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CHEMICAL ANALYSES OF GROUNDWATERS OF
EAST-CENTRAL ALBERTA

by

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CHEMICAL ANALYSES OF GROUNDWATERS OF EAST-CENTRAL ALBERTA

Abstract

Tabulated chemical analyses of groundwaters of east-central Alberta are prefaced by notes on the interpretation of the data and on the calculations on which some of the data are based.

INTRODUCTION

This report is a compilation of available data on the chemistry of the groundwaters of east-central Alberta, the first of a series of publications listing the chemical composition of Alberta groundwaters. The tabulation of the data in its present form will permit better use of chemical data in the study of groundwater. The data, presented in tables 2 and 3, have been compiled from analyses carried out by the Provincial Analyst mainly during the years 1954 to 1958, and are summarized in a groundwater report on east-central Alberta (Le Breton, 1963).

The text briefly explains the derivation of the equivalents per million (epm) values listed in tables 2 and 3 from the data supplied by the Provincial Analyst.

Acknowledgments

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V. Carlson designed a digital-computer program for processing the data.

PRESENTATION OF DATA

Units of Measurement

Analyses supplied by the Provincial Analyst give concentrations in parts per million (ppm), a weight unit of measurement that is valuable in assessing the suitability of waters for human consumption. One part per million represents 1 milligram of solute in 1 kilogram of solution.

Ionic concentrations in parts per million can be re-expressed in equivalent weights per million (epm) by multiplying by a conversion

factor which is given by the ratio of the charge on the ion under consideration to its atomic or molecular weight (Hem, 1959, p. 32). Conversion from equivalents per million to parts per million is made by dividing by this same factor. Hem (*ibid.*, p. 32) gives a table of ionic conversion factors.

In presenting standard water analyses concentrations are expressed, in some cases, in terms of hypothetical compounds rather than in terms of the ions actually present. The conversion factor by which the parts-per-million concentration is multiplied to obtain the equivalents-per-million ionic concentration is then given by the ratio of the ionic charge to the molecular weight of the compound. Equivalents-per-million values are useful in studies of the chemical behavior of groundwater and in the calculation of certain ratios of agricultural interest.

Discussion of the Tables

The available analyses have been divided into two groups: analyses of groundwaters derived from bedrock aquifers (Table 2) and analyses of groundwaters derived from the unconsolidated material overlying the bedrock (Table 3).

The first and second columns of tables 2 and 3 give the locations and depths of the wells from which the water samples were taken. Columns 3 to 10 contain the analyses supplied by the Provincial Analyst, and columns 11 to 17 inclusive give the equivalents-per-million values of the major constituents, calculated from the data in columns 3 to 10. Columns 18 and 19 give two parameters of agricultural interest, derived from the other data.

A brief discussion of the items listed in each of columns 3 to 19 is given below.

Column 3. Total solids

Total solids content (or dry residue) is determined by weighing the residue left after evaporation of an aliquot of the sample at 120°C for two hours. It represents the concentration by weight of the dissolved substances and is reported in ppm.

The Department of Public Health of the Province of Alberta gives 1,000 ppm as the suggested upper limit for total solids concentration in waters to be used for human consumption.

Column 4. Ignition loss

The ignition loss is the difference, expressed as ppm of the original aliquot, between the weight of the total solids as determined above and the weight of the dry residue after 3 minutes ignition at dull red heat.

The ignition loss is used in the calculation of sulfates (see column 6).

Column 5. Hardness

Hardness is determined by the EDTA titration method (APHA, 1955, p. 112), and is, in fact, a measure of the concentration of the calcium (Ca) and magnesium (Mg) ions in the water. The result of the titration is given in parts per million CaCO_3 .

Waters having a hardness of less than 100 ppm CaCO_3 can be considered soft; waters having a hardness content over 100 ppm CaCO_3 are hard.

Column 6. Sulfates

Sulfates are calculated as the remainder of the residue (total solids) after ignition after the weight of all other substances has been subtracted. The residue after ignition is considered to consist of the following substances:

(1) CaO resulting from the decomposition of CaCO_3 on ignition; the concentration of CaCO_3 is equated with the hardness or the alkalinity, whichever value is the smaller. The weight of CaO in the residue, to be subtracted from the weight of the residue, is found by multiplication of the CaCO_3 concentration by a conversion factor (0.5608), which is the ratio of the molecular weight of CaO to that of CaCO_3 .

(2) Na_2CO_3 , if the alkalinity is in excess of hardness. The excess of alkalinity over hardness is multiplied by 1.06, the ratio of the molecular weight of Na_2CO_3 to that of CaCO_3 , and the result subtracted from the residue.

(3) NaCl, to an amount corresponding to the total concentration of chlorides. Chloride content as Cl is multiplied by 1.65, the ratio of the molecular weight of NaCl to that of Cl, and the result subtracted from the residue.

(4) The remainder of the dry residue is then assumed to be Na_2SO_4 . This value is multiplied by 0.565, the ratio of the molecular weights of SO_3 and Na_2SO_4 , to arrive at the concentration of sulfates expressed as parts per million SO_3 , which value is listed in column 6. However it is clear that substances present in the water but not determined analytically (silicates for example) will be included in the residue and therefore in the value obtained for sulfates.

Another error is introduced because calcium and magnesium are not differentiated in the analysis; it is assumed that all the hardness is due to calcium, although magnesium is commonly present in most

waters, frequently in excess of calcium.

Iron and nitrates are not considered in the calculation; both components are usually present in only minor amounts, and, in addition, nitrates will volatilize when the residue is ignited.

Example of calculation of sulfates

| | |
|---------------|-----|
| Analysis: | |
| Total solids | 580 |
| Ignition loss | 274 |
| Hardness | 300 |
| Sulfates | 40 |
| Chlorides | 16 |
| Alkalinity | 340 |
| Nitrates | - |
| Iron | - |

$$\begin{array}{rcl}
 \text{Ignition loss} & = & 274 \text{ ppm} \\
 \text{CaO} = 0.5608 \times 300 & = & 168 \text{ ppm}^* \\
 \text{Na}_2\text{CO}_3 = 1.06 \times 40 & = & 42 \text{ ppm} \\
 \text{NaCl} = 1.65 \times 16 & = & 26 \text{ ppm} \\
 \hline
 & & 510 \text{ ppm (Total)}
 \end{array}$$

$$\begin{array}{rcl}
 \text{Na}_2\text{SO}_4 = 580 - 510 & = & 70 \text{ ppm} \\
 \text{SO}_3 = 0.565 \times 70 & = & 40 \text{ ppm}
 \end{array}$$

The Department of Public Health of the Province of Alberta gives 500 ppm as the suggested upper limit for sulfates concentration in waters to be used for human consumption.

Column 7. Chlorides

Chlorides are determined by the Mohr method (APHA, 1955, p. 60) and are reported in the tables as ppm Cl. For water to be used for human consumption, the upper limit suggested by the Department of Public Health of the Province of Alberta for chlorides is 500 ppm.

Column 8. Alkalinity

Alkalinity is determined by titration with standard acid (APHA, 1955, p. 35), and the result is reported as parts per million CaCO₃. In natural waters practically all of the alkalinity is caused by the carbonate and bicarbonate ions.

* If magnesium, instead of calcium, is accountable for all the hardness, then ppm MgO should be calculated by $0.4032 \times 300 = 121$ ppm, which figure gives a sulfate concentration (as SO₃) of $0.565 \times (580 - 463) = 66$ ppm instead of 40 ppm.

Carbonate or bicarbonate alkalinity is not harmful to health and consequently no limit has been set for it by the Department of Public Health of the Province of Alberta.

Column 9. Nitrates

Nitrates are determined by the phenoldisulphonic acid method (APHA, 1955, p. 149), and the result is reported as parts per million of nitrogen (N).

The upper limit for nitrates in waters used for human consumption set by the Department of Public Health of the Province of Alberta is 10 ppm.

Column 10. Iron

Iron is determined by the phenanthroline method (APHA, 1955, p. 125) and is reported as parts per million Fe.

Column 11. Sulfates (SO₄) in equivalents per million

Calculation of sulfates in equivalents per million from the original analytical data involves two conversions: the conversion from parts per million SO₃ to parts per million SO₄, and the conversion from parts per million SO₄ to equivalents per million sulfate. The composite conversion factor 0.0250 is given by the ratio of the double charge on the sulfate ion to the molecular weight of 80.1 for SO₃. The molecular weight of the sulfate ion cancels out of the composite conversion factor.

Column 12. Chlorides (Cl) in equivalents per million

The epm values for chlorides are calculated by multiplying the parts-per-million value by 0.0282, the ratio of the unit charge on the chloride ion to its atomic weight of 35.5.

Column 13. Carbonates and bicarbonates (CO₃+HCO₃) in equivalents per million

The epm carbonate values are calculated by multiplication of the alkalinity value (Column 8) by 0.0200, the ratio of the double charge on the carbonate ion to the molecular weight of 100 for calcium carbonate.

Column 14. Nitrates (NO₃) in equivalents per million

Calculation of the nitrate concentration in epm involves a double conversion: the conversion from parts per million nitrogen to parts per million nitrate, and the conversion from parts per million

nitrate to equivalents per million nitrate. The composite conversion factor is 0.0714, the ratio of the unit charge on the nitrate ion to the atomic weight of 14.0 for nitrogen.

Column 15. Calcium and magnesium (Ca+Mg) in equivalents per million

The epm value for calcium and magnesium are calculated by multiplying the hardness as ppm CaCO_3 (Column 5) by the conversion factor 0.0200, the ratio of the double charge on the calcium or magnesium ion to the molecular weight of 100 for calcium carbonate.

Column 16. Sodium and potassium (Na+K) in equivalents per million

The sum of sodium and potassium is calculated in equivalents per million after all other major constituents have been determined and calculated in equivalents per million. The sum of sodium and potassium is then the difference between the sum of all the anions (sulfate, chloride, carbonate, bicarbonate, and nitrate) and the sum of calcium and magnesium:

$$(\text{Na}^+ + \text{K}^+) = (\text{SO}_4^{--}) + (\text{Cl}^-) + (\text{CO}_3^{--} + \text{HCO}_3^-) + (\text{NO}_3^-) - (\text{Ca}^{++} + \text{Mg}^{++}).$$

Column 17. Sum of cations

This figure, given in equivalents per million, represents the sum of [Na+K] and [Ca+Mg] and is listed in tables 2 and 3 for calculation of the agricultural parameters, SAR and SSP.

Column 18. Soluble-sodium percentage

A term used in connection with irrigation waters and soil extracts to indicate the proportion of sodium ions in solution in relation to the total cation concentration. It may be calculated by the formula (U.S. Salinity Laboratory Staff, 1954, p. 156):

$$\% \text{ Na} = \frac{\text{Na+K}}{\text{Ca+Mg+Na+K}} \times 100$$

where the ionic concentrations are expressed in equivalents per million.

Column 19. Sodium-adsorption ratio

A ratio for soil extracts and irrigation waters used to express the relative activity of sodium ions in exchange reactions with soil (U.S. Salinity Laboratory Staff, 1954, p. 156).

$$\text{SAR} = \sqrt{\frac{\text{Na}}{\frac{\text{Ca+Mg}}{2}}}$$

where the ionic concentrations are expressed in equivalents per million.

The Salinity Laboratory of the United States Department of Agriculture recommends the use of the SAR in determining the suitability of waters for irrigation.

SUITABILITY OF GROUNDWATER FOR IRRIGATION

The suitability of waters for irrigation with respect to total dissolved solids is commonly based on electrical-conductivity measurements of water samples. The conductance of water increases with increasing salt content and also with increasing temperature. It is reported in terms of conductance at a specified temperature, commonly 25°C, and is expressed in micromhos/cm ($\mu\text{mho/cm}$). Waters below 750 $\mu\text{mho/cm}$ are considered suitable for irrigation; those from 750 to 2,000 $\mu\text{mho/cm}$ are moderately suitable; and those from 2,000 to 3,000 $\mu\text{mho/cm}$ are of doubtful suitability and can be used only in certain cases. The corresponding parts-per-million values are less than 500, 500 to 1,300, and 1,300 to 1,900, based on the approximate conversion factor of 1 ppm = 1.56 $\mu\text{mho/cm}$ (Todd, 1960). The corresponding parts-per-million values are approximate only and may be higher or lower than indicated by electrical-conductivity readings owing to variation in composition of the total solids.

The percentage of sodium is also very important in consideration of the use of groundwaters for irrigation. The use of sodium waters causes a decrease of calcium and magnesium in the soil and results in the reduction of permeability and the development of a hard salt pan. Both alkali (sodium-carbonate type) and saline (sodium-sulfate and sodium-chloride type) soils support little or no plant growth.

The soluble-sodium percentage (SSP) and the sodium-adsorption ratio (SAR) serve as parameters in the classification and evaluation of waters for suitability in irrigation:

Table 1. Classification of Water for Irrigation Purposes by Soluble-Sodium Percentage (SSP) and Sodium-Adsorption Ratio (SAR)
(from Todd, 1960)

| SSP | Class | SAR | Class |
|--------|-------------|-------|-----------|
| 0- 20 | Excellent | 0-10 | Excellent |
| 20- 40 | Good | 10-18 | Good |
| 40- 60 | Permissible | 18-26 | Fair |
| 60- 80 | Doubtful | > 26 | Poor |
| 80-100 | Unsuitable | | |

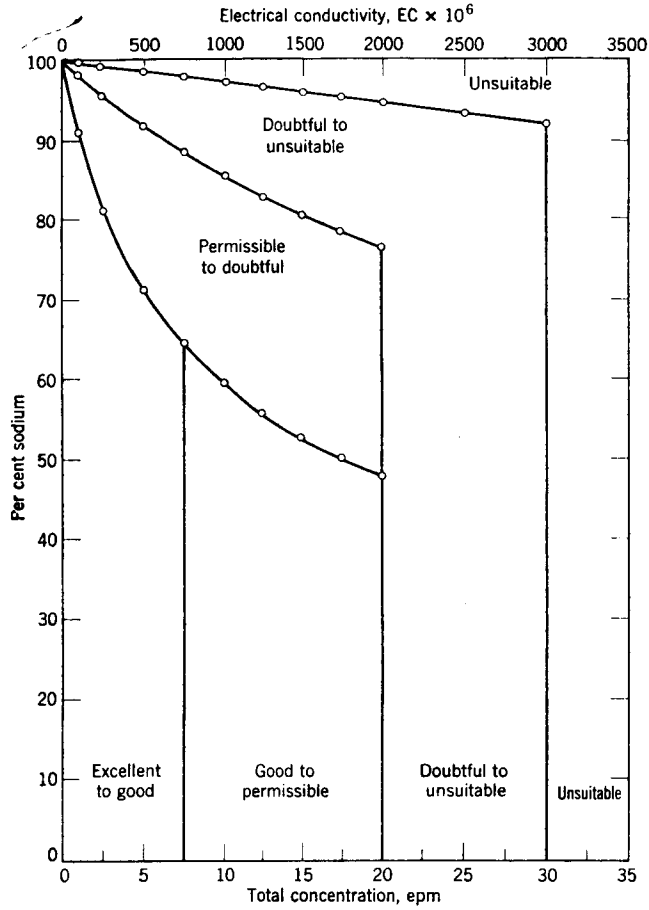


Figure 1. Diagram for irrigation water classification (from Wilcox).

Figure 1 (from Wilcox, [1948]) illustrates the interrelation between the total-solids content and the per cent sodium in irrigation waters. When the total solids are low, a high percentage of sodium is permissible, but as total solids increase the percentage of sodium in the water becomes more critical.

Table 2. Chemical Analyses of Groundwaters of East-Central Alberta - Bedrock Groundwaters

| Location | | | | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|----------------|-------------|--------------------|--------------------------|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|-------------|--|--------------------------|----------------|---------------|------|------------------|------|------|
| West of 1/4 | 4th Sec. | Meridian Tp. R. | SO ₄ (epm) | | | | | | | | | | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | | |
| NW | 9 | 38 | 14 | 96 | 1078 | 108 | 90 | 251 | 5 | 530 | 0.4 | 5.0+ | 6.3 | 0.2 | 10.6 | 0.03 | 1.8 | 15.3 | 17.1 | 89.5 | 16.2 |
| NW | 8 | 38 | 15 | 80 | 1724 | 112 | 60 | 236 | 14 | 1130 | 2.1 | 0.7 | 5.9 | 0.4 | 22.6 | 0.15 | 1.2 | 27.8 | 29.0 | 95.9 | 36.1 |
| | 24 | 38 | 16 | | 2176 | 88 | 55 | 34 | 478 | 1195 | 0.0 | 1.5 | 0.9 | 13.5 | 23.9 | 0.00 | 1.1 | 37.2 | 38.3 | 97.0 | 49.6 |
| | 27 | 38 | 17 | 125 | 1372 | 48 | 35 | 81 | 260 | 725 | 0.0 | 1.2 | 2.0 | 7.3 | 14.5 | 0.00 | 0.7 | 23.1 | 23.8 | 97.0 | 38.4 |
| | 17** | 39 | 2 | | 1100 | 112 | 10 | 194 | 8 | 600 | 0.2 | 0.3 | 4.8 | 0.2 | 12.0 | 0.01 | 0.2 | 16.9 | 17.1 | 98.8 | 53.4 |
| SE | 1** | 39 | 4 | | 1130 | 30 | 65 | 295 | 0 | 575 | 0.0 | 1.0 | 7.4 | 0.0 | 11.5 | 0.00 | 1.3 | 17.6 | 18.9 | 93.1 | 21.7 |
| | 14 | 39 | 14 | 190 | 1286 | 100 | 20 | 27 | 195 | 790 | 0.0 | 0.5 | 0.7 | 5.5 | 15.8 | 0.00 | 0.4 | 21.6 | 22.0 | 98.3 | 48.0 |
| SW | 3** | 40 | 5 | | 840 | 60 | 75 | 777 | 0 | 475 | 4.0 | 1.0 | 19.4 | 0.0 | 9.5 | 0.28 | 1.5 | 27.7 | 29.2 | 94.8 | 31.9 |
| SE | 20** | 40 | 6 | 300+ | 1080 | 70 | 10 | 240 | 7 | 550 | 0.0 | 0.9 | 6.0 | 0.2 | 11.0 | 0.00 | 0.2 | 17.0 | 17.2 | 98.8 | 53.7 |
| SW | 3 | 40 | 14 | 300 | 1088 | 68 | 25 | 31 | 207 | 600 | 0.0 | 5.0+ | 0.8 | 5.8 | 12.0 | 0.00 | 0.5 | 18.1 | 18.6 | 97.3 | 36.2 |
| | 16 | 40 | 14 | 93 | 514 | 150 | 305 | 98 | 9 | 310 | 4.8 | 0.0 | 2.5 | 0.2 | 6.2 | 0.34 | 6.1 | 3.1 | 9.2 | 33.7 | 1.8 |
| SW | 8 | 40 | 15 | 80 | 2390 | 120 | 70 | 565 | 30 | 1185 | 0.4 | 1.0 | 14.1 | 0.8 | 23.7 | 0.03 | 1.4 | 37.2 | 38.6 | 96.4 | 44.3 |
| | 16 | 40 | 15 | 102 | 1986 | 124 | 120 | 145 | 298 | 1105 | 0.0 | 0.4 | 3.6 | 8.4 | 22.1 | 0.00 | 2.4 | 31.7 | 34.1 | 92.4 | 37.8 |
| SW | 14 | 40 | 17 | 120 | 1500 | 110 | 50 | 413 | 21 | 620 | 1.2 | 0.4 | 10.3 | 0.6 | 12.4 | 0.08 | 1.0 | 22.3 | 23.3 | 95.8 | 31.8 |
| SE | 8** | 41 | 7 | 216 | 830 | 22 | 15 | 160 | 11 | 485 | 0.0 | 1.2 | 4.0 | 0.3 | 9.7 | 0.00 | 0.3 | 13.7 | 14.0 | 97.8 | 35.3 |
| SE | 8** | 41 | 7 | 110 | 846 | 76 | 10 | 149 | 5 | 510 | 0.0 | 0.8 | 3.7 | 0.1 | 10.2 | 0.00 | 0.2 | 13.9 | 14.1 | 98.5 | 43.8 |
| NE | 26** | 41 | 8 | 200 | 590 | 140 | 190 | 47 | 0 | 435 | 0.0 | 2.0 | 1.2 | 0.0 | 8.7 | 0.00 | 3.8 | 6.1 | 9.9 | 61.5 | 4.4 |
| SE | 10** | 41 | 14 | 280 | 886 | 90 | 140 | 240 | 10 | 400 | 0.0 | 1.2 | 6.0 | 0.3 | 8.0 | 0.00 | 2.8 | 11.5 | 14.3 | 80.3 | 9.7 |
| S1/2 | 36 | 42 | 2 | | 1180 | 80 | 175 | 14 | 360 | 535 | 0.0 | 1.8 | 0.4 | 10.2 | 10.7 | 0.00 | 3.5 | 17.7 | 21.2 | 83.4 | 13.3 |
| | 20 | 42 | 4 | 320 | 430 | 140 | 280 | 26 | 1 | 360 | 0.0 | 2.0 | 0.7 | 0.0 | 7.2 | 0.00 | 5.6 | 2.3 | 7.9 | 29.1 | 0.9 |
| NW | 23 | 42 | 4 | 150 | 338 | 128 | 220 | 5 | 2 | 290 | Tr | 2.6 | 0.1 | 0.1 | 5.8 | 0.01 | 4.4 | 1.6 | 6.0 | 26.6 | 0.8 |
| NW | 9 | 42 | 11 | | 876 | 104 | 140 | 232 | 4 | 400 | 1.4 | 1.7 | 5.8 | 0.1 | 8.0 | 0.10 | 2.8 | 11.2 | 14.0 | 80.0 | 9.5 |
| NE | 25 | 42 | 14 | 290 | 2180 | 440 | 60 | 0 | 1075 | 330 | 0.0 | 1.5 | 0.0 | 30.3 | 6.6 | 0.00 | 1.2 | 35.7 | 36.9 | 96.7 | 46.1 |
| SW | 21 | 42 | 16 | 300+ | 674 | 122 | 10 | 0 | 31 | 480 | 0.0 | 0.0 | 0.0 | 0.9 | 9.6 | 0.00 | 0.2 | 10.3 | 10.5 | 98.0 | 32.4 |
| NW | 17 | 43 | 1 | 235 | 720 | 188 | 375 | 144 | 11 | 420 | 0.0 | 1.0 | 3.6 | 0.3 | 8.4 | 0.00 | 7.5 | 4.8 | 12.3 | 39.0 | 24.8 |
| | 17** | 43 | 2 | 100 | 880 | 62 | 30 | 39 | 65 | 620 | 0.0 | 0.5 | 1.0 | 1.8 | 12.4 | 0.00 | 0.6 | 14.6 | 15.2 | 96.0 | 26.6 |
| | 3 | 43 | 4 | 10 | 279 | 130 | 250 | 10 | 2 | 250 | Tr | 0.2 | 0.1 | 0.1 | 5.8 | 0.00 | 4.4 | 1.6 | 6.0 | 26.4 | 10.6 |
| SW | 11 | 43 | 4 | 150 | 366 | 26 | 55 | 140 | 2 | 315 | 0.4 | 0.5 | 3.5 | 0.1 | 6.3 | 0.00 | 1.1 | 8.8 | 9.9 | 88.8 | 11.8 |
| SW | 6** | 43 | 9 | 300+ | 736 | 96 | 150 | 126 | 2 | 460 | 0.0 | 1.0 | 3.2 | 0.1 | 9.2 | 0.00 | 3.0 | 9.4 | 12.4 | 75.8 | 7.7 |
| SW | 6** | 43 | 9 | | 496 | 160 | 400 | 84 | 20 | 275 | 0.4 | 0.5 | 2.1 | 0.6 | 5.5 | 0.03 | 8.0 | 0.2 | 8.2 | 2.4 | 0.1 |
| S1/2 | 27 | 43 | 11 | | 1230 | 32 | 55 | 262 | 14 | 695 | 0.0 | 0.1 | 6.6 | 0.4 | 13.9 | 0.00 | 1.1 | 19.7 | 20.8 | 94.7 | 26.6 |
| SE | 1** | 44 | 4 | 220 | 544 | 46 | 15 | 61 | 0 | 375 | Tr | 0.2 | 1.5 | 0.0 | 7.5 | 0.00 | 0.3 | 8.7 | 9.0 | 96.6 | 22.5 |
| SE | 1** | 44 | 4 | | 554 | 32 | 15 | 31 | 1 | 445 | Tr | 0.2 | 0.8 | 0.0 | 8.9 | 0.00 | 0.3 | 9.4 | 9.7 | 96.9 | 24.2 |
| SE | 1** | 44 | 4 | 220 | 492 | 70 | 10 | 0 | 1 | 400 | 0.1 | 0.0 | 0.0 | 0.0 | 8.0 | 0.00 | 0.2 | 7.8 | 8.0 | 97.5 | 24.7 |
| SE | 1** | 44 | 4 | 200 | 632 | 68 | 15 | 37 | 1 | 475 | Tr | 0.0 | 0.9 | 0.0 | 9.5 | 0.00 | 0.3 | 10.2 | 10.5 | 97.1 | 26.2 |
| NE | 11** | 44 | 4 | 300 | 646 | 22 | 20 | 59 | 0 | 500 | 0.0 | 0.3 | 1.5 | 0.0 | 10.0 | 0.00 | 0.4 | 11.1 | 11.5 | 96.5 | 24.7 |
| | 1 | 44 | 5 | 200 | 422 | 194 | 310 | 26 | 2 | 315 | 1.4 | 0.6 | 0.6 | 0.1 | 6.3 | 0.10 | 6.2 | 0.9 | 7.1 | 12.7 | 0.5 |
| NW | 20 | 44 | 5 | 220 | 978 | 88 | 20 | 145 | 17 | 580 | 0.0 | 0.0 | 3.6 | 0.5 | 11.6 | 0.00 | 0.4 | 15.3 | 15.7 | 97.4 | 34.2 |
| NE | 12 | 44 | 6 | 270 | 958 | 58 | 85 | 143 | 7 | 640 | 0.0 | 0.4 | 3.6 | 0.2 | 12.8 | 0.00 | 1.7 | 14.9 | 16.6 | 89.7 | 16.1 |
| | 30-31** | 44 | 6 | 250 | 820 | 78 | 75 | 150 | 6 | 570 | 0.0 | 0.2 | 3.8 | 0.2 | 11.4 | 0.00 | 1.5 | 13.8 | 15.3 | 90.2 | 15.9 |
| | 30-31** | 44 | 6 | | 970 | 30 | 25 | 246 | 8 | 475 | 4.2 | 0.3 | 6.2 | 0.2 | 9.5 | 0.30 | 0.5 | 15.7 | 16.2 | 96.9 | 31.3 |
| | 30-31** | 44 | 6 | 240 | 1040 | 70 | 15 | 218 | 6 | 550 | 0.0 | 0.0 | 5.4 | 0.2 | 11.0 | 0.00 | 0.3 | 16.3 | 16.6 | 98.1 | 42.1 |

1/4 = quarter, i.e. NW, NE, SW, or SE

Sec. = section

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

SAR = sodium adsorption ratio

Tr = trace

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

| | | | | | | | | | | | | | | | | | | | | | |
|------|------|----|----|-----|------|-----|-----|------|------|-----|-----|-----|------|------|------|------|------|------|-------|------|------|
| S1/2 | 29 | 47 | 8 | 120 | 940 | 82 | 115 | 214 | 4 | 500 | 0.0 | 0.2 | 5.4 | 0.1 | 10.0 | 0.00 | 2.3 | 13.2 | 15.5 | 85.1 | 12.2 |
| NW | 22 | 47 | 9 | 170 | 1770 | 274 | 500 | 572 | 7 | 680 | 0.4 | 0.3 | 14.3 | 0.2 | 13.6 | 0.03 | 10.0 | 18.1 | 28.1 | 64.4 | 8.1 |
| SE | 35 | 47 | 11 | 264 | 904 | 80 | 40 | 0 | 78 | 645 | 0.0 | 0.0 | 0.0 | 2.2 | 12.9 | 0.00 | 0.8 | 14.3 | 15.1 | 94.7 | 22.6 |
| NE | 26 | 47 | 12 | 180 | 954 | 34 | 60 | 193 | 9 | 560 | 0.0 | 0.0 | 4.8 | 0.3 | 11.2 | 0.00 | 1.2 | 15.1 | 16.3 | 92.6 | 19.4 |
| NE | 27 | 47 | 12 | | 908 | 56 | 40 | 29 | 94 | 685 | Tr | 0.0 | 0.7 | 2.7 | 13.7 | 0.01 | 0.8 | 16.3 | 17.1 | 95.5 | 26.5 |
| NW | 36** | 47 | 13 | | 1832 | 96 | 40 | 191 | 580 | 435 | 0.0 | 0.0 | 4.8 | 16.4 | 8.7 | 0.00 | 0.8 | 29.0 | 29.8 | 97.3 | 45.9 |
| NW | 36** | 47 | 13 | | 2174 | 100 | 40 | 0 | 1061 | 325 | 0.0 | 0.0 | 0.0 | 29.9 | 6.5 | 0.00 | 0.8 | 35.6 | 36.4 | 97.8 | 56.3 |
| NW | 36** | 47 | 13 | | 1060 | 100 | 10 | 0 | 212 | 600 | 0.0 | 0.5 | 0.0 | 6.0 | 12.0 | 0.00 | 0.2 | 17.8 | 18.0 | 98.8 | 56.2 |
| NW | 36** | 47 | 13 | 110 | 1520 | 62 | 50 | 490 | 56 | 490 | Tr | 0.0 | 12.2 | 1.6 | 9.8 | 0.00 | 1.0 | 22.6 | 23.6 | 95.7 | 32.0 |
| NW | 36** | 47 | 13 | 125 | 1860 | 78 | 140 | 671 | 20 | 600 | 0.2 | 0.2 | 16.8 | 0.6 | 12.0 | 0.01 | 2.8 | 26.6 | 29.4 | 90.4 | 22.4 |
| | 15 | 47 | 15 | 270 | 1690 | 46 | 135 | 104 | 700 | 355 | 0.0 | 0.8 | 2.6 | 19.7 | 7.1 | 0.00 | 2.7 | 26.7 | 29.4 | 90.8 | 23.0 |
| NE | 21 | 47 | 15 | 250 | 2070 | 106 | 40 | 85 | 965 | 355 | 0.0 | 0.5 | 2.1 | 27.2 | 7.1 | 0.00 | 0.8 | 35.6 | 36.4 | 97.8 | 56.3 |
| | 22 | 47 | 15 | 485 | 2310 | 60 | 140 | 46 | 1100 | 400 | 0.0 | 1.2 | 1.2 | 31.0 | 8.0 | 0.00 | 2.8 | 37.4 | 40.2 | 93.0 | 31.5 |
| SW | 28 | 47 | 15 | 180 | 2150 | 100 | 65 | 20 | 1050 | 300 | Tr | 0.5 | 0.5 | 29.6 | 6.0 | 0.00 | 1.3 | 34.8 | 36.1 | 96.3 | 43.1 |
| SW | 33 | 47 | 15 | 265 | 3700 | 116 | 100 | 0 | 2115 | 180 | 0.0 | 0.2 | 0.0 | 59.6 | 3.6 | 0.00 | 2.0 | 61.2 | 63.2 | 96.8 | 61.2 |
| SW | 26 | 47 | 16 | 363 | 6090 | 468 | 280 | Tr | 3500 | 135 | 0.0 | Tr | 0.0 | 98.7 | 2.7 | 0.00 | 5.6 | 95.8 | 101.4 | 94.4 | 57.2 |
| | 30 | 47 | 16 | 110 | 2110 | 170 | 135 | 740 | 14 | 635 | 0.0 | 0.4 | 18.5 | 0.4 | 12.7 | 0.00 | 2.7 | 28.9 | 31.6 | 91.4 | 24.8 |
| NW | 21 | 48 | 1 | 114 | 1110 | 300 | 350 | 306 | 9 | 445 | 0.0 | 4.0 | 7.6 | 0.3 | 8.9 | 0.00 | 7.0 | 9.8 | 16.8 | 58.3 | 5.2 |
| SE | 25 | 48 | 1 | 100 | 1104 | 52 | 40 | 363 | 3 | 400 | 0.6 | 0.2 | 9.1 | 0.1 | 8.0 | 0.00 | 0.8 | 16.4 | 17.2 | 95.3 | 25.9 |
| NE | 32 | 48 | 1 | 98 | 1160 | 212 | 520 | 400 | 9 | 405 | 0.8 | 1.2 | 10.0 | 0.3 | 8.1 | 0.06 | 10.4 | 8.0 | 18.4 | 43.5 | 3.5 |
| NE | 33 | 48 | 1 | 140 | 820 | 136 | 235 | 249 | 10 | 325 | 0.0 | 2.5 | 6.2 | 0.3 | 6.5 | 0.00 | 4.7 | 8.3 | 13.0 | 63.8 | 5.4 |
| NW | 23 | 48 | 2 | 105 | 1860 | 280 | 650 | 747 | 11 | 400 | 0.0 | 5.2 | 18.7 | 0.3 | 8.0 | 0.00 | 13.0 | 14.0 | 27.0 | 51.8 | 5.5 |
| NW | 18 | 48 | 4 | 140 | 762 | 66 | 97 | 54 | 25 | 575 | 0.0 | 1.0 | 1.4 | 0.7 | 11.5 | 0.00 | 1.9 | 11.6 | 13.5 | 85.6 | 11.7 |
| SW | 20 | 48 | 4 | 149 | 756 | 64 | 64 | 22 | 29 | 600 | 0.0 | 0.8 | 0.6 | 0.8 | 12.0 | 0.00 | 1.3 | 12.1 | 13.4 | 90.4 | 15.1 |
| NW | 20* | 48 | 4 | 34 | 1640 | 112 | 250 | 600 | 15 | 415 | 0.0 | 0.4 | 15.0 | 0.4 | 8.3 | 0.00 | 5.0 | 18.7 | 23.7 | 78.9 | 11.8 |
| NW | 20* | 48 | 4 | 140 | 2450 | 112 | 230 | 1070 | 18 | 460 | 0.0 | 0.3 | 26.8 | 0.5 | 9.2 | 0.00 | 4.6 | 31.8 | 36.4 | 87.3 | 21.0 |
| NW | 21 | 48 | 4 | 140 | 776 | 78 | 160 | 0 | 38 | 680 | 0.0 | 0.2 | 0.0 | 1.1 | 13.6 | 0.00 | 3.2 | 11.5 | 14.7 | 78.1 | 9.1 |
| SW | 27 | 48 | 4 | 140 | 872 | 82 | 80 | 60 | 38 | 620 | 0.0 | 0.2 | 1.5 | 1.1 | 12.4 | 0.00 | 1.6 | 13.4 | 15.0 | 89.3 | 14.9 |
| NE | 34 | 48 | 4 | 64 | 886 | 112 | 220 | 230 | 9 | 435 | Tr | 1.3 | 5.8 | 0.3 | 8.7 | 0.00 | 4.4 | 10.3 | 14.7 | 70.0 | 6.9 |
| NW | 12 | 48 | 5 | 150 | 1220 | 220 | 390 | 453 | 18 | 300 | Tr | 1.1 | 11.3 | 0.5 | 6.0 | 0.00 | 7.8 | 10.0 | 17.8 | 56.2 | 5.1 |
| W1/2 | 28 | 48 | 5 | 180 | 924 | 20 | 15 | 215 | 7 | 490 | 0.0 | 0.8 | 5.4 | 0.2 | 9.8 | 0.00 | 0.3 | 15.1 | 15.4 | 98.0 | 38.9 |
| NW | 8 | 48 | 7 | 200 | 762 | 524 | 625 | 0 | 475 | 0.0 | 3.0 | 0.0 | 0.0 | 9.5 | 0.00 | 12.5 | 3.0 | 15.5 | 31.5 | 1.2 | |
| SW | 15 | 48 | 7 | 180 | 550 | 200 | 425 | 75 | 0 | 390 | Tr | 0.0 | 1.9 | 0.0 | 7.8 | 0.00 | 8.5 | 1.2 | 9.7 | 12.1 | 0.6 |
| NW | 30 | 48 | 7 | 120 | 614 | 248 | 500 | 67 | 1 | 435 | 0.2 | 0.4 | 1.7 | 0.0 | 8.7 | 0.01 | 10.0 | 0.4 | 10.4 | 4.0 | 0.2 |
| NW | 12 | 48 | 9 | 260 | 760 | 54 | 25 | 19 | 17 | 620 | 0.0 | 0.3 | 0.5 | 0.5 | 12.4 | 0.00 | 0.5 | 12.8 | 13.3 | 96.2 | 25.7 |
| NE | 2 | 48 | 10 | 200 | 1840 | 116 | 160 | 670 | 18 | 560 | 1.0 | 0.3 | 16.8 | 0.5 | 11.2 | 0.07 | 3.2 | 25.3 | 28.5 | 88.7 | 20.0 |
| NW | 14 | 48 | 10 | 274 | 1610 | 148 | 105 | 437 | 36 | 740 | 0.0 | 0.2 | 10.9 | 1.0 | 14.8 | 0.00 | 2.1 | 24.6 | 26.7 | 92.1 | 24.0 |
| SW | 6 | 48 | 12 | 125 | 1770 | 72 | 40 | 645 | 23 | 505 | 0.0 | 0.3 | 16.1 | 0.6 | 10.1 | 0.00 | 0.8 | 26.1 | 26.9 | 97.0 | 41.2 |
| NW | 6 | 48 | 12 | 140 | 2200 | 58 | 70 | 668 | 38 | 875 | Tr | 0.0 | 16.7 | 1.1 | 17.5 | 0.00 | 1.4 | 33.9 | 35.3 | 96.0 | 40.4 |
| NW | 7 | 48 | 12 | 150 | 2480 | 68 | 70 | 908 | 21 | 760 | Tr | 0.0 | 22.7 | 0.6 | 15.2 | 0.01 | 1.4 | 37.1 | 38.5 | 96.4 | 46.4 |
| NW | 16 | 48 | 12 | 300 | 1920 | 50 | 55 | 551 | 39 | 810 | 0.0 | 0.0 | 13.8 | 1.1 | 16.2 | 0.00 | 1.1 | 30.0 | 31.1 | 96.4 | 40.4 |
| NW | 31** | 48 | 12 | 140 | 3110 | 100 | 90 | 1270 | 23 | 725 | 0.0 | 0.2 | 31.8 | 0.6 | 14.5 | 0.00 | 1.8 | 45.1 | 46.9 | 96.1 | 47.5 |
| NW | 31** | 48 | 12 | 140 | 3060 | 180 | 70 | 1234 | 24 | 655 | 0.0 | 0.3 | 30.8 | 0.7 | 13.1 | 0.00 | 1.4 | 43.2 | 44.6 | 96.8 | 51.6 |
| NW | 31** | 48 | 12 | 140 | 1190 | 92 | 60 | 0 | 267 | 645 | Tr | 0.0 | 0.0 | 7.5 | 12.9 | 0.00 | 1.2 | 19.2 | 20.4 | 94.1 | 24.8 |
| NW | 31** | 48 | 12 | 750 | 3880 | 164 | 185 | 0 | 2070 | 710 | 0.0 | 0.3 | 0.0 | 58.3 | 7.4 | 0.00 | 3.7 | 62.0 | 65.7 | 94.3 | 45.6 |
| SE | 36 | 48 | 12 | 125 | 1900 | 90 | 55 | 590 | 26 | 710 | Tr | 0.0 | 14.8 | 0.7 | 14.2 | 0.00 | 1.1 | 28.6 | 29.7 | 96.2 | 38.5 |
| NE | 2 | 48 | 13 | 130 | 966 | 30 | 10 | 201 | 20 | 520 | 1.5 | 0.2 | 5.0 | 0.6 | 10.4 | 0.11 | 0.2 | 15.9 | 16.1 | 98.7 | 50.2 |
| SE | 10 | 48 | 13 | 140 | 1880 | 60 | 60 | 522 | 26 | 830 | Tr | 0.0 | 13.0 | 0.7 | 16.6 | 0.00 | 1.2 | 29.2 | 30.4 | 96.0 | 37.6 |
| NE | 12 | 48 | 13 | 80 | 2270 | 102 | 70 | 737 | 18 | 820 | Tr | 0.0 | 18.4 | 0.5 | 16.4 | 0.00 | 1.4 | 33.9 | 35.3 | 96.0 | 40.5 |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

Tr = trace

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Chemical Analyses of Groundwaters of East-Central Alberta - Bedrock Groundwaters (Cont'd.)

| Location | | | | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|----------------|-------------|-----------------|----|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|------|
| West of 1/4 | 4th Sec. | Meridian Tp. | R. | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| SE | 31** | 44 | 6 | 190 | 740 | 88 | 210 | 140 | 3 | 475 | 1.2 | 0.2 | 3.5 | 0.1 | 9.5 | 0.10 | 4.2 | 9.0 | 13.2 | 68.1 | 6.2 |
| SE | 31** | 44 | 12 | 340 | 1090 | 42 | 45 | 1 | 308 | 530 | 0.0 | 0.6 | 0.0 | 8.7 | 10.6 | 0.00 | 0.9 | 18.4 | 19.3 | 95.3 | 27.4 |
| NE | 23 | 44 | 15 | 200 | 834 | 64 | 100 | 95 | 80 | 490 | 0.0 | 1.5 | 2.4 | 2.3 | 9.8 | 0.00 | 2.0 | 12.4 | 14.4 | 86.1 | 12.4 |
| NW | 31 | 45 | 1 | 392 | 1420 | 70 | 30 | 145 | 265 | 635 | 0.4 | 2.5 | 3.6 | 7.5 | 12.7 | 0.00 | 0.6 | 23.2 | 23.8 | 97.4 | 42.4 |
| NW | 34 | 45 | 1 | 90 | 1680 | 226 | 375 | 631 | 13 | 475 | 0.4 | 3.2 | 15.8 | 0.4 | 9.5 | 0.00 | 7.5 | 18.2 | 25.7 | 70.7 | 9.4 |
| SE | 14 | 45 | 2 | 400 | 2180 | 186 | 35 | 0 | 950 | 520 | 0.0 | 1.2 | 0.0 | 26.8 | 10.4 | 0.00 | 0.7 | 36.5 | 37.2 | 98.1 | 61.6 |
| NE | 16 | 45 | 2 | 340 | 1520 | 242 | 25 | 0 | 525 | 575 | 0.0 | 0.3 | 0.0 | 14.8 | 11.5 | 0.00 | 0.5 | 25.8 | 26.3 | 98.0 | 51.6 |
| SW | 6 | 45 | 6 | 220 | 864 | 42 | 20 | 137 | 12 | 535 | 0.0 | 0.2 | 3.4 | 0.4 | 10.7 | 0.00 | 0.4 | 14.1 | 14.5 | 97.2 | 31.4 |
| SW | 17 | 45 | 6 | 265 | 1030 | 70 | 80 | 251 | 8 | 510 | 0.0 | 0.2 | 6.3 | 0.2 | 10.2 | 0.00 | 1.6 | 15.1 | 16.7 | 90.4 | 16.8 |
| SW | 30 | 45 | 6 | 220 | 712 | 110 | 80 | 68 | 5 | 485 | 0.0 | 0.2 | 1.7 | 0.1 | 9.7 | 0.00 | 1.6 | 9.9 | 11.5 | 86.1 | 11.1 |
| SW | 16 | 45 | 7 | 200 | 1060 | 32 | 20 | 103 | 24 | 770 | 0.5 | 0.2 | 2.6 | 0.7 | 15.4 | 0.00 | 0.4 | 18.3 | 18.7 | 97.8 | 40.8 |
| NW | 19* | 45 | 7 | 180 | 1540 | 314 | 540 | 401 | 8 | 725 | 0.0 | 1.5 | 10.0 | 0.2 | 14.5 | 0.00 | 10.8 | 14.0 | 24.8 | 56.3 | 6.0 |
| NW | 19* | 45 | 7 | 180 | 1570 | 310 | 600 | 396 | 6 | 800 | 0.0 | 1.2 | 9.9 | 0.2 | 16.0 | 0.00 | 12.0 | 14.1 | 26.1 | 53.9 | 5.7 |
| SW | 16 | 45 | 9 | 150 | 946 | 220 | 580 | 268 | 4 | 435 | 0.0 | 1.8 | 6.7 | 0.1 | 8.7 | 0.00 | 11.6 | 3.9 | 15.5 | 25.2 | 1.6 |
| NW | 27** | 45 | 9 | 200 | 1060 | 42 | 20 | 195 | 10 | 620 | 0.0 | 0.5 | 4.9 | 0.3 | 12.4 | 0.00 | 0.4 | 17.2 | 17.6 | 97.7 | 38.3 |
| NW | 27** | 45 | 9 | 240 | 934 | 70 | 30 | 90 | 22 | 645 | Tr | 0.0 | 2.2 | 0.6 | 12.9 | 0.00 | 0.6 | 15.2 | 15.8 | 96.1 | 27.6 |
| NW | 27** | 45 | 9 | 212 | 1540 | 66 | 40 | 447 | 13 | 640 | Tr | 0.3 | 11.2 | 0.4 | 12.8 | 0.00 | 0.8 | 23.5 | 24.3 | 96.7 | 37.2 |
| SW | 35 | 45 | 11 | 180 | 1610 | 312 | 15 | 243 | 8 | 805 | 0.0 | 5.0* | 6.1 | 0.2 | 16.1 | 0.00 | 0.3 | 22.1 | 22.4 | 98.6 | 57.0 |
| NW | 30** | 45 | 17 | | 1350 | 52 | 20 | 4 | 355 | 670 | 0.0 | 1.1 | 0.1 | 10.0 | 13.4 | 0.00 | 0.4 | 23.1 | 23.5 | 98.2 | 51.6 |
| NW | 18 | 46 | 1 | 200 | 2020 | 320 | 850 | 762 | 8 | 600 | 0.0 | 1.5 | 19.0 | 0.2 | 12.0 | 0.00 | 17.0 | 14.3 | 31.3 | 45.6 | 4.9 |
| NW | 35* | 46 | 1 | 100 | 516 | 196 | 365 | 61 | 4 | 365 | 0.0 | 1.5 | 1.5 | 0.1 | 7.3 | 0.00 | 7.3 | 1.6 | 8.9 | 18.3 | 0.9 |
| NW | 35* | 46 | 1 | 175 | 398 | 162 | 330 | 33 | 4 | 305 | 2.0 | 1.8 | 0.8 | 0.1 | 6.1 | 0.10 | 6.6 | 5.8 | 12.4 | 8.1 | 0.3 |
| SW | 25 | 46 | 2 | 195 | 1580 | 116 | 320 | 582 | 8 | 585 | 0.0 | 0.0 | 14.6 | 0.2 | 11.7 | 0.00 | 6.4 | 20.1 | 26.5 | 75.8 | 11.2 |
| SE | 25 | 46 | 2 | 120 | 1100 | 328 | 700 | 260 | 11 | 520 | 0.0 | 3.5 | 6.5 | 0.3 | 10.4 | 0.00 | 14.0 | 3.2 | 17.2 | 18.6 | 1.2 |
| SW | 18 | 46 | 3 | 210 | 1330 | 48 | 35 | 210 | 38 | 820 | 0.0 | 0.0 | 5.2 | 1.1 | 16.4 | 0.00 | 0.7 | 22.0 | 22.7 | 96.9 | 37.2 |
| NW | 25 | 46 | 3 | 160 | 1250 | 25 | 10 | 370 | 7 | 535 | 1.0 | 1.3 | 9.2 | 0.2 | 10.7 | 0.10 | 0.2 | 20.0 | 20.2 | 99.0 | 63.3 |
| SW | 16 | 46 | 5 | 200 | 726 | 46 | 40 | 71 | 4 | 535 | 0.0 | 1.2 | 1.8 | 0.1 | 10.7 | 0.00 | 0.8 | 11.8 | 12.6 | 93.6 | 18.6 |
| SW | 13 | 46 | 7 | 285 | 1100 | 36 | 65 | 289 | 0 | 550 | 0.0 | 1.2 | 7.2 | 0.0 | 11.0 | 0.00 | 1.3 | 16.9 | 18.2 | 92.8 | 20.9 |
| | 10 | 46 | 8 | 210 | 1240 | 102 | 265 | 357 | 4 | 595 | 0.0 | 0.7 | 8.9 | 0.1 | 11.9 | 0.00 | 5.3 | 15.6 | 20.9 | 74.6 | 9.6 |
| SE | 4* | 46 | 9 | 190 | 702 | 52 | 60 | 89 | 2 | 490 | 0.0 | 0.7 | 2.2 | 0.1 | 9.8 | 0.00 | 1.2 | 10.9 | 12.1 | 90.0 | 14.0 |
| SE | 4* | 46 | 9 | 175 | 1040 | 30 | 35 | 201 | 3 | 630 | 0.6 | 1.0 | 5.0 | 0.1 | 12.6 | 0.04 | 0.7 | 17.0 | 17.7 | 96.0 | 28.8 |
| NE | 12 | 46 | 9 | 80 | 680 | 180 | 330 | 162 | 1 | 355 | 0.0 | 0.1 | 4.0 | 0.0 | 7.1 | 0.00 | 6.6 | 4.6 | 11.2 | 40.9 | 2.5 |
| | 16 | 46 | 10 | 190 | 1730 | 58 | 30 | 531 | 13 | 685 | 0.0 | 0.5 | 13.3 | 0.4 | 13.7 | 0.00 | 0.6 | 26.7 | 27.3 | 97.8 | 48.8 |
| SW | 27 | 46 | 11 | 269 | 1320 | 54 | 5 | 410 | 6 | 505 | 0.0 | 0.3 | 10.2 | 0.2 | 10.1 | 0.00 | 0.1 | 20.4 | 20.5 | 99.5 | 91.3 |
| | 27** | 46 | 11 | 230 | 802 | 102 | 15 | 31 | 17 | 590 | 0.8 | 0.5 | 0.8 | 0.5 | 11.8 | 0.10 | 0.3 | 12.8 | 13.1 | 97.7 | 33.0 |
| | 27** | 46 | 11 | 250 | 1270 | 450 | 20 | 136 | 9 | 540 | 0.1 | 0.1 | 3.4 | 0.3 | 10.8 | 0.01 | 0.4 | 14.1 | 14.5 | 97.2 | 31.4 |
| | 6** | 47 | 2 | 158 | 518 | 66 | 220 | 56 | 7 | 365 | 0.8 | 1.0 | 1.4 | 0.2 | 7.3 | 0.10 | 4.4 | 4.6 | 9.0 | 50.8 | 3.1 |
| | 6** | 47 | 2 | 150 | 632 | 92 | 270 | 136 | 6 | 400 | 0.6 | 1.0 | 3.4 | 0.2 | 8.0 | 0.04 | 5.4 | 6.2 | 11.6 | 53.4 | 3.8 |
| | 6** | 47 | 2 | 130 | 728 | 126 | 275 | 180 | 3 | 380 | 1.0 | 2.1 | 4.5 | 0.1 | 7.6 | 0.10 | 5.5 | 6.8 | 12.3 | 55.1 | 4.1 |
| NW | 16 | 47 | 2 | 320 | 1210 | 50 | 20 | 284 | 6 | 620 | Tr | 0.5 | 7.1 | 0.2 | 12.4 | 0.00 | 0.4 | 19.3 | 19.7 | 97.9 | 43.0 |
| NW | 28 | 47 | 2 | 200 | 954 | 68 | 75 | 239 | 12 | 455 | 2.0 | 1.2 | 6.0 | 0.4 | 9.1 | 0.10 | 1.5 | 14.0 | 15.5 | 90.3 | 16.2 |
| SE | 23 | 47 | 3 | 250 | 1680 | 122 | 175 | 17 | 560 | 650 | 0.0 | 1.5 | 0.4 | 15.8 | 13.0 | 0.00 | 3.5 | 25.7 | 29.2 | 88.0 | 19.4 |
| SE | 36 | 47 | 3 | 120 | 1140 | 328 | 595 | 280 | 6 | 540 | 0.0 | 0.2 | 7.0 | 0.2 | 10.8 | 0.00 | 11.9 | 6.1 | 18.0 | 33.7 | 2.5 |
| NE | 24 | 47 | 4 | 80 | 1230 | 160 | 355 | 272 | 0 | 725 | 0.0 | 3.0 | 6.8 | 0.0 | 14.5 | 0.00 | 7.1 | 14.2 | 21.3 | 66.6 | 7.5 |
| | 22 | 47 | 7 | 120 | 1230 | 272 | 910 | 413 | 9 | 370 | 0.0 | 0.4 | 10.3 | 0.3 | 7.4 | 0.00 | 18.2 | 0.2 | 18.4 | 1.2 | 0.1 |

Chemical Analyses of Groundwaters of East-Central Alberta - Bedrock Groundwaters (Cont'd.)

| Location | | | | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|-----------------------------|------|-----|----|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|-------|
| West of 4th Meridian 1/4 | Sec. | Tp. | R. | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| NE | 30** | 48 | 14 | 250 | 4070 | 120 | 125 | 33 | 2300 | 145 | 0.0 | 0.3 | 0.8 | 64.9 | 2.9 | 0.00 | 2.5 | 66.1 | 68.6 | 96.3 | 59.1 |
| NE | 30** | 48 | 14 | 250 | 3960 | 658 | 185 | 0 | 1915 | 170 | 0.0 | 0.0 | 0.0 | 54.0 | 3.4 | 0.00 | 3.7 | 53.7 | 57.4 | 93.5 | 39.4 |
| SW | 9 | 48 | 17 | 70 | 1910 | 72 | 71 | 958 | 9 | 155 | 2.0 | 3.8 | 24.0 | 0.3 | 3.1 | 0.14 | 1.4 | 26.0 | 27.4 | 94.8 | 30.8 |
| NE | 2 | 49 | 1 | 146 | 1430 | 84 | 90 | 620 | 23 | 245 | Tr | 3.0 | 15.5 | 0.6 | 4.9 | 0.00 | 1.8 | 19.2 | 21.0 | 91.4 | 20.2 |
| NW | 5 | 49 | 1 | 145 | 948 | 114 | 455 | 352 | 9 | 350 | 0.6 | 2.0 | 8.8 | 0.3 | 7.0 | 0.04 | 9.1 | 7.0 | 16.1 | 43.4 | 3.3 |
| NE | 19 | 49 | 1 | 140 | 740 | 106 | 275 | 120 | 20 | 425 | 5.3 | 0.4 | 3.0 | 0.6 | 8.5 | 0.38 | 5.5 | 6.9 | 12.4 | 55.7 | 4.2 |
| NW | 21 | 49 | 1 | 100 | 3940 | 740 | 1000+ | 1592 | 17 | 630 | 1.0 | 2.2 | 39.8 | 0.5 | 12.6 | 0.07 | 20.0+ | 33.0 | 53.0 | 62.2 | 10.4 |
| NW | 28 | 49 | 1 | 120 | 2350 | 444 | 930 | 860 | 31 | 600 | 0.0 | 3.4 | 21.5 | 0.9 | 12.0 | 0.00 | 18.6 | 15.8 | 34.4 | 45.8 | 5.2 |
| SW | 30 | 49 | 1 | 120 | 1140 | 184 | 250 | 338 | 13 | 440 | 0.0 | 1.0 | 8.4 | 0.4 | 8.8 | 0.00 | 5.0 | 12.6 | 17.6 | 71.6 | 8.0 |
| SE | 32 | 49 | 1 | 150 | 1080 | 240 | 500 | 292 | 25 | 490 | 0.0 | 1.8 | 7.3 | 0.7 | 9.8 | 0.00 | 7.8 | 7.8 | 17.8 | 43.8 | 3.5 |
| NW | 33 | 49 | 1 | 160 | 964 | 202 | 390 | 228 | 30 | 775 | 1.6 | 0.0 | 5.7 | 0.8 | 15.5 | 0.11 | 7.8 | 14.4 | 22.2 | 64.8 | 7.3 |
| NW | 36* | 49 | 1 | 180 | 1510 | 280 | 540 | 501 | 61 | 430 | 4.4 | 1.3 | 12.5 | 1.7 | 8.6 | 0.31 | 10.8 | 12.4 | 23.2 | 53.3 | 5.3 |
| NW | 36* | 49 | 1 | 180 | 1540 | 266 | 525 | 522 | 65 | 425 | Tr | 3.9 | 13.0 | 1.8 | 8.5 | 0.00 | 10.5 | 12.9 | 23.4 | 55.0 | 5.6 |
| SE | 22 | 49 | 2 | 200 | 1290 | 362 | 695 | 432 | 10 | 375 | 1.0 | 2.6 | 10.8 | 0.3 | 7.5 | 0.07 | 13.9 | 4.8 | 18.7 | 25.4 | 1.8 |
| SW | 24 | 49 | 2 | 180 | 804 | 100 | 195 | 230 | 4 | 365 | Tr | 1.5 | 5.8 | 0.1 | 7.3 | 0.00 | 3.9 | 9.3 | 13.2 | 70.3 | 6.6 |
| NW | 16 | 49 | 3 | 260 | 820 | 60 | 20 | 157 | 14 | 440 | 4.0 | 0.2 | 3.9 | 0.4 | 8.8 | 0.28 | 0.4 | 13.0 | 13.4 | 97.0 | 29.0 |
| NE | 25 | 49 | 3 | 150 | 1450 | 96 | 65 | 494 | 28 | 435 | 1.6 | 0.6 | 12.4 | 0.8 | 8.7 | 0.11 | 1.3 | 20.6 | 21.9 | 94.0 | 25.6 |
| SW | 12 | 49 | 4 | 305 | 636 | 30 | 5 | 55 | 5 | 475 | 0.0 | 0.8 | 1.4 | 0.1 | 9.5 | 0.00 | 0.1 | 10.9 | 11.0 | 99.0 | 48.8 |
| SW | 22 | 49 | 5 | 150 | 528 | 174 | 375 | 98 | 2 | 315 | 0.2 | 1.2 | 2.4 | 0.1 | 6.3 | 0.01 | 7.5 | 1.3 | 8.8 | 14.9 | 0.7 |
| NE | 33 | 49 | 5 | 70 | 1500 | 356 | 875 | 519 | 0 | 400 | 0.0 | 1.2 | 13.0 | 0.0 | 8.0 | 0.00 | 17.5 | 3.5 | 21.0 | 7.0 | 0.5 |
| NW | 11 | 49 | 6 | 320 | 1470 | 132 | 290 | 264 | 199 | 650 | 0.0 | 0.9 | 6.6 | 5.6 | 13.0 | 0.00 | 5.8 | 19.4 | 25.2 | 76.9 | 11.3 |
| SE | 36 | 49 | 6 | | 1370 | 68 | 40 | 411 | 25 | 514 | 0.0 | 0.6 | 10.3 | 0.7 | 10.3 | 0.00 | 0.8 | 20.5 | 21.3 | 96.2 | 32.3 |
| NE | 6 | 49 | 7 | 160 | 860 | 248 | 550 | 203 | 3 | 440 | 0.5 | 3.0 | 5.1 | 0.1 | 8.8 | 0.04 | 11.0 | 30.0 | 41.0 | 21.4 | 1.3 |
| NW | 6 | 49 | 8 | 220 | 1040 | 46 | 40 | 253 | 5 | 525 | 0.3 | 0.2 | 6.3 | 0.1 | 10.5 | 0.02 | 0.8 | 16.2 | 17.0 | 95.2 | 25.5 |
| SE | 14 | 49 | 8 | 160 | 1340 | 340 | 830 | 368 | 7 | 600 | 0.4 | 1.2 | 9.2 | 0.2 | 12.0 | 0.03 | 16.6 | 4.8 | 21.4 | 22.5 | 1.7 |
| | 23 | 49 | 8 | 170 | 1310 | 312 | 540 | 376 | 16 | 535 | 0.0 | 3.2 | 9.4 | 0.5 | 10.7 | 0.00 | 10.8 | 9.8 | 20.6 | 47.4 | 4.2 |
| SE | 31 | 49 | 8 | 240 | 936 | 310 | 660 | 172 | 4 | 560 | 0.0 | 2.2 | 4.3 | 0.1 | 11.2 | 0.00 | 13.2 | 2.4 | 15.6 | 15.4 | 0.9 |
| NW | 23 | 49 | 9 | 180 | 2000 | 200 | 575 | 830 | 7 | 545 | 0.0 | 0.3 | 20.8 | 0.2 | 10.9 | 0.00 | 11.5 | 20.3 | 31.8 | 63.8 | 8.5 |
| NE | 27 | 49 | 9 | 117 | 1210 | 174 | 440 | 379 | 3 | 550 | 0.0 | 0.4 | 9.5 | 0.1 | 11.0 | 0.00 | 8.8 | 11.8 | 20.6 | 57.1 | 5.6 |
| SE | 33 | 49 | 9 | 130 | 1110 | 348 | 110 | 297 | 6 | 390 | 0.0 | 1.3 | 7.4 | 0.2 | 7.8 | 0.00 | 2.2 | 13.2 | 15.4 | 85.7 | 12.5 |
| SW | 34 | 49 | 9 | | 676 | 136 | 550 | 155 | 4 | 460 | 2.6 | 0.2 | 3.9 | 0.1 | 9.2 | 0.18 | 11.0 | 2.4 | 13.4 | 17.7 | 1.0 |
| NE | 34 | 49 | 9 | 180 | 1290 | 224 | 785 | 432 | 6 | 520 | 1.0 | 0.3 | 10.8 | 0.2 | 10.4 | 0.07 | 15.7 | 5.7 | 21.4 | 26.7 | 2.0 |
| NW | 34 | 49 | 9 | 100 | 568 | 220 | 460 | 83 | 2 | 345 | 0.0 | 0.2 | 2.1 | 0.1 | 6.9 | 0.00 | 9.2 | 0.2 | 9.4 | 1.9 | 0.1 |
| SE | 36 | 49 | 9 | 68 | 1030 | 248 | 690 | 287 | 4 | 465 | 0.0 | 1.6 | 7.2 | 0.1 | 9.3 | 0.00 | 13.8 | 2.9 | 16.7 | 16.8 | 1.1 |
| NE | 29 | 49 | 10 | 125 | 1920 | 344 | 860 | 702 | 14 | 560 | Tr | 2.8 | 17.6 | 0.4 | 11.2 | 0.00 | 17.2 | 11.9 | 29.1 | 40.9 | 4.1 |
| NW | 11 | 49 | 11 | 70 | 870 | 46 | 95 | 114 | 20 | 600 | 1.0 | 0.1 | 2.8 | 0.6 | 12.0 | 0.07 | 1.9 | 13.6 | 15.5 | 87.7 | 13.9 |
| SW | 24 | 49 | 12 | 165 | 2240 | 64 | 10 | 0 | 1155 | 255 | 0.0 | 0.2 | 0.0 | 32.6 | 5.1 | 0.00 | 0.2 | 37.5 | 37.7 | 99.4 | 118.0 |
| NE | 2 | 49 | 13 | 160 | 2220 | 86 | 30 | 842 | 50 | 545 | 0.0 | 0.2 | 21.0 | 1.4 | 0.9 | 0.00 | 0.6 | 32.8 | 33.4 | 98.2 | 59.8 |
| SW | 25 | 49 | 13 | 105 | 1860 | 106 | 135 | 471 | 20 | 900 | Tr | 0.3 | 11.8 | 0.6 | 18.0 | 0.00 | 2.7 | 27.6 | 30.3 | 63.0 | 23.7 |
| | 16 | 49 | 15 | 260 | 3000 | 158 | 135 | 0 | 1660 | 205 | 0.0 | 0.4 | 0.0 | 46.8 | 4.1 | 0.00 | 2.7 | 48.2 | 50.9 | 94.6 | 41.4 |
| NW | 19 | 49 | 15 | 190 | 2600 | 140 | 25 | 0 | 1345 | 250 | 0.0 | 0.4 | 0.0 | 37.9 | 5.0 | 0.00 | 0.5 | 42.4 | 42.9 | 98.8 | 84.8 |
| SE | 14** | 49 | 16 | | 2830 | 88 | 75 | 0 | 1550 | 240 | 0.0 | 1.3 | 0.0 | 43.7 | 4.8 | 0.00 | 1.5 | 47.0 | 48.5 | 96.9 | 54.2 |
| SW | 35 | 49 | 16 | 236 | 2170 | 132 | 40 | 0 | 1012 | 360 | 0.0 | 0.1 | 0.0 | 28.5 | 7.2 | 0.00 | 0.8 | 34.9 | 35.7 | 97.7 | 55.2 |
| SW | 36 | 49 | 16 | 260 | 1260 | 50 | 20 | 0 | 462 | 435 | 0.0 | 0.2 | 0.0 | 13.0 | 8.7 | 0.00 | 0.4 | 21.3 | 21.7 | 98.1 | 47.6 |
| NW | 1** | 50 | 1 | 170 | 1458 | 232 | 440 | 496 | 68 | 420 | 0.0 | 1.0 | 12.4 | 1.9 | 8.4 | 0.00 | 8.8 | 13.9 | 22.7 | 61.2 | 6.6 |

| | | | | | | | | | | | | | | | | | | | | | |
|------|------|----|---|-----|------|-----|-------|------|-----|-----|------|------|------|------|------|------|-------|-------|------|------|------|
| NW | 1** | 50 | 1 | 180 | 1428 | 232 | 435 | 473 | 76 | 415 | 0.4 | 0.0 | 11.8 | 2.1 | 8.3 | 0.03 | 8.7 | 13.5 | 22.2 | 0.6 | 6.5 |
| NW | 1** | 50 | 1 | 190 | 1340 | 238 | 435 | 417 | 78 | 415 | 2.0 | 0.1 | 10.4 | 2.2 | 8.3 | 0.14 | 8.7 | 12.4 | 21.1 | 58.7 | 5.9 |
| NW | 1** | 50 | 1 | 190 | 1370 | 236 | 425 | 427 | 71 | 445 | 0.0 | 0.3 | 10.7 | 2.0 | 8.9 | 0.00 | 8.5 | 13.1 | 21.6 | 60.6 | 6.3 |
| NW | 1** | 50 | 1 | 190 | 1110 | 236 | 445 | 298 | 65 | 425 | 0.0 | 0.0 | 7.4 | 1.8 | 8.5 | 0.00 | 8.9 | 8.9 | 17.8 | 49.9 | 4.2 |
| NW | 1** | 50 | 1 | 190 | 1320 | 254 | 440 | 406 | 65 | 430 | 0.7 | 0.0 | 10.2 | 1.8 | 8.6 | 0.05 | 8.8 | 11.8 | 20.6 | 57.3 | 5.6 |
| SW | 1** | 50 | 1 | 170 | 1480 | 284 | 595 | 438 | 68 | 550 | 0.0 | 0.0 | 11.0 | 1.9 | 11.0 | 0.00 | 11.9 | 12.0 | 23.9 | 50.1 | 4.9 |
| SW | 2** | 50 | 1 | 200 | 1440 | 242 | 455 | 484 | 61 | 430 | 0.0 | 0.1 | 12.1 | 1.7 | 8.6 | 0.00 | 9.1 | 13.3 | 22.4 | 59.4 | 6.2 |
| SW | 2** | 50 | 1 | 260 | 1470 | 256 | 470 | 489 | 64 | 440 | 0.0 | 0.4 | 12.2 | 1.8 | 8.8 | 0.00 | 9.4 | 13.4 | 22.8 | 58.8 | 6.2 |
| NE | 3 | 50 | 1 | 220 | 1280 | 216 | 405 | 448 | 35 | 440 | Tr | 2.0+ | 11.2 | 1.0 | 8.8 | 0.00 | 8.1 | 12.9 | 21.0 | 61.4 | 6.4 |
| SE | 8 | 50 | 1 | 202 | 1160 | 180 | 375 | 362 | 27 | 455 | 0.0 | 0.6 | 9.0 | 0.8 | 9.1 | 0.00 | 7.5 | 11.4 | 18.9 | 60.3 | 5.9 |
| NW | 8 | 50 | 1 | 160 | 1840 | 394 | 850 | 564 | 44 | 580 | 0.0 | 1.6 | 14.1 | 1.2 | 11.6 | 0.00 | 17.0 | 9.9 | 26.9 | 36.8 | 3.4 |
| SE | 11** | 50 | 1 | 150 | 1190 | 238 | 425 | 347 | 46 | 445 | 1.6 | 0.0 | 8.7 | 1.3 | 8.9 | 0.11 | 8.5 | 10.5 | 19.0 | 55.2 | 5.1 |
| SE | 14 | 50 | 1 | 170 | 1230 | 146 | 405 | 396 | 36 | 500 | 0.0 | 1.0 | 9.9 | 1.0 | 10.0 | 0.00 | 8.1 | 12.8 | 20.9 | 61.2 | 6.4 |
| NE | 23 | 50 | 1 | 104 | 2690 | 368 | 1000+ | 1130 | 22 | 490 | 0.0 | 2.5 | 28.2 | 0.6 | 9.8 | 0.00 | 20.0+ | 18.7- | 38.7 | 48.2 | 5.9 |
| SE | 24 | 50 | 1 | 140 | 1600 | 318 | 700 | 501 | 54 | 545 | 0.6 | 1.0 | 12.5 | 1.5 | 10.9 | 0.04 | 14.0 | 11.0 | 25.0 | 43.9 | 4.2 |
| NE | 30 | 50 | 1 | 160 | 1030 | 280 | 585 | 243 | 28 | 490 | 0.0 | 2.0 | 6.1 | 0.8 | 9.8 | 0.00 | 11.7 | 5.0 | 16.7 | 29.7 | 2.0 |
| SE | 35 | 50 | 1 | 150 | 2750 | 620 | 1000 | 980 | 62 | 520 | 0.4 | 2.2 | 24.5 | 1.7 | 10.4 | 0.03 | 20.0 | 16.7 | 36.7 | 45.4 | 5.3 |
| NW | 1* | 50 | 2 | 120 | 812 | 128 | 160 | 133 | 2 | 495 | 0.8 | 1.2 | 3.3 | 0.1 | 9.9 | 0.06 | 3.2 | 10.1 | 13.3 | 76.0 | 8.0 |
| NW | 1* | 50 | 2 | 120 | 806 | 82 | 190 | 179 | 16 | 445 | 0.0 | 0.3 | 4.5 | 0.5 | 8.9 | 0.00 | 3.8 | 10.0 | 13.8 | 72.5 | 7.3 |
| NE | 3 | 50 | 2 | 187 | 950 | 96 | 225 | 265 | 3 | 465 | 0.0 | 1.2 | 6.6 | 0.1 | 9.3 | 0.00 | 4.5 | 11.5 | 16.0 | 71.8 | 7.7 |
| N1/2 | 8 | 50 | 2 | 172 | 844 | 60 | 50 | 180 | 12 | 450 | 0.0 | 2.5 | 4.5 | 0.3 | 9.0 | 0.00 | 1.0 | 12.8 | 13.8 | 92.7 | 18.1 |
| NE | 12 | 50 | 2 | 160 | 1370 | 180 | 340 | 434 | 16 | 535 | Tr | 0.4 | 10.8 | 0.5 | 10.7 | 0.00 | 6.8 | 15.2 | 22.0 | 69.0 | 8.2 |
| SE | 13 | 50 | 2 | 174 | 1280 | 216 | 420 | 177 | 20 | 475 | 5.2 | 1.0 | 4.4 | 0.6 | 9.5 | 0.37 | 8.4 | 6.5 | 14.9 | 43.4 | 3.2 |
| SW | 14 | 50 | 2 | 208 | 862 | 40 | 60 | 14 | 38 | 720 | 0.0 | 0.1 | 0.4 | 1.1 | 14.4 | 0.00 | 1.2 | 14.6 | 15.8 | 92.4 | 18.8 |
| SE | 26** | 50 | 3 | 260 | 1140 | 60 | 115 | 362 | 5 | 460 | 0.0 | 0.0 | 9.0 | 0.1 | 9.2 | 0.00 | 2.3 | 16.1 | 18.4 | 87.4 | 15.0 |
| SE | 26** | 50 | 3 | 260 | 1180 | 90 | 105 | 364 | 6 | 460 | 0.1 | 1.5 | 9.2 | 0.2 | 9.2 | 0.01 | 2.1 | 16.4 | 18.5 | 88.6 | 16.0 |
| SE | 26** | 50 | 3 | 180 | 1370 | 750 | 325 | 461 | 7 | 520 | 0.0 | 2.7 | 11.5 | 0.2 | 10.4 | 0.00 | 6.5 | 15.6 | 22.1 | 70.6 | 8.7 |
| SE | 26** | 50 | 3 | 230 | 1176 | 84 | 120 | 355 | 8 | 480 | 0.4 | 0.5 | 8.9 | 0.2 | 9.6 | 0.03 | 2.4 | 16.3 | 18.7 | 87.1 | 14.9 |
| SW | 29 | 50 | 3 | 200 | 924 | 202 | 535 | 250 | 4 | 485 | 1.2 | 0.5 | 6.2 | 0.1 | 9.7 | 0.09 | 10.7 | 5.4 | 16.1 | 33.7 | 2.4 |
| SW | 16 | 50 | 4 | 130 | 1920 | 140 | 310 | 670 | 164 | 450 | 0.0 | 0.4 | 16.8 | 4.6 | 9.0 | 0.00 | 6.2 | 24.2 | 30.4 | 79.5 | 13.7 |
| SW | 30 | 50 | 4 | 103 | 828 | 176 | 275 | 230 | 0 | 360 | 0.0 | 1.0 | 5.8 | 0.0 | 7.2 | 0.00 | 5.5 | 7.4 | 12.9 | 57.5 | 4.5 |
| NE | 10 | 50 | 5 | 140 | 888 | 86 | 300 | 228 | 11 | 490 | 2.6 | 0.5 | 5.7 | 0.3 | 9.8 | 0.18 | 6.0 | 10.0 | 16.0 | 62.4 | 5.8 |
| NW | 20 | 50 | 5 | 185 | 1550 | 350 | 800 | 541 | 2 | 425 | 0.0 | 1.5 | 13.5 | 0.1 | 8.5 | 0.00 | 16.0 | 6.1 | 22.1 | 27.5 | 2.2 |
| SE | 29 | 50 | 5 | 120 | 1800 | 144 | 100 | 353 | 239 | 650 | 0.0 | 2.1 | 8.8 | 6.7 | 13.0 | 0.00 | 2.0 | 26.6 | 28.6 | 92.9 | 26.5 |
| SE | 30 | 50 | 5 | 112 | 1200 | 96 | 10 | 204 | 20 | 675 | 0.0 | 0.6 | 5.1 | 0.6 | 13.5 | 0.00 | 0.2 | 19.0 | 19.2 | 98.9 | 59.9 |
| SW | 32 | 50 | 5 | 140 | 1270 | 128 | 160 | 293 | 15 | 640 | 0.0 | 2.0 | 7.3 | 0.4 | 12.8 | 0.00 | 3.2 | 17.3 | 20.5 | 84.4 | 13.7 |
| NE | 36 | 50 | 5 | 180 | 2790 | 72 | 75 | 1264 | 48 | 415 | 0.0 | 1.8 | 31.6 | 1.4 | 8.3 | 0.00 | 1.5 | 39.8 | 41.3 | 96.3 | 45.9 |
| S1/2 | 6** | 50 | 6 | 240 | 1390 | 10 | 40 | 415 | 10 | 620 | 0.0 | 0.5 | 10.4 | 0.3 | 12.4 | 0.00 | 0.8 | 22.2 | 23.0 | 96.5 | 35.1 |
| SE | 10* | 50 | 6 | 90 | 954 | 130 | 250 | 208 | 8 | 535 | 1.0 | 1.2 | 5.2 | 0.2 | 10.7 | 0.07 | 5.0 | 11.2 | 16.2 | 69.1 | 7.1 |
| SE | 10* | 50 | 6 | 100 | 1070 | 322 | 435 | 225 | 18 | 510 | 40.0 | 0.3 | 5.6 | 0.5 | 10.2 | 2.85 | 8.7 | 10.5 | 19.2 | 54.6 | 5.0 |
| NE | 19 | 50 | 6 | 60 | 674 | 96 | 365 | 90 | 1 | 525 | 0.0 | 0.1 | 2.2 | | 10.5 | 0.00 | 7.9 | 4.9 | 12.8 | 38.1 | 2.4 |
| SE | 25 | 50 | 6 | 100 | 1370 | 68 | 40 | 411 | 25 | 514 | 0.0 | 0.6 | 10.3 | 0.7 | 10.3 | 0.00 | 0.8 | 20.5 | 21.3 | 96.2 | 32.3 |
| NW | 28* | 50 | 6 | 100 | 1690 | 420 | 975 | 528 | 7 | 580 | 10.0 | 1.4 | 13.2 | 0.2 | 11.6 | 0.71 | 19.5 | 6.2 | 25.7 | 24.1 | 2.0 |
| NW | 28* | 50 | 6 | 100 | 1630 | 410 | 965 | 488 | 14 | 600 | 3.0 | 0.5 | 12.2 | 0.4 | 12.0 | 0.21 | 19.3 | 5.5 | 24.8 | 22.2 | 1.8 |
| SE | 31** | 50 | 6 | 100 | 570 | 164 | 250 | 71 | 8 | 370 | 0.0 | 1.5 | 1.8 | 0.2 | 7.4 | 0.00 | 5.0 | 4.4 | 9.4 | 46.8 | 2.8 |
| SE | 31** | 50 | 6 | 300 | 1980 | 294 | 120 | 0 | 820 | 450 | 0.0 | 1.2 | 0.0 | 23.1 | 9.0 | 0.00 | 2.4 | 29.7 | 32.1 | 92.5 | 27.1 |
| SE | 31** | 50 | 6 | 80 | 970 | 144 | 285 | 100 | 80 | 620 | 0.0 | 3.0 | 2.5 | 2.3 | 12.4 | 0.00 | 5.7 | 11.4 | 17.1 | 66.7 | 6.8 |
| SE | 31** | 50 | 6 | 106 | 1050 | 192 | 515 | 284 | 11 | 560 | 0.0 | 1.6 | 7.1 | 0.3 | 11.2 | 0.00 | 10.3 | 8.3 | 18.6 | 44.6 | 3.7 |
| SE | 31** | 50 | 6 | 120 | 492 | 152 | 85 | 0 | 3 | 330 | 3.2 | 0.0 | 0.0 | 0.1 | 6.6 | 0.20 | 1.7 | 5.2 | 6.9 | 75.4 | 5.6 |

1/4 = quarter, i.e. NW, NE, SW, or SE

Sec. = section

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

SAR = sodium adsorption ratio

Tr = trace

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Chemical Analyses of Groundwaters of East-Central Alberta - Bedrock Groundwaters (Cont'd.)

| Location | | | | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|-------------|------|-----|----|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|------|
| West 1/4 | Sec. | Tp. | R. | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| SE | 24 | 50 | 7 | 100 | 436 | 174 | 250 | Tr | 8 | 330 | 0.0 | Tr | 0.0 | 0.2 | 6.6 | 0.00 | 5.0 | 1.8 | 6.8 | 26.7 | 1.2 |
| SW | 30 | 50 | 7 | 135 | 800 | 296 | 595 | 88 | 5 | 600 | 0.0 | 1.5 | 2.2 | 0.1 | 12.0 | 0.00 | 11.9 | 2.4 | 14.3 | 17.0 | 1.0 |
| N1/2 | 31 | 50 | 7 | 125 | 2110 | 396 | 985 | 767 | 5 | 625 | Tr | 2.7 | 19.2 | 0.1 | 12.5 | 0.00 | 19.7 | 12.1 | 31.8 | 38.0 | 3.9 |
| SE | 32 | 50 | 7 | 110 | 1410 | 374 | 840 | 369 | 8 | 665 | Tr | 1.2 | 9.2 | 0.2 | 13.3 | 0.00 | 16.8 | 6.0 | 22.8 | 26.1 | 2.1 |
| SE | 35 | 50 | 7 | 120 | 590 | 172 | 335 | 74 | 11 | 410 | 0.4 | 1.0+ | 1.8 | 0.3 | 8.2 | 0.03 | 6.7 | 3.7 | 10.4 | 35.5 | 2.0 |
| SE | 36 | 50 | 7 | 100 | 504 | 188 | 315 | 44 | 2 | 370 | 0.0 | 2.0 | 1.1 | 0.1 | 7.4 | 0.00 | 6.3 | 2.3 | 8.6 | 26.3 | 1.3 |
| SW | 14 | 50 | 8 | 220 | 1130 | 80 | 170 | 296 | 77 | 550 | 0.8 | 0.1 | 7.4 | 2.2 | 11.0 | 0.06 | 3.4 | 17.2 | 20.6 | 83.5 | 13.2 |
| N1/2 | 19* | 50 | 8 | 265 | 1940 | 148 | 290 | 855 | 6 | 395 | Tr | 0.5 | 21.4 | 0.2 | 7.9 | 0.00 | 5.8 | 23.6 | 29.4 | 80.3 | 13.8 |
| N1/2 | 19* | 50 | 8 | 100 | 1490 | 316 | 720 | 534 | | 400 | 0.8 | 0.7 | 13.4 | | 8.0 | 0.06 | 14.4 | 7.0 | 21.4 | 32.7 | 26.1 |
| SE | 22 | 50 | 8 | 105 | 786 | 242 | 580 | 147 | 4 | 495 | 0.8 | 1.5 | 3.7 | 0.1 | 9.9 | 0.06 | 11.6 | 2.1 | 13.7 | 15.6 | 0.9 |
| SE | 24* | 50 | 8 | 200 | 1670 | 366 | 1000 | 572 | 11 | 495 | Tr | 1.0 | 14.3 | 0.3 | 9.9 | 0.00 | 20.0 | 4.5 | 24.5 | 18.4 | 1.4 |
| SE | 24* | 50 | 8 | 58 | 3270 | 1416 | 1000 | 622 | 245 | 625 | 150.0 | 0.3 | 15.6 | 6.9 | 12.5 | 10.70 | 20.0 | 25.7 | 45.7 | 56.2 | 8.1 |
| NE | 28* | 50 | 8 | 180 | 1090 | 96 | 150 | 240 | 14 | 590 | 2.0 | 0.1 | 6.0 | 0.4 | 11.8 | 0.14 | 3.0 | 15.3 | 18.3 | 83.6 | 12.5 |
| NE | 28* | 50 | 8 | 180 | 1270 | 156 | 290 | 331 | 25 | 595 | 10.0 | 0.3 | 8.3 | 0.7 | 11.9 | 0.71 | 5.8 | 15.8 | 21.6 | 73.1 | 9.3 |
| SE | 31 | 50 | 8 | 280 | 1280 | 76 | 60 | 225 | 26 | 750 | 1.0 | 1.0 | 5.6 | 0.7 | 15.0 | 0.07 | 1.2 | 20.2 | 21.4 | 94.4 | 26.1 |
| SE | 3 | 50 | 9 | 120 | 762 | 262 | 540 | 170 | 12 | 370 | 12.0 | 0.3 | 4.2 | 0.3 | 7.4 | 0.86 | 10.8 | 2.0 | 12.8 | 15.9 | 0.9 |
| NE | 4 | 50 | 9 | 130 | 1020 | 300 | 730 | 28 | 5 | 475 | 3.3 | 0.3 | 0.7 | 0.1 | 9.5 | 0.24 | 14.6 | 4.0 | 18.6 | 38.0 | 1.5 |
| SW | 5 | 50 | 9 | 212 | 750 | 230 | 505 | 135 | 6 | 407 | 0.0 | 0.6 | 3.4 | 0.2 | 8.1 | 0.00 | 10.1 | 1.6 | 11.7 | 13.5 | 0.7 |
| NE | 6 | 50 | 9 | 140 | 974 | 254 | 475 | 257 | 3 | 470 | 0.2 | 0.4 | 6.4 | 0.1 | 9.4 | 0.01 | 9.5 | 6.4 | 15.9 | 40.3 | 2.9 |
| SW | 25** | 50 | 9 | 170 | 1080 | 94 | 30 | 130 | 63 | 630 | 0.0 | 0.3 | 3.2 | 1.8 | 12.6 | 0.00 | 0.6 | 17.0 | 17.6 | 96.5 | 31.0 |
| | 25 | 50 | 9 | 250 | 1080 | 34 | 25 | 268 | 8 | 540 | 0.0 | 0.5 | 6.7 | 0.2 | 10.8 | 0.00 | 0.5 | 17.2 | 17.7 | 97.1 | 34.4 |
| SW | 4 | 50 | 10 | 190 | 1600 | 286 | 645 | 571 | 10 | 492 | 0.0 | 0.2 | 14.3 | 0.3 | 9.8 | 0.00 | 12.9 | 11.5 | 24.4 | 47.1 | 4.5 |
| | 14 | 50 | 10 | 110 | 782 | 156 | 300 | 90 | 19 | 550 | 4.2 | 0.0 | 2.2 | 0.5 | 11.0 | 0.30 | 6.0 | 8.1 | 14.1 | 57.4 | 4.7 |
| NE | 25 | 50 | 10 | 106 | 870 | 92 | 85 | 160 | 11 | 500 | 1.1 | 2.2 | 4.0 | 0.3 | 10.0 | 0.08 | 1.7 | 12.7 | 14.4 | 88.1 | 13.7 |
| SE | 6 | 50 | 11 | 278 | 1060 | 56 | 95 | 90 | 11 | 820 | 0.0 | 0.2 | 2.2 | 0.3 | 16.4 | 0.00 | 1.9 | 17.1 | 19.0 | 89.9 | 17.5 |
| SE | 10 | 50 | 15 | 150 | 2240 | 132 | 30 | Tr | 1100 | 300 | 0.0 | 0.3 | 0.0 | 31.0 | 6.0 | 0.00 | 0.6 | 36.4 | 37.0 | 98.3 | 66.5 |
| NW | 3 | 50 | 16 | 184 | 1610 | 78 | 55 | 0 | 608 | 525 | 0.0 | 1.0 | 0.0 | 0.17 | 10.5 | 0.00 | 1.1 | 26.5 | 27.6 | 96.0 | 35.7 |
| NW | 11 | 50 | 16 | 210 | 896 | 90 | 20 | 21 | 86 | 600 | 0.2 | Tr | 0.5 | 2.4 | 12.0 | 0.01 | 0.4 | 14.6 | 15.0 | 97.3 | 32.5 |
| NE | 6 | 51 | 1 | 160 | 1520 | 330 | 680 | 440 | 28 | 650 | 0.0 | 2.5 | 11.0 | 0.8 | 13.0 | 0.00 | 13.6 | 11.2 | 24.8 | 45.1 | 4.3 |
| SE | 1 | 51 | 3 | 290 | 890 | 166 | 275 | 233 | 8 | 410 | 0.0 | 3.2 | 5.8 | 0.2 | 8.2 | 0.00 | 5.5 | 8.8 | 14.3 | 61.1 | 5.3 |
| NE | 21 | 51 | 3 | 196 | 820 | 212 | 410 | 193 | 37 | 365 | 1.8 | 1.2 | 4.8 | 1.0 | 7.3 | 0.12 | 8.2 | 5.1 | 13.3 | 38.3 | 2.5 |
| NW | 27 | 51 | 3 | 100 | 1110 | 100 | 240 | 332 | 20 | 480 | 0.4 | 1.2 | 8.3 | 0.6 | 9.6 | 0.03 | 4.8 | 13.7 | 18.5 | 74.0 | 8.8 |
| NE | 9** | 51 | 4 | 90 | 408 | 100 | 300 | 80 | 2 | 290 | 0.5 | 0.8 | 2.0 | 0.1 | 5.8 | 0.04 | 6.0 | 1.9 | 7.9 | 23.9 | 1.1 |
| NE | 9** | 51 | 4 | 90 | 994 | 164 | 350 | 280 | 10 | 465 | 0.8 | 1.2 | 7.0 | 0.3 | 9.3 | 0.06 | 7.0 | 9.6 | 16.6 | 57.9 | 5.2 |
| NE | 9** | 51 | 4 | 90 | 1014 | 164 | 330 | 298 | 9 | 440 | 0.0 | 0.2 | 7.5 | 0.3 | 8.8 | 0.00 | 6.6 | 10.0 | 16.6 | 60.3 | 5.6 |
| | 9** | 51 | 4 | 140 | 962 | 162 | 630 | 296 | 13 | 455 | 0.0 | 0.0 | 7.4 | 0.4 | 9.1 | 0.00 | 13.6 | 3.3 | 16.9 | 19.3 | 1.2 |
| SW | 36 | 51 | 4 | 100 | 1990 | 160 | 350 | 841 | 41 | 420 | Tr | 0.0 | 21.1 | 1.2 | 8.4 | 0.00 | 7.0 | 23.6 | 30.6 | 77.1 | 12.6 |
| NW | 14 | 51 | 5 | 100 | 1130 | 311 | 750 | 285 | 15 | 505 | 4.0 | Tr | 7.1 | 0.4 | 10.1 | 0.28 | 15.0 | 2.9 | 17.9 | 16.3 | 1.1 |
| NE | 14 | 51 | 6 | 60 | 562 | 256 | 360 | Tr | 12 | 405 | 1.1 | 4.6 | | 0.3 | 8.1 | 0.08 | 7.2 | 1.3 | 8.5 | 15.7 | 0.7 |
| NW | 34 | 51 | 6 | 180 | 1570 | 328 | 750 | 497 | 6 | 625 | 0.0 | 1.2 | 12.4 | 0.2 | 12.5 | 0.00 | 15.0 | 10.1 | 25.1 | 40.2 | 3.7 |
| SE | 36 | 51 | 6 | 112 | 1580 | 400 | 1000 | 485 | 7 | 550 | 0.8 | 2.0 | 12.1 | 0.2 | 11.0 | 0.06 | 20.0+ | 3.4- | 23.4 | 14.4 | 1.1 |
| NW | 14 | 51 | 8 | 200 | 1110 | 82 | 160 | 323 | 0 | 510 | 0.0 | 1.5 | 8.1 | 0.0 | 10.2 | 0.00 | 3.2 | 15.1 | 18.3 | 82.4 | 11.9 |
| NE | 19 | 51 | 8 | 102 | 1600 | 520 | 1000+ | 411 | 6 | 610 | 0.0 | 1.7 | 10.3 | 0.2 | 12.2 | 0.00 | 20.0+ | 2.6- | 22.6 | 11.6 | 0.8 |
| SW | 23 | 51 | 8 | 130 | 796 | 16 | 10 | 170 | 1 | 455 | 0.0 | 0.0 | 4.2 | 0.0 | 9.1 | 0.00 | 0.2 | 13.3 | 13.4 | 98.5 | 41.6 |
| NE | 30 | 51 | 8 | 60 | 636 | 242 | 490 | 85 | 4 | 470 | 1.5 | 1.4 | 2.1 | 0.1 | 9.4 | 0.11 | 9.8 | 1.9 | 11.7 | 16.5 | 0.9 |

| | | | | | | | | | | | | | | | | | | | | | | |
|------|------|----|----|-----|------|-----|-----|-----|------|-----|------|-----|------|------|------|------|------|------|------|------|-------|------|
| NE | 34 | 51 | 8 | 270 | 794 | 38 | 20 | 134 | 3 | 500 | 0.0 | 0.4 | 3.4 | 0.1 | 10.0 | 0.00 | 0.4 | 13.0 | 13.4 | 97.0 | 29.1 | |
| SE | 19 | 51 | 9 | 62 | 748 | 250 | 520 | 152 | 0 | 405 | 0.0 | 1.4 | 3.8 | 0.0 | 8.1 | 0.00 | 10.4 | 1.5 | 11.9 | 12.6 | 0.7 | |
| NE | 2 | 51 | 10 | 100 | 354 | 150 | 350 | 4 | 0 | 350 | 0.0 | 0.6 | 0.1 | 0.0 | 7.0 | 0.00 | 7.0 | 0.1 | 7.1 | 1.4 | 0.1 | |
| NW | 2 | 51 | 11 | 160 | 296 | 130 | 260 | 12 | 4 | 245 | 0.0 | 1.0 | 0.3 | 0.1 | 4.9 | 0.00 | 5.2 | 0.1 | 5.3 | 2.1 | 0.1 | |
| NE | 2** | 51 | 11 | 165 | 512 | 180 | 300 | Tr | 2 | 410 | 0.2 | 0.2 | 0.0 | 0.1 | 8.2 | 0.01 | 6.0 | 2.3 | 8.3 | 27.6 | 1.3 | |
| NE | 2* | 51 | 11 | 200 | 456 | 136 | 265 | 65 | 5 | 245 | 4.5 | 0.0 | 1.6 | 0.1 | 4.9 | 0.32 | 5.3 | 1.7 | 7.0 | 24.1 | 1.0 | |
| NE | 2** | 51 | 11 | 120 | 440 | 172 | 400 | 30 | 2 | 360 | 0.0 | 0.1 | 0.8 | 0.1 | 7.2 | 0.00 | 8.0 | 0.0 | 8.0 | | 0.0 | |
| NE | 2** | 51 | 11 | 120 | 600 | 232 | 420 | 65 | 10 | 420 | 0.0 | 0.1 | 1.6 | 0.3 | 8.4 | 0.00 | 8.4 | 1.9 | 10.3 | 18.5 | 0.9 | |
| NE | 10 | 51 | 11 | 100 | 364 | 144 | 299 | 0 | 1 | 346 | 0.6 | | 0.0 | 0.0 | 6.9 | 0.04 | 6.0 | 1.0 | 7.0 | 14.4 | 0.6 | |
| NE | 15 | 51 | 11 | 220 | 510 | 200 | 380 | 31 | 0 | 420 | 0.0 | 1.2 | 0.8 | 0.0 | 8.4 | 0.00 | 7.6 | 1.6 | 9.2 | 17.1 | 0.8 | |
| NW | 4 | 51 | 12 | 350 | 808 | 36 | 35 | 25 | 20 | 680 | Tr | 0.0 | 0.6 | 0.6 | 13.6 | 0.00 | 0.7 | 14.1 | 14.8 | 95.2 | 23.8 | |
| | 15** | 51 | 12 | 220 | 894 | 30 | 0 | 110 | 17 | 600 | 0.0 | 0.0 | 2.8 | 0.5 | 12.0 | 0.00 | | | 15.2 | 15.2 | 100.0 | 200+ |
| | 15** | 51 | 12 | 165 | 878 | 68 | 60 | 33 | 14 | 715 | 0.0 | 0.7 | 0.8 | 0.4 | 14.3 | 0.00 | 1.2 | 14.3 | 15.5 | 92.2 | 18.4 | |
| SE | 16 | 51 | 14 | 90 | 774 | 74 | 130 | 19 | 13 | 670 | 0.0 | 1.7 | 0.5 | 0.4 | 13.4 | 0.00 | 2.6 | 11.6 | 14.2 | 81.7 | 10.2 | |
| SW | 18 | 51 | 14 | 110 | 908 | 64 | 75 | 5 | 121 | 635 | 0.0 | 1.0 | 0.1 | 3.4 | 12.7 | 0.00 | 1.5 | 14.7 | 16.2 | 90.7 | 17.0 | |
| NE | 27* | 51 | 14 | 280 | 1050 | 68 | 20 | 1 | 148 | 669 | 0.0 | 0.5 | 0.0 | 4.2 | 13.4 | 0.00 | 0.4 | 17.2 | 17.6 | 97.7 | 38.4 | |
| NE | 27* | 51 | 14 | 50 | 1090 | 228 | 435 | 284 | 34 | 490 | 8.0 | 0.4 | 7.1 | 1.0 | 9.8 | 0.57 | 8.7 | 9.7 | 18.4 | 52.7 | 4.7 | |
| NE | 29 | 51 | 14 | 170 | 778 | 56 | 46 | 27 | 25 | 635 | 0.0 | 1.7 | 0.7 | 0.7 | 12.7 | 0.00 | 0.9 | 13.2 | 14.1 | 93.4 | 19.4 | |
| SW | 5 | 51 | 15 | 124 | 690 | 40 | 15 | 6 | 4 | 605 | Tr | 0.5 | 0.2 | 0.1 | 12.1 | 0.00 | 0.3 | 12.1 | 12.4 | 97.5 | 31.1 | |
| | 22 | 51 | 15 | 100 | 1140 | 106 | 160 | 372 | 1 | 430 | 0.0 | 1.1 | 9.3 | 0.0 | 8.6 | 0.00 | 3.2 | 14.7 | 17.9 | 82.1 | 11.6 | |
| NW | 35 | 51 | 15 | 118 | 860 | 90 | 85 | 162 | 7 | 485 | 5.2 | 1.0 | 4.0 | 0.2 | 9.7 | 0.37 | 1.7 | 12.6 | 14.3 | 88.1 | 13.6 | |
| SW | 17 | 52 | 1 | 330 | 980 | 124 | 225 | 112 | 59 | 635 | 0.0 | 1+ | 2.8 | 1.7 | 12.7 | 0.00 | 4.5 | 12.7 | 17.2 | 73.7 | 8.4 | |
| | 22 | 52 | 1 | 120 | 1580 | 92 | 40 | 25 | 402 | 765 | Tr | 0.7 | 0.6 | 11.3 | 15.3 | 0.00 | 0.8 | 26.5 | 27.3 | 97.0 | 41.8 | |
| NW | 18 | 52 | 3 | 185 | 1170 | 288 | 625 | 155 | 59 | 775 | 0.0 | 0.8 | 3.9 | 1.7 | 15.5 | 0.00 | 12.5 | 8.5 | 21.0 | 40.5 | 3.4 | |
| | 26** | 52 | 3 | 90 | 656 | 184 | 410 | 158 | 4 | 330 | Tr | 1.7 | 4.0 | 0.1 | 6.6 | 0.00 | 8.2 | 2.5 | 10.7 | 23.0 | 1.2 | |
| | 26** | 52 | 3 | 150 | 1060 | 170 | 300 | 308 | 26 | 425 | 0.0 | 1.2 | 7.7 | 0.7 | 8.5 | 0.00 | 6.0 | 10.9 | 16.9 | 64.5 | 6.3 | |
| | 26** | 52 | 3 | 120 | 1410 | 308 | 900 | 470 | 9 | 440 | Tr | 0.0 | 11.8 | 0.3 | 8.8 | 0.00 | 18.0 | 2.8 | 20.8 | 13.4 | 0.9 | |
| SE | 30 | 52 | 3 | 250 | 206 | 170 | 360 | 43 | 40 | 635 | 0.0 | 1.8 | 1.1 | 1.1 | 12.7 | 0.00 | 7.2 | 7.7 | 14.9 | 51.6 | 4.0 | |
| SE | 16* | 52 | 5 | 132 | 880 | 200 | 575 | 134 | 8 | 675 | 0.4 | 2.0 | 4.6 | 0.2 | 13.5 | 0.03 | 11.5 | 6.9 | 18.4 | 37.3 | 2.8 | |
| SE | 16* | 52 | 5 | 12 | 1080 | 350 | 610 | 195 | 105 | 385 | 30.0 | 0.0 | 4.9 | 3.0 | 7.7 | 2.14 | 12.2 | 5.5 | 17.7 | 30.9 | 2.2 | |
| NW | 18 | 52 | 5 | 260 | 1050 | 236 | 475 | 200 | 22 | 610 | Tr | 2.8 | 5.0 | 0.6 | 12.2 | 0.00 | 9.5 | 8.3 | 17.8 | 46.6 | 3.8 | |
| NE | 21 | 52 | 6 | 150 | 900 | 260 | 625 | 226 | 31 | 335 | Tr | 1.5 | 5.6 | 0.9 | 6.7 | 0.00 | 12.5 | 0.7 | 13.2 | 5.5 | 0.3 | |
| NW | 32 | 52 | 6 | 75 | 1600 | 156 | 230 | 498 | 8 | 625 | 0.8 | 0.1 | 12.4 | 0.2 | 12.5 | 0.06 | 4.6 | 20.6 | 25.2 | 81.7 | 13.6 | |
| NE | 35 | 52 | 6 | 150 | 1090 | 296 | 685 | 275 | 0 | 550 | 0.0 | 3.5 | 6.9 | 0.0 | 11.0 | 0.00 | 13.7 | 4.2 | 17.9 | 23.3 | 1.6 | |
| NE | 10 | 52 | 7 | 100 | 938 | 274 | 570 | 208 | 2 | 520 | Tr | 3.0 | 5.2 | 0.1 | 10.4 | 0.00 | 11.4 | 4.3 | 15.7 | 27.1 | 1.8 | |
| SE | 29* | 52 | 7 | 130 | 1070 | 300 | 605 | 242 | 5 | 595 | Tr | 1.5 | 6.0 | 0.1 | 11.9 | 0.00 | 12.1 | 6.0 | 18.1 | 33.1 | 2.4 | |
| SE | 29* | 52 | 7 | 133 | 1100 | 250 | 515 | 251 | 11 | 510 | 4.4 | 0.3 | 6.3 | 0.3 | 10.2 | 0.31 | 10.3 | 6.8 | 17.1 | 39.7 | 3.0 | |
| NW | 19 | 52 | 8 | 140 | 654 | 200 | 460 | 87 | 0 | 500 | Tr | 1.6 | 2.2 | 0.0 | 10.0 | 0.00 | 9.2 | 3.0 | 12.2 | 24.4 | 1.4 | |
| SE | 32 | 52 | 9 | 150 | 1370 | 430 | 925 | 334 | 4 | 605 | 0.0 | 1.5 | 8.4 | 0.1 | 12.1 | 0.00 | 18.5 | 2.1 | 20.6 | 10.0 | 0.7 | |
| NE | 4 | 52 | 13 | 60 | 1130 | 124 | 160 | 306 | 10 | 490 | 3.0 | 0.2 | 7.6 | 0.3 | 9.8 | 0.21 | 3.2 | 14.7 | 17.9 | 82.1 | 11.6 | |
| SW | 4** | 52 | 13 | 335 | 996 | 20 | 50 | 104 | 55 | 680 | 0.0 | 1.5 | 2.6 | 1.6 | 13.6 | 0.00 | 1.0 | 16.8 | 17.8 | 94.3 | 23.6 | |
| NW | 12 | 52 | 13 | 265 | 992 | 332 | 500 | 234 | 35 | 255 | 0.0 | 0.1 | 6.4 | 1.0 | 5.1 | 0.00 | 10.0 | 2.4 | 12.4 | 19.5 | 1.1 | |
| SE | 24 | 52 | 13 | 175 | 1026 | 24 | 45 | 72 | 14 | 825 | 1.2 | 0.1 | 1.8 | 0.4 | 16.5 | 0.09 | 0.9 | 17.9 | 18.8 | 95.2 | 18.9 | |
| NW | 14 | 52 | 13 | 73 | 1740 | 80 | 140 | 537 | 12 | 715 | Tr | 1.0 | 13.4 | 0.3 | 14.3 | 0.00 | 2.8 | 25.3 | 28.1 | 90.0 | 21.3 | |
| SW | 1 | 52 | 14 | 100 | 538 | 42 | 35 | 42 | 0 | 405 | 5.9 | 0.5 | 1.0 | 0.0 | 8.1 | 0.42 | 0.7 | 8.9 | 9.6 | 92.6 | 14.9 | |
| | 17* | 52 | 14 | 150 | 1800 | 132 | 95 | 0 | 780 | 460 | 0.0 | 0.8 | 0.0 | 22.0 | 9.2 | 0.00 | 1.9 | 29.3 | 31.2 | 93.9 | 30.0 | |
| | 17* | 52 | 14 | 150 | 1670 | 190 | 295 | 305 | 332 | 510 | 0.0 | 1.2 | 7.6 | 9.4 | 10.2 | 0.00 | 5.9 | 21.3 | 27.2 | 78.2 | 12.3 | |
| E1/2 | 17 | 52 | 14 | 38 | 756 | 30 | 20 | 9 | 19 | 650 | 0.0 | 1.0 | 0.2 | 0.5 | 13.0 | 0.00 | 0.4 | 13.4 | 13.8 | 97.0 | 29.8 | |
| NW | 27* | 52 | 14 | 115 | 946 | 146 | 30 | 47 | 7 | 680 | 0.8 | 4.2 | 1.2 | 0.2 | 13.6 | 0.57 | 0.6 | 15.0 | 15.6 | 95.5 | 6.3 | |
| NW | 27* | 52 | 14 | 314 | 3030 | 122 | 50 | 102 | 1305 | 565 | 0.0 | 1.2 | 2.5 | 36.8 | 11.3 | 0.00 | 1.0 | 49.6 | 50.6 | 98.0 | 71.0 | |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section
Tr = trace
Tp. = township
R. = range
ppm = parts per million
* Denotes sites at which more than one analysis is available

e pm = equivalents per million
SSP = soluble sodium percentage
** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Chemical Analyses of Groundwaters of East-Central Alberta - Bedrock Groundwaters (Cont'd.)

| Location | | | | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|-----------------------------|-------|-----|----|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|------|
| West of 4th Meridian 1/4 | Sec. | Tp. | R. | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| SE | 28 | 52 | 14 | 175 | 1234 | 66 | 100 | 200 | 67 | 710 | 0.0 | 0.0 | 5.0 | 1.9 | 14.2 | 0.00 | 2.0 | 19.1 | 21.1 | 90.4 | 13.6 |
| S1/2 | 35 | 52 | 14 | 130 | 1112 | 70 | 90 | 220 | 25 | 562 | 0.0 | 1.5 | 5.5 | 0.5 | 11.2 | 0.00 | 1.8 | 15.6 | 17.4 | 89.6 | 16.4 |
| SE | 19 | 52 | 15 | 130 | 1620 | 200 | 405 | 112 | 1 | 390 | 0.2 | 1.5 | 2.8 | | 7.8 | 0.01 | 8.1 | 2.5 | 10.6 | 23.8 | 1.3 |
| | 31 | 52 | 15 | | 1360 | 58 | 105 | 535 | 5 | 375 | 0.0 | 0.1 | 13.4 | 0.1 | 7.5 | 0.00 | 2.1 | 18.9 | 21.0 | 90.0 | 18.4 |
| | 18** | 53 | 3 | 180 | 1620 | 308 | 720 | 588 | 10 | 460 | 0.4 | 1.2 | 14.7 | 0.3 | 9.2 | 0.03 | 14.4 | 9.8 | 24.2 | 40.5 | 3.6 |
| | 18** | 53 | 3 | 200 | 1670 | 290 | 565 | 597 | 19 | 520 | 0.0 | 0.2 | 14.9 | 0.5 | 10.4 | 0.00 | 11.3 | 14.6 | 25.9 | 56.3 | 6.1 |
| | 18** | 53 | 3 | 200 | 1850 | 274 | 575 | 700 | 25 | 525 | 0.0 | 0.6 | 17.5 | 0.7 | 10.5 | 0.00 | 11.5 | 17.2 | 28.7 | 59.9 | 7.2 |
| SW | 20* | 53 | 3 | 50 | 1350 | 246 | 550 | 489 | 13 | 390 | 0.0 | 0.3 | 12.2 | 0.4 | 7.8 | 0.00 | 11.0 | 9.4 | 20.4 | 46.0 | 4.0 |
| SW | 20* | 53 | 3 | 150 | 3830 | 253 | 250 | Tr | 2000 | 375 | 0.0 | 0.6 | 0.0 | 56.4 | 7.5 | 0.00 | 5.0 | 58.9 | 63.9 | 92.1 | 37.2 |
| SE | 15 | 53 | 4 | 150 | 824 | 140 | 225 | 43 | 51 | 600 | 2.5 | 0.3 | 1.1 | 1.4 | 12.0 | 0.18 | 4.5 | 10.2 | 14.7 | 69.3 | 6.8 |
| | 16-21 | 53 | 4 | 120 | 896 | 178 | 335 | 84 | 54 | 620 | 0.0 | 4.6 | 2.1 | 1.5 | 12.4 | 0.00 | 6.7 | 9.3 | 16.0 | 58.1 | 5.1 |
| | 16-21 | 53 | 4 | 250 | 970 | 132 | 350 | 151 | 50 | 625 | 0.0 | 1.5 | 3.7 | 1.4 | 12.5 | 0.00 | 7.0 | 10.7 | 17.7 | 60.4 | 5.7 |
| | 16-21 | 53 | 4 | 310 | 850 | 204 | 460 | 122 | 47 | 550 | 0.0 | 1.5 | 3.0 | 1.3 | 11.0 | 0.00 | 9.2 | 6.2 | 15.4 | 40.1 | 2.9 |
| SW | 26 | 53 | 4 | 200 | 972 | 186 | 290 | 43 | 37 | 750 | 0.0 | 2.0 | 1.1 | 1.0 | 15.0 | 0.00 | 5.8 | 11.3 | 17.1 | 66.1 | 6.6 |
| SW | 30 | 53 | 4 | 115 | 2560 | 326 | 1000+ | 1078 | 21 | 510 | 0.0 | 1.5 | 27.0 | 0.6 | 10.2 | 0.00 | 20.0+ | 17.7- | 37.7 | 47.0 | 5.6 |
| NE | 8** | 53 | 5 | 120 | 860 | 200 | 510 | 247 | 0 | 395 | 0.0 | 1.2 | 6.2 | 0.0 | 7.9 | 0.00 | 10.2 | 3.9 | 14.1 | 27.5 | 1.7 |
| NE | 8** | 53 | 5 | 100 | 844 | 194 | 600 | 255 | 9 | 320 | 0.8 | 0.1 | 6.4 | 0.3 | 6.4 | 0.06 | 12.0 | 1.1 | 13.1 | 8.3 | 0.4 |
| SW | 20 | 53 | 6 | 67 | 850 | 224 | 515 | 211 | 10 | 420 | 6.0 | 0.2 | 5.3 | 0.3 | 8.4 | 0.43 | 10.3 | 4.1 | 14.4 | 28.3 | 1.8 |
| SW | 1 | 53 | 14 | 250 | 716 | 80 | 15 | 17 | 9 | 565 | 0.0 | 3.0 | 0.4 | 0.3 | 11.3 | 0.00 | 0.3 | 11.7 | 12.0 | 97.4 | 21.4 |
| NE | 4 | 53 | 14 | 165 | 1152 | 96 | 115 | Tr | 293 | 574 | 0.0 | 3.0 | 0.0 | 8.3 | 11.4 | 0.00 | 2.3 | 17.4 | 19.7 | 88.4 | 11.5 |
| SW | 36 | 53 | 14 | | 1512 | 80 | 80 | 524 | 3 | 310 | 0.2 | 0.3 | 13.1 | 0.1 | 6.2 | 0.00 | 1.6 | 17.8 | 19.4 | 91.8 | 19.8 |
| NW | 3 | 53 | 15 | 280 | 940 | 80 | 200 | 270 | 47 | 460 | 0.0 | 1.8 | 6.8 | 1.3 | 9.2 | 0.00 | 4.0 | 13.3 | 17.3 | 76.8 | 9.4 |
| | 19** | 53 | 16 | 300 | 1050 | 60 | 70 | 298 | 0 | 470 | 5.7 | 0.3 | 7.4 | 0.0 | 9.4 | 0.41 | 1.4 | 15.8 | 17.2 | 91.8 | 18.9 |
| SW | 15 | 53 | 17 | 140 | 2460 | 92 | 100 | 1066 | 8 | 575 | 0.0 | 0.2 | 26.6 | 0.2 | 11.5 | 0.00 | 2.0 | 36.4 | 38.4 | 94.7 | 36.3 |
| SW | 31 | 54 | 4 | 152 | 882 | 166 | 240 | 110 | 44 | 535 | 0.0 | 0.7 | 2.8 | 1.2 | 10.7 | 0.00 | 4.8 | 9.9 | 14.7 | 67.3 | 6.4 |
| NW | 35 | 54 | 4 | 120 | 756 | 212 | 490 | 159 | 6 | 450 | 2.0 | 1.0 | 4.0 | 0.2 | 9.0 | 0.14 | 9.8 | 3.5 | 13.3 | 26.2 | 1.6 |
| NE | 9** | 54 | 7 | 70 | 1160 | 40 | 105 | 294 | 42 | 550 | 1.0 | 0.2 | 7.4 | 1.2 | 11.0 | 0.07 | 2.1 | 17.5 | 19.6 | 89.2 | 17.0 |
| S1/2 | 26** | 54 | 11 | 220 | 914 | 54 | 40 | 94 | 27 | 630 | Tr | 0.1 | 2.3 | 0.8 | 12.6 | 0.01 | 0.8 | 14.9 | 15.7 | 95.0 | 24.2 |
| NE | 5 | 54 | 13 | 67 | 994 | 60 | 150 | 166 | 45 | 605 | 0.0 | 0.0 | 4.2 | 1.3 | 12.1 | 0.00 | 3.0 | 14.5 | 17.5 | 82.8 | 11.8 |
| | 35 | 54 | 14 | 175 | 1164 | 74 | 80 | 155 | 4 | 800 | 0.0 | 1.4 | 3.9 | 0.1 | 16.0 | 0.00 | 1.6 | 18.4 | 20.0 | 95.0 | 20.4 |
| NW | 2 | 55 | 7 | 100 | 1094 | 86 | 25 | 212 | 22 | 575 | 4.8 | 11.0 | 5.3 | 0.6 | 11.5 | 0.34 | 0.5 | 17.2 | 17.7 | 97.3 | 34.0 |
| SE | 24 | 55 | 8 | 85 | 778 | 198 | 390 | 0 | 0 | 800 | 0.0 | 0.8 | 0.0 | 0.0 | 16.0 | 0.00 | 7.8 | 8.2 | 16.0 | 51.2 | 4.2 |
| NW | 9 | 55 | 12 | 275 | 1140 | 294 | 520 | 219 | 25 | 640 | 0.0 | 2.2 | 5.5 | 0.7 | 12.8 | 0.00 | 10.4 | 8.6 | 19.0 | 45.2 | 3.8 |
| SE | 4 | 55 | 14 | 315 | 1568 | 168 | 140 | 383 | 7 | 635 | 0.0 | 0.2 | 9.6 | 0.2 | 12.7 | 0.00 | 2.8 | 19.7 | 22.5 | 87.6 | 16.7 |
| NE | 5 | 55 | 14 | 60 | 2430 | 156 | 85 | 0 | 1076 | 505 | 0.8 | 0.5 | 0.0 | 30.3 | 10.1 | 0.06 | 1.7 | 38.8 | 40.5 | 95.8 | 42.0 |
| SW | 14 | 55 | 14 | 315 | 874 | 136 | 170 | 112 | 4 | 580 | 0.0 | 0.6 | 2.8 | 0.1 | 11.6 | 0.00 | 3.4 | 11.1 | 14.5 | 76.5 | 8.5 |
| | 17 | 55 | 14 | 215 | 1732 | 70 | 55 | 0 | 552 | 735 | 0.0 | 0.0 | 0.0 | 15.6 | 14.7 | 0.00 | 1.1 | 29.2 | 30.3 | 96.4 | 38.3 |
| S1/2 | 23** | 55 | 14 | | 1850 | 160 | 80 | 187 | 650 | 640 | 0.0 | 1.2 | 4.7 | 18.3 | 12.8 | 0.00 | 1.6 | 34.2 | 35.8 | 95.5 | 38.2 |
| W1/2 | 23** | 55 | 14 | | 572 | 96 | 90 | 132 | 31 | 225 | 25.0 | 0.1 | 3.3 | 0.9 | 4.5 | 1.78 | 1.8 | 8.7 | 10.5 | 82.7 | 9.1 |
| W1/2 | 23** | 55 | 14 | | 94 | 48 | 50 | 12 | 3 | 35 | 0.0 | 0.2 | 0.3 | 0.1 | 0.7 | 0.00 | 1.0 | 0.1 | 1.1 | 7.8 | 0.1 |
| W1/2 | 23** | 55 | 14 | | 1240 | 274 | 575 | 371 | 4 | 530 | 0.0 | 0.1 | 9.3 | 0.1 | 10.6 | 0.00 | 11.5 | 8.5 | 20.0 | 42.4 | 3.5 |
| SW | 23 | 55 | 14 | 200 | 1620 | 132 | 100 | 365 | 87 | 705 | 2.4 | | 9.1 | 2.5 | 14.1 | 0.17 | 2.0 | 23.8 | 25.8 | 92.2 | 23.8 |
| NW | 14 | 55 | 15 | 50 | 1602 | 104 | 20 | 438 | 71 | 770 | 0.0 | 0.7 | 10.9 | 2.0 | 15.4 | 0.00 | 0.4 | 27.9 | 28.3 | 98.5 | 62.3 |
| NE | 15 | 55 | 15 | 64 | 1050 | 38 | 85 | 160 | 11 | 710 | 1.6 | 0.0 | 4.0 | 0.3 | 14.2 | 0.11 | 1.7 | 16.9 | 18.6 | 90.8 | 18.3 |
| | | | | | 4610 | 616 | 65 | 1672 | 32 | 960 | 0.6 | 2.0 | 41.8 | 0.9 | 19.2 | 0.04 | 1.3 | 60.6 | 61.9 | 97.9 | 75.2 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|-------|----|----|-----|------|-----|-----|-----|-----|-----|------|-----|-----|-----|------|------|-----|------|------|------|------|
| NW | 33 | 55 | 17 | 125 | 876 | 56 | 110 | 180 | 0 | 525 | Tr | 2.6 | 4.5 | 0.0 | 10.5 | 0.00 | 2.2 | 12.8 | 15.0 | 85.3 | 12.2 |
| SE | 5 | 56 | 14 | 215 | 1030 | 90 | 135 | 43 | 67 | 770 | 0.0 | 1.0 | 1.1 | 1.9 | 15.4 | 0.00 | 2.7 | 15.7 | 18.4 | 85.2 | 13.4 |
| SW | 2 | 56 | 15 | 205 | 1750 | 296 | 60 | 47 | 229 | 965 | 2.0 | 0.5 | 1.2 | 6.5 | 19.3 | 0.14 | 1.2 | 25.9 | 27.1 | 95.5 | 33.4 |
| | 32** | 56 | 16 | 47 | 672 | 80 | 35 | 0 | 19 | 565 | 15.0 | 0.5 | 0.0 | 0.5 | 11.3 | 1.07 | 0.7 | 12.2 | 12.9 | 94.5 | 20.6 |
| | 32** | 56 | 16 | 60 | 680 | 60 | 75 | 37 | 25 | 520 | 1.0 | 0.1 | 0.9 | 0.7 | 10.4 | 0.07 | 1.5 | 10.6 | 12.1 | 87.6 | 12.2 |
| SE | 16** | 56 | 17 | 32 | 1690 | 340 | 70 | 363 | 23 | 695 | 4.2 | 0.1 | 9.1 | 0.6 | 13.9 | 0.30 | 1.4 | 22.5 | 23.9 | 94.1 | 26.9 |
| | 16** | 56 | 17 | | 478 | 50 | 80 | 26 | 11 | 380 | 2.0 | 0.1 | 0.6 | 0.3 | 7.6 | 0.14 | 1.6 | 7.1 | 8.7 | 81.6 | 7.9 |
| NE | 24 | 56 | 17 | 315 | 698 | 48 | 5 | 14 | 10 | 635 | 2.6 | 0.5 | 0.4 | 0.3 | 12.7 | 0.18 | 0.1 | 13.4 | 13.5 | 99.2 | 60.0 |
| | 33-34 | 59 | 12 | 200 | 1070 | 70 | 10 | 11 | 78 | 810 | 0.0 | 1.0 | 0.3 | 2.2 | 16.2 | 0.00 | 0.2 | 18.5 | 18.7 | 98.9 | 58.4 |
| | 7 | 61 | 9 | 111 | 946 | 290 | 350 | 114 | 5 | 585 | 0.0 | 4.0 | 2.8 | 0.1 | 11.7 | 0.00 | 7.0 | 7.7 | 14.7 | 52.3 | 4.1 |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section
Tr = trace

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Table 3. Chemical Analyses of Groundwaters of East-Central Alberta - Drift Groundwaters

| Location West of 4th Meridian | Depth (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | | SSP | SAR | |
|----------------------------------|-----------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|-------|------|------|
| | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | Sum of anions | | | |
| 1/4 Sec. Tp. R. | | | | | | | | | | | | | | | | | | | |
| NE | 25 42 14 | 21 | 1320 | 194 | 285 | 489 | 13 | 360 | 0.5 | 0.8 | 12.2 | 0.4 | 7.2 | 0.04 | 5.7 | 14.1 | 19.8 | 71.2 | 8.4 |
| | 36** 43 4 | 20 | 556 | 260 | 295 | 86 | 33 | 160 | 40.0 | 1.7 | 2.2 | 0.9 | 3.2 | 2.85 | 5.9 | 3.2 | 9.1 | 35.4 | 1.9 |
| | 36** 43 4 | 40 | 424 | 174 | 190 | 45 | 11 | 270 | 2.4 | 2.7 | 1.1 | 0.3 | 5.4 | 0.17 | 3.8 | 3.2 | 7.0 | 45.7 | 2.3 |
| | 36** 43 4 | 20 | 364 | 190 | 230 | 32 | 15 | 165 | 1.4 | 0.4 | 0.8 | 0.4 | 3.3 | 0.10 | 4.6 | 0.0 | 4.6 | 0.5 | 0.0 |
| | 36** 43 4 | 30 | 538 | 318 | 405 | 11 | 35 | 255 | 1.6 | 1.3 | 0.3 | 1.0 | 5.1 | 0.11 | 8.1 | 1.6 | 9.7 | 25.0 | 0.8 |
| | 36** 43 4 | 32 | 984 | 556 | 600 | 91 | 82 | 235 | 422.0 | 0.5 | 2.3 | 2.3 | 4.7 | 30.10 | 12.0 | 27.4 | 39.4 | 69.5 | 11.1 |
| | 36** 43 4 | 30 | 366 | 164 | 300 | 44 | 12 | 185 | 9.0 | 0.0 | 1.1 | 0.3 | 3.7 | 0.64 | 6.0 | 0.2 | 6.2 | 3.8 | 0.1 |
| | 36** 43 4 | 36 | 282 | 146 | 190 | 26 | 6 | 145 | 8.0 | 0.0 | 0.6 | 0.2 | 2.9 | 0.57 | 3.8 | 0.5 | 4.3 | 11.4 | 0.4 |
| | 36** 43 4 | 30 | 516 | 288 | 335 | 19 | 41 | 225 | 20.0 | 0.2 | 0.5 | 1.2 | 4.5 | 1.42 | 6.7 | 0.9 | 7.6 | 11.3 | 0.5 |
| | 36** 43 4 | 30 | 586 | 312 | 445 | 40 | 26 | 285 | 28.0 | 0.2 | 1.0 | 0.7 | 5.7 | 1.99 | 8.9 | 0.5 | 9.4 | 5.6 | 0.3 |
| NW | 5 44 2 | 30 | 1210 | 190 | 590 | 397 | 6 | 555 | 0.0 | 0.2 | 9.9 | 0.2 | 11.1 | 0.00 | 11.8 | 9.4 | 21.2 | 44.3 | 3.9 |
| SW | 21 44 4 | 16 | 718 | 272 | 475 | 110 | 30 | 360 | 20.0 | 0.5 | 2.8 | 0.8 | 7.2 | 1.42 | 9.5 | 2.7 | 12.2 | 22.2 | 1.2 |
| NE | 22 44 4 | 30 | 330 | 130 | 280 | 31 | 1 | 255 | 6.0 | 0.1 | 0.8 | 0.0 | 5.1 | 0.43 | 5.6 | 0.7 | 6.3 | 11.5 | 0.4 |
| | 1 44 5 | 20 | 1140 | 390 | 590 | 150 | 67 | 630 | 8.8 | 1.0 | 3.8 | 1.9 | 12.6 | 0.63 | 11.8 | 7.1 | 18.9 | 37.4 | 2.9 |
| SW | 10 44 6 | 40 | 512 | 150 | 400 | 60 | 0 | 430 | 1.2 | 0.6 | 1.5 | 0.0 | 8.6 | 0.09 | 8.0 | 2.2 | 10.2 | 21.4 | 1.1 |
| NW | 13 44 6 | 30 | 1520 | 382 | 1000 | 461 | 23 | 510 | 3.0 | 0.3 | 11.5 | 0.6 | 10.2 | 0.21 | 20.0 | 2.6 | 22.6 | 11.4 | 0.8 |
| NE | 30 45 3 | 55 | 2880 | 840 | 1000 | 776 | 174 | 675 | 121.0 | 1.0 | 19.4 | 4.9 | 13.5 | 8.63 | 20.0 | 26.4 | 46.4 | 56.9 | 8.4 |
| | 33 46 4 | 32 | 1130 | 300 | 720 | 310 | 11 | 470 | 0.0 | 0.3 | 7.8 | 0.3 | 9.4 | 0.00 | 14.4 | 3.1 | 17.5 | 17.5 | 1.1 |
| NW | 19 46 5 | 50 | 1080 | 266 | 700 | 232 | 5 | 440 | 0.0 | 2.5 | 5.8 | 0.1 | 8.8 | 0.00 | 14.0 | 0.7 | 14.7 | 5.0 | 0.3 |
| SE | 24 46 10 | 50 | 960 | 248 | 570 | 255 | 8 | 440 | 0.8 | 2.0 | 6.4 | 0.2 | 8.8 | 0.06 | 11.4 | 4.1 | 15.5 | 26.2 | 1.7 |
| | 6 47 2 | 40 | 326 | 78 | 310 | 33 | 8 | 310 | 0.0 | 2.0 | 0.8 | 0.2 | 6.2 | 0.00 | 6.2 | 1.0 | 7.2 | 14.4 | 0.6 |
| W1/2 | 14 47 9 | 60 | 1130 | 162 | 295 | 277 | 25 | 550 | 10.0 | 1.2 | 6.9 | 0.7 | 11.0 | 0.71 | 5.9 | 13.4 | 19.3 | 69.4 | 7.8 |
| NW | 23 47 9 | 53 | 4420 | 1618 | 1000+ | 987 | 310 | 460 | 100+ | 0.4 | 24.7 | 8.7 | 9.2 | 0.71 | 20.0+ | 23.3- | 43.3 | 53.8 | 7.4 |
| SW | 25 47 9 | 30 | 600 | 232 | 440 | 60 | 22 | 395 | 20.0 | 0.2 | 1.5 | 0.6 | 7.9 | 1.42 | 8.8 | 2.6 | 11.4 | 23.1 | 1.3 |
| | 27 47 16 | 80 | 1320 | 152 | 250 | 343 | 67 | 545 | 0.0 | 1.2 | 8.6 | 1.9 | 10.9 | 0.00 | 5.0 | 16.4 | 21.4 | 76.5 | 10.3 |
| NW | 30 48 1 | 17 | 650 | 330 | 410 | 76 | 16 | 285 | 52.0 | 0.0 | 1.9 | 0.5 | 5.7 | 3.71 | 8.2 | 3.6 | 11.8 | 30.2 | 1.8 |
| NW | 31 48 2 | 30 | 1640 | 192 | 225 | 591 | 10 | 465 | 4.0 | 1.0 | 14.8 | 0.3 | 9.3 | 0.28 | 4.5 | 20.1 | 24.6 | 81.7 | 13.4 |
| NW | 1 48 4 | 18 | 2210 | 458 | 1000+ | 860 | 0 | 430 | 0.0 | 0.3 | 21.5 | 0.0 | 8.6 | 0.00 | 20.0+ | 10.1- | 30.1 | 33.5 | 3.2 |
| | 6 48 4 | 20 | 480 | 150 | 250 | 56 | Tr | 335 | 0.1 | 0.1 | 1.4 | 0.0 | 6.7 | 0.01 | 5.0 | 3.1 | 8.1 | 38.3 | 2.0 |
| NW | 11 48 5 | 30 | 7830 | 746 | 1000+ | 3804 | 11 | 585 | 0.0 | 3.0 | 95.1 | 0.3 | 11.7 | 0.00 | 20.0+ | 87.1- | 107.1 | 81.3 | 27.5 |
| SE | 18 48 7 | 60 | 432 | 232 | 410 | 0 | 1 | 385 | 1.6 | 0.2 | 0.0 | 0.0 | 7.7 | 0.11 | 8.2 | 0.4 | 8.6 | 4.6 | 0.2 |
| NW | 20 48 7 | 60 | 980 | 258 | 690 | 202 | 0 | 650 | 0.0 | 2.0 | 5.0 | 0.0 | 13.0 | 0.00 | 13.8 | 4.2 | 18.0 | 23.5 | 1.6 |
| SW | 12 48 9 | 40 | 1290 | 222 | 355 | 379 | 29 | 500 | 20.0 | 0.7 | 9.5 | 0.8 | 10.0 | 1.42 | 7.1 | 14.6 | 21.7 | 67.3 | 7.8 |
| NW | 31 48 17 | 33 | 2200 | 230 | 375 | 870 | 52 | 505 | 52.0 | 0.4 | 21.8 | 1.5 | 10.1 | 3.71 | 7.5 | 29.5 | 37.0 | 79.7 | 15.2 |
| NW | 13 49 3 | 16 | 1090 | 460 | 730 | 176 | 24 | 495 | 40.0 | 0.2 | 4.4 | 0.7 | 9.9 | 2.85 | 14.6 | 3.2 | 17.8 | 18.1 | 1.2 |
| SE | 4 49 4 | 81 | 1570 | 536 | 975 | 146 | 217 | 750 | 11.0 | 0.1 | 3.6 | 6.1 | 15.0 | 0.78 | 19.5 | 6.1 | 25.6 | 23.6 | 1.9 |
| SE | 10 49 4 | 48 | 1270 | 262 | 500 | 325 | 18 | 610 | 4.0 | 0.3 | 8.1 | 0.5 | 12.2 | 0.28 | 10.0 | 11.1 | 21.1 | 52.6 | 5.0 |
| NW | 11 49 5 | 45 | 1010 | 18 | 800 | 446 | 5 | 340 | 0.2 | 3.5 | 11.2 | 0.1 | 6.8 | 0.01 | 16.0 | 2.1 | 18.1 | 11.6 | 0.7 |
| NE | 24 49 5 | 30 | 956 | 394 | 700 | Tr | 29 | 570 | 28.6 | 0.2 | 0.0 | 0.8 | 11.4 | 2.04 | 14.0 | 0.3 | 14.3 | 1.8 | 0.1 |
| | 32 49 5 | 50 | 5660 | 900 | 1000 | 2133 | 52 | 1320 | 20.0 | 1.0 | 53.3 | 1.5 | 26.4 | 1.42 | 20.0 | 62.6 | 82.6 | 75.7 | 19.8 |
| NE | 33 49 5 | 70 | 1500 | 356 | 875 | 519 | 0 | 400 | 0.0 | 1.2 | 13.0 | 0.0 | 8.0 | 0.00 | 17.5 | 3.5 | 21.0 | 16.5 | 1.2 |
| SE | 10* 49 6 | 50 | 1330 | 334 | 755 | 385 | 10 | 530 | 0.0 | 2.5 | 9.6 | 0.3 | 10.6 | 0.00 | 15.1 | 5.4 | 20.5 | 26.3 | 2.0 |
| SE | 10* 49 6 | 30 | 1760 | 1040 | 1000+ | 139 | 118 | 550 | 200.0 | 0.3 | 3.5 | 3.3 | 11.0 | 14.20 | 20.0+ | 12.1- | 32.1 | 37.6 | 3.8 |
| SE | 10* 49 6 | 40 | 1670 | 562 | 403 | 302 | 156 | 485 | 40.0 | 1.2 | 7.6 | 4.4 | 9.7 | 2.85 | 8.1 | 16.4 | 24.5 | 67.1 | 8.2 |
| SE | 10* 49 6 | 35 | 2160 | 472 | 1000+ | 771 | 15 | 530 | 0.0 | 2.0 | 19.3 | 0.4 | 10.6 | 0.00 | 20.0+ | 10.3- | 30.3 | 33.9 | 3.2 |

| | | | | | | | | | | | | | | | | | | | | | |
|------|------|----|----|-----|-------|------|-------|------|-----|-----|-------|-----|-------|------|------|------|-------|--------|-------|------|------|
| NE | 32 | 49 | 6 | 40 | 1710 | 498 | 950 | 544 | 12 | 505 | 0.0 | 1.8 | 13.6 | 0.3 | 10.1 | 0.00 | 19.0 | 5.0 | 24.0 | 20.9 | 1.6 |
| SW | 15* | 49 | 7 | 40 | 1180 | 348 | 775 | 268 | 3 | 620 | 0.0 | 1.5 | 6.7 | 0.1 | 12.4 | 0.00 | 15.5 | 3.7 | 19.2 | 19.2 | 1.3 |
| SW | 15* | 49 | 7 | 30 | 2110 | 668 | 1000 | 624 | 34 | 495 | 18.0 | 0.0 | 15.6 | 1.0 | 9.9 | 1.28 | 20.0 | 7.7 | 27.7 | 27.9 | 2.4 |
| SW | 32 | 49 | 8 | 85 | 2770 | 710 | 1000+ | 401 | 75 | 605 | 120.0 | 0.3 | 10.0 | 2.1 | 12.1 | 8.56 | 20.0+ | 12.8- | 32.8 | 39.0 | 4.0 |
| | 6 | 49 | 16 | 16 | 1240 | 154 | 310 | 214 | 8 | 800 | 0.8 | 0.3 | 5.4 | 0.2 | 16.0 | 0.06 | 6.2 | 15.4 | 21.6 | 71.3 | 8.8 |
| SE | 14 | 49 | 16 | 26 | 3650 | 375 | 1000+ | 1775 | 105 | 215 | 12.0 | 1.0 | 44.4 | 3.0 | 4.3 | 0.86 | 20.0+ | 32.5- | 52.5 | 61.8 | 10.2 |
| SE | 6 | 49 | 17 | 40 | 1820 | 102 | 75 | 681 | 8 | 505 | 1.2 | 0.0 | 17.0 | 0.2 | 10.1 | 0.09 | 1.5 | 25.9 | 27.4 | 94.5 | 29.9 |
| NE | 10* | 49 | 17 | 26 | 1600 | 290 | 365 | 566 | 16 | 435 | 0.0 | 0.6 | 14.2 | 0.5 | 8.7 | 0.00 | 7.3 | 16.0 | 23.3 | 68.6 | 8.4 |
| NE | 10* | 49 | 17 | 28 | 2460 | 356 | 660 | 460 | 37 | 600 | 26.0 | 0.2 | 11.5 | 1.0 | 12.0 | 1.85 | 13.2 | 13.2 | 26.4 | 49.9 | 5.1 |
| NE | 19* | 50 | 2 | 25 | 344 | 154 | 280 | 30 | 2 | 254 | 1.1 | 0.0 | 0.8 | 0.1 | 4.9 | 0.08 | 5.6 | 0.2 | 5.8 | 3.2 | 0.1 |
| NE | 19* | 50 | 2 | 30 | 610 | 98 | 240 | 131 | 1 | 375 | Tr | 0.8 | 3.3 | 0.0 | 7.5 | 0.00 | 4.8 | 6.0 | 10.8 | 55.5 | 3.9 |
| SE | 10 | 50 | 3 | 30 | 858 | 376 | 490 | 108 | 64 | 330 | 40.4 | 0.0 | 2.7 | 1.8 | 6.6 | 2.88 | 9.8 | 4.2 | 14.0 | 29.9 | 1.9 |
| | 23 | 50 | 3 | 40 | 3240 | 1082 | 1000+ | 859 | 149 | 605 | 125 | 0.3 | 21.5 | 4.2 | 12.1 | 8.92 | 20.0+ | 26.7- | 46.7 | 57.1 | 8.4 |
| NE | 28 | 50 | 5 | 20 | 1880 | 470 | 1000+ | 212 | 570 | 350 | Tr | 0.0 | 5.3 | 16.1 | 7.0 | 0.00 | 20.0+ | 8.4- | 28.4 | 29.5 | 2.6 |
| | 29 | 50 | 5 | 20 | 10910 | 1216 | 1000+ | 5205 | 50 | 710 | 20.0 | 2.5 | 130.1 | 1.4 | 14.2 | 1.42 | 20.0+ | 127.1- | 147.1 | 86.4 | 40.2 |
| SW | 7 | 50 | 6 | 27 | 952 | 248 | 665 | 277 | 5 | 365 | 0.2 | 1.2 | 6.9 | 0.1 | 7.3 | 0.01 | 13.3 | 1.1 | 14.4 | 7.5 | 0.4 |
| NW | 8 | 50 | 6 | 53 | 664 | 150 | 305 | 105 | 2 | 450 | 0.0 | 2.0 | 2.6 | 0.1 | 9.0 | 0.00 | 6.1 | 5.6 | 11.7 | 47.7 | 3.2 |
| SE | 28 | 50 | 6 | 20 | 330 | 144 | 325 | 22 | 4 | 250 | 4.0 | 0.8 | 0.6 | 0.1 | 5.0 | 0.28 | 6.5 | 0.6 | 7.1 | 9.3 | 0.3 |
| NE | 28 | 50 | 6 | 100 | 1690 | 420 | 975 | 528 | 7 | 580 | 10.0 | 1.4 | 13.2 | 0.2 | 11.6 | 0.71 | 19.5 | 6.2 | 25.7 | 24.1 | 2.0 |
| SW | 35 | 50 | 6 | 30 | 660 | 212 | 370 | 16 | 0 | 570 | 0.0 | 1.2 | 0.4 | 0.0 | 11.4 | 0.00 | 7.4 | 4.4 | 11.8 | 37.2 | 2.3 |
| SE | 8 | 50 | 7 | 75 | 796 | 126 | 595 | 215 | 5 | 500 | 2.5 | 1.8 | 5.4 | 0.1 | 10.0 | 0.18 | 11.9 | 3.8 | 15.7 | 24.1 | 1.6 |
| NE | 13 | 50 | 7 | 60 | 1230 | 120 | 360 | 442 | 13 | 455 | 1.4 | 0.2 | 11.0 | 0.4 | 9.1 | 0.10 | 7.2 | 13.4 | 20.6 | 65.0 | 7.1 |
| | 26** | 50 | 9 | 30 | 1310 | 420 | 825 | 275 | 105 | 400 | 105.6 | 0.2 | 6.9 | 3.0 | 8.0 | 7.49 | 16.5 | 8.8 | 25.3 | 34.8 | 3.1 |
| | 14 | 50 | 10 | 20 | 1030 | 238 | 435 | 215 | 77 | 275 | 31.2 | 0.2 | 5.4 | 2.2 | 5.5 | 2.22 | 8.7 | 6.6 | 15.3 | 43.0 | 3.2 |
| SW | 27 | 50 | 10 | 20 | 780 | 420 | 505 | 78 | 66 | 200 | 24.0 | 0.2 | 2.0 | 1.9 | 4.0 | 1.71 | 10.1 | 0.6 | 10.7 | 6.0 | 0.3 |
| SE | 9 | 50 | 17 | 24 | 8890 | 566 | 1000 | 4374 | 45 | 910 | 0.5 | 0.3 | 109.3 | 1.3 | 18.2 | 0.04 | 20.0 | 108.8 | 128.8 | 84.4 | 34.4 |
| NW | 8 | 51 | 1 | 22 | 1870 | 986 | 1000+ | 203 | 120 | 585 | 120.0 | 0.7 | 5.1 | 3.4 | 10.1 | 8.60 | 20.0+ | 7.1- | 27.1 | 26.2 | 2.2 |
| NE | 19 | 51 | 1 | 12 | 1310 | 302 | 680 | 411 | 23 | 430 | 2.4 | 0.0 | 10.3 | 0.6 | 8.6 | 0.17 | 13.6 | 6.1 | 19.7 | 30.9 | 2.3 |
| SW | 31 | 51 | 1 | 15 | 660 | 200 | 435 | 194 | 0 | 325 | 0.0 | 1.5 | 4.8 | 0.0 | 6.5 | 0.00 | 8.7 | 2.6 | 11.3 | 23.3 | 1.3 |
| NE | 24 | 51 | 2 | 40 | 4140 | 908 | 1000 | 1603 | 61 | 520 | 0.0 | 0.0 | 40.1 | 1.7 | 10.4 | 0.00 | 20.0 | 32.2 | 52.2 | 61.6 | 10.1 |
| NE | 26** | 51 | 2 | 30 | 1430 | 422 | 680 | 310 | 44 | 685 | 1.2 | 1.0 | 7.8 | 1.2 | 13.7 | 0.09 | 13.7 | 9.1 | 22.8 | 39.7 | 3.4 |
| NE | 26** | 51 | 2 | | 1550 | 350 | 730 | 424 | 40 | 675 | 0.4 | 2.5 | 10.6 | 1.1 | 13.5 | 0.03 | 14.6 | 10.6 | 25.2 | 42.1 | 3.9 |
| SW | 36** | 51 | 2 | 12 | 1580 | 666 | 805 | 307 | 95 | 380 | 80.0 | 0.3 | 7.7 | 2.7 | 7.6 | 5.71 | 16.1 | 7.6 | 23.7 | 31.9 | 2.7 |
| SW | 36** | 51 | 2 | 15 | 660 | 200 | 435 | 194 | 0 | 325 | 0.0 | 1.5 | 4.8 | 0.0 | 6.5 | 0.00 | 8.7 | 2.6 | 11.3 | 23.3 | 1.3 |
| SE | 25 | 51 | 3 | 40 | 3030 | 676 | 1000+ | 1127 | 84 | 395 | 29.0 | 0.1 | 28.2 | 2.4 | 7.9 | 2.07 | 20.0+ | 20.5- | 40.5 | 50.6 | 6.5 |
| NW | 25 | 51 | 3 | 30 | 1760 | 420 | 980 | 565 | 18 | 540 | 7.0 | 2.5 | 14.1 | 0.5 | 10.8 | 0.50 | 19.6 | 6.3 | 25.9 | 24.4 | 2.0 |
| NE | 3 | 51 | 4 | 50 | 606 | 186 | 415 | 139 | 0 | 310 | 0.0 | 1.5 | 3.5 | 0.0 | 6.2 | 0.00 | 8.3 | 1.4 | 9.7 | 14.2 | 0.7 |
| SW | 7* | 51 | 4 | 50 | 1310 | 134 | 860 | 545 | 4 | 360 | 0.2 | 2.5 | 13.6 | 0.1 | 7.2 | 0.01 | 17.2 | 3.8 | 21.0 | 17.9 | 1.3 |
| SW | 7* | 51 | 4 | 50 | 962 | 316 | 675 | 226 | 38 | 325 | 30.0 | 0.8 | 5.6 | 1.1 | 6.5 | 2.14 | 13.5 | 1.9 | 15.4 | 12.1 | 0.7 |
| NE | 9 | 51 | 4 | 30 | 1420 | 348 | 850 | 458 | 4 | 450 | 1.0 | 1.4 | 11.4 | 0.1 | 9.0 | 0.07 | 17.0 | 3.6 | 20.6 | 17.6 | 1.2 |
| NI/2 | 10 | 51 | 4 | 30 | 2350 | 816 | 1000+ | 327 | 497 | 245 | 30.0 | 0.3 | 8.2 | 14.0 | 4.9 | 2.14 | 20.0+ | 9.2- | 29.2 | 31.5 | 2.9 |
| SE | 25 | 51 | 4 | 30 | 1940 | 390 | 1000+ | 753 | 1 | 380 | 0.6 | 1.7 | 18.8 | 0.0 | 7.6 | 0.04 | 20.0+ | 6.5- | 26.5 | 24.5 | 2.0 |
| NE | 16 | 51 | 5 | 60 | 320 | 40 | 250 | 70 | 0 | 265 | 0.0 | 0.5 | 1.8 | 0.0 | 5.3 | 0.00 | 5.0 | 2.0 | 7.0 | 29.0 | 1.3 |
| NE | 21* | 51 | 5 | 45 | 406 | 110 | 340 | 64 | 3 | 315 | 0.0 | 1.5 | 1.6 | 0.1 | 6.3 | 0.00 | 6.8 | 1.2 | 8.0 | 14.8 | 0.6 |
| NE | 21* | 51 | 5 | 60 | 390 | 152 | 315 | 39 | 0 | 300 | 0.0 | 5.0 | 1.0 | 0.0 | 6.0 | 0.00 | 6.3 | 0.7 | 7.0 | 9.7 | 0.4 |
| SE | 22* | 51 | 5 | 50 | 820 | 304 | 490 | 106 | 48 | 445 | 20.0 | 0.2 | 2.6 | 1.4 | 8.9 | 1.42 | 9.8 | 4.5 | 14.3 | 31.6 | 2.0 |
| SE | 22 | 51 | 5 | 30 | 1260 | 380 | 815 | 229 | 74 | 620 | 40.0 | 0.3 | 5.7 | 2.1 | 12.4 | 2.85 | 16.3 | 6.8 | 23.1 | 29.3 | 2.4 |
| NW | 5 | 51 | 6 | 30 | 1090 | 250 | 800 | 289 | 9 | 550 | 0.0 | 0.5 | 7.2 | 0.3 | 11.0 | 0.00 | 16.0 | 2.5 | 18.5 | 13.4 | 0.9 |
| NE | 19 | 51 | 6 | 30 | 2170 | 514 | 1000+ | 755 | 2 | 555 | 0.0 | 3.5 | 18.9 | 0.1 | 11.1 | 0.00 | 20.0+ | 10.0- | 30.0 | 33.4 | 3.2 |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section

Tr = trace

Ep = equivalent

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Chemical Analyses of Groundwaters of East-Central Alberta - Drift Groundwaters (Cont'd.)

| Location | | | | Depth 1/4 (feet) | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₃ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|----------------------|--------|----|----|------------------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|------|
| West of 4th Meridian | Tp. R. | | | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| NE | 23 | 51 | 6 | 40 | 1720 | 328 | 1000+ | 544 | 11 | 735 | Tr | 3.5 | 13.6 | 0.3 | 14.7 | 0.00 | 20.0+ | 8.6- | 28.6 | 30.0 | 2.7 |
| NW | 4* | 51 | 8 | 9 | 1320 | 628 | 450 | 215 | 170 | 50 | 150.0 | 0.0 | 5.4 | 4.8 | 1.0 | 10.70 | 9.0 | 12.9 | 21.9 | 58.8 | 6.1 |
| NW | 4* | 51 | 8 | 55 | 972 | 564 | 580 | 99 | 34 | 315 | 80.0 | 0.0 | 2.5 | 1.0 | 6.3 | 5.70 | 11.6 | 3.8 | 15.4 | 24.8 | 1.6 |
| NW | 14 | 51 | 9 | 30 | 1990 | 972 | 1000+ | 329 | 133 | 380 | 240.0 | 0.5 | 8.2 | 3.8 | 7.6 | 17.10 | 20.0+ | 16.7- | 36.7 | 45.5 | 5.3 |
| SE | 31 | 51 | 9 | 30 | 606 | 276 | 425 | 58 | 44 | 275 | 20.0 | 0.8 | 1.4 | 1.2 | 5.5 | 1.42 | 8.5 | 1.1 | 9.6 | 11.6 | 0.5 |
| SE | 16 | 51 | 10 | 50 | 980 | 540 | 720 | 37 | 42 | 545 | 24.0 | 0.0 | 0.9 | 1.2 | 10.9 | 1.71 | 14.4 | 0.3 | 14.7 | 2.2 | 0.1 |
| SW | 13 | 51 | 11 | 30 | 640 | 272 | 395 | Tr | 24 | 420 | 13.6 | 0.3 | 0.0 | 0.7 | 8.4 | 0.07 | 7.9 | 2.2 | 10.1 | 21.5 | 1.1 |
| | 15** | 51 | 12 | 20 | 1020 | 124 | 50 | 113 | 5 | 670 | 3.2 | 0.0 | 2.8 | 0.1 | 13.4 | 0.23 | 1.0 | 15.6 | 16.6 | 93.9 | 22.0 |
| | 15** | 51 | 12 | 20 | 1190 | 92 | 45 | 222 | 7 | 670 | 0.0 | 6.9 | 5.6 | 0.2 | 13.4 | 0.00 | 0.9 | 18.2 | 19.1 | 95.2 | 27.2 |
| | 15** | 51 | 12 | 30 | 998 | 44 | 40 | 84 | 13 | 760 | 0.0 | 0.8 | 2.1 | 0.4 | 15.2 | 0.00 | 0.8 | 16.9 | 17.7 | 95.4 | 26.6 |
| SW | 18 | 51 | 13 | 42 | 4320 | 1402 | 1000+ | 1410 | 205 | 515 | 156.0 | 0.3 | 35.2 | 5.8 | 10.3 | 11.10 | 20.0+ | 42.5- | 62.5 | 67.9 | 13.4 |
| NE | 22 | 51 | 13 | 28 | 1290 | 266 | 570 | 415 | 2 | 515 | Tr | 1.3 | 10.4 | 0.1 | 10.3 | 0.00 | 11.4 | 9.3 | 20.7 | 45.0 | 3.9 |
| NE | 28 | 51 | 13 | 21 | 1630 | 586 | 1000+ | 414 | 55 | 400 | 118.0 | 0.4 | 10.4 | 1.6 | 8.0 | 8.42 | 20.0+ | 8.3- | 28.3 | 29.3 | 2.6 |
| NW | 30 | 51 | 13 | 24 | 1140 | 194 | 280 | 335 | 19 | 435 | 16.0 | 0.3 | 8.4 | 0.5 | 8.7 | 1.14 | 5.6 | 13.2 | 18.8 | 70.1 | 7.9 |
| S1/2 | 16 | 52 | 2 | 44 | 1590 | 354 | 1000+ | 565 | 7 | 430 | 0.0 | 1.0 | 14.1 | 0.2 | 8.6 | 0.00 | 20.0+ | 2.9- | 22.9 | 12.7 | 0.9 |
| NW | 15 | 52 | 3 | 80 | 1230 | 514 | 775 | 167 | 120 | 400 | 80.0 | 0.5 | 4.2 | 3.4 | 8.0 | 5.71 | 15.5 | 5.8 | 21.3 | 27.1 | 2.1 |
| NW | 16 | 52 | 3 | 19 | 1910 | 252 | 600 | 660 | 110 | 550 | 0.0 | 0.8 | 16.5 | 3.1 | 11.0 | 0.00 | 12.0 | 18.6 | 30.6 | 60.7 | 7.6 |
| SE | 26 | 52 | 3 | 23 | 570 | 298 | 375 | 47 | 38 | 225 | 56.0 | 0.2 | 1.2 | 1.1 | 4.5 | 3.99 | 7.5 | 3.2 | 10.7 | 30.2 | 1.7 |
| | 26** | 52 | 3 | 30 | 392 | 134 | 250 | Tr | 18 | 160 | 22.6 | 0.0 | 0.0 | 0.5 | 3.2 | 1.61 | 5.0 | 0.3 | 5.3 | 6.5 | 0.2 |
| | 26** | 52 | 3 | 50 | 528 | 234 | 430 | 19 | 18 | 410 | 1.0 | 0.2 | 0.5 | 0.5 | 8.2 | 0.07 | 8.6 | 0.7 | 9.3 | 7.1 | 0.3 |
| NE | 27 | 52 | 3 | 64 | 1500 | 124 | 230 | 533 | 5 | 510 | 10.0 | 0.0 | 13.3 | 0.1 | 10.2 | 0.71 | 4.6 | 19.8 | 24.4 | 81.1 | 13.0 |
| NW | 18 | 52 | 4 | 15 | 1250 | 332 | 840 | 393 | 27 | 355 | 19.0 | 0.0 | 9.8 | 0.7 | 7.1 | 1.40 | 16.8 | 2.2 | 19.0 | 11.7 | 0.8 |
| SE | 4 | 52 | 5 | 50 | 2920 | 544 | 1000+ | 1133 | 35 | 660 | 40.0 | 0.9 | 28.3 | 1.0 | 13.2 | 2.80 | 20.0+ | 25.4- | 45.4 | 55.9 | 8.0 |
| NE | 12 | 52 | 6 | 50 | 1060 | 332 | 860 | 224 | 20 | 525 | 15.0 | 1.2 | 5.6 | 0.6 | 10.5 | 1.07 | 17.2 | 0.5 | 17.7 | 3.0 | 0.2 |
| NE | 31 | 52 | 6 | 25 | 2730 | 304 | 1000+ | 1211 | 5 | 495 | 12.8 | 1.6 | 30.3 | 0.1 | 9.9 | 0.91 | 20.0+ | 21.2- | 41.2 | 51.4 | 6.7 |
| SW | 4 | 52 | 7 | 32 | 4490 | 510 | 1000+ | 2091 | 44 | 375 | 20.0 | 1.5 | 52.3 | 1.2 | 7.5 | 1.42 | 20.0+ | 42.4- | 62.4 | 67.9 | 13.4 |
| NW | 6 | 52 | 7 | 50 | 530 | 142 | 430 | 147 | 3 | 220 | 0.0 | 1.5 | 3.7 | 0.1 | 4.4 | 0.00 | 8.6 | 0.4 | 9.0 | 5.4 | 0.2 |
| SE | 1 | 52 | 8 | 30 | 2140 | 464 | 1000+ | 841 | 4 | 320 | 0.0 | 3.0 | 21.0 | 0.1 | 6.4 | 0.00 | 20.0+ | 7.5- | 27.5 | 27.3 | 2.4 |
| SE | 5 | 52 | 8 | 24 | 758 | 360 | 645 | 0 | 7 | 695 | 0.3 | 0.2 | 0.0 | 0.2 | 13.9 | 0.02 | 12.9 | 1.2 | 14.1 | 8.6 | 0.5 |
| NW | 7 | 52 | 8 | 30 | 578 | 248 | 430 | 10 | 0 | 440 | 0.0 | 0.4 | 0.2 | 0.0 | 8.8 | 0.00 | 8.6 | 0.4 | 9.0 | 5.0 | 0.2 |
| SW | 18 | 52 | 8 | 70 | 1040 | 322 | 775 | 208 | 22 | 565 | 28.0 | 0.4 | 5.2 | 0.6 | 11.3 | 1.99 | 15.5 | 3.6 | 19.1 | 18.9 | 1.3 |
| | 6 | 52 | 9 | 30 | 440 | 226 | 370 | 5 | 32 | 270 | 20.0 | 0.3 | 0.1 | 0.9 | 5.4 | 1.42 | 7.4 | 0.5 | 7.9 | 5.8 | 0.2 |
| SW | 4 | 52 | 13 | 60 | 960 | 130 | 260 | Tr | 51 | 530 | 38.3 | 0.0 | 0.0 | 1.4 | 10.6 | 2.73 | 5.2 | 9.6 | 14.8 | 62.8 | 6.0 |
| SE | 14 | 52 | 13 | 68 | 1380 | 280 | 645 | 474 | 1 | 460 | 0.8 | 0.0 | 11.8 | 0.0 | 9.2 | 0.06 | 12.9 | 8.2 | 21.1 | 38.9 | 3.2 |
| | 29 | 52 | 13 | 60 | 1430 | 330 | 685 | 475 | 1 | 460 | 8.8 | 2.5 | 11.9 | 0.0 | 9.2 | 0.63 | 13.7 | 8.0 | 21.7 | 36.9 | 3.1 |
| SE | 28 | 52 | 15 | 45 | 750 | 230 | 520 | 180 | Tr | 358 | 0.0 | 0.3 | 4.5 | 0.0 | 7.2 | 0.00 | 10.4 | 1.3 | 11.7 | 10.8 | 0.6 |
| NE | 10 | 52 | 16 | 26 | 842 | 250 | 625 | 130 | 20 | 350 | 23.0 | 0.1 | 3.2 | 0.6 | 7.0 | 1.64 | 12.5 | 0.0 | 12.5 | 0.4 | 0.0 |
| SE | 15 | 52 | 16 | 60 | 704 | 204 | 585 | 188 | 6 | 425 | 0.0 | 0.6 | 4.7 | 0.2 | 8.5 | 0.00 | 11.7 | 1.7 | 13.4 | 12.4 | 0.7 |
| NE | 5 | 53 | 1 | 20 | 312 | 126 | 255 | 26 | 1 | 245 | 2.0 | 0.0 | 0.6 | 0.0 | 4.9 | 0.14 | 5.1 | 0.6 | 5.7 | 10.8 | 0.4 |
| SE | 16 | 53 | 1 | 10 | 446 | 216 | 375 | 17 | 11 | 325 | 15.0 | 0.0 | 0.4 | 0.3 | 6.5 | 1.07 | 7.5 | 0.8 | 8.3 | 9.7 | 0.4 |
| NW | 3 | 53 | 2 | 32 | 1130 | 306 | 600 | 324 | 13 | 400 | 0.0 | 1.5 | 8.1 | 0.4 | 8.0 | 0.00 | 12.0 | 4.5 | 16.5 | 27.1 | 1.8 |
| SE | 4 | 53 | 2 | 20 | 4380 | 880 | 1000+ | 1778 | 58 | 465 | 20.0 | 1.2 | 44.4 | 1.6 | 9.3 | 1.42 | 20.0+ | 36.8- | 56.8 | 64.7 | 11.6 |
| SW | 16 | 53 | 2 | 30 | 740 | 180 | 320 | 254 | 4 | 185 | 6.0 | 0.0 | 6.4 | 0.1 | 3.7 | 0.43 | 6.4 | 4.2 | 10.6 | 39.5 | 2.3 |
| SE | 23 | 53 | 2 | 30 | 432 | 248 | 355 | 0 | 15 | 310 | 15.0 | 0.0 | 0.0 | 0.4 | 6.2 | 1.07 | 7.1 | 0.6 | 7.7 | 7.7 | 0.3 |
| N1/2 | 3 | 53 | 3 | 40 | 304 | 138 | 240 | 29 | 0 | 205 | 15.0 | 0.3 | 0.7 | 0.0 | 4.1 | 1.07 | 4.8 | 1.1 | 5.9 | 18.5 | 0.7 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|------|----|----|----|------|------|-------|------|------|-----|-------|------|------|------|------|-------|-------|-------|------|-------|------|
| NW | 17 | 53 | 3 | 40 | 2610 | 290 | 610 | 1148 | 13 | 475 | Tr | 0.2 | 28.7 | 0.4 | 9.5 | 0.00 | 12.2 | 26.4 | 38.6 | 68.3 | 10.6 |
| NW | 18** | 53 | 3 | 30 | 1400 | 366 | 760 | 452 | 10 | 400 | 23.2 | 1.2 | 11.3 | 0.3 | 8.0 | 1.65 | 15.2 | 6.0 | 21.2 | 28.4 | 2.2 |
| NW | 18** | 53 | 3 | 0 | 950 | 342 | 620 | 189 | 6 | 465 | 16.1 | 0.0 | 4.7 | 0.2 | 9.3 | 1.14 | 12.4 | 2.9 | 15.3 | 19.1 | 1.2 |
| SW | 2 | 53 | 5 | 40 | 1090 | 212 | 655 | 319 | 52 | 410 | 32.0 | 1.5 | 8.0 | 1.5 | 8.2 | 2.28 | 13.1 | 6.8 | 19.9 | 34.2 | 2.7 |
| SE | 8 | 53 | 5 | 30 | 262 | 158 | 280 | 0 | 22 | 235 | 1.0 | 0.8 | 0.0 | 0.6 | 4.7 | 0.07 | 5.6 | 0.2 | 5.8 | 3.9 | 0.1 |
| NW | 9 | 53 | 5 | 30 | 862 | 208 | 490 | 254 | | 365 | 0.0 | 1.1 | 6.4 | 0.0 | 7.3 | 0.00 | 9.8 | 3.8 | 13.6 | 28.2 | 1.7 |
| | 17 | 53 | 5 | 50 | 922 | 508 | 580 | 49 | 58 | 425 | 60.0 | 0.0 | 1.2 | 1.6 | 85.0 | 4.28 | 11.6 | 4.0 | 15.6 | 25.8 | 1.7 |
| SW | 34* | 53 | 6 | 20 | 512 | 162 | 390 | 95 | 7 | 305 | 0.6 | 1.8 | 2.4 | 0.2 | 6.1 | 0.04 | 7.8 | 0.9 | 8.7 | 10.5 | 0.5 |
| SW | 34* | 53 | 6 | 35 | 632 | 258 | 500 | 75 | 7 | 395 | 0.0 | 0.3 | 1.9 | 0.2 | 7.9 | 0.00 | 10.0 | 0.0 | 10.0 | 0.3 | 0.0 |
| NE | 2 | 53 | 8 | 47 | 738 | 418 | 560 | 0 | 42 | 445 | 20.0 | 1.0 | 0.0 | 1.2 | 8.9 | 1.42 | 11.2 | 0.3 | 11.5 | 2.7 | 0.1 |
| SW | 18* | 53 | 11 | 90 | 2150 | 1050 | 1000+ | 257 | 127 | 780 | 120.0 | 0.3 | 6.4 | 3.6 | 15.6 | 8.56 | 20.0+ | 14.2- | 34.2 | 41.4 | 4.5 |
| SW | 18* | 53 | 11 | 30 | 924 | 484 | 750 | 81 | 71 | 490 | 60.0 | 0.4 | 2.0 | 2.0 | 9.8 | 4.28 | 15.0 | 3.1 | 18.1 | 17.1 | 1.1 |
| SW | 31 | 53 | 12 | 79 | 460 | 168 | 310 | 82 | 5 | 365 | 0.0 | 0.7 | 2.1 | 0.1 | 7.3 | 0.00 | 6.2 | 3.3 | 3.5 | 34.8 | 1.9 |
| NW | 2 | 53 | 13 | 70 | 1160 | 308 | 395 | 262 | 31 | 505 | 15.8 | 0.8 | 6.6 | 0.9 | 10.1 | 1.12 | 7.9 | 10.8 | 18.7 | 57.6 | 5.4 |
| SW | 6 | 53 | 13 | 82 | 1800 | 466 | 1000+ | 567 | 4 | 580 | 48.0 | 4.0 | 14.2 | 0.1 | 11.6 | 3.42 | 20.0+ | 9.3 | 29.3 | 31.7 | 2.9 |
| NW | 31 | 53 | 13 | 70 | 1520 | 300 | 670 | 498 | 2 | 575 | 0.0 | 3.5 | 12.4 | 0.1 | 11.5 | 0.00 | 13.4 | 10.6 | 24.0 | 44.1 | 4.1 |
| SW | 2 | 53 | 14 | 20 | 1510 | 184 | 375 | 573 | 1 | 470 | 0.0 | 0.0 | 14.3 | 0.0 | 9.4 | 0.00 | 7.5 | 16.2 | 23.7 | 68.4 | 8.4 |
| NE | 9* | 53 | 14 | 24 | 2010 | 438 | 900 | 621 | 130 | 450 | 12.0 | 0.3 | 15.5 | 3.7 | 9.0 | 0.86 | 18.0 | 11.0 | 29.0 | 38.0 | 3.7 |
| NE | 9* | 53 | 14 | 13 | 1760 | 794 | 900 | 314 | 80 | 495 | 120.0 | 0.2 | 7.8 | 2.3 | 9.9 | 8.56 | 18.0 | 10.6 | 28.6 | 37.0 | 3.5 |
| NE | 9* | 53 | 14 | 24 | 1730 | 374 | 1000 | 482 | 85 | 640 | 26.0 | 1.4 | 12.0 | 2.4 | 12.8 | 1.85 | 20.0 | 9.1 | 29.1 | 31.2 | 2.9 |
| SW | 14 | 53 | 14 | 65 | 2370 | 94 | 120 | 990 | 11 | 535 | 1.8 | 1.0 | 24.8 | 0.3 | 10.7 | 0.13 | 2.4 | 33.5 | 35.9 | 93.3 | 30.5 |
| SW | 22* | 53 | 14 | 35 | 1730 | 214 | 315 | 575 | 24 | 575 | 6.0 | 1.0 | 14.4 | 0.7 | 11.5 | 0.43 | 6.3 | 20.7 | 27.0 | 76.6 | 11.6 |
| SW | 22* | 53 | 14 | 35 | 2510 | 970 | 995 | 719 | 1470 | 525 | 160.0 | 2+ | 18.0 | 41.4 | 10.5 | 11.40 | 19.9 | 61.4 | 81.3 | 75.5 | 19.4 |
| NE | 26 | 53 | 14 | 50 | 2400 | 210 | 420 | 1022 | 7 | 540 | 0.0 | 0.4 | 25.6 | 0.2 | 10.8 | 0.00 | 8.4 | 28.1 | 36.5 | 77.0 | 13.7 |
| SE | 35 | 53 | 14 | 34 | 6890 | 1892 | 1000+ | 2431 | 239 | 540 | 270.0 | 0.0 | 60.8 | 6.7 | 10.8 | 19.20 | 20.0+ | 77.6- | 97.6 | 79.5 | 24.5 |
| | 36 | 53 | 14 | 40 | 2610 | 338 | 605 | 1063 | 45 | 570 | 20.0 | 1.6 | 26.6 | 1.3 | 11.4 | 1.42 | 12.1 | 28.6 | 40.7 | 70.2 | 11.6 |
| NW | 30 | 53 | 15 | 60 | 2650 | 596 | 1000+ | 1020 | 51 | 300 | 352.0 | 0.5 | 25.5 | 1.4 | 6.0 | 25.10 | 20.0+ | 38.1- | 58.1 | 65.5 | 12.0 |
| SE | 16 | 53 | 17 | 27 | 4930 | 872 | 1000+ | 2043 | 134 | 420 | 96.0 | 0.0 | 51.1 | 3.8 | 8.4 | 6.85 | 20.0+ | 50.1- | 70.1 | 71.4 | 15.8 |
| SW | 34* | 53 | 17 | 39 | 1070 | 62 | 132 | 265 | 11 | 655 | 25.0 | 15.0 | 6.6 | 0.3 | 13.1 | 1.78 | 2.6 | 19.2 | 21.8 | 87.9 | 16.6 |
| SW | 34* | 53 | 17 | 30 | 2200 | 518 | 620 | 1290 | 177 | 730 | 144.0 | 1.0 | 32.2 | 5.0 | 14.6 | 10.20 | 12.4 | 49.7 | 62.1 | 80.0 | 19.9 |
| SW | 34* | 53 | 17 | 0 | 2850 | 270 | 485 | 1070 | 135 | 675 | 75.0 | 1.3 | 26.8 | 3.8 | 13.5 | 5.40 | 9.7 | 39.8 | 49.5 | 80.0 | 18.2 |
| NW | 2 | 54 | 2 | 20 | 900 | 400 | 500 | 148 | 105 | 260 | 57.0 | 0.2 | 3.7 | 3.0 | 5.2 | 4.06 | 10.0 | 5.9 | 15.9 | 37.2 | 2.6 |
| SE | 25 | 54 | 2 | 36 | 3360 | 296 | 560 | 1518 | 51 | 515 | 0.3 | 0.4 | 38.0 | 1.4 | 10.3 | 0.02 | 11.2 | 38.5 | 49.7 | 77.4 | 16.2 |
| SE | 30 | 54 | 2 | 20 | 608 | 264 | 385 | 92 | 37 | 215 | 40.0 | 1.0 | 2.3 | 1.0 | 4.3 | 2.85 | 7.7 | 2.8 | 10.5 | 26.6 | 1.4 |
| SW | 30 | 54 | 2 | 10 | 352 | 158 | 245 | 37 | 6 | 310 | 12.0 | 1.0 | 9.2 | 0.2 | 6.2 | 0.86 | 4.9 | 3.3 | 8.2 | 39.8 | 2.1 |
| SW | 31 | 54 | 2 | 30 | 592 | 170 | 370 | 131 | 4 | 325 | 0.0 | 0.4 | 3.3 | 0.1 | 6.5 | 0.00 | 7.4 | 2.5 | 9.9 | 25.1 | 1.3 |
| SE | 18 | 54 | 3 | 60 | 1530 | 318 | 910 | 506 | 5 | 540 | 0.0 | 2.5 | 12.6 | 0.1 | 10.8 | 0.00 | 18.2 | 5.4 | 23.6 | 22.8 | 1.8 |
| SW | 36 | 54 | 3 | 30 | 1430 | 450 | 795 | 363 | 69 | 405 | 60.0 | 0.3 | 9.1 | 1.9 | 8.1 | 4.28 | 15.9 | 7.5 | 23.4 | 32.0 | 2.7 |
| SW | 15 | 54 | 5 | 60 | 2660 | 744 | 1000 | 813 | 107 | 335 | 46.6 | 0.1 | 20.3 | 3.0 | 6.7 | 3.32 | 20.0 | 13.4 | 33.4 | 40.0 | 4.2 |
| SE | 32* | 54 | 5 | 35 | 1590 | 532 | 1000+ | 240 | 92 | 850 | 10.0 | 1.0 | 6.0 | 2.6 | 17.0 | 0.71 | 20.0+ | 6.3- | 26.3 | 23.9 | 2.0 |
| SE | 32* | 54 | 5 | 30 | 2760 | 620 | 1000+ | 978 | 34 | 625 | 10.0 | 0.2 | 24.4 | 1.0 | 12.5 | 0.71 | 20.0+ | 18.6- | 38.6 | 48.2 | 5.9 |
| SE | 14 | 54 | 9 | 28 | 550 | 194 | 305 | 43 | 5 | 400 | 0.2 | 5+ | 1.2 | 0.1 | 8.0 | 0.01 | 6.1 | 3.3 | 9.4 | 34.7 | 1.9 |
| SE | 14 | 54 | 10 | 12 | 582 | 222 | 650 | 68 | 11 | 395 | 1.2 | 0.0 | 1.7 | 0.3 | 7.9 | 0.09 | 13.0 | 3.0 | 16.0 | 30.0 | 1.2 |
| NE | 15 | 54 | 10 | 0 | 588 | 206 | 500 | 76 | 9 | 410 | 13.2 | 1.5 | 1.9 | 0.3 | 8.2 | 0.94 | 10.0 | 1.3 | 11.3 | 11.4 | 0.6 |
| SW | 22 | 54 | 10 | 45 | 494 | 220 | 430 | 19 | 3 | 400 | 0.1 | 0.4 | 0.5 | 0.1 | 8.0 | 0.01 | 8.6 | 0.0 | 8.6 | 0.4 | 0.0 |
| NE | 24 | 54 | 10 | 30 | 720 | 280 | 520 | 40 | 4 | 445 | 0.3 | 0.2 | 1.0 | 0.1 | 8.9 | 0.02 | 10.4 | 0.4 | 10.8 | 3.6 | 0.2 |
| SE | 17 | 54 | 12 | 30 | 2350 | 924 | 1000+ | 485 | 110 | 690 | 70.0 | 0.1 | 12.1 | 3.1 | 13.8 | 4.99 | 20.0+ | 14.0- | 34.0 | 41.2 | 4.4 |
| SE | 20 | 54 | 12 | 0 | 1050 | 276 | 610 | 274 | 10 | 475 | 0.0 | 1.2 | 6.8 | 0.3 | 9.5 | 0.00 | 12.2 | 4.4 | 16.6 | 26.6 | 1.8 |
| SE | 20* | 54 | 12 | 10 | 1020 | 52 | 0 | 109 | 52 | 650 | 0.0 | 0.4 | 2.7 | 1.5 | 13.0 | 0.00 | 0.0 | 17.2 | 17.2 | 100.0 | 0.0 |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section
Tr = trace
*Denotes sites at which more than one analysis is available

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

Chemical Analyses of Groundwaters of East-Central Alberta - Drift Groundwaters (Cont'd.)

| Location | | | | Depth 1/4 Sec. | Total solids (ppm) | Ignition loss (ppm) | Hardness as CaCO ₃ (ppm) | Sulfates as SO ₄ (ppm) | Chlorides as Cl (ppm) | Alkalinity as CaCO ₃ (ppm) | Nitrates as N (ppm) | Iron as Fe (ppm) | Anions | | | | Cations | | Sum of anions | SSP | SAR |
|----------------------|------|------|--------|----------------------|--------------------------|---------------------------|---|---|-----------------------------|---|---------------------------|------------------------|--------------------------|-------------|--|--------------------------|----------------|---------------|------------------|------|------|
| West of 4th Meridian | 1/4 | Sec. | Sp. R. | | | | | | | | | | SO ₄ (epm) | Cl (epm) | HCO ₃ +CO ₃ (epm) | NO ₃ (epm) | Ca+Mg (epm) | Na+K (epm) | | | |
| SE | 20* | 54 | 12 | 10 | 992 | 48 | 35 | 248 | 21 | 460 | 0.0 | 0.1 | 6.2 | 0.6 | 9.2 | 0.00 | 0.7 | 15.3 | 16.0 | 95.6 | 25.8 |
| NW | 35 | 54 | 12 | 65 | 3520 | 716 | 1000+ | 1364 | 22 | 635 | 0.0 | 0.7 | 34.1 | 0.6 | 12.7 | 0.00 | 20.0+ | 27.4- | 47.4 | 57.8 | 8.7 |
| NW | 12 | 54 | 13 | 100 | 1450 | 480 | 865 | 379 | 41 | 420 | 60.0 | 0.1 | 9.5 | 1.0 | 8.4 | 4.3 | 17.3 | 5.9 | 23.2 | 25.4 | 2.0 |
| SW | 13 | 54 | 13 | 15 | 436 | 240 | 350 | Tr | 9 | 320 | 7.2 | 0.3 | 0.0 | 0.3 | 6.4 | 0.51 | 7.0 | 0.2 | 7.2 | 2.3 | 0.1 |
| SE | 10 | 54 | 14 | 60 | 3970 | 790 | 1000+ | 1610 | 17 | 530 | 10.0 | 0.2 | 40.2 | 0.5 | 10.6 | 0.71 | 20.0+ | 32.0- | 52.0 | 61.5 | 10.1 |
| SE | 15 | 54 | 14 | 70 | 1500 | 300 | 780 | 567 | 14 | 585 | 6.0 | 0.2 | 14.2 | 0.4 | 11.7 | 0.43 | 15.6 | 11.1 | 26.7 | 41.5 | 4.0 |
| SW | 23 | 54 | 14 | 40 | 676 | 180 | 475 | 153 | 7 | 380 | 2.0 | 0.3 | 3.8 | 0.2 | 7.6 | 0.14 | 9.5 | 2.3 | 11.8 | 19.2 | 1.0 |
| SW | 30 | 54 | 14 | 28 | 2790 | 690 | 1000+ | 988 | 55 | 465 | 80.0 | 0.0 | 24.6 | 1.6 | 9.3 | 5.71 | 20.0+ | 21.2- | 41.2 | 51.4 | 6.7 |
| NW | 34 | 54 | 14 | 46 | 802 | 340 | 625 | 17 | 1 | 700 | 0.0 | 1.3 | 0.4 | 0.0 | 14.0 | 0.00 | 12.5 | 2.0 | 14.5 | 13.5 | 0.8 |
| NE | 21 | 54 | 15 | 48 | 1390 | 58 | 25 | 190 | 12 | 950 | 0.6 | 1.0 | 4.8 | 0.3 | 19.0 | 0.04 | 0.5 | 23.6 | 24.1 | 97.9 | 47.2 |
| SW | 1 | 54 | 17 | 40 | 882 | 146 | 380 | 220 | 26 | 465 | 2.0 | 2.0 | 5.5 | 0.7 | 9.3 | 0.14 | 7.6 | 8.1 | 15.7 | 51.5 | 4.1 |
| NE | 26 | 54 | 17 | 65 | 1970 | 932 | 1000+ | 500 | 112 | 515 | 65.2 | 0.0 | 12.5 | 3.2 | 10.3 | 4.65 | 20.0+ | 10.6- | 30.6 | 34.6 | 3.4 |
| NW | 27 | 54 | 17 | 74 | 1940 | 450 | 725 | 614 | 32 | 615 | 56.0 | 0.0 | 15.4 | 0.9 | 12.3 | 3.99 | 14.5 | 18.0 | 32.5 | 55.4 | 6.7 |
| | 2 | 55 | 2 | 30 | 410 | 126 | 225 | 58 | 8 | 265 | 100.0 | 0.4 | 1.4 | 0.2 | 5.3 | 0.71 | 4.5 | 3.2 | 7.7 | 41.4 | 2.1 |
| SE | 2 | 55 | 2 | 22 | 306 | 140 | 260 | 0 | 1 | 285 | 0.0 | 2.0 | 0.0 | 0.0 | 5.7 | 0.00 | 5.3 | 0.4 | 5.7 | 7.1 | 0.2 |
| SE | 6 | 55 | 5 | 50 | 1230 | 342 | 760 | 332 | 2 | 530 | 1.0 | 1.3 | 8.3 | 0.1 | 10.6 | 0.07 | 15.2 | 3.8 | 19.0 | 20.1 | 1.4 |
| | 7 | 55 | 5 | 60 | 504 | 124 | 395 | 104 | 12 | 315 | 12.8 | 0.7 | 2.6 | 0.3 | 6.3 | 0.91 | 7.9 | 2.3 | 10.2 | 22.1 | 1.1 |
| SW | 10 | 55 | 5 | 35 | 806 | 490 | 600 | 0 | 93 | 425 | 2.0 | 1.0 | 0.0 | 2.6 | 8.5 | 0.14 | 12.0 | 0.7 | 12.7 | 6.5 | 0.3 |
| NE | 2 | 55 | 6 | 35 | 3570 | 732 | 1000+ | 1412 | 57 | 435 | 40.0 | 1.2 | 35.5 | 1.6 | 8.7 | 2.85 | 20.0+ | 28.5- | 48.5 | 58.7 | 9.0 |
| SE | 5 | 55 | 6 | 34 | 3540 | 556 | 1000+ | 1576 | 8 | 315 | 0.4 | 3.5 | 39.4 | 0.2 | 6.3 | 0.03 | 20.0+ | 26.0- | 46.0 | 56.4 | 8.2 |
| SE | 12* | 55 | 6 | 32 | 1050 | 460 | 610 | 112 | 143 | 280 | 112.0 | 3.0 | 2.8 | 4.0 | 5.6 | 7.99 | 12.2 | 8.2 | 20.4 | 40.2 | 3.3 |
| SE | 12* | 55 | 6 | 50 | 1260 | 360 | 820 | 334 | 17 | 505 | 9.5 | 0.1 | 8.4 | 0.5 | 10.1 | 0.68 | 16.4 | 3.2 | 19.6 | 16.3 | 1.1 |
| | 15 | 55 | 6 | 50 | 1390 | 318 | 670 | 500 | 7 | 310 | 1.2 | 0.1 | 12.5 | 0.2 | 6.2 | 0.09 | 13.4 | 5.6 | 19.0 | 29.4 | 2.2 |
| | 9 | 55 | 11 | 42 | 628 | 264 | 550 | 22 | 10 | 550 | 0.0 | 1.5 | 0.6 | 0.3 | 11.0 | 0.00 | 11.0 | 0.8 | 11.8 | 7.0 | 0.4 |
| NE | 17 | 55 | 11 | 32 | 568 | 204 | 450 | 55 | 10 | 445 | 0.0 | 1.5 | 1.4 | 0.3 | 8.9 | 0.00 | 9.0 | 1.6 | 10.6 | 14.7 | 0.7 |
| SE | 15 | 55 | 12 | 106 | 1400 | 144 | 305 | 324 | 114 | 610 | 0.0 | 0.2 | 8.1 | 3.2 | 12.2 | 0.00 | 6.1 | 17.4 | 23.5 | 74.0 | 9.8 |
| SE | 26 | 55 | 12 | 65 | 1100 | 120 | 180 | 125 | 117 | 620 | 11.0 | 0.3 | 3.1 | 3.3 | 12.4 | 0.78 | 3.6 | 16.0 | 19.6 | 81.6 | 11.9 |
| NW | 27* | 55 | 12 | 14 | 852 | 74 | 100 | 119 | 14 | 560 | 3.0 | 0.1 | 3.0 | 0.4 | 11.2 | 0.21 | 2.0 | 12.8 | 14.8 | 86.4 | 12.7 |
| NW | 27* | 55 | 12 | 22 | 1170 | 146 | 295 | 188 | 60 | 700 | 40.0 | 0.5 | 4.7 | 1.7 | 14.0 | 2.85 | 5.9 | 17.3 | 23.2 | 74.6 | 10.1 |
| SE | 8 | 55 | 13 | 95 | 496 | 184 | 445 | 31 | 4 | 445 | 0.0 | 0.6 | 0.8 | 0.1 | 8.9 | 0.00 | 8.9 | 0.9 | 9.8 | 9.2 | 0.4 |
| SW | 15* | 55 | 13 | 21 | 680 | 194 | 370 | 202 | 5 | 215 | 440.0 | 0.1 | 5.0 | 0.1 | 4.3 | 31.4 | 7.4 | 33.5 | 40.9 | 81.9 | 17.4 |
| SW | 15* | 55 | 13 | 15 | 500 | 180 | 305 | 107 | 4 | 220 | 35.0 | 0.1 | 2.7 | 0.1 | 4.4 | 2.49 | 6.1 | 3.6 | 9.7 | 37.0 | 2.0 |
| SE | 16 | 55 | 13 | 45 | 1070 | 618 | 500 | 190 | 35 | 100 | 80.0 | 0.0 | 4.8 | 1.0 | 2.0 | 5.71 | 10.0 | 3.4 | 13.4 | 25.6 | 1.5 |
| NW | 6 | 55 | 14 | 2.6 | 1190 | 284 | 860 | 184 | 128 | 665 | 20.0 | 0.2 | 4.6 | 3.6 | 13.3 | 1.42 | 17.2 | 5.7 | 22.9 | 25.0 | 2.0 |
| SW | 12* | 55 | 14 | 60 | 1730 | 454 | 820 | 0 | 116 | 765 | 50.0 | 0.1 | 0.0 | 3.3 | 15.3 | 3.57 | 16.4 | 5.7 | 22.1 | 25.9 | 2.0 |
| SW | 12* | 55 | 14 | | 1570 | 860 | 700 | 187 | 108 | 365 | 50.0 | 0.2 | 4.7 | 3.0 | 7.3 | 3.57 | 14.0 | 4.6 | 18.6 | 24.6 | 1.7 |
| SW | 12* | 55 | 14 | 54 | 2630 | 148 | 230 | 705 | 6 | 1265 | 5.0 | 0.5 | 17.6 | 0.2 | 25.3 | 0.36 | 4.6 | 38.8 | 43.4 | 89.4 | 25.6 |
| | 14 | 55 | 14 | 60 | 406 | 116 | 290 | 9 | 0 | 395 | 0.0 | 2.5 | 0.2 | 0.0 | 7.9 | 0.00 | 5.8 | 2.3 | 8.1 | 28.6 | 1.4 |
| SW | 17 | 55 | 14 | 31 | 4670 | 418 | 815 | 2227 | 2 | 555 | 0.6 | 1.3 | 55.7 | 0.1 | 11.1 | 0.04 | 16.3 | 50.6 | 66.9 | 75.6 | 17.7 |
| | 17 | 55 | 14 | 80 | 1470 | 230 | 485 | 316 | 45 | 800 | 20.0 | 1.2 | 7.9 | 1.3 | 16.0 | 1.42 | 9.7 | 16.9 | 26.6 | 63.5 | 7.7 |
| SE | 28 | 56 | 11 | 36 | 890 | 112 | 660 | 274 | 7 | 500 | 20.0 | 0.8 | 6.8 | 0.2 | 10.0 | 1.42 | 13.2 | 5.3 | 18.5 | 28.5 | 2.0 |
| | 26 | 56 | 13 | 15 | 606 | 236 | 495 | 62 | 15 | 420 | 20.0 | 0.6 | 1.6 | 0.4 | 8.4 | 1.42 | 9.9 | 1.9 | 11.8 | 16.1 | 0.9 |
| NE | 20 | 56 | 15 | 75 | 3660 | 1212 | 1000+ | 929 | 270 | 645 | 75.0 | 0.0 | 23.2 | 7.6 | 12.9 | 5.35 | 20.0+ | 29.1- | 49.1 | 59.2 | 9.2 |
| NE | 29** | 56 | 16 | 15 | 308 | 48 | 60 | 12 | 19 | 190 | 10.0 | 0.3 | 0.3 | 0.5 | 3.8 | 0.71 | 1.2 | 4.1 | 5.3 | 77.5 | 5.4 |
| NE | 29** | 56 | 16 | 48 | 1690 | 412 | 675 | 169 | 390 | 590 | 40.0 | 1.4 | 4.2 | 11.0 | 11.8 | 2.85 | 13.5 | 16.4 | 29.9 | 54.8 | 6.3 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|-----|------|------|-------|------|-----|-----|-------|-----|------|-----|------|------|-------|-------|------|------|------|
| NE | 24 | 56 | 17 | 45 | 510 | 276 | 375 | Tr | 59 | 245 | 14.0 | 0.3 | 0.0 | 1.7 | 4.9 | 1.00 | 7.5 | 0.1 | 7.6 | 1.2 | 0.0 |
| SW | 1 | 57 | 13 | 20 | 1530 | 810 | 1000+ | 125 | 116 | 405 | 150.0 | 0.2 | 3.1 | 3.3 | 8.1 | 10.7 | 20.0+ | 5.2- | 25.2 | 20.6 | 1.6 |
| NW | 12 | 57 | 13 | 29 | 1600 | 620 | 1000+ | 120 | 169 | 865 | 100.0 | 0.0 | 3.0 | 4.8 | 17.3 | 7.14 | 20.0+ | 12.2- | 32.2 | 37.8 | 3.8 |
| NE | 6 | 57 | 14 | 52 | 1240 | 322 | 495 | 364 | 7 | 470 | 52.0 | 1.0 | 9.1 | 0.2 | 9.4 | 3.71 | 9.9 | 12.5 | 22.4 | 55.8 | 5.6 |
| SE | 8 | 57 | 14 | 34 | 658 | 240 | 480 | 98 | 5 | 390 | 1.0 | 0.0 | 2.4 | 0.1 | 7.8 | 0.07 | 9.6 | 0.9 | 10.5 | 8.2 | 0.4 |
| NW | 6 | 57 | 15 | 10 | 3410 | 424 | 750 | 1532 | 4 | 465 | 4.0 | 2.1 | 38.3 | 0.1 | 9.3 | 0.28 | 15.0 | 33.0 | 48.0 | 68.7 | 12.0 |
| SE | 32 | 57 | 15 | 57 | 1990 | 1166 | 1000+ | 234 | 100 | 435 | 120.0 | 0.2 | 5.8 | 2.8 | 8.7 | 8.56 | 20.0+ | 5.9- | 25.9 | 22.8 | 1.9 |
| SW | 26 | 57 | 16 | 52 | 4260 | 196 | 400 | 2017 | 28 | 610 | Tr | 0.4 | 50.4 | 0.8 | 12.2 | 0.00 | 8.0 | 55.4 | 63.4 | 87.3 | 27.7 |
| | 34 | 58 | 7 | 20 | 812 | 320 | 600 | 57 | 30 | 605 | 20.0 | 0.5 | 1.4 | 0.8 | 12.1 | 1.42 | 12.0 | 3.8 | 15.8 | 24.0 | 1.6 |
| NE | 2 | 58 | 16 | 120 | 943 | 466 | 665 | 79 | 30 | 495 | 60.0 | 0.0 | 2.0 | 0.8 | 9.9 | 4.28 | 13.3 | 3.7 | 17.0 | 21.7 | 1.4 |
| | 35 | 58 | 17 | 44 | 608 | 142 | 320 | 75 | 6 | 455 | 0.4 | 1.5 | 1.9 | 0.2 | 9.1 | 0.03 | 6.4 | 4.8 | 11.2 | 42.7 | 2.7 |
| SE | 34 | 59 | 8 | 7 | 306 | 148 | 280 | 19 | 0 | 220 | 0.0 | 1.5 | 0.5 | 0.0 | 4.4 | 0.00 | 5.6 | 0.7- | 5.6 | 14.8 | 0.4 |
| SE | 30 | 59 | 14 | 25 | 1230 | 632 | 895 | 5 | 185 | 505 | 80.0 | 0.0 | 0.1 | 5.2 | 10.1 | 5.71 | 17.9 | 3.3 | 21.2 | 15.3 | 1.1 |
| SE | 33 | 61 | 4 | 28 | 1100 | 440 | 760 | 123 | 100 | 490 | 40.0 | 0.3 | 3.1 | 2.8 | 9.8 | 2.85 | 15.2 | 3.4 | 18.6 | 18.0 | 1.2 |
| SE | 17 | 61 | 5 | 28 | 658 | 348 | 480 | Tr | 21 | 470 | 26.0 | 0.4 | 0.0 | 0.6 | 9.4 | 1.85 | 9.6 | 2.2 | 11.8 | 18.9 | 1.0 |
| NE | 30 | 62 | 8 | 286 | 1270 | 350 | 690 | 353 | 24 | 445 | 0.0 | 1.0 | 8.8 | 0.7 | 8.9 | 0.00 | 13.8 | 4.6 | 18.4 | 25.0 | 1.8 |
| | 6 | 62 | 10 | 42 | 1240 | 534 | 770 | 241 | 31 | 400 | 100.0 | 0.6 | 6.0 | 0.9 | 8.0 | 7.14 | 15.4 | 6.6 | 22.0 | 30.1 | 2.4 |
| NE | 18 | 63 | 4 | 50 | 3110 | 564 | 1000+ | 1277 | 0 | 515 | 0.0 | 1.2 | 31.9 | 0.0 | 10.3 | 0.00 | 20.0+ | 22.2 | 42.2 | 52.6 | 7.0 |
| | 28 | 63 | 7 | 70 | 934 | 304 | 620 | 108 | 6 | 585 | 0.4 | 2.0 | 2.7 | 0.2 | 11.7 | 0.03 | 12.4 | 2.2 | 14.6 | 15.0 | 0.9 |

1/4 = quarter, i.e. NW, NE, SW, or SE
SAR = sodium adsorption ratio

Sec. = section
Tr = trace

Tp. = township

R. = range

ppm = parts per million

epm = equivalents per million

SSP = soluble sodium percentage

* Denotes sites at which more than one analysis is available

** Denotes public, industrial, or private wells located within cities, towns, villages, and hamlets

REFERENCES CITED

- American Public Health Association, *et al.* (1955): Standard methods for the examination of water, sewage and industrial wastes; 522 pages.
- Hem, John D. (1959): Study and interpretation of the chemical characteristics of natural water; U.S. Geol. Surv. Water Supply Paper 1473, 269 pages.
- Le Breton, E. G. (1963): Groundwater geology and hydrology of east-central Alberta; Res. Coun. Alberta Bull. 13, 64 pages.
- Todd, D. K. (1960): Groundwater hydrology; John Wiley & Sons, Inc., 336 pages.
- United States Salinity Laboratory Staff (1954): Diagnosis and improvement of saline and alkali soils; U.S. Dept. Agriculture, Agriculture Handbook 60, 160 pages.
- Wilcox, L. V. (1948): The quality of water for irrigation use; U.S. Dept. Agriculture, Technical Bull. No. 962, 40 pages.