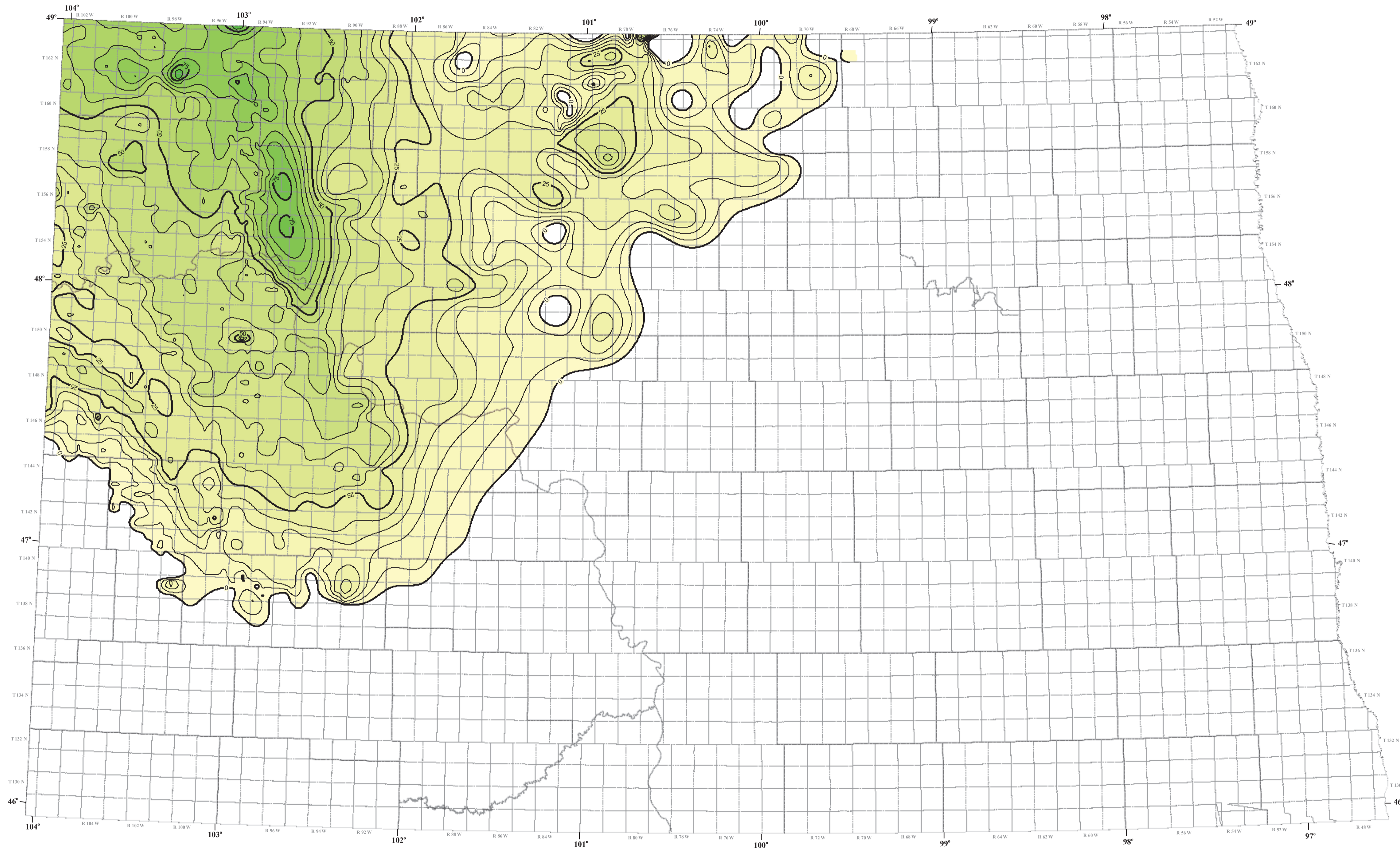


Isopach of the Middle Bakken Member

Julie A. LeFever



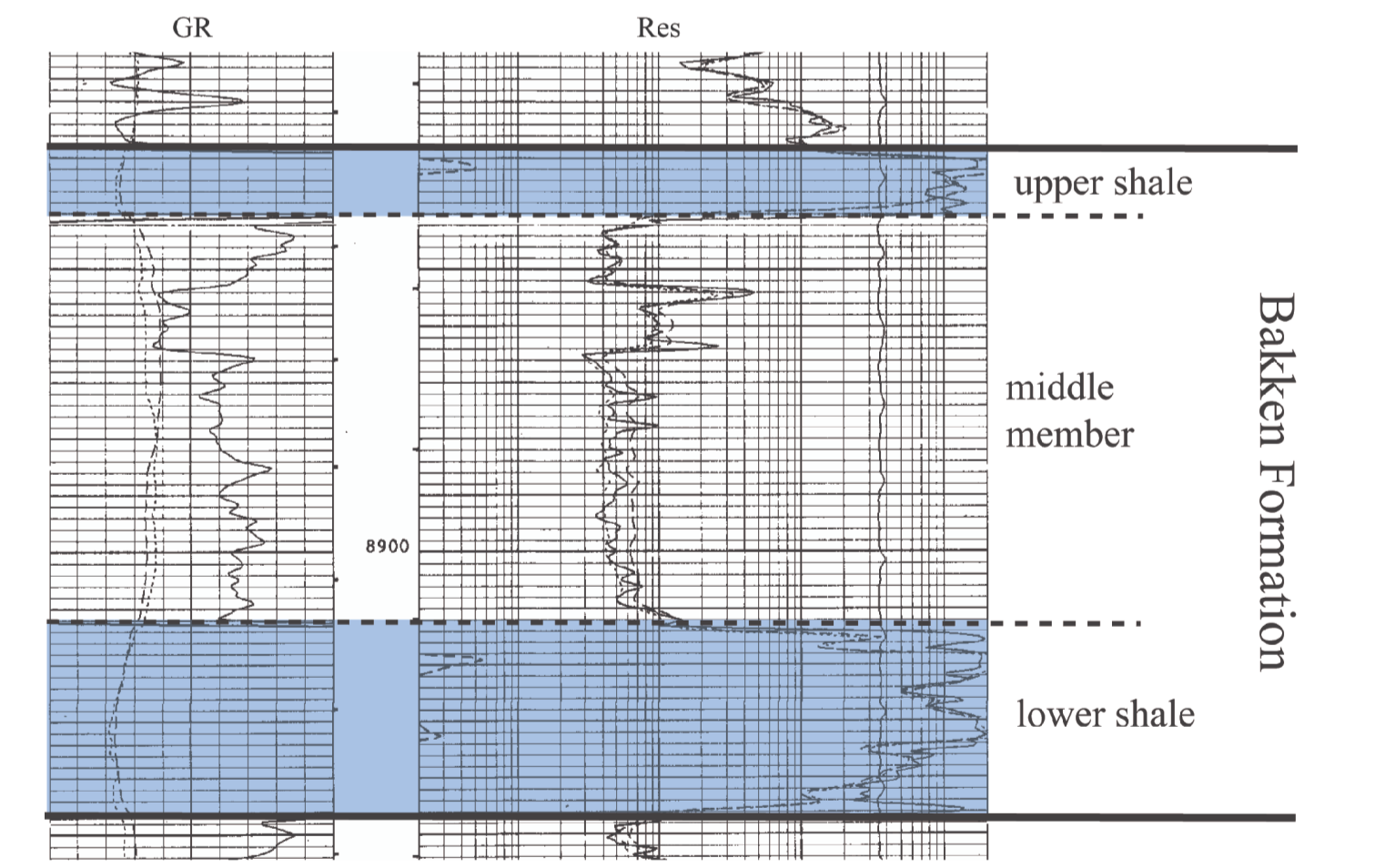
ISOPACH OF THE MIDDLE BAKKEN MEMBER

The middle member of the Bakken Formation reaches a maximum thickness of 90 ft (27 m) with a well-defined, northwest-trending depocenter along the eastern side of the Nesson anticline (see Map). There are several notable features in the isopach of this member. The map shows a prominent thickness trend in southern McKenzie County that is continuous with the thickened middle Bakken that is productive in Richland County, Montana. The extension of the middle member to the southeast probably reflects a depositional response to movement along the Heart River and Antelope faults.

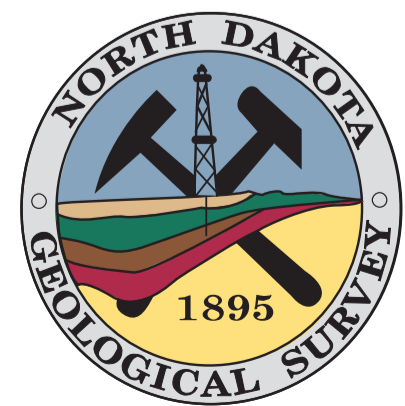
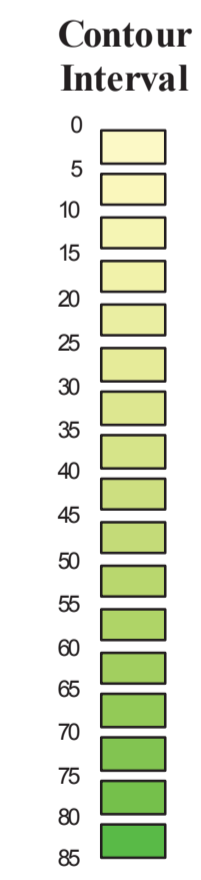
The middle member is usually easy to identify on wireline logs because of its relatively low gamma-ray response relative to the intense gamma-ray responses that come from the shales that lie above and below it (see Typical Log). However, when the lower shale is missing the middle member is difficult to distinguish from the underlying Three Forks Formation.

Vertically variable, the middle member consists of a mixture of siliciclastic and carbonate lithologies. These rock types range from calcareous siltstones to sandstones dominated by quartz with minor amounts of feldspar, dolostones, silty limestones, and occasionally oolitic limestone. The limestones are usually rich in quartz sand and silt. The siltstones and sandstones are massive to coarse-bedded with occasional trough or planar cross-bedding. There is some local soft sediment deformation and bioturbation. Fossils include brachiopods, pelmatozoan fragments, gastropods, and trace fossils. Mineral composition is variable across the basin, although quartz increases in a north-easterly direction. Sand size is also variable across the basin with the coarser-grained material occurring to the east side of the Nesson anticline.

SENW Sec. 11, T.160N., R.95W
 Conoco, Inc.
 #17 Watterud "A"



Typical Log



Explanation

- Thickness of the Middle Bakken Member (in feet)
- Township Boundaries
- County Boundaries

