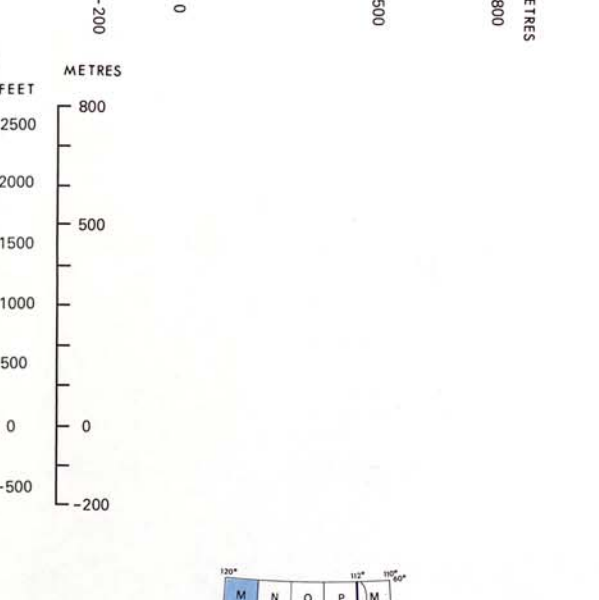
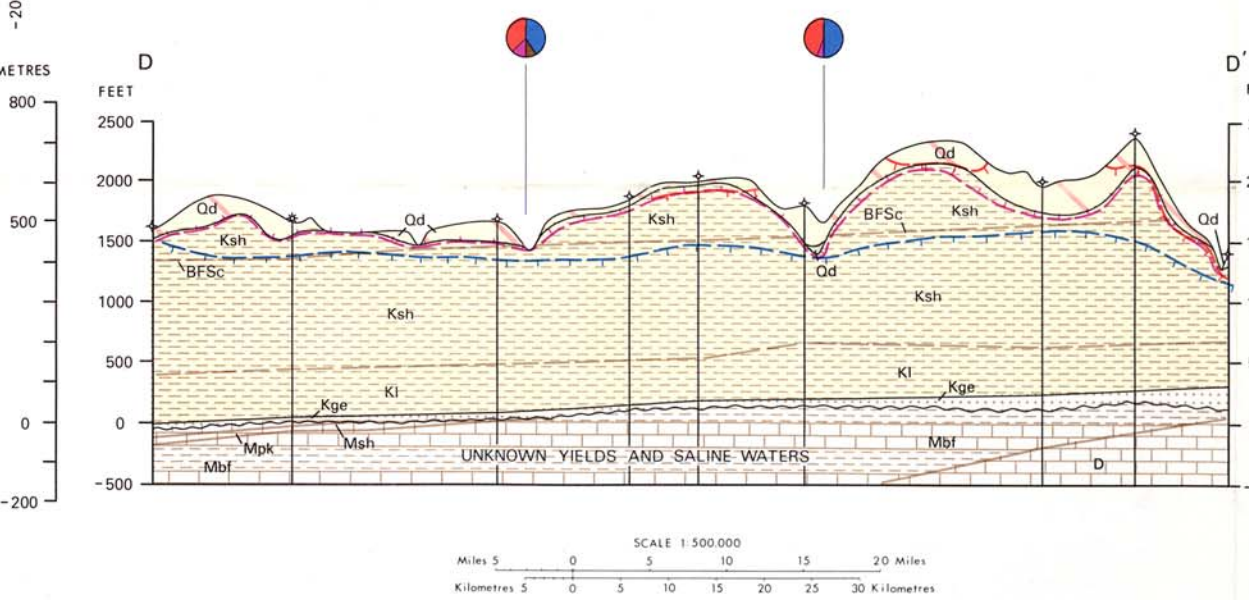
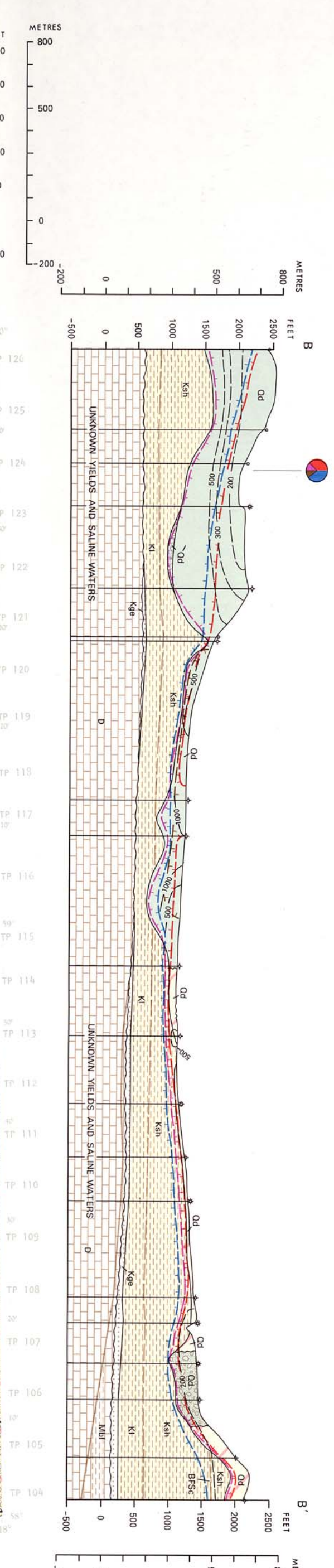
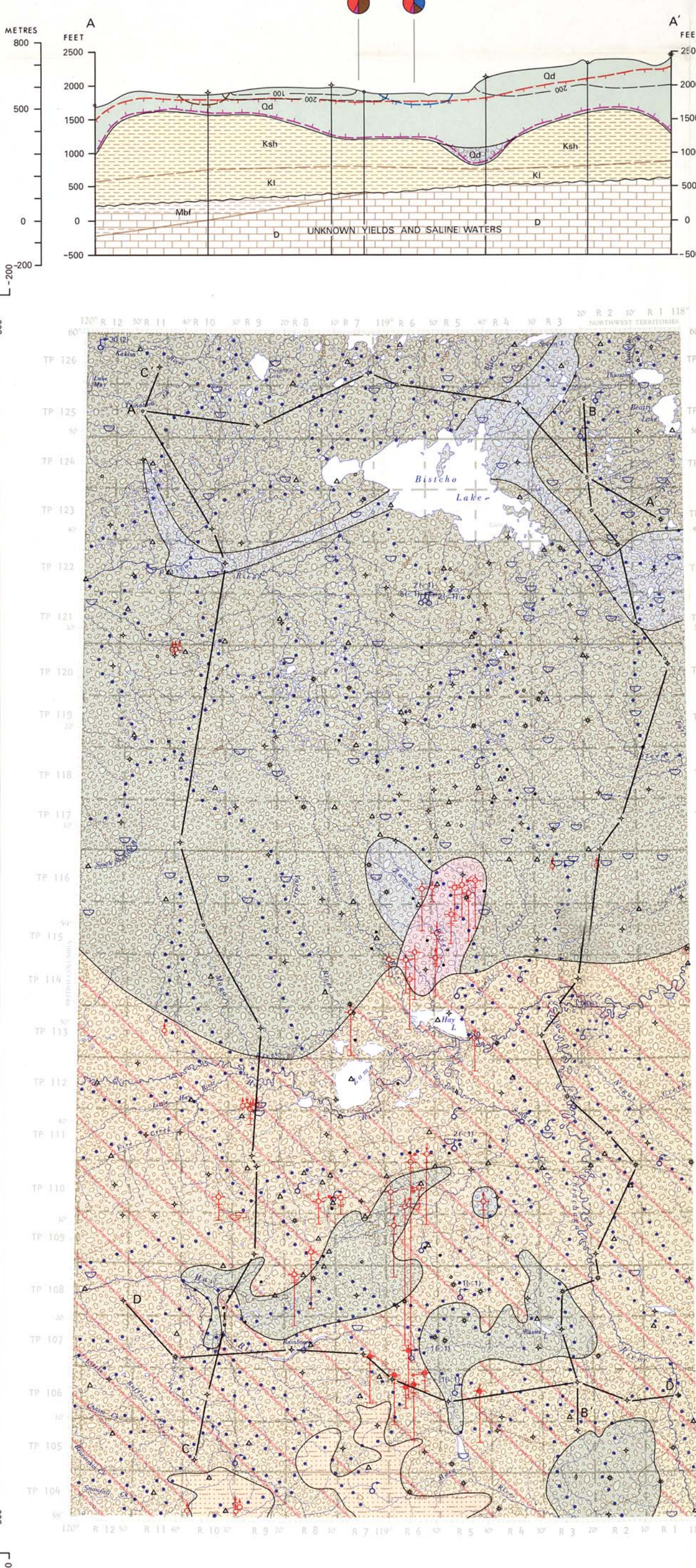
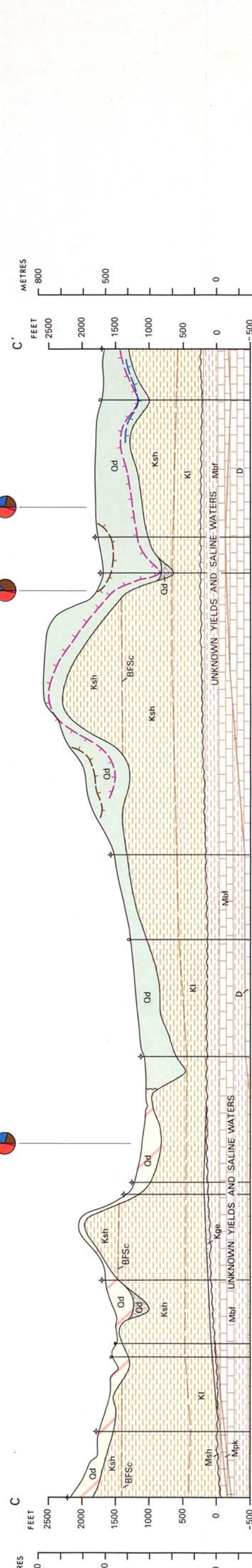
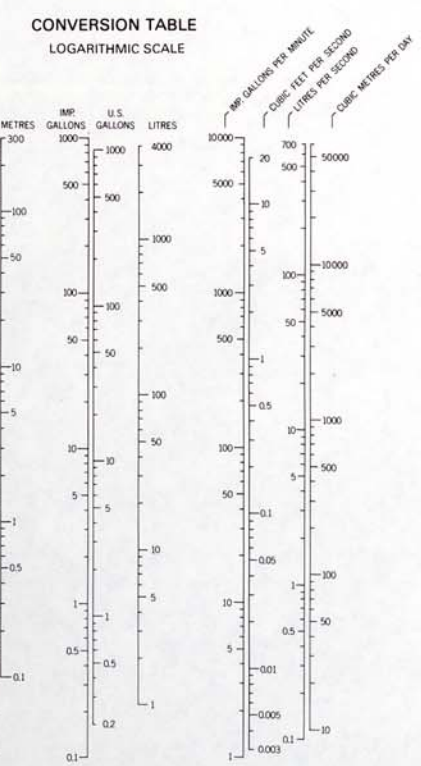


MAIN MAP LEGEND

- TOPOGRAPHY**  
Surface contours and elevation in feet (interval 500 feet)
- GEOLOGY**  
Geological boundary defined
- QUATERNARY**  
Qd Unconsolidated deposits  
Qs Sand and gravel
- CRETACEOUS**  
Ksh Shifery Formation  
Bfsc Base of the Fish Scale  
Kl Loco River Formation  
Kge Gething Formation
- MISSISSIPPIAN**  
Msh Shunda Formation  
Mpk Pikaia Formation  
Mbl Basil Formation
- DEVONIAN**  
Dxb Wabamun Formation
- LITHOLOGY**  
Sand and gravel  
Sandstone  
Sandstone and shale  
Shale  
Limestone
- HYDROGRAPHY**  
Lake or slough, perennial  
Lake or slough, seasonal  
Marsh, mowing  
Stream, perennial  
Stream, intermittent  
Surface water divide  
Groundwater feature sampled  
Surface water sampled
- HYDROGEOLOGY**  
Spring, flow rate unknown  
Spring, flow rate in gpm (labeled)
- GROUNDWATER PROBABILITY**  
Range of average expected yield of wells in imperial gallons per minute (labeled)  
Possible, estimated from quantitative information (Flow regime, lithology, etc.)
- |               |       |
|---------------|-------|
| more than 100 | 1.39  |
| 100-500       | 13.38 |
| 25-100        | 12.21 |
| 5-25          | 10.42 |
| 1-5           | 10.10 |
| 1             | 10.33 |
| 1-25          | 10.32 |
- Yield area boundary
- \*The indicated average expected yields in wells are predictions based on the best data available at the time of map compilation; due to the data shortcomings and special conditions, local discrepancies between predicted and actual yields are inevitable. Whenever completion may be necessary to obtain the yield indicated.
- WELLS AND OTHER ARTIFICIAL WORKS**
- DEPTH SCALE**  
FEET  
0  
100  
200  
300  
400
- Water well, nonflowing  
Water well, flowing  
Water well, nonproducing  
Recharge well  
Seismic shot hole  
Oil well\*  
Gas well\*  
Suspended well\*  
Abandoned well\*  
Structure test hole\*  
Depth of exhalatory well\*  
Storage reservoir  
Dugout or borrow pit
- \*The vertical line portion of well, gas or other exhalatory well symbol indicates the well depth; the shaded portion indicates the ambient casing interval where applicable or where known (otherwise, a solid line is used).
- HYDROCHEMISTRY**
- Calcium  
Magnesium  
Sodium + potassium  
Carbonate + bicarbonate  
Sulfate  
Chloride  
Nitrate
- Note: When the sodium & potassium is absent Ca & Mg are represented as a well by the red pie sector
- Diagram along which calcium & magnesium constitute 60 percent of total cations; teeth indicate direction of lesser calcium & magnesium content; defined, approximate
- Diagram along which sodium & potassium constitute 60 percent of total cations; teeth indicate direction of lesser sodium & potassium content; defined, approximate
- Diagram along which carbonate & bicarbonate constitute 60 percent of total anions; teeth indicate direction of lesser carbonate & bicarbonate content; defined, approximate
- Diagram along which sulfate constitutes 60 percent of total anions; teeth indicate direction of lesser sulfate content; defined, approximate
- \*determined on equivalents per million basis.

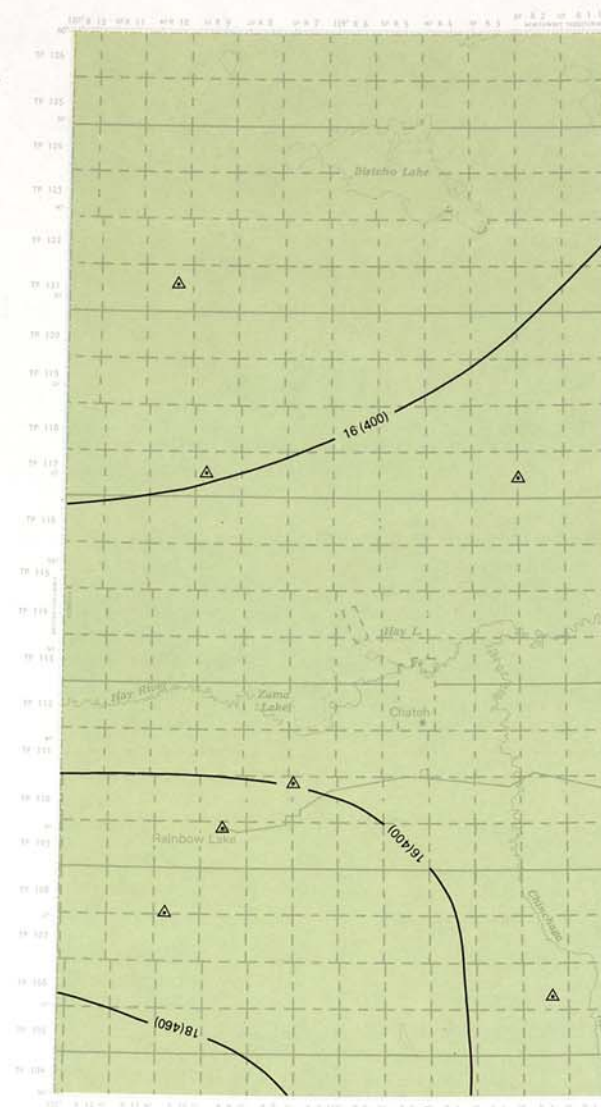


All elevations in feet above mean sea level.  
Vertical exaggeration of the hydrogeological profiles is approximately 40x.  
An expanded legend and explanatory notes (Earth Science Report 7212) for use with this hydrogeological map series is available from Alberta Research Council, Edmonton, Canada.  
Map to accompany Earth Science Report 803.  
Hydrogeology by D. Borneuf.  
Drafted by R.W. Swanson.

HYDROGEOLOGICAL MAP  
ZAMA-BISTCHO LAKES  
ALBERTA

NTS 84L-M

METEOROLOGY

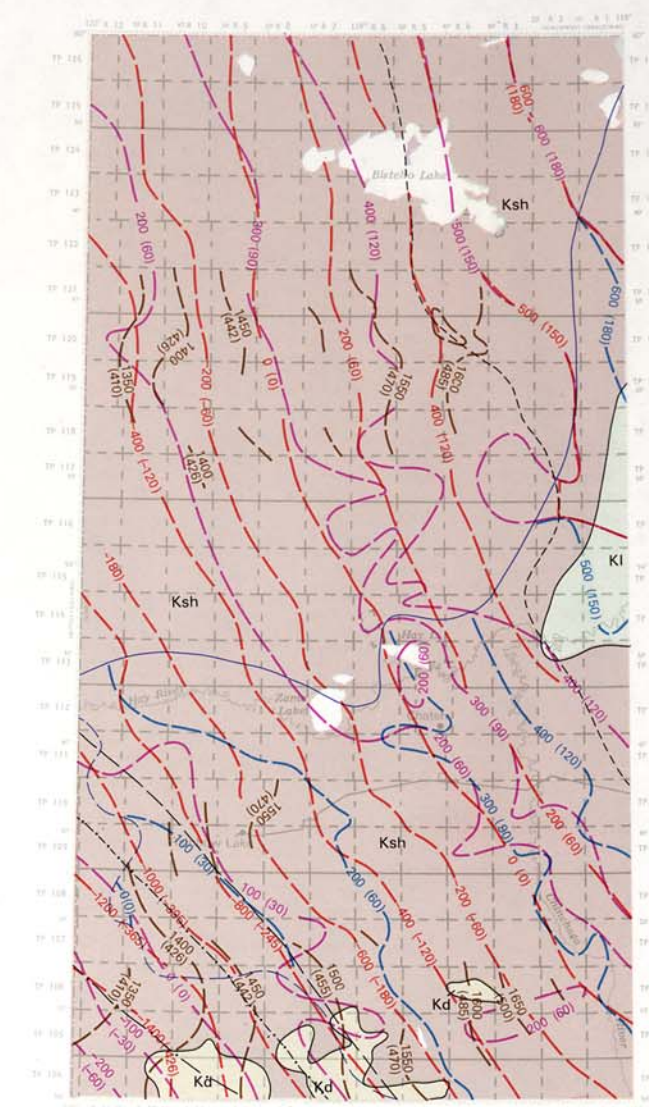


SCALE 1:100,000

LEGEND

- Isohyet, mean annual precipitation in inches (mm) — 16 (405)  
Mean annual precipitation in inches (mm)  
15 to 20 inches (380 to 510 mm)  
Forestry station

GEOLOGY

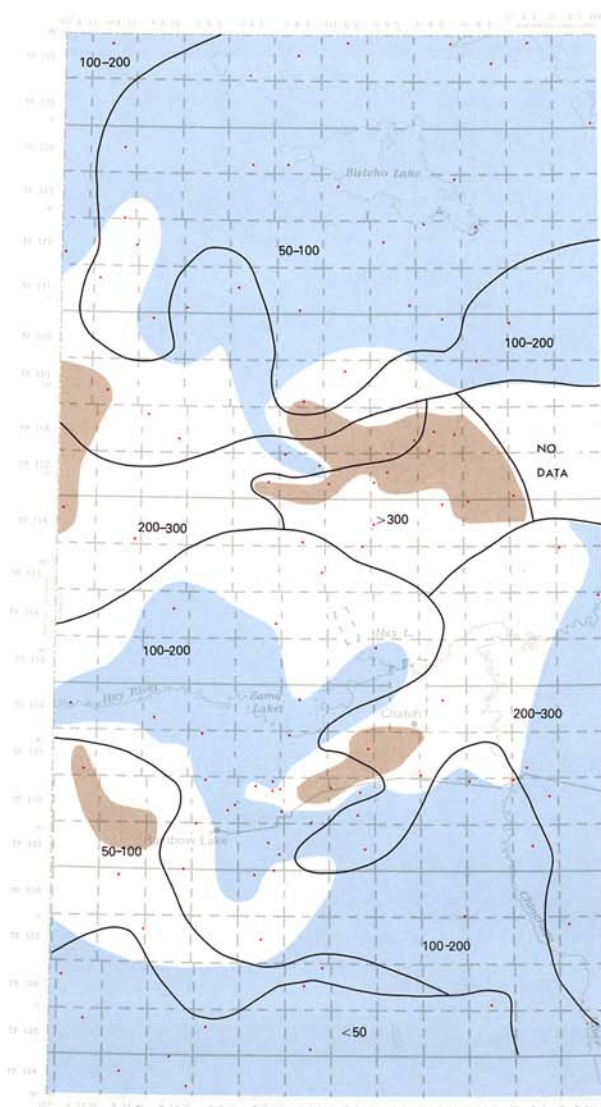


SCALE 1:100,000

LEGEND

- Dumagan Formation: gray, fine grained, feldspathic sandstone with calcareous beds; siltstone to shaly beds; deltaic to marine  
Shifery Formation: dark gray, feldspathic bearing shale; numerous nodules and thin beds of calcareous siltstone; deltaic to marine  
Ksh  
Loco River Formation: dark gray, fossiliferous, silty shale and laminated siltstone; nodules and thin beds of calcareous siltstone; marine  
Rock unit boundary  
Approximate erosional edge of Basil  
Approximate erosional edge of Shunda  
Approximate erosional edge of Dumagan  
Dispositional edge  
Line of change from sandstone to sandy shale  
Structure contour on top of the Base of Fish Scale marker — 2000 (610)  
Structure contour on top of the Wabamun Upper Devonian Formation — 2000 (610)  
Structure contour on top of the Shunda-Gething Formation — 2000 (610)  
Structure contour on top of the Pikaia Formation — 2000 (610)

HYDROCHEMISTRY: SURFACE WATER

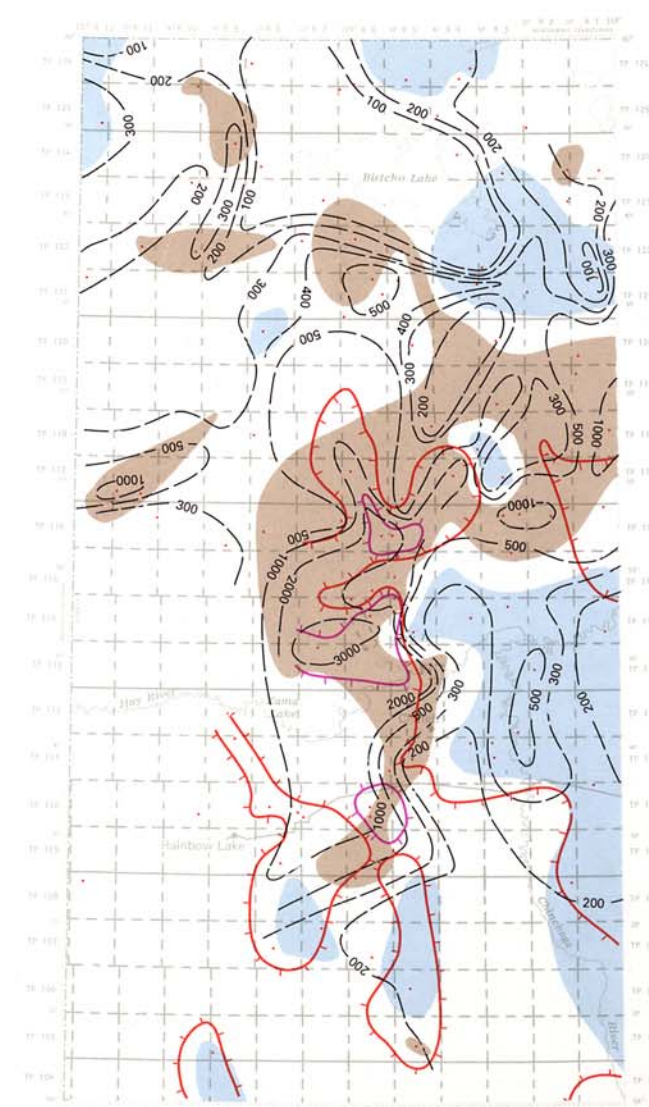


SCALE 1:100,000

LEGEND

- Surface water data point  
Boundaries of total dissolved solids intervals (mg/L)  
Surface water with Carbonate & Bicarbonate constituting over 60 percent of total anions  
Surface water with Sulfate constituting over 60 percent of total anions  
All surface waters have Calcium & Magnesium constituting over 60 percent of total cations  
\*determined on equivalents per million basis.

HYDROCHEMISTRY: GROUND WATER



SCALE 1:100,000

LEGEND

- Groundwater data point  
Total dissolved solids (mg/L)  
Groundwater with Carbonate & Bicarbonate constituting over 60 percent of total anions  
Groundwater with Sulfate constituting over 60 percent of total anions  
Diagram along which Calcium & Magnesium constitute 60 percent of total cations; teeth indicate direction of lesser Calcium & Magnesium content  
Diagram along which Sodium & Potassium constitute 60 percent of total cations; teeth indicate direction of lesser Sodium & Potassium content  
\*determined on equivalents per million basis.