

P3

The Three Forks Formation – North Dakota to Sinclair Field, Manitoba

Julie A. LeFever¹ and Stephan H. Nordeng¹

The success of recent wells drilled into the Three Forks Formation of North Dakota has resulted in the re-evaluation of this unit. In an attempt to stratigraphically relate the production in Sinclair Field of Manitoba to that in North Dakota, a northeast-trending correlation cross-section was drawn across the basin from McKenzie County to Sinclair Field. Sandberg and Hammond (1958) designated the interval from 10,076 to 10,310 feet in the Mobil Producing Company - #F-22-22-1 Pegasus Div Solomon Bird Bear (SENW Sec, 22, T.149N, R.91W.) well as the standard subsurface section for the Three Forks Formation in the Williston Basin. The Three Forks in this well consists of interbedded greenish grey, greyish orange, and greyish red dolomitic siltstones and shales that are capped by a thin bed of fine-grained sandstone and coarse-grained siltstone that is informally known as the “Sanish sand”.

Christopher (1961) raised the Three Forks in Saskatchewan to group status comprising the Torquay (Three Forks equivalent of Sandberg and Hammond, 1958), Big Valley and Bakken formations. Christopher subdivided the Torquay into six units with correlations tied to the standard subsurface section.

Nicholas (2006) carried Christopher’s correlations into Sinclair Field in Manitoba where she recognized four of Christopher’s six Torquay/Three Forks Formation subdivisions.

The original subdivisions defined by Christopher provided the stratigraphic framework for the correlations in this cross-section. All six of Christopher’s units can be traced throughout much of the basin. However, these correlations become difficult to make where the Three Forks thins along the eastern side of the basin. Consequently our correlation of these units across the basin required adjustments to be made to those presented by Nicholas.

References Cited

- Christopher, J., 1961, Transitional Devonian-Mississippian Formations of Southern Saskatchewan: Saskatchewan Mineral Resources Report No. 66, 103p.*
- Nicholas, M., 2006, Petroleum Geology of the Devonian Three Forks Formation, Sinclair Field and Surrounding Area, Southwestern Manitoba: Saskatchewan and Northern Plains Oil and Gas Symposium Core Workshop Volume, p. 1-25.*
- Sandberg, C.A. and Hammond, C.R., 1958, Devonian System in Williston Basin and Central Montana: AAPG Bulletin, vol. 42, no. 10, p. 2293-2334.*

¹North Dakota Geological Survey, Bismarck, ND 58505

Julie A. LeFever has been employed by the North Dakota Geological Survey since 1980 working on petroleum-related studies in the Williston Basin. She is the Director of the NDGS Wilson M. Laird Core and Sample Library. She received her M.Sc. from California State University, Northridge in 1982. Email: jlefever@nd.gov