



RESEARCH COUNCIL OF ALBERTA

LEGEND

Isobret, mean annual precipitation in inches

Mean annual precipitation:

- more than 20 inches
- less than 20 inches

Metorological station

Standard rain gauge only

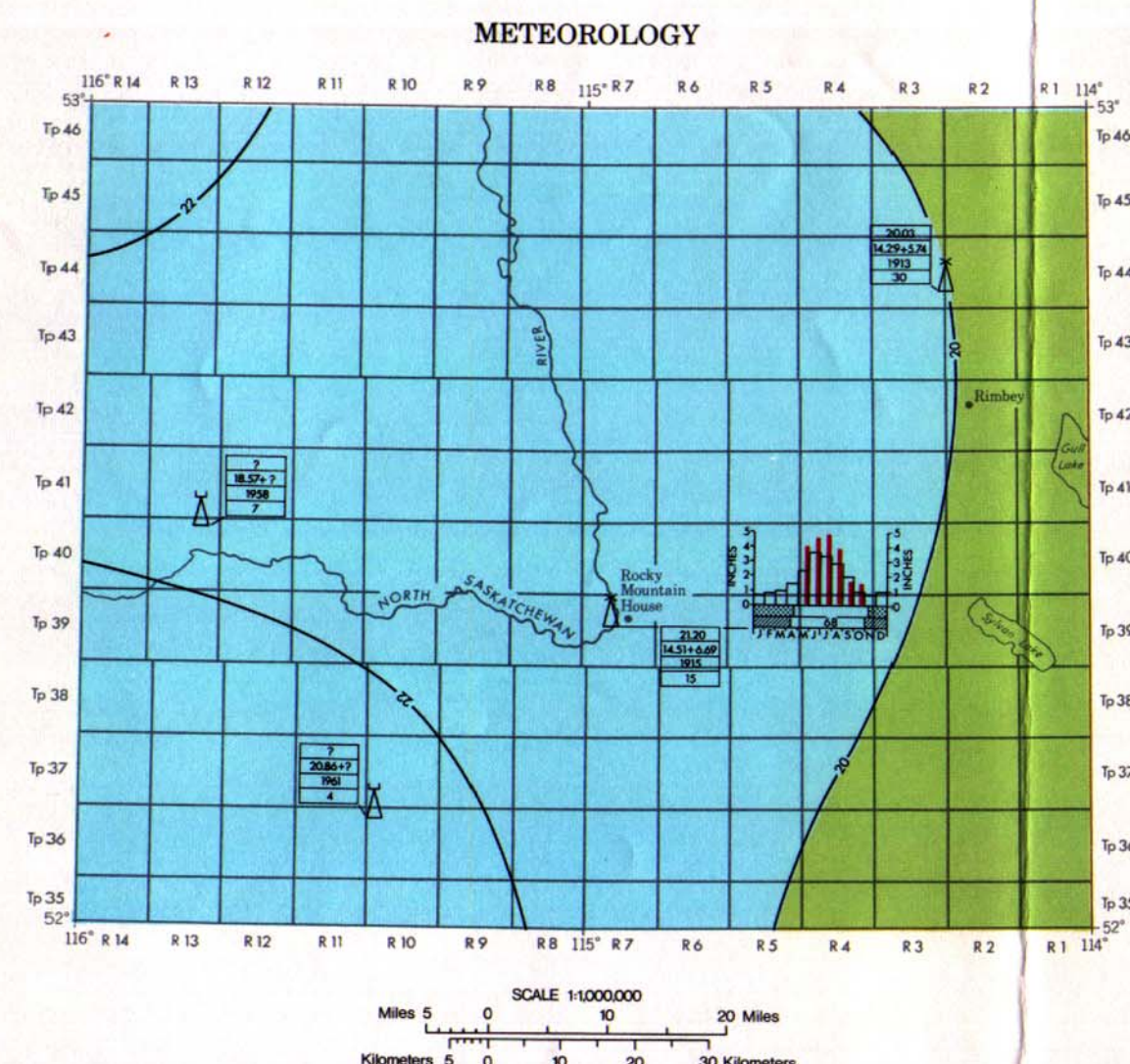
Precipitation data:

- Mean annual precipitation in inches
- When annual rainfall is 10% of mean annual rainfall in inches
- Year of commencement of observations
- Number of years of record used to calculate mean annual precipitation for rainfall
- Mean monthly potential evapotranspiration*
- Mean monthly precipitation
- Period when rainfall is usually more abundant
- Period with mean daily temperature below freezing (°C)
- Figure indicates percentage of mean annual precipitation falling as rain

Sources of data:

- Climate Map of Alberta (Geology 1965) Monthly Record of Meteorological Observations (Meteorological Branch, Canada Department of Forestry and Provincial Development)
- Map of Canada, Department of Transport (Climate 1955) (Other than Precip. only)

*Evapotranspiration estimates are based on the Provincial Evaporation Map of Canada.



MAIN MAP LEGEND

Topography

- Surface contours (interval 200 feet below 5000 feet; interval 300 feet above 5000 feet)
- elevation
- depression
- approximate

Geology

- Geological boundary
- Fault (on profiles only)
- Fold (on profiles only)

QUATERNARY

- Unconsolidated deposits
- Qa Sand
- Qb Sand and gravel

CRETACEOUS-TERTIARY

- KTa Parkapoo Formation

CRETACEOUS

- Kcb Kanabilla Member
- Ked Edmonton Formation
- Keb Brazeau Formation
- Ka Alberta Group
- Ks Blainville Formation

MESOZOIC

- Mu Undifferentiated Triassic-Jurassic strata and Lower Cretaceous pre-Blainville formations

PALEOZOIC

- Px Undifferentiated Paleozoic strata

Lithology

- Sand and gravel
- Shale
- Siltstone
- Sandstone
- Basaltic sandstone
- Carbonate rocks
- Coal

Hydrography

- Stream, intermittent
- Lake, intermittent
- Rapids, falls
- Marsh, meadow
- Surface water divide
- Area of noticeable salt precipitation

Hydrology

- Stream gauging station (values shown are to end of 1966 water year)
- Average annual discharge in cubic feet per second
- Year of commencement of observations
- Number of years averaged for annual discharge figure
- Drainage area in square miles
- Lake-level recording station

Hydrogeology

- Spring, flow rate unknown
- Spring and approximate rate of flow in imperial gallons per minute (measured or approximate in fall, 1965)
- Nonconforming water-level contour (elevation in feet) and vertical component of groundwater movement
- Direction of groundwater flow
- Groundwater divide
- Boundary of area of artesian flow (dotted pattern line within area of artesian flow)

Groundwater Probability*

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

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

Yield area boundary

The highest average expected yields to wells are predicted based on the data available at the time of preparation. Due to the hydrogeological and general conditions, total transmissivity between potential yield areas is variable. Multiple completion may be necessary to obtain the yield indicated.

Wells and Other Artificial Works

- Water well
- Water well, flowing
- Water well, non-producing
- Water well, 20-year safe yield calculated from apparent transmissivity
- Water well, 20-year safe yield calculated from a good hole 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
- Observation well, automatic recorder
- Mean annual water level fluctuation in feet
- Year of commencement of observations
- Specific years averaged for mean annual water level fluctuation
- Seismic shot hole reported to have flowed

Depth scale

FEET

- 1200 100
- 4000 200
- 6000 300
- 8000 400

Values in parentheses refer to the vertical scale used in the cross sections.

Location of Research Council of Alberta test well

- Oil well*
- Suspended well, drilled for oil or gas*
- Abandoned well, drilled for oil or gas*
- Structure test hole*

*During the period of its use as an observation test well, appropriate use as hydrogeological profiles indicates well depth, drilled points, indicates surface elevation, and hydrogeological profile.

Hydrochemistry

Total dissolved solids in parts per million:

- defined
- approximate

Diagram along which calcium + magnesium constitutes 60 per cent of total cations*, teeth indicate direction of lesser calcium + magnesium content:

- defined
- approximate

Diagram along which sodium + potassium constitutes 60 per cent of total cations*, teeth indicate direction of lesser sodium + potassium content:

- defined
- approximate

Diagram along which carbonate + bicarbonate constitutes 60 per cent of total anions*, teeth indicate direction of lesser carbonate + bicarbonate content:

- defined
- approximate

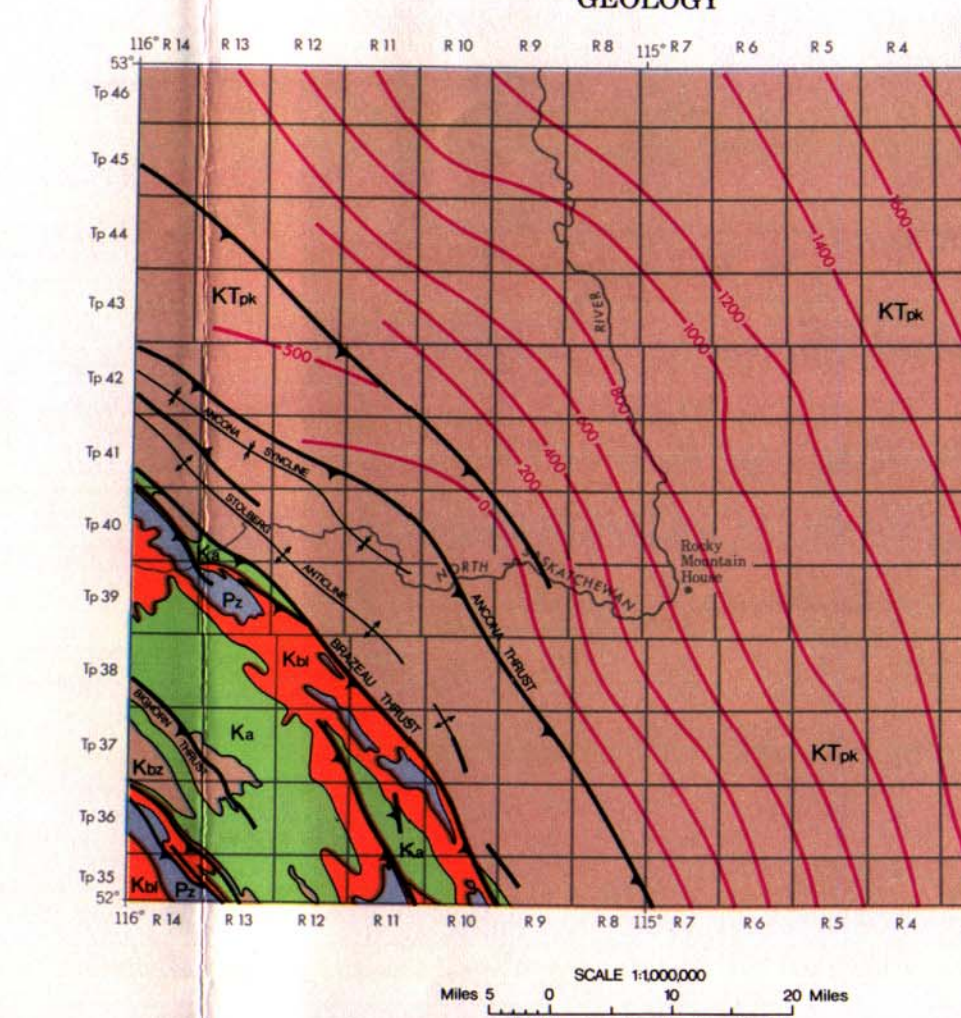
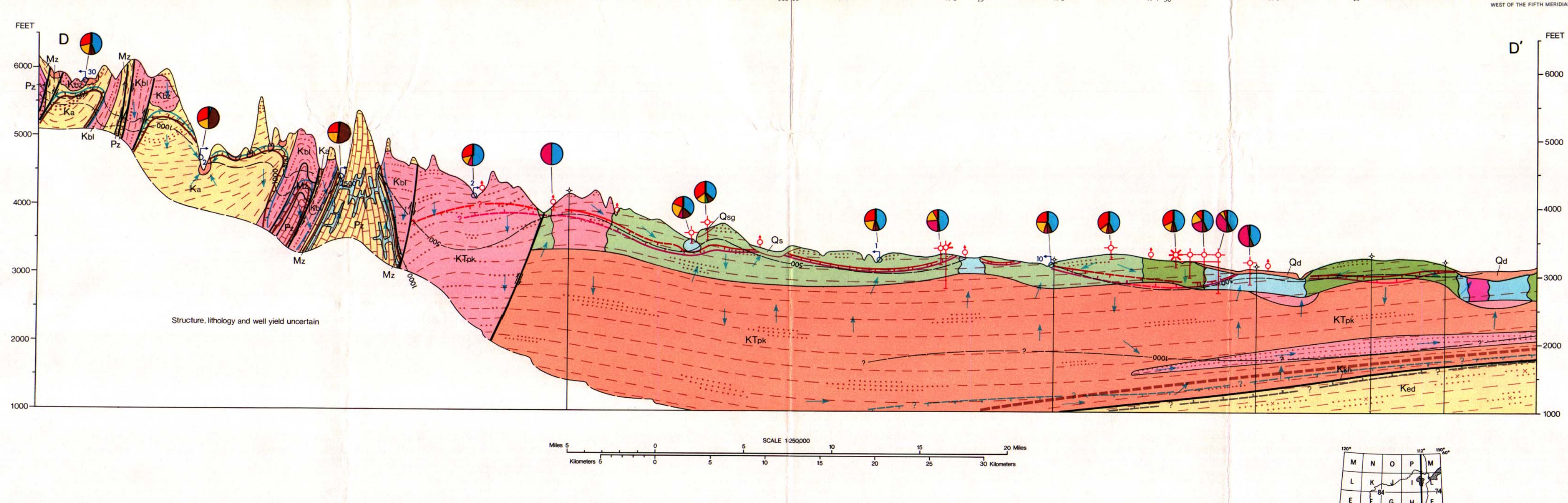
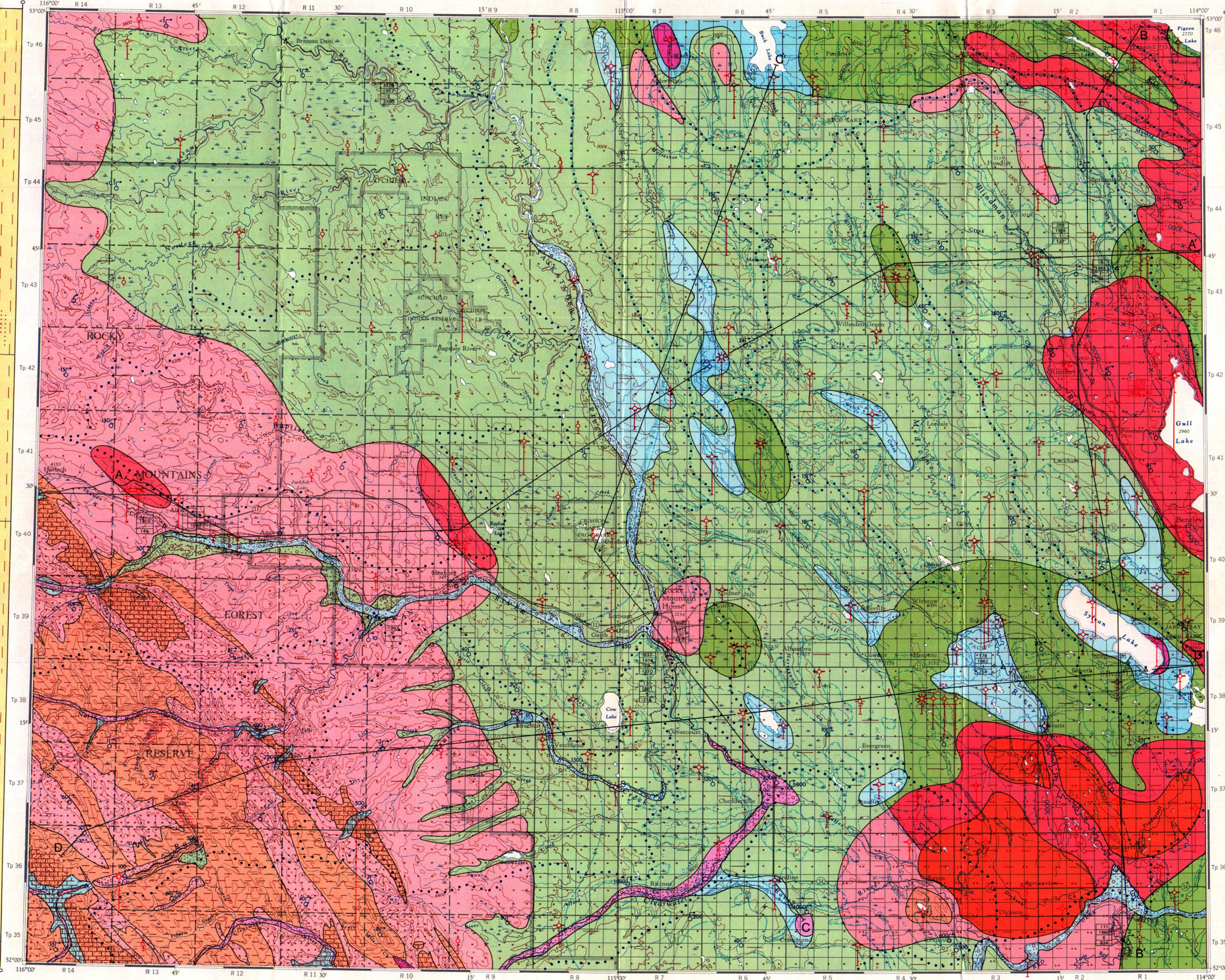
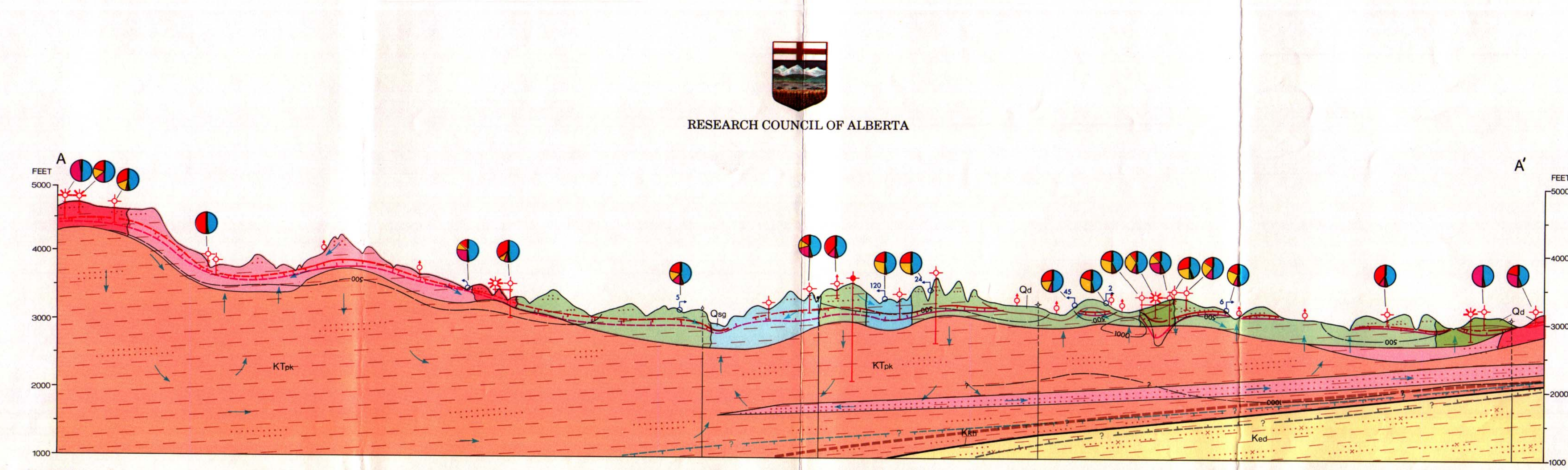
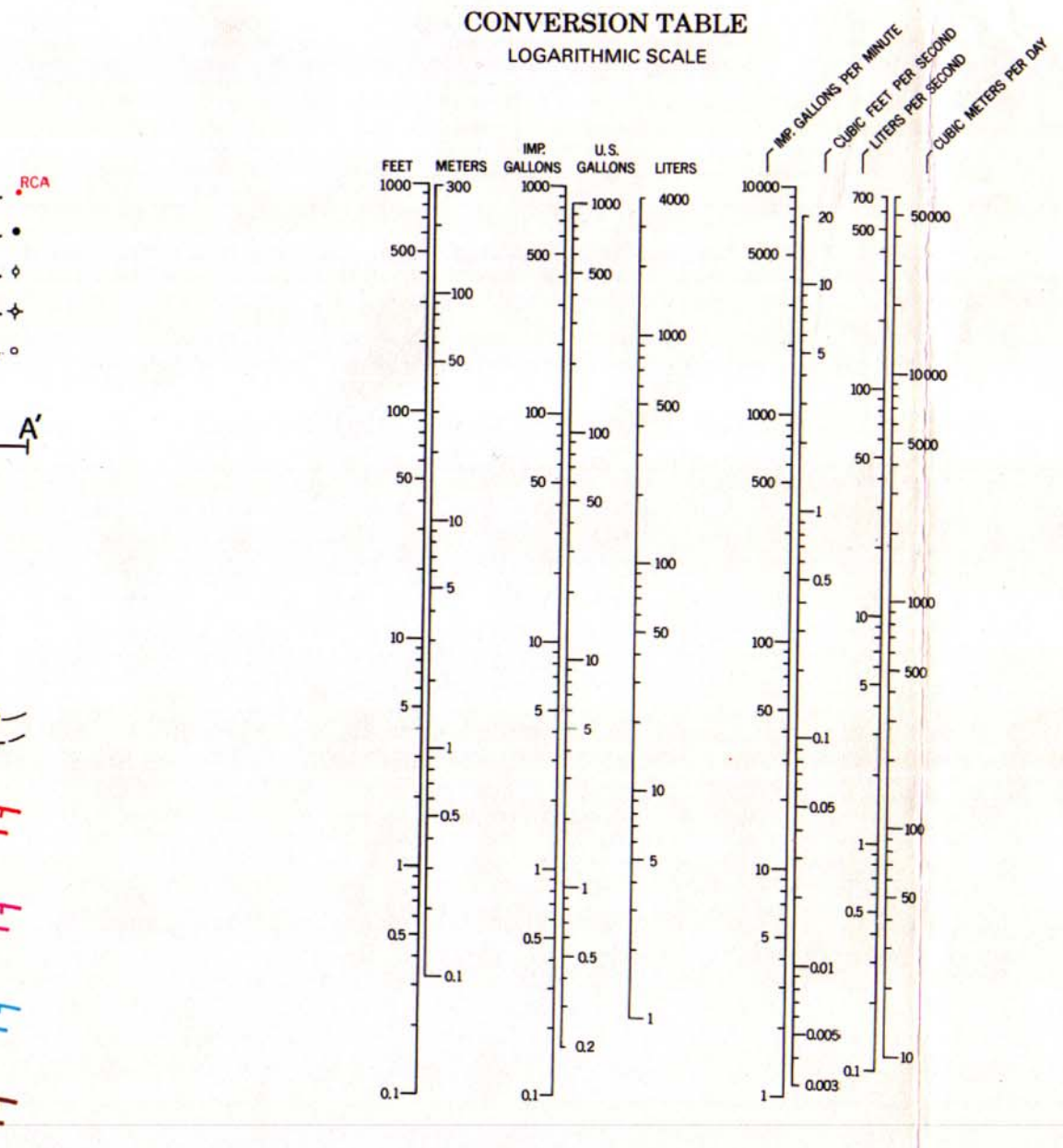
Diagram along which sulfate constitutes 60 per cent of total anions*, teeth indicate direction of lesser sulfate content:

- defined
- approximate

Diagram along which chloride constitutes 60 per cent of total anions*, teeth indicate direction of lesser chloride content:

- defined
- approximate

*Based on an equivalent per million basis.

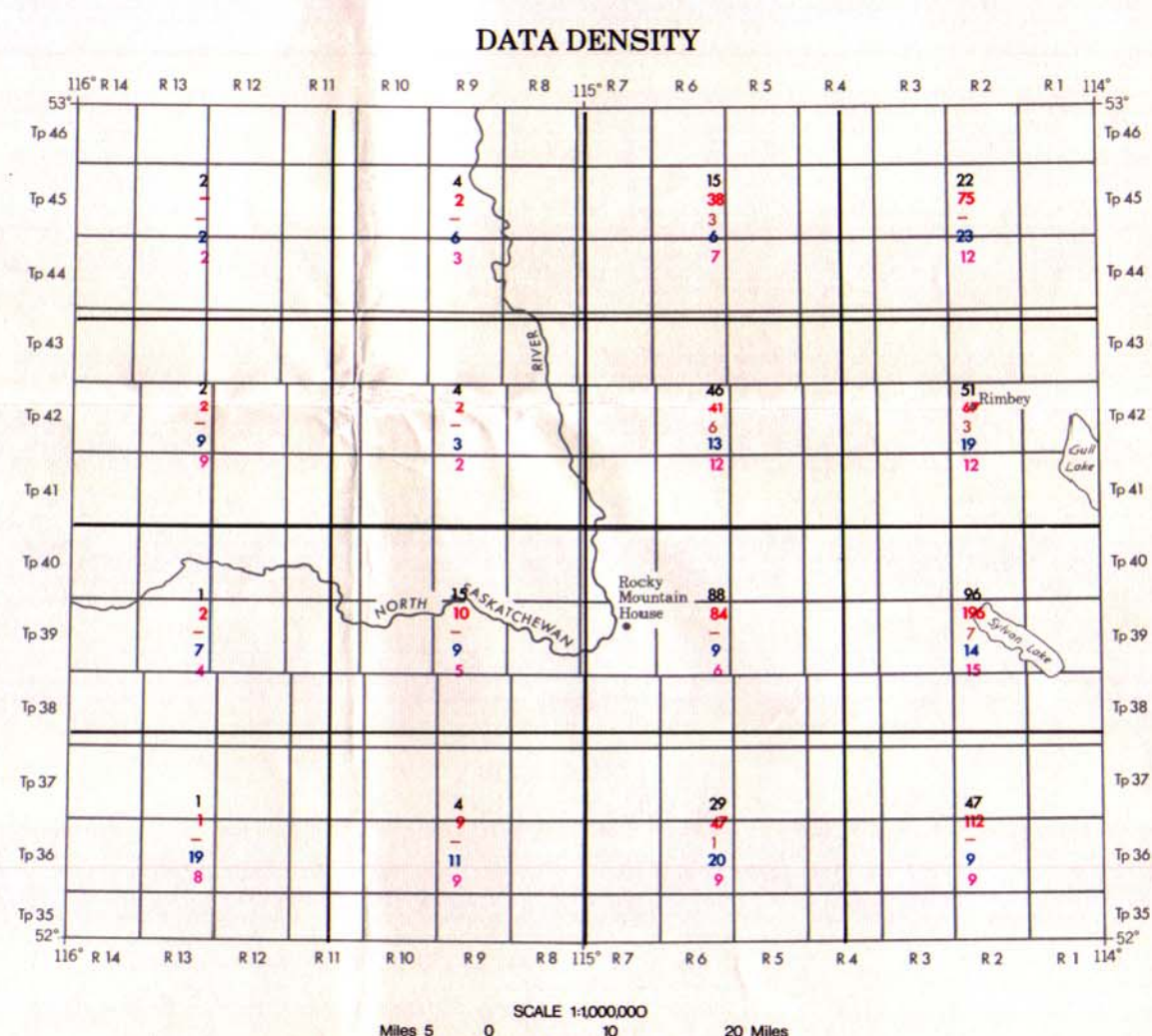


LEGEND

- KTa Parkapoo Formation: sandstone, siltstone, shale, coal over base
- Kcb Kanabilla Member: sandstone, siltstone, shale, minor coal
- Ked Edmonton Formation: mainly shale, some sand sandstone
- Keb Brazeau Formation and older Mesozoic formations: sandstone, shale
- Px Paleozoic: limestone, dolomite, argillaceous limestone, calcareous shale

Rock unit boundary

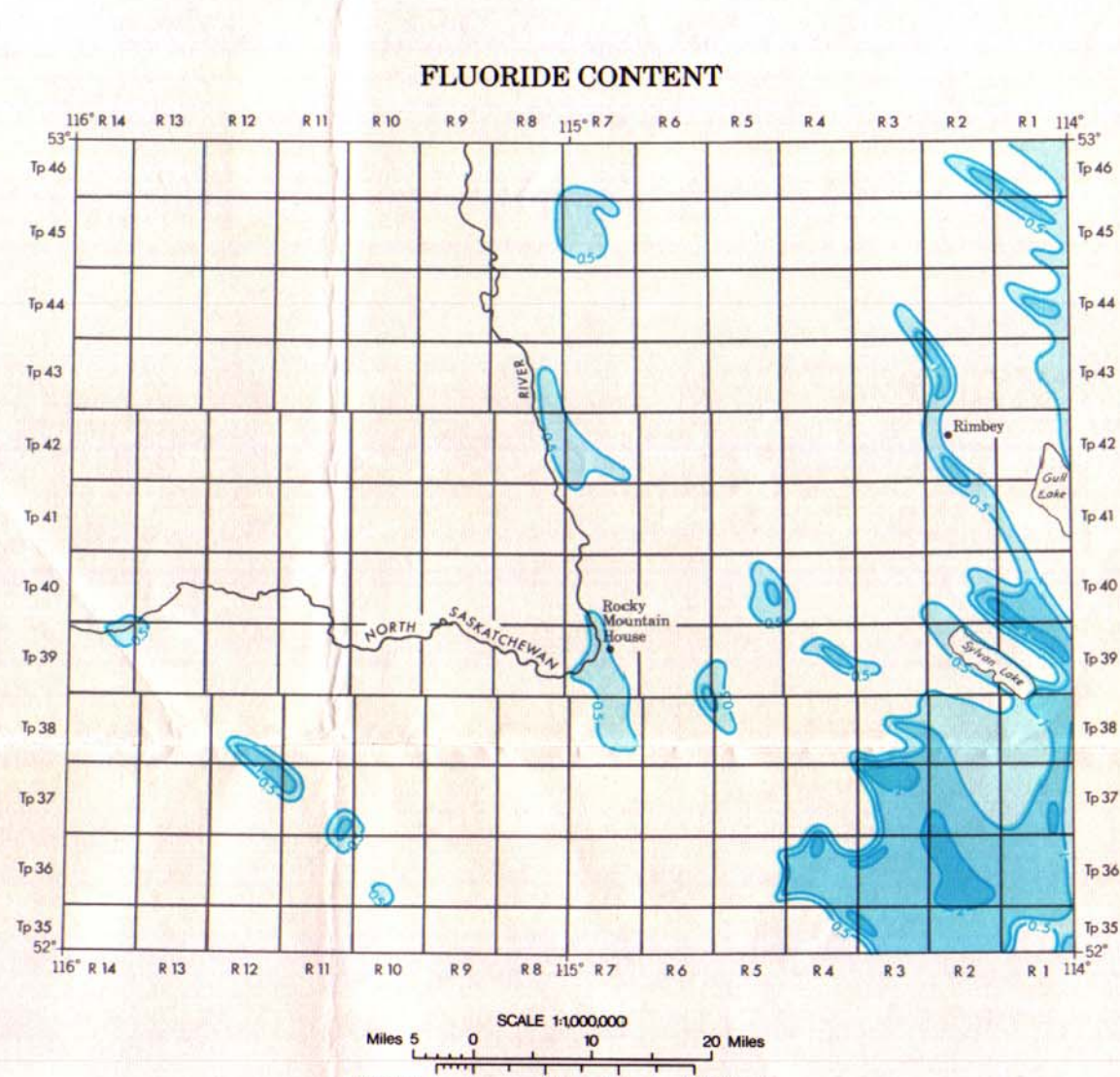
- Structure contour on top of Kanabilla Member
- Axis of anticline
- Axis of syncline
- Fault
- Overthrust fault (teeth on upper plate)



LEGEND

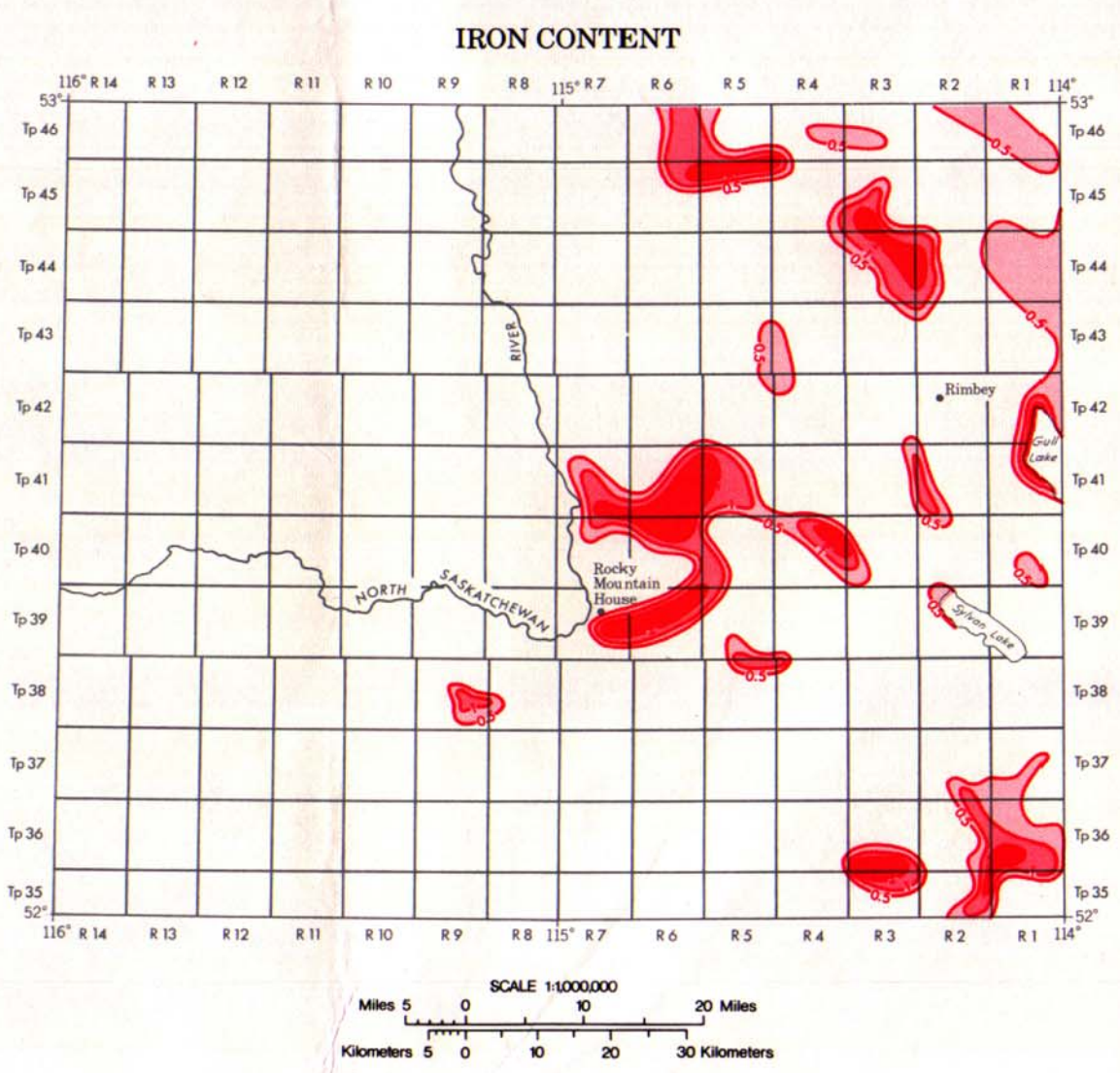
Figures indicate the number of data control points in each section of the map area used in construction of:

- (a) yield areas on the main map (i.e. production tests)
- (b) hydrogeological maps
- well and test holes
- deep wells (over 300 feet)
- spring
- trace element analysis



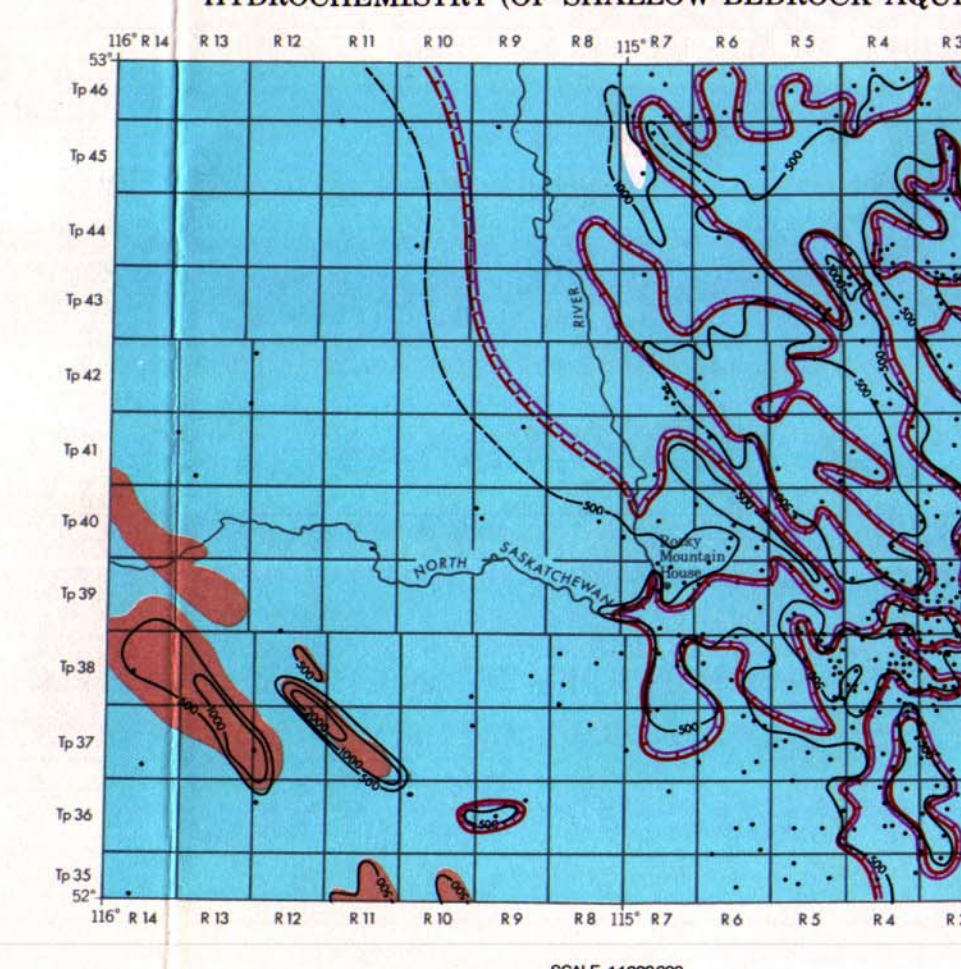
LEGEND

- Fluoride content in parts per million
- Fluoride content ranging between 0.5 and 1 part per million
- Fluoride content ranging between 1 and 2 parts per million
- Fluoride content over 2 parts per million



LEGEND

- Iron content in parts per million
- Iron content ranging between 0.5 and 1 part per million
- Iron content ranging between 1 and 2 parts per million
- Iron content over 2 parts per million



LEGEND

Data control points

*Total dissolved solids in parts per million:

- defined
- approximate

Bicarbonate + carbonate constituting over 60 per cent of total anions*

Sulfate constituting over 60 per cent of total anions*

Diagram along which calcium + magnesium constitutes 60 per cent of total cations*, teeth indicate direction of lesser calcium + magnesium content:

- defined
- approximate

Diagram along which sodium + potassium constitutes 60 per cent of total cations*, teeth indicate direction of lesser sodium + potassium content:

- defined
- approximate

*Based on an equivalent per million basis.

HYDROGEOLOGICAL MAP ROCKY MOUNTAIN HOUSE ALBERTA

NTS 83B

All elevations in feet above mean sea level.
Vertical exaggeration of the hydrogeological profiles is approximately 20x.
An expanded legend and explanatory notes for use with this hydrogeological map series is available from the Research Council of Alberta, Edmonton, Canada.
Hydrogeology by O. Takarsky, 1974, based on data collected in 1969.
Cartographic editing by A. Bailey and B. Green.
Drawn by H. Weis.



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