.
34	SE.	22	"	"	"	"	15	2,190	- 11	2,179	15	2,175	" drift	"	42		Fair supply.
35	SW.	23	"	"	"	"	140	2,190								N	Dry hole. Another 14 foot well also dug.
36	SE.	23	"	"	"	"	18	2,170	- 14	2,156	18	2,152	Glacial yellow clay	Hard, clear		D, S	Sufficient supply when dam used.
37	NE.	23	"	"	"	"	60	2,160	- 3	2,157	60	2,100	Glacial sand	" "	43	D, S	" " " " ".
38	NE.	24	"	"	"	Bored	50	2,170	- 12	2,158	50	2,120	" drift	" "	42	D, S	" " also another well 14 feet deep
39	SW.	27	"	"	"	Dug	18	2,150	- 6	2,144	18	2,132	" gravel sand	" "	43	S	Another well 12 feet deep for house use.
40	NW.	34	"	"	"	"		2,125					Glacial drift	" "		D, S	Sufficient for house only.
1	SW.	1	19	6	3	Dug	5	2,320	- 4	2,316	5	2,315	Glacial drift	Soft, clear	46	D, S, I	Good supply; also another well 12 feet deep.
2	SW.	3	"	"	"	Bored	150	2,400	- 50	2,350	150	2,250	" blue clay	Hard, clear	46	D, S	Sufficient supply, #.
3	SE.	4	"	"	"	Dug	10	2,400	- 8	2,392	10	2,390	" clay	" "	48	D, S	Insufficient supply; also another well near dugout 11 feet deep.
4	SE.	9	"	"	"	Bored	42	2,340	- 32	2,308	42	2,298	" sand and gravel	" "	46	D, S	Fair supply.
5	NE.	10	"	"	"	Dug	7	2,280	- 5	2,275	7	2,273	Glacial sand	" "	46	D, S	" " .
6	SW.	10	"	"	"	"	20	2,290	- 15	2,275	20	2,270	" "	" "	44	D, S	Sufficient for local needs.
7	SE.	12	"	"	"	Bored	35	2,160	- 15	2,145	35	2,125	" clay	" "	46	D, S	" supply also use other 25 foot well.
8	NW.	16	"	"	"	"	70	2,370			70	2,300	" "	" "	44	D, S	" " .
9	NE.	17	"	"	"	"	90	2,360	- 45	2,315	90	2,270	" sand clay	" "	42	S	" for local needs; another well 16 feet deep used for household.
10	SW.	18	"	"	"	"	113	2,350					" clay			N	Dry holes.
11	NW.	19	"	"	"	"	60	2,320	- 20	2,300	60	2,260	" sand	Hard, clear	41	D, S	Sufficient supply always.
12	SE.	19	"	"	"	"	22	2,350	- 18	2,332	22	2,328	" drift	" "	42	D, S	" " ; several dry holes to 25 feet
13	SE.	20	"	"	"	"		2,370					" drift	" "	42	D, S	Usually sufficient supply.
14	SE.	22	"	"	"	"	4	2,215	0	2,215	4	2,211	" clay	" " alkaline	44	D, S	Sufficient supply; also several springs and one other seepage well.
15	NE.	23	"	"	"	"	8	2,135	- 4	2,131	8	2,127	" gravel	Soft, clear	44	D, S	Intermittent supply; another well 3 foot deep.

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 ENFIELD NO. 194, SASKATCHEWAN.

WELL No.	LOCATION					TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE		PRINCIPAL WATER-BEARING BED			CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
	¼	Sec.	Tp.	Rge.	Mer.				Above (+) Below (−) Surface	Elev.	Depth	Elev.	Geological Horizon				
16	SE.	23	19	6	3	Bored	12	2,150	- 8	2,142	12	2,138	Glacial sand	Hard, clear		D, S	Excellent supply; also test holes show water at 3½ feet from surface.
17	NW.	25	"	"	"	"	13	2,100	- 7	2,093	13	2,087	" "	" "	44	D, S	Sufficient supply; also have spring and a well 8 feet deep.
18	SW.	25	"	"	"	"	12	2,140	- 8	2,132	12	2,128	" "	" " "alkaline"	42	D, S	Sufficient supply.
19	NE.	26	"	"	"	"	35	2,135	- 3	2,132	35	2,100	" gravel	Hard, clear	41	D, S	Sufficient for 40 head stock.
20	NW.	26	"	"	"	Spring								" "alkaline"			
21	NE.	28	"	"	"	Bored	50	2,275	- 12	2,263	50	2,225	Glacial drift	" "	41	D, S	Sufficient supply.
22	NE.	28	"	"	"	"	52	2,260	- 44	2,216	52	2,208	" drift	" "	41	D, S	" " .
23	NW.	28	"	"	"	Dug	16	2,300	- 9	2,291	16	2,284	" sand	Soft, clear	42	D, S	Just enough for 6 head stock and house.
24	NW.	29	"	"	"	"	34	2,365	- 12	2,353	34	2,331	" drift	" "	42	D, S	Small supply.
25	SW.	30	"	"	"	"	11	2,308	- 3	2,305	11	2,297	" gravel	Hard, clear, alkaline	42	D, S	Sufficient; 5 springs on farm with continual flow.
26	SW.	30	"	"	"	Bored	60	2,325	- 16	2,309	60	2,265	" "	Hard, "alkaline"		N	Too laxative for use.
27	NE.	31	"	"	"	"	58	2,350	- 52	2,298	58	2,292	" drift	Hard, clear		D, S	Sufficient for house and 6 head stock.
28	SW.	31	"	"	"	Dug	32	2,350	- 18	2,332	32	2,318	" drift	" "	46	D, S	Sufficient except for dry seasons; second well furnishes good supply.
29	SE.	31	"	"	"	"	18	2,320	- 14	2,306	18	2,302	" sand	" "		D, S	Insufficient supply.
30	NW.	32	"	"	"	"	12	2,280	- 10	2,270	7	2,273	" "	" "	42	D, S	Sufficient supply.
31	SW.	32	"	"	"	"	19	2,318	- 16	2,302	19	2,299	" drift	Soft, "	41	D, S	Only enough for house.
32	SW.	32	"	"	"	Bored	30	2,300	- 13	2,287	15	2,285	" drift	" "	42	D, S	Good supply.
33	SE.	33	"	"	"	Dug	44	2,270					" drift				Dry hole.
34	NW.	35	"	"	"	Bored	50	2,150	- 40	2,110	50	2,100	" drift	Hard, clear	44	D, S	Sufficient; dammed ravine furnishes water for stock.
1	SE.	1	20	4	3	Dug	18	2,025	- 8	2,017	18	2,007	" quicksand	"Alkaline"	40	S	Stock use only.
2	NE.	2	"	"	"	"	16	2,050	- 4	2,046	16	2,034	" "	" clear	48	D,	Only house use; another well for stock.
3	NW.	2	"	"	"	Drilled	476	2,068	- 50	2,018	476	1,592	Boarpaw shale ✓	Soft,	46	D, S	Good supply.
4	SE.	2	"	"	"	Dug	16	2,080	- 9	2,071	16	2,064	Glacial quick-sand	Hard, clear	40	D, S, I	Very large supply.
5	SW.	3	"	"	"	"	15	2,050	- 12	2,038	15	2,035	Glacial sand	" "	44	D, S, I	Good supply; another 14 foot well.
6	NW.	3	"	"	"	"	10	2,050	- 8	2,042	10	2,040	" "	"alkaline"		S	Sufficient supply.
7	SE.	4	"	"	"	"	6	2,000	- 4	1,996	2	1,994	" drift	"	58	D, S	Another well in slough for stock,
8	NE.	5	"	"	"	Bored	26	2,040	- 21	2,019	26	2,014	" drift	?		N	Farm abandoned.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ENFIELD NO. 194 SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
9	NE.	7	20	4	5	Dug	25	2,160	- 4	2,156	25	2,135	Glacial drift	Hard	45	D, S, I	Insufficient supplyin winter, two other wells used.
10	SE.	9	"	"	"	"	10	2,050	- 6	2,044	10	2,040	" drift	"	42		Large supply; another well 100 feet deep, cattle will not drink the water.
11	NE¾	10	"	"	"	Bored	28	2,050	- 14	2,036	28	2,022	" drift	" clear	38	S	Several drilled wells with no water; also several shallow wells with poor quality of water.
12	SE.	13	"	"	"	Dug	16	2,000	- 12	1,988	16	1,984	" quicksand	" "	40	D, S, I	Good supply; also 2 dry holes, 40and 90 feet deep.
13	SW.	13	"	"	"	"	15	2,010	- 6	2,004	15	1,995	" "	" "	38	D, S, I	Waters 18 head stock; also 40 foot dry hole.
14	NE.	14	"	"	"	"	14	2,025	- 6	2,019	14	2,011	" clay	" "	40	D, S	Insufficient supply.
15	NW.	14	"	"	"	"	18	2,040	- 17	2,023	18	2,022	" sand and gravel	"			
16	SE.	16	"	"	"	"	14	2,050	- 12	2,038	10	2,040	Glacial sand	" clear.		D	School well.
17	NE.	16	"	"	"	"	12	2,060	- 8	2,052	12	2,048	" "	" "		N	Well caved in now.
18	SE.	17	"	"	"	Bored	44	2,050	- 23	2,027	44	2,006	" drift	" "	40	S	Insufficient supply; another well caved in.
19	SW.	18	"	"	"	Dug	20	2,065	- 10	2,055	20	2,045	" drift	" "	41	S	Two other wells; one soft "alkaline" water; sufficient supply for stock not for house.
20	SW.	19	"	"	"	"	17	2,110	- 13	2,097	17	2,093	" drift	"	43	D, S	Waters 46 head stock one other well used.
21	NW.	19	"	"	"	Bored	39	2,100	- 27	2,073	39	2,061	" drift	" alkaline		S	Sufficient for stock another well 100 feet deep has "alkaline" water.
22	NE.	20	"	"	"	"	42	2,050	- 14	2,036	42	2,008	" sand	" clear	41	D, S, I	Sufficient supply.
23	SE.	20	"	"	"	"	72	2,050	- 28	2,022	72	1,978	" drift	" " brown, alkaline"	40	S	Large supply; another 16 foot well used for drinking.
24	SW.	21	"	"	"	"	80	2,050	- 5	2,045	80	1,970	" quicksand	Hard		N	
25	NE.	22	"	"	"	Drilled	480	2,066	- 60	2,006	480	1,586	Bearpaw sand	Soft, clear		D, S	
26	NW.	24	"	"	"	Bored	21	2,025	- 11	2.014	21	2,004	Glacial drift	Hard, "alkaline"		D	Small supply for house, another well 20 feet deep for stock.
27	NW.	24	"	"	"	"	36	2,025	- 14	2,011	36	1,989	" drift	Very "alkaline"		S	Farm deserted; no information.
28	SW.	24	"	"	"	"	34	2,000	- 21	1,979	34	1,966	" clay	Hard, clear	42	D, S, I	Good supply.
29	NE.	24	"	"	"	Drilled	416	2,006	0	2,006	416	1,590	Bearpaw sand	Soft, "		D, S	Well yields 1/3 gallon a minute, #.
30	SE.	24	"	"	"	Bored	45	2,025	- 17	2,008	45	1,980	Glacial clay	Hard "	40	D, S	Sufficient supply.
31	NE.	26	"	"	"	Dug	36	2,020	- 6	2,014	36	1,984	" sand	" "	42	D, S, I	" "; another 20 foot well.
32	SE.	26	"	"	"	Bored	18	2,020	- 14	2,006	18	2,002	" gravel	" "	40	D, S, I	" " .
33	NE.	28	"	"	"	"	21	2,075	- 12	2,063	21	2,054	" drift	"	40		No information.
34	SE.	28	"	"	"	Dug	15	2,075	- 7	2,068	15	2,060	" drift	" clear	40		Small supply; partly caved in.
35	SW.	28	"	"	"	"	12	2,075	- 3	2,072	12	2,063	" quicksand		48		Farm abandoned.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ENFIELD NO.194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
36	NE.	29	20	4	3	Drilled	552	2,099	-100	1,999	552	1,547	Bearpaw sand	Soft, sandy	46	D, S	Sufficient supply. #
37	NW.	31	"	"	"	"	545	2,121	- 90	2,031	545	1,576	" "	" clear		D, S	" " .
38	SW.	31	"	"	"	Dug	10	2,040	0	2,040	10	2,030	Glacial drift	Hard "		S	Haul drinking water.
39	NW.	32	"	"	"	Drilled	528	2,100	-106	1,994	528	1,572	Bearpaw sand	Soft, "		D, S	Sufficient supply.
40	NE.	32	"	"	"	"	527	2,088	-104	1,984	527	1,561	" "	" "		D, S	" " .
41	SE.	33	"	"	"	Bored	15	2,050	- 10	2,040	15	2,035	Glacial drift	Hard, "	38	D, S, I	" ", another 12 foot well used.
42	NW.	34	"	"	"	Dug	15	2,040	- 7	2,033	15	2,025	" drift	" muddy at times.	44	D, S, I	Insufficient supply, several shallow drilled wells of little use.
43	SW.	34	"	"	"	"	14	2,050	- 11	2,039	14	2,036	" drift	Hard		S	Insufficient supply.
44	SW.	34	"	"	"	"	14	2,040	- 2	2,038	14	2,026	" drift	" clear	42	D, S	" " in winter, another well 14 feet deep, small supply.
45	NW.	35	"	"	"	"	15	2,025	- 4	2,021	15	2,010	" sand	" "	40	D, S, I	Waters 50 head stock.
46	NW.	36	"	"	"	Bored	35	2,000	- 26	1,974	33	1,967	" "	" "	44	D, S, I	Usually good supply.
1	SW.	1	20	5	3	Dug	13	2,050	- 5	2,045	13	2,037	Glacial drift	" "alkaline"	50	N	Deserted farm.
2	SE.	3	"	"	"	"	12	2,100	- 10	2,090	12	2,088	" sand				
3	NE.	4	"	"	"	Bored	30	2,150	- 8	2,142	30	2,120	" drift	Hard, "alkaline"	41	S	Another well sufficient for house use.
4	SW.	2	"	"	"	Dug	29	2,090	- 15	2,075	18	2,072	" drift	Hard, "alkaline"	43	S	Also another well; large supply.
5	NW.	4	"	"	"	"	12	2,120	- 9	2,111	12	2,108	" quicksand	Hard, clear	42	D, S	Small supply; spring for stock.
6	SE.	6	"	"	"	"	5	2,070	- 2	2,068	5	2,065	Recent alluvium	Soft, "	52	D, S	Sufficient supply.
7	SW.	6	"	"	"	"	11	2,075	- 9	2,066	11	2,064	Glacial drift		41		No information.
8	NE.	9	"	"	"	"	32	2,150	- 26	2,124	32	2,118	" drift	Hard	46		" " .
9	SE.	10	"	"	"	"	16	2,150	- 14	2,136	16	2,134	" drift	"Alkaline"	38	D, S	Sufficient for house and a few stock.
10	NE.	12	"	"	"	"	20	2,050	- 12	2,038	14	2,036	" drift	Hard, "alkaline"	42	D, S, I	Barely sufficient with use of other well.
11	SE.	15	"	"	"	Drilled	400	2,150	-120	2,030	400	1,750	Bearpaw sand	Soft,			Very large yield. #
12	SW.	15	"	"	"	Bored	39	2,150	- 15	2,135	39	2,111	Glacial drift	Hard, "alkaline"	41	D, S, I	Large supply of water.
13	SW.	18	"	"	"	Dug	33	2,150	- 32	2,118	33	2,117	" sand	Hard, "alkaline"		D, S, I	Hardly sufficient for house and stock.
14	SW.	19	"	"	"	Bored	43	2,155	- 24	2,131	43	2,112	" drift	Hard, clear	41	S,	Insufficient supply; not good for house use.
15	SW.	19	"	"	"	Dug	12	2,140	- 4	2,136	12	2,128	" sand	" "		D	Sufficient for house use.
16	SE.	19	"	"	"	Bored	22	2,150	- 19	2,131	22	2,128	" "	" "alkaline"		D, S	Not always sufficient supply.

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(#) Sample taken for analysis.

WELL RECORDS—Rural Municipality of ENFIELD NO.194, 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
17	NW.	20	20	5	3	Dug	13	2,150	- 8	2,142	13	2,137	Glacial drift	Hard,	40		No information.
18	SW.	20	"	"	"	"	20	2,150	- 10	2,140	20	2,130	" drift	"		D, S	" " .
19	SE.	22	"	"	"	"	36	2,100	- 32	2,068	36	2,064	" sand	" salty	41	D, S	Insufficient supply.
20	NW.	22	"	"	"	Bored	34	2,150	- 28	2,122	34	2,116	" "	" clear		D, S, I	Sufficient supply; another well 33 feet deep.
21	NE.	22	"	"	"	Dug	20	2,150	- 19	2,131	20	2,130	" drift	" "	40	D	Only sufficient for house use.
22	SE.	24	"	"	"	"	20	2,100	- 8	2,092	20	2,080	" drift			S	Another similar well; no further information.
23	SW.	25	"	"	"	Drilled	512	2,126	-120	2,006	512	1,614	Bearpaw sand	Soft, clear		D, S, I	No further information, #
24	SE.	27	"	"	"	Dug	25	2,140	- 10	2,130	25	2,115	Glacial sand	Hard, clear	40	D, S	Sufficient supply.
25	NE.	28	"	"	"	Bored	29	2,140	- 10	2,130	29	2,111	" "	"Alkaline" "		S	Another well 10 feet deep seepage water.
26	SW.	28	"	"	"	"	26	2,145	- 8	2,137	26	2,119	" drift	Hard	40	D	Sufficient for house and few stock, another well 28 feet deep for stock.
27	NW.	29	"	"	"	"	37	2,150	- 25	2,125	37	2,113	" sand	" clear	42	S	Sufficient for stock use; not good for human consumption.
28	NE.	30	"	"	"	"	37	2,135	- 27	2,108	37	2,098	" "	" " " alkaline		S	Laxative; waters 14 head stock.
29	SW.	30	"	"	"	Dug	12	2,125	- 5	2,120	12	2,113	" " and gravel	Hard, clear,	46	D, S	Sufficient for house only; several bored wells to 100 feet, no water.
30	SW.	31	"	"	"	"	14	2,110	- 4	2,106	14	2,096	Glacial drift	"	42	D	No information.
31	SW.	34	"	"	"	Bored	12	2,145	- 6	2,139	12	2,133	" drift	"	47	D, S	Insufficient supply; another well not used.
32	NE.	35	"	"	"	"	23	2,115	- 13	2,102	23	2,092	" drift	" clear	40	D, S	Sufficient supply.
1	NE.	1	20	6	3	Dug	10	2,080	- 8	2,072	10	2,070	Glacial drift	Hard			Farm deserted.
2	SE.	4	"	"	"	"	20	2,100	- 18	2,082	20	2,080	" sand	"		D, S	Insufficient.
3	SW.	4	"	"	"	"	26	2,240	- 21	2,219	26	2,214	Alluvium sand	" clear	41	S	Supply is sufficient along with dammed ravine for stock.
4	NE.	5	"	"	"	"	28	2,250	- 26	2,224	28	2,222	" "	" " iron		D, S	Sufficient supply.
5	SW.	5	"	"	"	"	23	2,300	- 14	2,286	23	2,277	Glacial sand	Hard, clear		D, S	Insufficient; dammed coulee waters stock.
6	NW.	6	"	"	"	Bored	43	2,350			43	2,307	" drift	" alkaline"		N	Water too alkaline for any use.
7	NW.	7	"	"	"	"	80	2,360	- 40	2,320			" gravel	" clear	44	D, S	Large supply.
8	NE.	8	"	"	"	Dug	14	2,290	- 10	2,280	14	2,276	" sand	" "		D, S	Sufficient along with two other wells.
9	NW.	10	"	"	"	"	6	2,040	- 5	2,035	6	2,034	" gravel	" "	62	D, S	Insufficient; freezes in winter.
10	NE.	12	"	"	"	"	16	2,100	- 14	2,086	16	2,084	" drift	"	43		
11	NE.	13	"	"	"	Bored	34	2,150	- 29	2,121	34	2,116	" drift	" clear, "alkaline"	40	S	Only sufficient for 12 head stock.

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

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

WELL RECORDS—Rural Municipality of ENFIELD NO.194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
12	SE.	14	20	6	3	Dug	26	2,110	- 24	2,086	26	2,084	Glacial sand	Hard, clear	44	D, S	Sufficient; two other wells.
13	SE.	15	"	"	"	"	16	1,995			16	1,979	" "	" "		D, S	Waters 50 head stock, over flowing spring on this quarter.
14	NE.	16	"	"	"	"	23	2,050	- 19	2,031	23	2,027	" "	" "		D, S	Waters 50 head stock, flowing spring and second good well on this quarter.
15	NE.	17	"	"	"	"	10	2,180	- 2	2,178	10	2,170	" gravel	" "	49	D, S	Barely sufficient; coulee is dammed for stock.
16	SE.	17	"	"	"	"	4	2,280	- 1	2,279	4	2,276	Bearpaw sand	Soft, " "alkaline"	49	D, S	Sufficient with two ponds and second well in a coulee.
17	NE.	18	"	"	"	"	8	2,370	- 2	2,368	8	2,362	" "	Soft, clear		D, S	Sufficient; alongwith second well and dammed coulee. #
18	SW.	18	"	"	"	"	10	2,380	- 4	2,376	10	2,370	Glacial gravel	Soft,	50	D	Sufficient; along with second 68 foot well for stock.
19	NW.	19	"	"	"	Spring		2,350					" drift			D, S	Large supply of good water.
20	SW.	19	"	"	"	Dug	5	2,325	- 2	2,323	5	2,320	" drift	Clear		D, S, I	Insufficient; spring used for stock.
21	NW.	20	"	"	"	Drilled	606	2,199	- 85	2,114			Bearpaw sand	Soft,		D, S	Sufficient with second well and dammed coulee.
22	NW.	21	"	"	"	Dug	14	2,125	- 10	2,115	14	2,111	Glacial sand	Hard,		D	Not sufficient for stock.
23	SE.	23	"	"	"	"	4	2,075	- 3	2,072	4	2,071	" "	Hard, clear	43	D, S	Sufficient supply.
24	NW.	24	"	"	"	"	17	2,100	- 10	2,090	17	2,083	" "	Hard, clear, "alkaline"		D, S	Large supply; coulee is dammed to water stock.
25	SW.	24	"	"	"	"	21	2,110	- 19	2,091	21	2,089	" "	Hard, clear	41	S	Second well for house use; good supply.
26	SE.	25	"	"	"	"	10	2,140			10	2,130	" drift	" "	62	D, S	Insufficient; coulee dammed for stock.
27	NE.	28	"	"	"	"	18	2,075	- 6	2,069	18	2,057	" gravel	" " iron, alkaline	44	D, S	Sufficient; flowing springs.
28	NE.	31	"	"	"	Spring	0	2,300	0	2,300			" drift	Soft, clear		D, S, I	Insufficient. #
29	SE.	31	"	"	"	Bored	85	2,240	- 76	2,164	85	2,155	" sand	" iron	43	D, S	Large supply.
30	NE.	32	"	"	"	Dug	46	2,150	- 43	2,107	46	2,104	" drift	" clear	42	D, S	Good supply; spring of soft water in coulee.
31	SE.	33	"	"	"	"	20	2,080	- 19	2,061	20	2,060	Recent gravel	" "	42	D, S	Large supply.
32	NW.	34	"	"	"	"	23	2,070	- 21	2,049	23	2,047	" "	Hard "	48	D, S	Sufficient; small springs in coulee.
33	NE.	35	"	"	"	Bored	26	1,990	- 10	1,980	26	1,964	" alluvium	"			Farm deserted.
34	NW.	35	"	"	"	Dug	10	2,025	- 7	2,018	10	2,015	Glacial drift	Soft,	44	D, S	Sufficient supply. #
35	NE.	36	"	"	"	"	16	2,080	- 8	2,072	16	2,064	" sand	Hard, clear	41	D	Insufficient for stock. Has dugout and dammed coulee for stock.
36	SE.	36	"	"	"	"	11	2,070	- 5	2,065	11	2,059	" sand and gravel	" " very alkaline	42	D, S	Sufficient supply; has dugout for stock.
1	SE.	1	21	4	3	Drilled		1,987					Probably Bearpaw sand	Soft	49	D, S	Flowing one-half gallon a minute; depth unknown
2	SE.	2	"	"	"	Bored	27	2,020	- 19	2,001	27	1,993	Glacial drift	Clear	43	D, S	Sufficient supply.

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

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

WELL RECORDS—Rural Municipality of ENFIELD NO. 194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
3	NE.	2	21	4	3	Dug	27	2,010	- 10	2,000	27	1,983	Glacial drift	Hard, clear	43	D, S	Good supply for 30 head stock.
4	SW.	2	"	"	"	"	16	2,015	- 6	2,009	16	1,999	" sand	" "	41	D,,S	Sufficient for 50 head stock.
5	NW.	2	"	"	"	Drilled	512	2,040	- 35	2,005	408	1,632	Bearpaw sand	Soft,		D, S	Very large supply, #
6	SE.	4	"	"	"	Dug	13	2,070	- 10	2,060	13	2,057	Glacial sand	Hard, clear	42	D, S	Sufficient for 12 head stock.
7	SW.	4	"	"	"	Bored	26	2,085	- 6	2,079	26	2,059	" "	Soft, clear	43	D, S	" " 13 " " .
8	NW.	4	"	"	"	Dug	25	2,075	- 10	2,065	25	2,050	" drift	Hard, clear	42	D,	
9	NW.	5	"	"	"	"	22	2,070	- 19	2,051	22	2,048	" drift	" "		S	
10	SW.	6	"	"	"	Drilled	554	2,114	-100	2,014	554	1,560		Soft,		D, S	
11	NW.	6	"	"	"	Dug	12	2,090	- 9	2,081	12	2,078	Glacial sand	Hard, clear	43	D	Only sufficient for house use..
12	NW.	7	"	"	"	"	16	2,105	- 12	2,093	16	2,089	" drift	" "	42	S	Sufficient.
13	NE.	8	"	"	"	"	26	2,085	- 21	2,064	26	2,059	" drift	" " "alkaline"	43	D, S	Sufficient for 11 head stock..
14	SE.	9	"	"	"	"	23	2,080	- 20	2,060	23	2,057	" sand	Hard, clear	43	D	Only enough for house use.
15	SW.	9	"	"	"	"	30	2,070	- 20	2,050	30	2,040	" drift	" "	42	D, S	Sufficient for 12 head stock..
16	SW.	10	"	"	"	"	23	2,075	- 20	2,055	23	2,052	" drift	" "	44	D,	Only sufficient for house use..
17	NE.	10	"	"	"	Drilled	528	2,027	- 28	1,999	528	1,499	drift	Soft,			
18	NW.	11	"	"	"	Dug	13	2,020	- 12	2,008	13	2,007	Glacial drift	Hard, clear	43	N	Farm deserted.
19	SE.	11	"	"	"	"	12	2,000	- 11	1,989	12	1,988	" drift	" "	42	S	
20	SW.	12	"	"	"	"	18	2,000	- 14	1,986	18	1,982	" sand	" " "alkaline"	42	D, S	Sufficient for 6 head stock..
21	SW.	12	"	"	"	Bored	90	2,000				1910	" drift				Dry hole.
22	SE.	12	"	"	"	Drilled	330	1,981	0	1,981	330	1,651	Bearpaw sand	Soft,		D, S	Two-fifths gallons a minute.
23	NE.	12	"	"	"	Dug	12	1,988					Glacial drift				Dry hole.
24	SE.	13	"	"	"	"	20	1,990	- 16	1,974	20	1,970	" sand	Hard, clear,	43	N	Farm deserted.
25	NW.	13	"	"	"	Drilled	452	1,978					Bearpaw sand	Soft			
26	SW.	14	"	"	"	Bored	26	2,010	- 12	1,998	26	1,984	Glacial drift	Hard, clear	43	S	Sufficient.
27	NW.	14	"	"	"	Drilled	477	2,004	- 18	1,986	477	1,527	Bearpaw sand	Soft,	46	D, S	Sufficient.
28	SE.	16	"	"	"	Dug	17	2,060	- 11	2,049	17	2,043	Glacial drift	Hard, clear, very "alkaline"	43	S	Sufficient for 15 head stock.

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

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

B 4-4

WELL RECORDS—Rural Municipality of ENFIELD NO. SASKATCHEWAN

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE: Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED: Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
29	NE.	16	21	4	3	Dug	16	2,050	- 11	2,039	16	2,034	Glacial drift	Hard, clear, "alkaline"	43	S	Insufficient for local needs.
30	SW.	18	"	"	"	"	21	2,150	- 14	2,136	21	2,129	" drift	Hard, clear	42	D, S	Good supply.
31	SE.	18	"	"	"	Drilled	573	2,160	-160	2,000	573	1,587	Bearpaw sand	Soft,		D, S	Sufficient.
32	NE.	18	"	"	"	Dug	32	2,140	- 28	2,112	32	2,108	Glacial drift	Hard, clear	43	D	Only sufficient for house use.
33	SE.	19	"	"	"	"		2,140					" drift	" "alkaline"	43	S	Sufficient. Farm deserted; well sealed.
34	NE.	19	"	"	"	"	29	2,175	- 24	2,151	29	2,146	" drift	" slightly "alkaline" clear	42	D, S	Only sufficient for 8 head stock.
35	SE.	20	"	"	"	Drilled	517	2,086	- 92	1,994	517	1,569	Bearpaw sand	Soft,	44		
36	SE.	21	"	"	"	"	501	2,037	- 60	1,977	501	1,536	" sand	"		D, S	Sufficient.
37	SW.	21	"	"	"	"	800	2,060					Belly River sand (?)	" salty			Well abandoned.
38	SW.	21	"	"	"	"	500	2,061	- 60	2,001	500	1,561	Bearpaw sand	"	50	D, S	Large supply of water. #
39	SE.	22	"	"	"	Dug	15	1,990	- 12	1,978	15	1,975	Glacial drift	Hard, clear	42	N	Farm deserted.
40	SE.	23	"	"	"	Drilled	430	1,978	0	1,978	430	1,548	Bearpaw sand	Soft,			One gallon a minute, flows.
41	SE.	25	"	"	"	"	419	1,966	0	1,966	419	1,547	" sand	Hard, "alkaline"	48	D, S	One gallon a minute, flows. #
42	SE.	27	"	"	"	"	450	1,988	- 12	1,976	450	1,538	" sand	Soft,			
43	NW.	27	"	"	"	"	442	1,989	- 12	1,977	442	1,547	" sand	" soda, taste clear	44	D, S	Good supply for 65 head stock. #
44	NW.	27	"	"	"	Dug	16	1,989	- 10	1,979	8	1,981	Glacial gravel	Hard		D	Poor supply.
45	SE.	28	"	"	"	"	10	2,020	- 6	2,014	10	2,010	" drift	"			Twenty barrels a day.
46	NW.	28	"	"	"	"	8	2,035	- 6	2,029	8	2,027	" drift		45	N	Farm deserted.
47	SE.	30	"	"	"	"	30	2,100	- 24	2,076	30	2,070	" drift	Hard, "alkaline"	42	D, S	Oversufficient for 12 head stock.
48	SW.	30	"	"	"	"	30	2,120	- 21	2,099	30	2,090	" sand	Hard, slightly "alkaline", clear	42	D, S	Sufficient for 8 head stock.
49	NW.	32	"	"	"	"	13	2,030	- 9	2,021	13	2,017	Glacial drift	Hard, clear		N	Farm deserted.
50	NE.	33	"	"	"	"	12	1,950	- 10	1,940	12	1,938	" sand	" "	44	D, S	
51	NW.	33	"	"	"	"	11	1,980	- 7	1,973	11	1,969	" drift	" "	44	S	
52	SW.	34	"	"	"	"	15	1,990	- 12	1,978	15	1,975	" sand	" "	41	D, S	Sufficient for 18 head stock.
53	NW.	35	"	"	"	Drilled	445	1,979	- 19	1,960	445	1,534	Bearpaw sand	Soft,		D, S	
54	SW.	36	"	"	"	"	404	1,962	+ 1	1,961	404	1,558	Bearpaw sand	Soft,		D, S	
55	NE.	36	"	"	"	"	405	1,936	0	1,936	405	1,531	Bearpaw sand	" "alkaline"	48	D, S	Twenty gallons a minute, flows. #

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

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

B 4-4

WELL RECORDS—Rural Municipality of ENFIELD NO. 194, 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.	2	21	5	3	Dug	21	2,125	- 19	2,106	21	2,104	Glacial sand	Hard, slightly "alkaline"	42	S	Second intermittent well for house use only.
2	SW.	2	"	"	"	Dug	18	2,114	- 16	2,098	18	2,096	Glacial sand	Hard, clear	42	D	Only enough for house use.
3	SE.	2	"	"	"	Drilled	550	2,117	-114	2,003	541	1,576	Bearpaw sand	Soft		D, S	Very large supply. #
4	NE.	3	"	"	"	Dug	18	2,120	- 10	2,110	12	2,108	Glacial gravel	Hard, clear	41	D, S	Insufficient for local needs.
5	SW.	3	"	"	"	Dug	14	2,115	- 9	2,106	14	2,101	Glacial drift	Hard, clear		D, S	Sufficient; dugout used for stock.
6	SE.	4	"	"	"	Drilled	542	2,132	-145	1,987	541	1,591	Bearpaw sand	Soft, clear		D, S	Sufficient.
7	NW.	4	"	"	"	Dug	9	2,130	- 8	2,122	12	2,118	Glacial sand	Hard, clear	43	D, S	Insufficient.
7a	SE.	5	"	"	"	Drilled	538	2,152	-160	1,992	527	1,625	Bearpaw sand	Soft	44	D, S	Large supplies.
8	SE.	6	"	"	"	Dug	16	2,145			16	2,129	Glacial drift	Hard, clear	42	D, S	Sufficient.
9	SW.	8	"	"	"	Dug	18	2,130			12	2,118	Glacial sand	Hard, clear		D, S	Insufficient.
10	SE.	9	"	"	"	Bored	24	2,125	- 9	2,116	24	2,101	Glacial sand	Hard, clear,	41	D, S	Insufficient in dry years.
11	SW.	9	"	"	"	Dug	15	2,130	- 12	2,118	15	2,115	Glacial sand	Hard, clear	41	D, S	Insufficient; seasonal variation in supply.
12	SW.	10	"	"	"	Dug	18	2,115	- 10	2,105	18	2,097	Glacial sand	Hard, clear	42	D, S	Insufficient.
13	NE.	10	"	"	"	Dug	14	2,100	- 11	2,089	14	2,086	Glacial drift	Hard, clear	40	D, S	Insufficient.
14	NE.	10	"	"	"	Dug	45	2,100	- 8	2,092	10	2,090	Glacial sand	Hard, "alkaline" salty	42	N	Too bitter for use.
15	NE.	12	"	"	"	Drilled	519	2,120	-137	1,982	519	1,601	Bearpaw sand	Soft		D, S	Large supply. #
16	NE.	14	"	"	"	Dug	18	2,120	- 15	2,105	14	2,106	Glacial sand	Hard, clear	43	D	Just enough for house; uses dammed ravine for stock.
17	NE.	16	"	"	"	Dug	20	2,120	- 15	2,105	10	2,110	Glacial sand	Hard, clear		D, S	Insufficient.
18	SW.	16	"	"	"	Dug	17	2,160	- 13	2,147	12	2,148	Glacial sand	Hard, clear, iron	43	D, S, I	Only enough for a few stock. Dammed ravine used for stock in dry seasons.
19	NW.	17	"	"	"	Dug	15	2,160	- 14	2,146	15	2,145	Glacial drift	Soft, cloudy	42	S	Sufficient.
20	NE.	19	"	"	"	Dug	24	2,145	- 16	2,129	14	2,131	Glacial sand	Hard, clear	42	D, S	Insufficient.
21	SW.	20	"	"	"	Drilled	517	2,115	-100	2,015	517	1,598	Bearpaw sand	Soft, clear		D, S	Sufficient.
22	SE.	20	"	"	"	Bored	52	2,145	- 35	2,110	52	2,093	Glacial sand	Hard, clear, "alkaline" iron	42	S	Insufficient; has dammed ravine for stock use.
23	SW.	21	"	"	"	Dug	17	2,125	- 9	2,116	17	2,108	Glacial sand and gravel	Hard, clear	42	D, S	Sufficient.
24	NE.	21	"	"	"	Dug	16	2,125	- 11	2,114	13	2,112	Glacial gravel	Iron			
25	NE.	22	"	"	"	Dug	25	2,120	- 22	2,098	15	2,105	Glacial sand	Hard, clear	42	D, S	Insufficient in dry season.
26	SE.	22	"	"	"	Dug	16	2,125	- 8	2,117	16	2,109	Glacial gravel and sand	Hard, clear	40	S	Sufficient; second well of similar characteristics.
27	SW.	23	"	"	"	Dug	18	2,120	- 13	2,107	16	2,104	Glacial sand	Hard, clear	40	D, S	Insufficient in dry season. Three other wells of poor quality water.
28	NW.	24	"	"	"	Drilled	600?	2,140					Bearpaw sand	Soft, clear		N	Plugged with sand.

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 ENFIELD NO.194, SASKATCHEWAN.

WELL No.	LOCATION ¼	Sec.	Tp.	Rge.	Mer.	TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE Above (+) Below (−) Surface	Elev.	PRINCIPAL WATER-BEARING BED Depth	Elev.	Geological Horizon	CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
29	NW.	24	21	5	3	Dug	20	2,125	- 15	2,110	20	2,105	Glacial sand	Hard, clear		D, S	Sufficient; second similar well.
30	SE.	25	"	"	"	Bored	33	2,130	- 28	2,102	30	2,100	" "	" "	42	D, S, I	Sufficient.
31	NW.	27	"	"	"	Dug	20	2,110	- 15	2,095			" drift	" "	40	D, S	Insufficient; 600 foot well plugged.
32	NE.	27	"	"	"	"	30	2,100	- 19	2,081	30	2,070	" sand	" "	44	D, S	Insufficient in dry season.
33	NW.	27	"	"	"	Drilled	640	2,127	-180	1,947	590	1,537	sand	iron, Soft, clear		N	Well plugged with sand.
34	NE.	28	"	"	"	Dug	24	2,130	- 9	2,121			Glacialsand	Hard, clear	43	D, S	Insufficient.
35	SE.	28	"	"	"	"	30	2,100	- 24	2,076	30	2,070	" drift	" "	41	D, S	" .
36	NW.	30	"	"	"	"	19	2,095	- 9	2,086	14	2,081	" sand	iron Hard, "	44	D	
37	NE.	32	"	"	"	"	16	2,105	- 8	2,097	13	2,092	" "	" "	41	D, S	Sufficient except in very dry season, dammed ravine waters stock.
38	NW.	34	"	"	"	"	20	2,110	- 16	2,094	20	2,090	" "	" "	44	D, S	Insufficient; dammed ravine and two alkaline wells water stock.
39	SW.	35	"	"	"	"	24	2,080					" drift				Dry hole.
40	NW.	36	"	"	"	Drilled	510	2,060	-100	1,960	510	1,550	Bearpaw sand	Soft, clear	44	D, S	Sufficient supply.
41	SE.	36	"	"	"	"	540	2,073	- 90	1,983	531	1,542	Bearpaw sand	" "		D, S	" " .
1	NW.	1	21	6	3	Drilled	400	2,075	- 60	2,015	400	1,675	Bearpaw sand	" "	45	D, S	Sufficient supply. #
2	SE.	4	"	"	"	Bored	42	2,110	- 24	2,086	42	2,068	Glacial sand	Hard "	42	D, S	" .
3	NW.	4	"	"	"	"	42	2,195	- 40	2,155	42	2,153	" "	Soft, "	42	D, S	" .
4	NE.	5	"	"	"	"	65	2,225			65	2,160	" "	Hard, iron	41	D, S	" supply.
5	SE.	5	"	"	"	"	38	2,190	- 38	2,152	30	2,160	Bearpaw " drift	Soft, "	42	D, S	" flowing spring provides soft water.
6	NE.	7	"	"	"	Dug	15	2,220	- 11	2,169	15	2,185	" sand	" clear	43	D, S	" .
7	NW.	12	"	"	"	Bored	22	2,100	- 18	2,082	22	2,078	" "	Hard, "	42	D, S	" .
8	NE.	13	"	"	"	Drilled	298	2,185	-198	1,987	298	1,887	Bearpaw sand	Soft, "	46	D, S	" supply.
9	NE.	15	"	"	"	Dug	12	2,100	- 3	2,097	12	2,088	Glacial sand	Hard, iron	42	D, S	" .
10	SE.	20	"	"	"	Drilled	550	2,140	-150	1,990	550	1,590	Bearpaw sand	Soft, clear	44	D, S	" , ravine dammed for stock. #
11	NE.	21	"	"	"	Dug	12	2,075	- 2	2,073	12	2,063	Glacial drift	Hard, clear	42	D, S	Intermittent supply.
12	SE.	24	"	"	"	Drilled	297	2,181	-240	1,941	297	1,884	Bearpaw sand	Soft,	43		
13	NW.	24	"	"	"	Dug	36	2,140	- 35	2,105	36	2,104	Glacial sand	Hard, clear		N	Insufficient for any use.
14	NE.	25	"	"	"	"	17	2,090	- 12	2,078	17	2,073	" "	" " "alkaline"	42	S	" supply.
15	SW.	27	"	"	"	"	16	2,050	0	2,050	16	2,034	" "	Hard, clear	42	D, S	Sufficient supply.
16	SW.	31	"	"	"	"	24	2,060	- 21	2,039	24	2,036	" "	" "alkaline"	42	D, S	Insufficient supply.
17	SE.	32	"	"	"	Drilled	180	2,120			180	1,940	Bearpaw sand	Hard, salty		N	Water is too salty for use; farmer has dugout for stock.
18	SE.	34	"	"	"	Dug	18	2,100	- 3	2,097	18	2,082	Glacial drift	" clear	42	D, S	Sufficient supply.
19	SW.	34	"	"	"	"	50	2,120	- 10	2,110	50	2,070	"	Soft, salty		N	Too bitter for use.
20	SW.	35	"	"	"	Drilled	525	2,107	-135	1,972	525	1,582	Bearpaw sand	" clear	43	D, S	Sufficient.
21	NW.	36	"	"	"	Dug	16	2,105	0	2,105	16	2,089	Glacial drift	Hard, clear	42	D, S	Insufficient for local needs.

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

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

WELL RECORDS—Rural Municipality of ENFIELD No. 194 SASKATCHEWAN

LOCATION					TYPE OF WELL	DEPTH OF WELL	ALTITUDE WELL (above sea level)	HEIGHT TO WHICH WATER WILL RISE		PRINCIPAL WATER-BEARING BED			CHARACTER OF WATER	TEMP. OF WATER (in °F.)	USE TO WHICH WATER IS PUT	YIELD AND REMARKS
¼	Sec.	Tp.	Rge.	Mer.				Above (+) Below (−) Surface	Elev.	Depth	Elev.	Geological Horizon				
SE	12	19	6	3		80	2150					Bearpaw				Dry hole.

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.