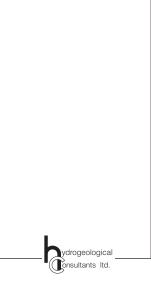
# **10 CONVERSIONS**

Multiply	by	To Obtain
Length/Area		
feet	0.304 785	metres
metres	3.281 000	feet
hectares	2.471 054	acres
centimetre	0.032 808	feet
centimetre	0.393 701	inches
acres	0.404 686	hectares
inchs	25.400 000	millimetres
miles	1.609 344	kilometres
kilometer	0.621 370	miles (statute)
square feet (ft²)	0.092 903	metres (m²)
metres (m²)	10.763 910	square feet (ft²)
metres (m²)	0.000 001	kilometres (km²)
,		,
Concentration		
grains/gallon (UK)	14.270 050	ppm
ppm	0.998 859	mg/L
mg/L	1.001 142	ppm
Ü		• •
Volume (capacity)		
acre feet	1233.481 838	cubic metres
cubic feet	0.028 317	cubic metres
cubic metres	35.314 667	cubic feet
cubic metres	219.969 248	gallons (UK)
cubic metres	264.172 050	gallons (US liquid)
cubic metres	1000.000 000	litres
gallons (UK)	0.004 546	cubic metres
imperial gallons	4.546 000	litres
1 0		
Rate		
litres per minute	0.219 974	ipgm
litres per minute	1.440 000	cubic metres/day (m³/day)
igpm	6.546 300	cubic metres/day (m³/day)
cubic metres/day (m		igpm
		<u>.</u>
Pressure		
psi	6.894 757	kpa
kpa	0.145 038	psi
<u>Miscellaneous</u>		
Celsius	$F^{\circ} = 9/5 (C^{\circ} + 32)$	Fahrenheit
Fahrenheit	$C^{\circ} = (F^{\circ} - 32) * 5/9$	Celsius
degrees	0.017 453	radians



# PONOKA COUNTY Appendix B

Maps and Figures on CD-ROM



#### A) General

A01 Index Map/County Details
A02 River Sub-basins
A03 Surface Topography

A04 Surface Casing Types Used in Drilled Water Wells

A05 Location of Water Wells and Springs
A06 Minimum Depth of Existing Water Wells
A07 Maximum Depth of Existing Water Wells

A08 Difference Between the Maximum and Minimum Depth of Existing Water Wells

A09 Depth to Base of Groundwater Protection

A10 Hydrogeological Maps

A11 Generalized Cross-Section (for terminology only)

A12 Geologic Column A13 Cross-Section A - A' Cross-Section B - B' A14 A15 Cross-Section C - C' A16 Cross-Section D - D' A17 Cross-Section E - E' A18 Cross-Section F - F' A19 Cross-Section G - G' A20 Cross-Section H - H' A21 Bedrock Topography A22 Bedrock Geology

A24 Authorized Non-Exempt Groundwater Water Wells

A25 Estimated Water Well Use per Section

Relative Permeability

A26 Water Wells Recommended for Field Verification

#### **B) Surficial Aquifers**

A23

B03

B15

**B16** 

**B17** 

#### a) Surficial Deposits

B01 Thickness of Surficial Deposits

B02 Non-Pumping Water-Level Surface in Surficial Deposits Based on Water Wells Less than 20 Metres Deep

Total Dissolved Solids in Groundwater from Surficial Deposits

**B04** Sulfate in Groundwater from Surficial Deposits

B05 Nitrate + Nitrite (as N) in Groundwater from Surficial Deposits

B06 Chloride in Groundwater from Surficial Deposits

B07 Total Hardness in Groundwater from Surficial Deposits
B08 Piper Diagram - Surficial Deposits

B09 Thickness of Sand and Gravel Deposits
B10 Amount of Sand and Gravel in Surficial Deposits
B11 Thickness of Sand and Gravel Aquifer(s)

**B12** Water Wells Completed in Surficial Deposits

B13 Apparent Yield for Water Wells Completed in Sand and Gravel Aquifer(s)

B14 Changes in Water Levels in Surficial Deposits

#### b) Upper Sand and Gravel

Thickness of Upper Surficial Deposits

Thickness of Upper Sand and Gravel (not all drill holes fully penetrate surficial deposits)

#### c) Lower Sand and Gravel

Structure-Contour Map - Top of Lower Surficial Deposits

B18 Depth to Top of Lower Surficial Deposits
B19 Thickness of Lower Surficial Deposits

B20 Thickness of Lower Sand and Gravel (not all drill holes fully penetrate surficial deposits)
 B21 Apparent Yield for Water Wells Completed through Lower Sand and Gravel Aquifer

B22 Non-Pumping Water-Level Surface in Lower Sand and Gravel Aquifer



#### C) Bedrock Aquifers

a) General
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C08

C12 C13

C14

C15

C16

C17 C18

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C36 C37

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C40

C41

C48

C49

C50

C01 Apparent Yield for Water Wells Completed in Upper Bedrock Aquifer(s) Total Dissolved Solids in Groundwater from Upper Bedrock Aquifer(s) C02

C03 Sulfate in Groundwater from Upper Bedrock Aquifer(s)

Distance from Top of Upper Lacombe Member vs Sulfate in Groundwater from Upper Bedrock Aquifer(s) C04

C05 Chloride in Groundwater from Upper Bedrock Aquifer(s) C06 Fluoride in Groundwater from Upper Bedrock Aquifer(s) C07 Total Hardness of Groundwater from Upper Bedrock Aquifer(s)

Piper Diagram - Bedrock Aquifer Bedrock Recharge/Discharge Areas

C09 C<sub>10</sub> Non-Pumping Water-Level Surface in Upper Bedrock Aquifer(s) C11

Areas of Potential Groundwater Depletion - Upper Bedrock Aquifer(s)

### b) Dalehurst Member

Depth to Top of Dalehurst Member Structure-Contour Map - Dalehurst Member

Non-Pumping Water-Level Surface - Dalehurst Aquifer

Apparent Yield for Water Wells Completed through Dalehurst Aquifer Total Dissolved Solids in Groundwater from Dalehurst Aquifer

Sulfate in Groundwater from Dalehurst Aquifer Chloride in Groundwater from Dalehurst Aguifer Fluoride in Groundwater from Dalehurst Aguifer

Piper Diagram - Dalehurst Aquifer

#### c) Upper Lacombe Member

Depth to Top of Upper Lacombe Member Structure-Contour Map - Upper Lacombe Member

Non-Pumping Water-Level Surface - Upper Lacombe Aguifer

Apparent Yield for Water Wells Completed through Upper Lacombe Aquifer Total Dissolved Solids in Groundwater from Upper Lacombe Aquifer

C26 Sulfate in Groundwater from Upper Lacombe Aquifer C27 Chloride in Groundwater from Upper Lacombe Aquifer

C28 Piper Diagram - Upper Lacombe Aquifer

Fluoride in Groundwater from Upper Lacombe Aquifer

#### d) Lower Lacombe Member

Depth to Top of Lower Lacombe Member Structure-Contour Map - Lower Lacombe Member

Non-Pumping Water-Level Surface - Lower Lacombe Aquifer

Apparent Yield for Water Wells Completed through Lower Lacombe Aquifer Total Dissolved Solids in Groundwater from Lower Lacombe Aquifer

Sulfate in Groundwater from Lower Lacombe Aguifer Chloride in Groundwater from Lower Lacombe Aquifer Fluoride in Groundwater from Lower Lacombe Aquifer Piper Diagram - Lower Lacombe Aquifer

# e) Haynes Member

Depth to Top of Haynes Member

Structure-Contour Map - Havnes Member

Non-Pumping Water-Level Surface - Haynes Aquifer

C42 Apparent Yield for Water Wells Completed through Haynes Aquifer C43 Total Dissolved Solids in Groundwater from Haynes Aquifer

Sulfate in Groundwater from Haynes Aquifer C44 C45 Chloride in Groundwater from Haynes Aquifer C46 Fluoride in Groundwater from Haynes Aquifer C47

Piper Diagram - Haynes Aguifer

# f) Upper Scollard Formation

Depth to Top of Upper Scollard Formation Structure-Contour Map - Upper Scollard Formation

Non-Pumping Water-Level Surface - Upper Scollard Aquifer

C51 Apparent Yield for Water Wells Completed through Upper Scollard Aquifer C52 Total Dissolved Solids in Groundwater from Upper Scollard Aguifer

Sulfate in Groundwater from Upper Scollard Aquifer C53 C54 Chloride in Groundwater from Upper Scollard Aquifer C55 Fluoride in Groundwater from Upper Scollard Aquifer

Piper Diagram - Upper Scollard Aquifer C56



	q) Lower Scollard Formation
C57	Depth to Top of Lower Scollard Formation
C58	Structure-Contour Map - Lower Scollard Formation
C59	Non-Pumping Water-Level Surface - Lower Scollard Aquifer
C60	Apparent Yield for Water Wells Completed through Lower Scollard Aquifer
C61	Total Dissolved Solids in Groundwater from Lower Scollard Aquifer
C62	Sulfate in Groundwater from Lower Scollard Aquifer
C63	Chloride in Groundwater from Lower Scollard Aquifer
C64	Fluoride in Groundwater from Lower Scollard Aquifer
C65	Piper Diagram - Lower Scollard Aquifer
	h) Battle Formation
C66	Depth to Top of Battle Formation
C67	Structure-Contour Map - Battle Formation
	i) Upper Horseshoe Canyon Formation
C68	Depth to Top of Upper Horseshoe Canyon Formation
C69	Structure-Contour Map - Upper Horseshoe Canyon Formation
C70	Non-Pumping Water-Level Surface - Upper Horseshoe Canyon Aquifer
C71	Apparent Yield for Water Wells Completed through Upper Horseshoe Canyon Aquifer
C72	Total Dissolved Solids in Groundwater from Upper Horseshoe Canyon Aquifer
C73	Sulfate in Groundwater from Upper Horseshoe Canyon Aquifer
C74	Chloride in Groundwater from Upper Horseshoe Canyon Aquifer
C75	Fluoride in Groundwater from Upper Horseshoe Canyon Aquifer
C76	Piper Diagram - Upper Horseshoe Canyon Aquifer
	j) Middle Horseshoe Canyon Formation
C77	Depth to Top of Middle Horseshoe Canyon Formation
C78	Structure-Contour Map - Middle Horseshoe Canyon Formation
070	k) Lower Horseshoe Canyon Formation
C79	Depth to Top of Lower Horseshoe Canyon Formation
C80	Structure-Contour Map - Lower Horseshoe Canyon Formation
D01	D) Hydrographs and Observation Water Wells
D01 D02	Hydrographs Monthly Precipitation vs. Water Levels in AENV Ponoka Obs WW
D02	Comparison between AENV Ponoka Obs WW Water Levels and Groundwater Production
D03	Water-Level Comparison - Engelen SE 18 Stock WW
D04	Water-Level Comparison - AENV Crestomere Obs WW
D05	Monthly Temperature and May to July Precipitation vs. Flow Rate in Paetkau (Lick) Spring
D07	AENV Gull Lake Obs WW vs. May to July Precipitation and Gull Lake Water Levels
20.	E) Specific Study Areas
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E02	Apparent Yield for Water Wells Completed in Sand and Gravel Aquifer(s) - Specific Study Areas
E03	Bedrock Geology of Specific Study Areas
E04	Apparent Yield for Water Wells Completed in Upper Bedrock Aquifer(s) - Specific Study Areas
	a) Study Area 1
E05	Authorized Non-Exempt Groundwater Water Wells - Area 1
	b) Study Area 2
E06	Apparent Yield for Water Wells Completed through Dalehurst Aquifer - Area 2
E07	Apparent Yield for Water Wells Completed through Upper Lacombe Aquifer - Area 2
	c) Study Area 3
E08	Apparent Yield for Water Wells Completed through Lower Sand and Gravel Aquifer - Area 3
E09	Bedrock Geology - Area 3
E10	Apparent Yield and Total Dissolved Solids in Groundwater for Water Wells Completed in Upper Bedrock Aquifer(s) – Area 3
E11	Apparent Yield for Water Wells Completed through Haynes Aquifer - Area 3
E12	Apparent Yield for Water Wells Completed through Upper Scollard Aquifer - Area 3
E13	Total Dissolved Solids in Groundwater from Upper Bedrock Aquifer(s) - Area 3

