

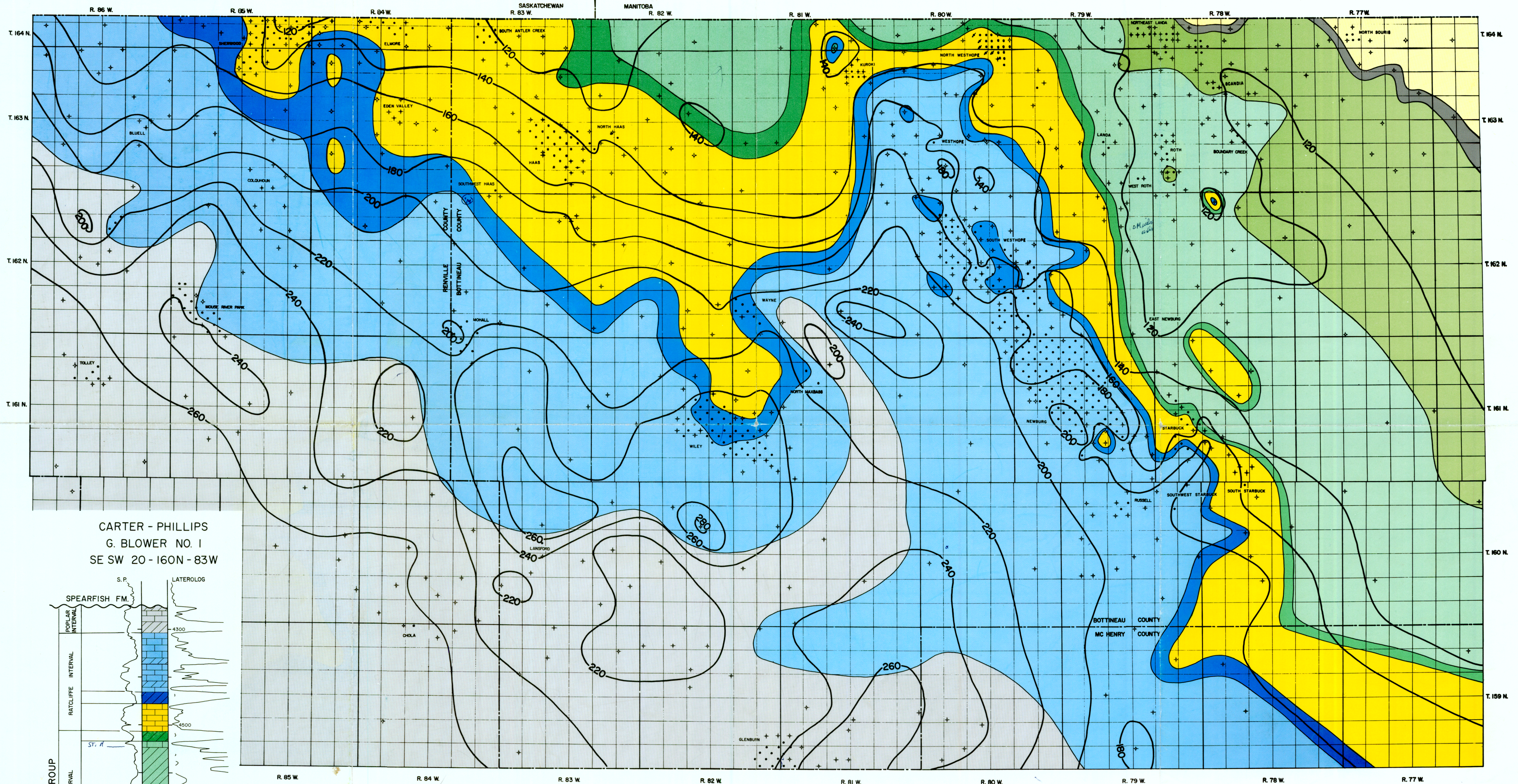
# MADISON SUBCROP - SPEARFISH ISOPACH MAP - BOTTINEAU AREA

NORTH DAKOTA GEOLOGICAL SURVEY

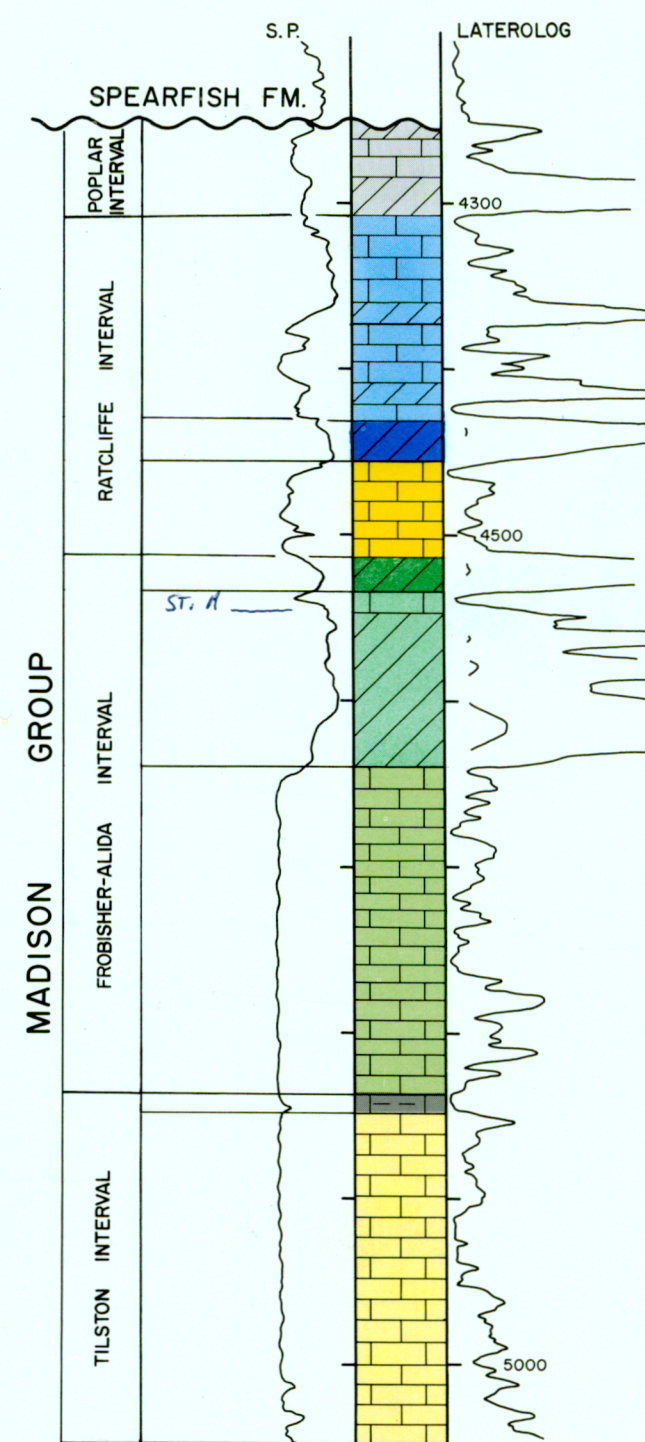
Prepared by Sidney B. Anderson and Clarence Carlson

WILSON M. LAIRD, State Geologist

Revised May 1, 1965



CARTER - PHILLIPS  
G. BLOWER NO. 1  
SE SW 20 - 160N - 83W



## DISCUSSION

The map area (Twps. 159-164 N., Rs. 76-86 W.) lies in north-central North Dakota along the Canadian border. This map is a revision of a previous subcrop map (1958) and reflects the changes due to subsequent drilling and changes in the terminology applied to the Madison Formation.

All wells that were completed as of May 1, 1965 were plotted on the map, even though some of them did not provide data for either the isopach, the subcrop, or both parts of the map. Mechanical logs were available for most, but not all wells, and all available logs were used. In some cases, where the wells penetrated only a few feet of Madison, the interval or subinterval could not be determined, but thickness of Spearfish could be determined from most logs. In some cases only drilling time logs were available, and then

only thickness of Spearfish could usually be determined. Six wells were listed as completed, but the information had not yet been released for general distribution.

The terminology applied to the Madison is that currently in use by the North Dakota Geological Survey and is a revision of the terminology of the Saskatchewan Geological Society (1956) as proposed by Smith (1960, p. 19) and subsequently published by Anderson, and others (1960, p. 3-15). The log of the Carter, Phillips-G. Blower No. 1 well was selected to show the log characteristics of the marker beds used for subdivision of the Madison Formation. Intervals present in the map area are Poplar, Ratcliffe, Frobisher-Alida and Tilston. These intervals were further subdivided into subintervals for added detail on the map, but informal names have not been designated for most of these subintervals.

The map indicates a synclinal area is present in Twps. 160-163 N., Rs. 79-81 W. The western edge of this synclinal area is closely coincident with the present edge of the Devonian salt. It is assumed that solution of the Prairie salt and resultant collapse of the overlying beds is responsible for formation of the synclinal area.

### SELECTED REFERENCES

- Anderson, S. B., and others, 1960, Subsurface studies in the Burke County area, North Dakota: North Dakota Geol. Survey Rept. of Inv. 36, p. 1-25.
- Anderson, S. B., and Carlson, C. G., 1958, Madison subcrop, Spearfish isopach map, Bottineau area: North Dakota Geol. Survey Rept. of Inv. 30.
- Saskatchewan Geological Society, 1956, Report of the Mississippian Names and Correlations Committee.
- Smith, M. H., 1960, Revised nomenclature for the Williston Basin (obs.): Program, Tenth Ann. Meeting, Rocky Mtn. Sec., Am. Assoc. Petroleum Geologists, Billings, Montana.

### EXPLANATION

- OIL WELL
- ✦ ABANDONED PRODUCER
- ◆ PRESSURE MAINTENANCE, WATER INJECTION
- ◇ DRY HOLE
- CONTOUR INTERVAL 20 FEET