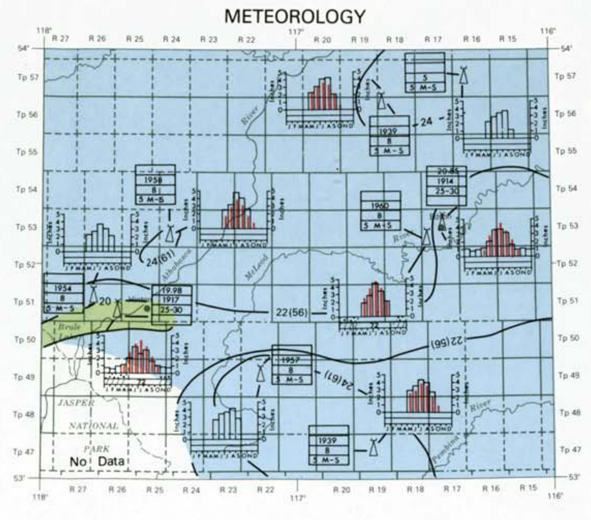
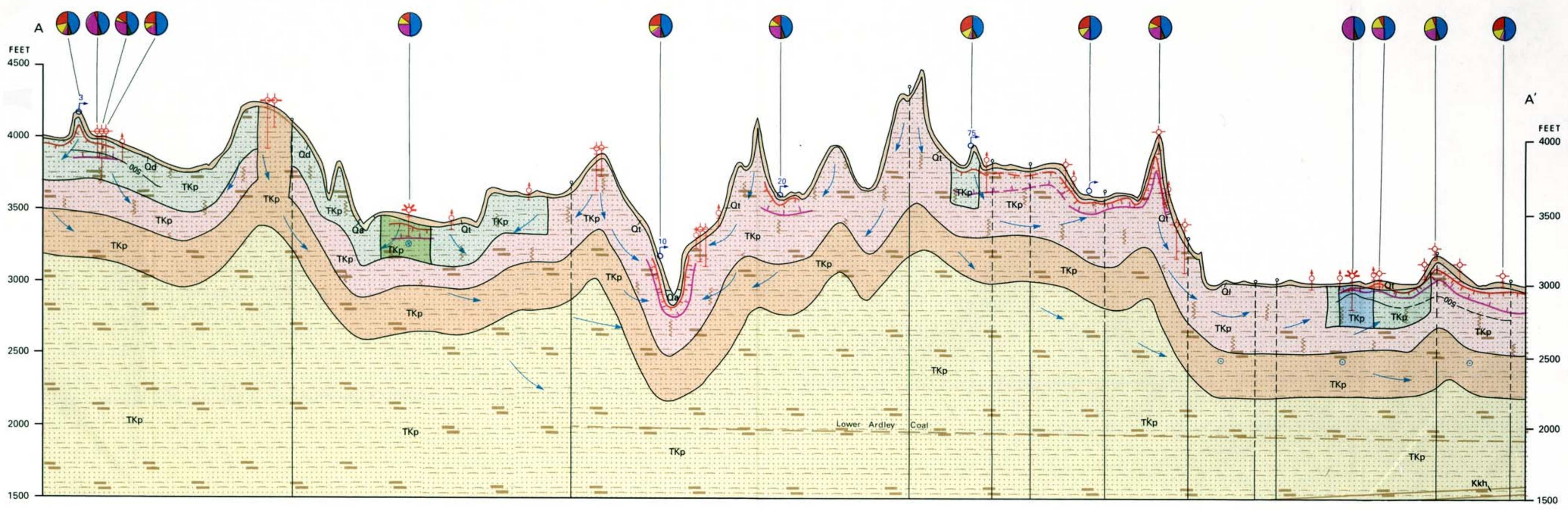
LEGEND

Isohyet, mean annual precipitation in inches (cm) ...... 24(61)
Mean annual precipitation in inches (cm)
15 to 20 inches (38 to 51 cm)
20 to 25 inches (51 to 64 cm)
Meteorological station
Standard rain gauge only
Precipitation data:
Mean annual precipitation estimated in inches (cm)
Year of commencement of observations
Number of years in average
Months of record if not yearly
Mean monthly potential evapotranspiration
Mean monthly precipitation
Period when surface is usually snow covered
Period with mean daily temperatures below freezing
Figure indicates percentage of mean annual precipitation falling as rain

METEOROLOGY





MAIN MAP LEGEND

Topography

Surface contours and elevation in feet (interval 500 feet)

Geology

Geological boundary
Fault, with direction of movement
Fold axis

QUATERNARY
- Qa — Alluvial deposits
- Qd — Unconsolidated deposits
- Qt — Till
- Ql — Lacustrine clays, silts

TERTIARY-CRETACEOUS
- TKp — Paskapoo Formation
- TKb — Brazeau Formation

CRETACEOUS
- Kwb — Whitemud and Battle Formations
- Kwt — Wapiti Formation
- Ka — Alberta Group
- Kkh — Kneehills Tuff

MESOZOIC
- Mz — Undifferentiated Lower Cretaceous, Jurassic and Triassic Strata

PALEOZOIC
- Pzu — Undifferentiated Upper Paleozoic Strata
- Pzl — Undifferentiated Lower Paleozoic Strata

Lithology

Sand and gravel
Sandstone
Sandstone, bentonitic
Siltstone
Shale
Limestone
Fractured rocks
Coal

Hydrography

Lake or slough, perennial
Marsh, muskeg
Stream, perennial
Stream, intermittent
Surface water divide
Area of noticeable salt precipitates

Hydrogeology

Spring, flow rate unknown
Spring, flow rate in igpm (L/sec)
Nonpumping water level contour (elevation in feet followed by metres in brackets); defined, approximate — Upward flow, 3000(915), Downward flow
Direction of groundwater flow
Component of groundwater flow perpendicular to profile:
out of profile (towards reader)
into profile (away from reader)
Component of groundwater flow parallel to profile
Groundwater divide
Boundary of area of artesian flow

Groundwater Probability†

Range of average expected yield of wells in imperial gallons per minute (L/sec)

Probable: estimated from quantitative information (pump tests, bail tests, etc.)
Possible: estimated from qualitative information (flow regime, lithology, etc.)

more than 500	(>38)
100-500	(8-38)
25-100	(2-8)
5-25	(0.4-2)
1-5	(0.1-0.4)
<1	(<0.1)

Yield area boundary

† The indicated average expected yields of wells are predications based on the best data available at the time of map compilation; due to data shortcomings and special conditions, local discrepancies between predicated and actual yields are inevitable. Multiaquifer completion may be necessary to obtain the yield indicated.

Wells and Other Artificial Works

Depth scale

FEET 0, 100, 200, 300, 400 — Depth to water; Depth of well or seismic shot hole

Water well, nonflowing
Water well, flowing
Water well, non-producing
Alberta Research Council test well — ARC
Water well, 20-year safe yield calculated from apparent transmissivity
Water well, 20-year safe yield calculated from a good bail test or a short pump test
Water well, 20-year safe yield calculated from a pump test of sufficient length to reflect regional hydraulic conditions
Adjacent wells
Seismic shothole reported to have flowed
Exploratory testhole reported to have flowed
Exploratory testhole for coal
Depth of exploratory well

The vertical line portion of oil, gas, or other exploratory test well symbols indicates the well depth; the dashed portion indicates the surface casing interval where applicable or where known.
Note: On the main map exploratory wells appear as point symbols only.

Line of hydrogeological profile — A A′

Hydrochemistry

Calcium, Magnesium, Sodium + potassium (Cations); Carbonate + bicarbonate, Sulfate, Chloride (Anions); 0, 50%, 100%

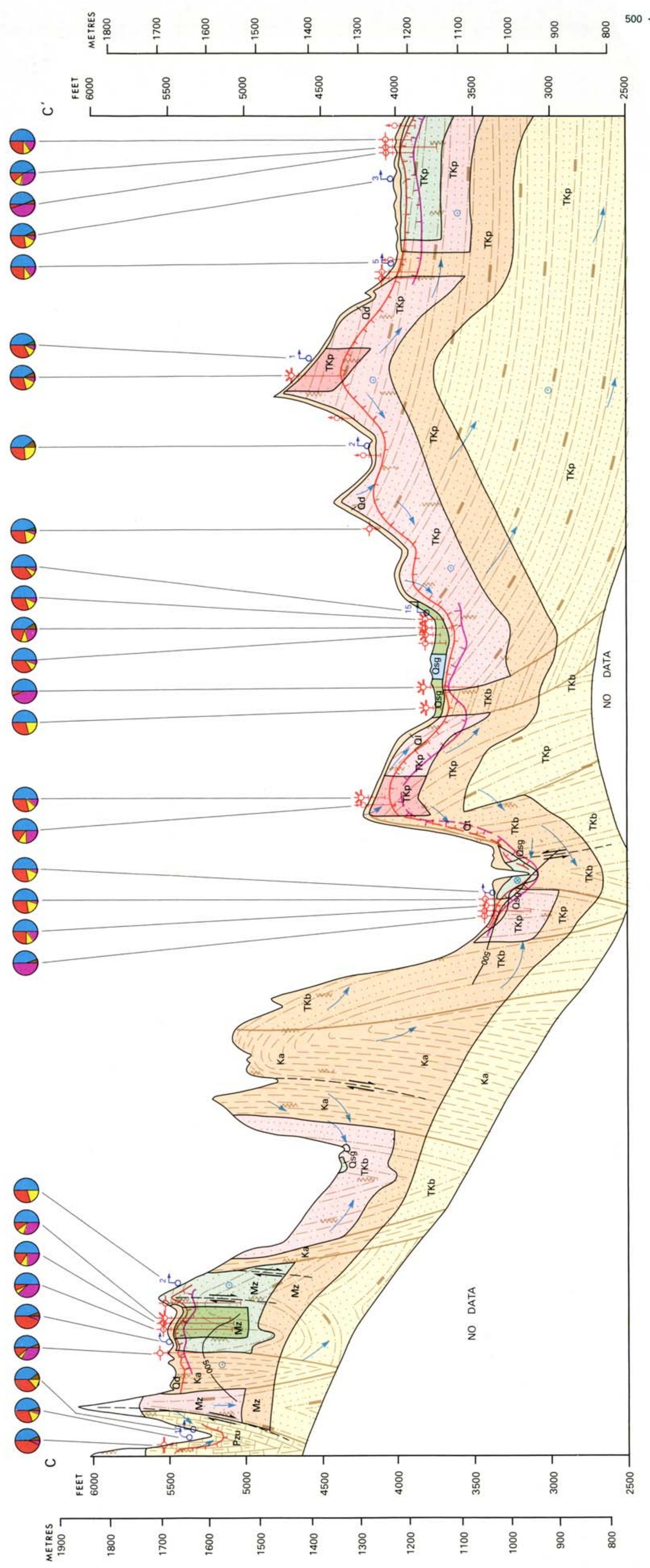
Note: When the yellow Mg pie sector is absent, Ca + Mg are represented as a unit by the red pie sector.

Total dissolved solids in parts per million:
defined 500
approximate 500

Isogram along which calcium + magnesium constitute 60 percent of total cations*; teeth indicate direction of lesser calcium + magnesium content:
defined:
approximate:

Isogram along which sodium + potassium constitute 60 percent of total cations*; teeth indicate direction of lesser sodium + potassium content:
defined:
approximate:

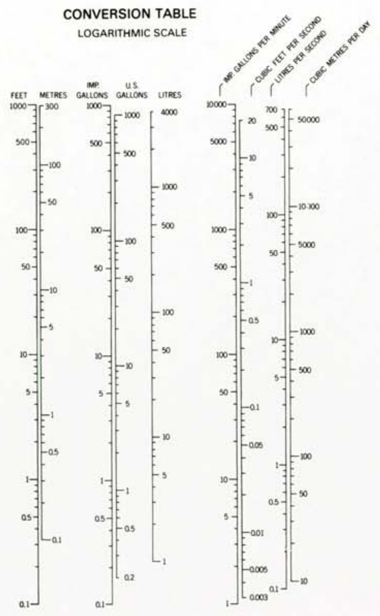
* determined on equivalents per million

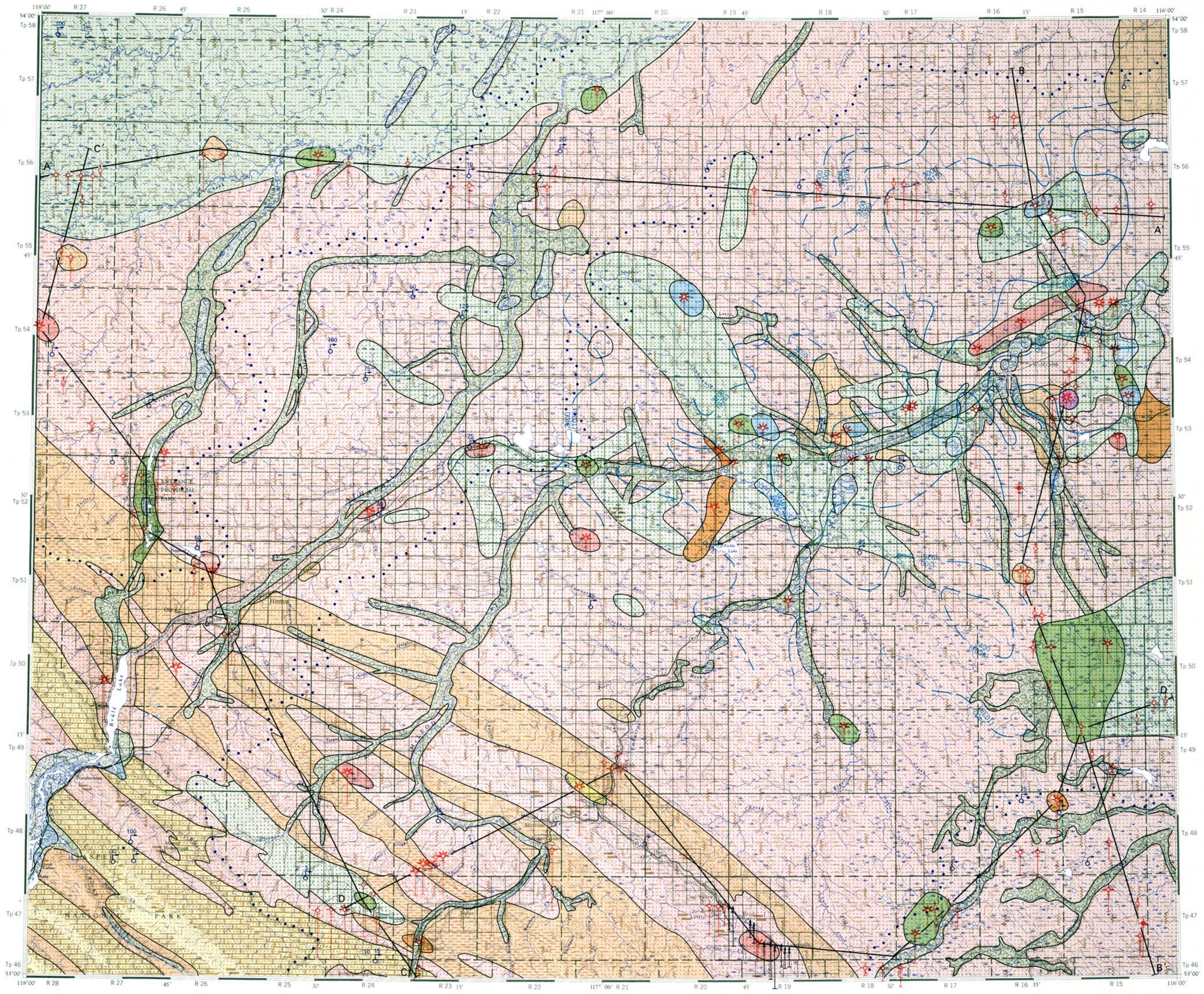


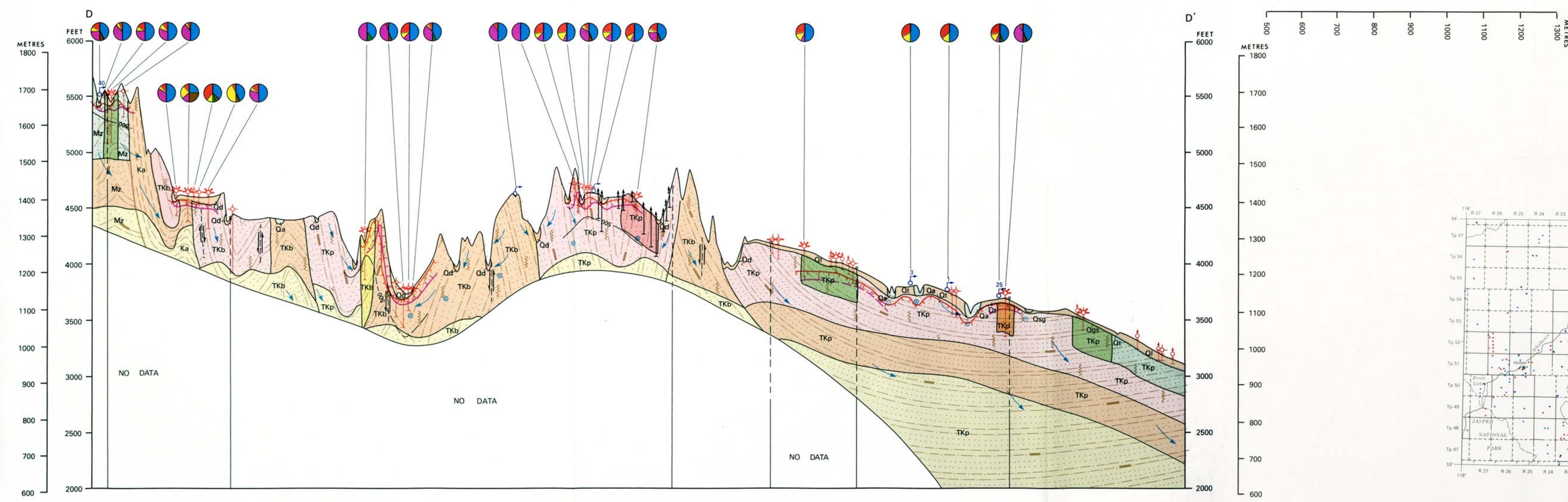
Alberta RESEARCH COUNCIL

CONVERSION TABLE

LOGARITHMIC SCALE







All elevations in feet above mean sea level.

Vertical exaggeration of the hydrogeological profiles is approximately 40X.
An expanded legend and explanatory notes (Report 72-12) for use with this hydrogeological map series is available from Publications, Alberta Research Council, 11315-87 Avenue, Edmonton, Canada T6G 2C2.

Map to accompany Report 79-7

Hydrogeology by R.I.J. Vogwill and A.S.R. Beerwald

Drafted by J.K. Matthie

Cartographic editing by ARC Drafting Services

SCALE 1:250 000

HYDROGEOLOGICAL MAP
EDSON
ALBERTA

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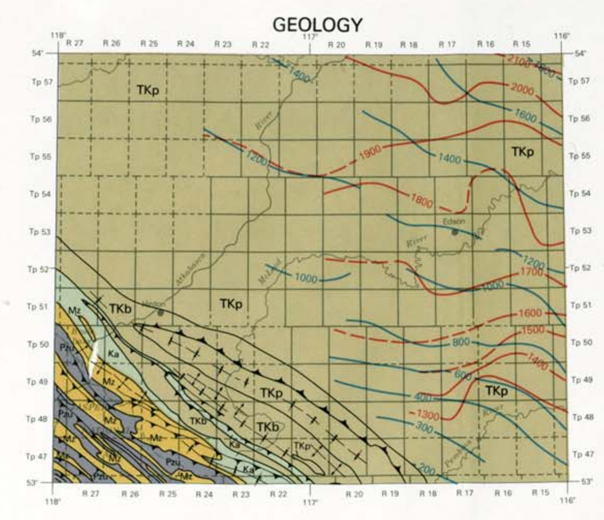
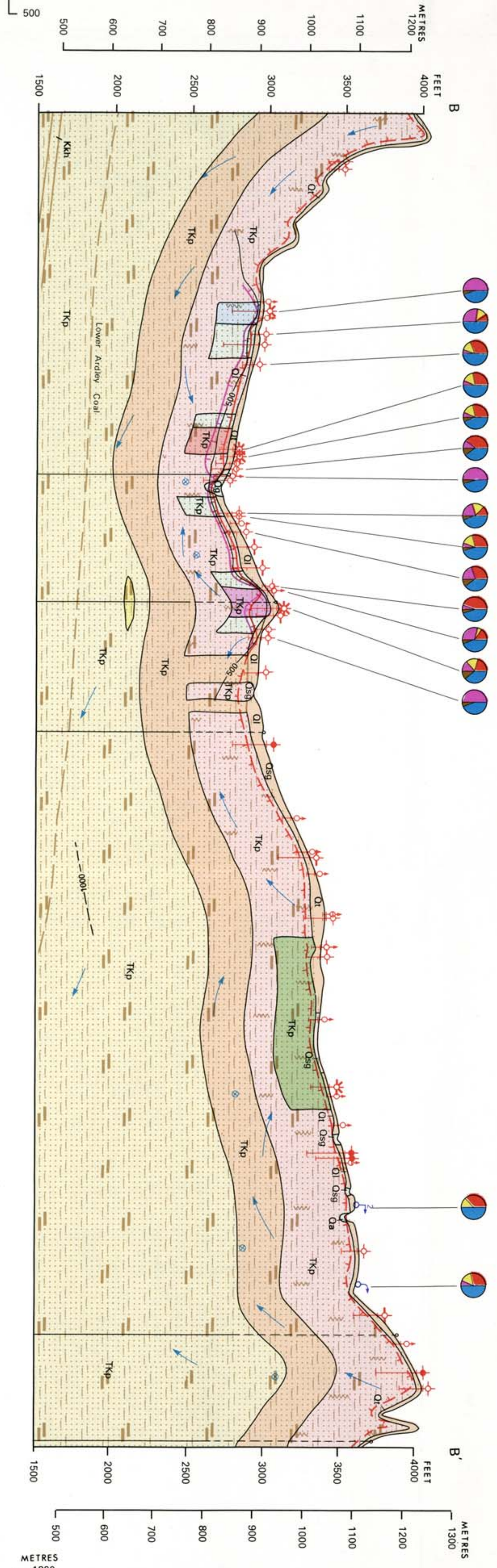
GEOLOGY



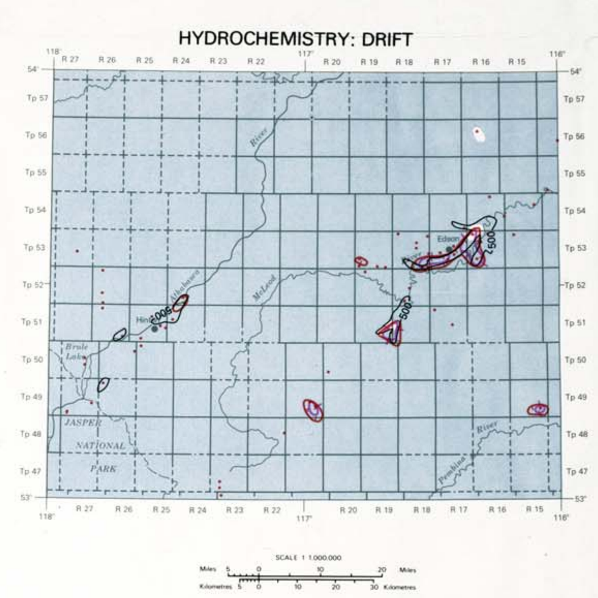
LEGEND

- TKp — Paskapoo Formation: *thick-bedded, calcareous, cherty sandstone; siltstone and mudstone; minor conglomerate, limestone, coal and tuff beds; nonmarine*
- TKb — Brazeau Formation: *gray, fine-grained, feldspathic sandstone with hard calcareous beds; laminated siltstone and gray silty shale; deltaic to marine*
- Ka — Alberta Group: *Fissile, silty shale; some thin-bedded, fine- to medium-grained, cherty sandstone (Blackstone Formation) – thick-bedded, well-sorted, quartzose sandstone' shale and carbonaceous shale; siltstone and thin coal beds (Cardium Formation) – dark grey fissile shale and siltstone; thin beds of concretionary ironstone (Wapiabi Formation)*
- Mz — Undifferentiated Mezosoic: *thick-bedded, cherty, calcareous sandstone; calcareous shale, coal, minor conglomerates (Lower Cretaceous); black shale, minor sandstone (Jurassic); siltstone, minor limestone (Triassic)*
- Pzu — Upper Paleozoic: *quartzose sandstone and siltstone, minor carbonates (Pennsylvanian-Permian); limestone and siltstone (Mississippian); dolomite and limestone (Devonian)*
- Pzl — Lower Paleozoic: *dolomite (Silurian); dolomite, limestone, minor quartzite and shale (Ordovician); massive and flaggy dolomite limestone and minor shale, quartzite, minor shale and limestone (Cambrian)*

Structure contour on top of Lower Ardley Coal Zone 1900
Structure contour on top of Kneehills Tuff (Whitemud and Battle Formation) 1800
Rock unit boundary
Axis of syncline
Axis of anticline
Thrust fault (teeth on upper plate)
Geology after R. Green (1970): Geological map of Alberta



HYDROCHEMISTRY: DRIFT

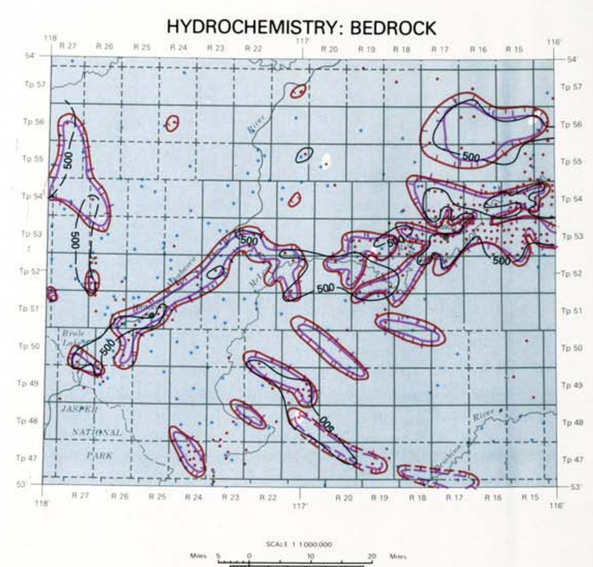


LEGEND

Data control point marking location of a well with a chemical analysis
Total dissolved solids in parts per million; defined, approximate 500
Carbonate + bicarbonate constituting over 60 percent of total anions*
Isogram along which calcium + magnesium constitute 60 percent of total cations*; teeth indicate direction of lesser calcium + magnesium content: defined, approximate
Isogram along which sodium + potassium constitute 60 percent of total cations*; teeth indicate direction of lesser sodium + potassium content: defined, approximate

* determined on equivalents per million basis.

HYDROCHEMISTRY: BEDROCK

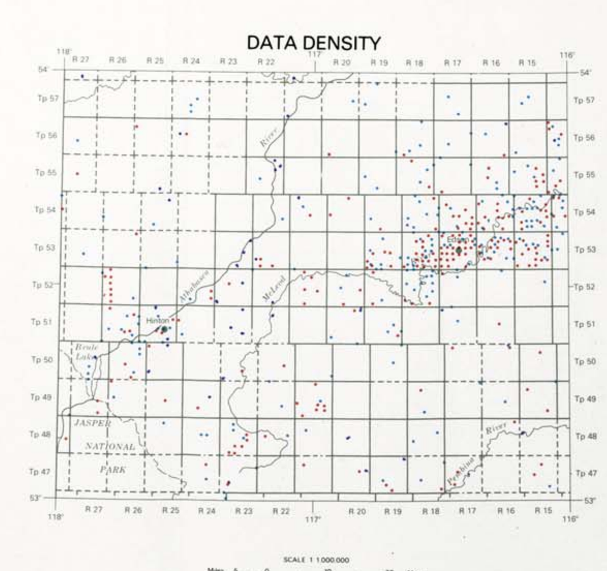


LEGEND

Data control point marking location of a well with a chemical analysis
Data control point marking location of a spring with a chemical analysis
Total dissolved solids in parts per million; defined, approximate 500
Carbonate + bicarbonate constituting over 60 percent of total anions*
Isogram along which calcium + magnesium constitute 60 percent of total cations*; teeth indicate direction of lesser calcium + magnesium content: defined, approximate
Isogram along which sodium + potassium constitute 60 percent of total cations*; teeth indicate direction of lesser sodium + potassium content: defined, approximate

* determined on equivalents per million basis

DATA DENSITY



LEGEND

Data control point marking location of a well with water level information only
Data control point marking location of a well with yield information
Data control point marking location of a surface hydrogeological feature

Base map provided by Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, modified by Surveys Branch, Alberta Transportation Edmonton

Published 1981

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