

# Bakken Formation Middle Member Lithofacies CBF



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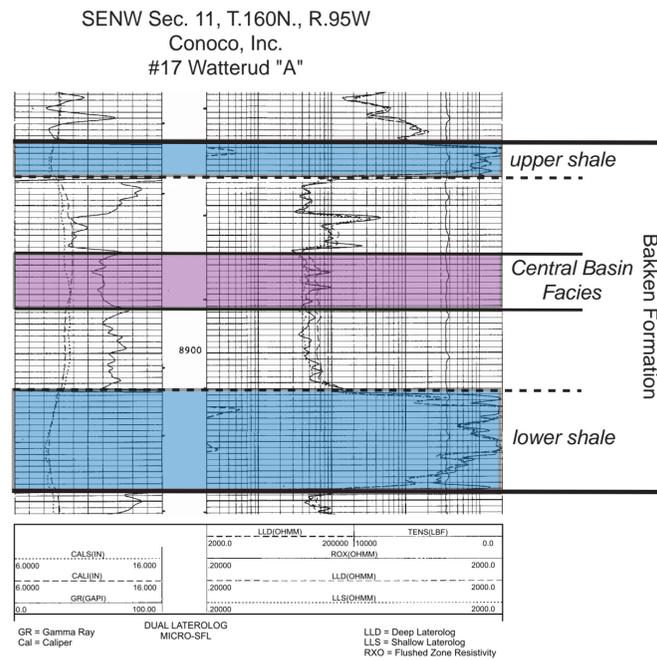
## LITHOFACIES - CENTRAL BASIN FACIES

The central basin facies (cbf) consists of four distinctive lithologies that are limited to the central portion of the Williston basin. They are visible in core but are too small to be identified individually on wireline logs. As a group, the combined sequence on wireline logs with core control is mappable.

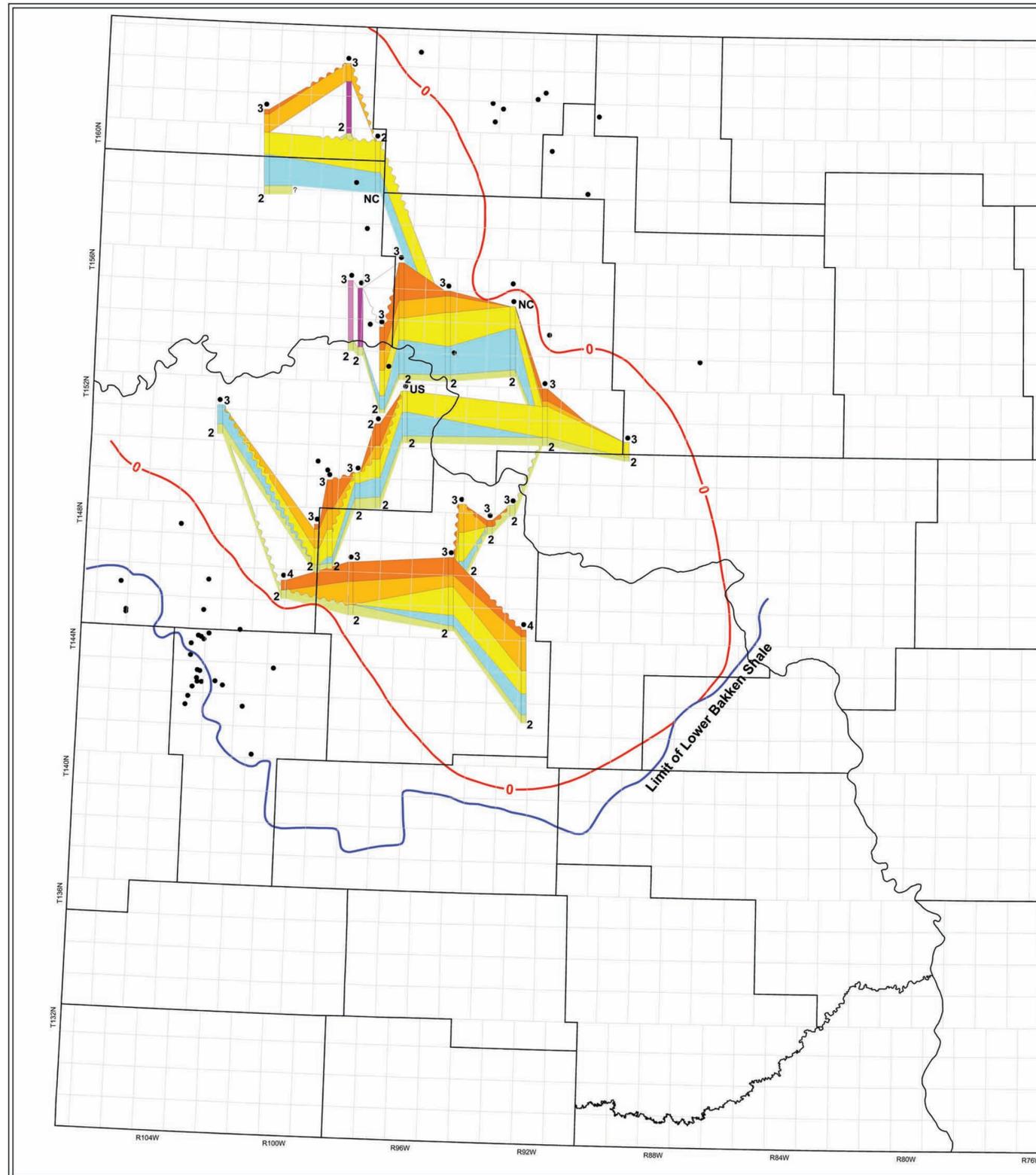
The basal 5 ft of this combined sequence consists of a laminated, slightly argillaceous sandy siltstone. There is a slight undulation to the laminations. This is overlain by 2 ft of medium brownish-grey massive siltstone. The third bed set consists of a 4.5 ft thick interbedded sequence of very fine-grained sandstones and wavy laminated claystones. The beds become lensoidal locally due to burrowing. A medium grayish-brown, laminated sequence of siltstones and very fine-grained sandstones completes the sequence. These laminations are very thin (< 5 cm) and uniform in thickness; thicker individual beds are massive to cross-bedded. Thicker individual beds are massive to cross-bedded. Although very fine-grained, cementation is limited to non-existent and the interval shows extensive oil staining.

The entire sequence reaches a maximum thickness of 24 ft. Additional core data is expanding the areal extent of this lithofacies. As with the other middle member lithofacies, the contacts with the overlying and underlying beds vary from unconformable to gradational. Disconformities are abrupt and common with this interval and appear to be in response to local tectonics (probably related to salt dissolution).

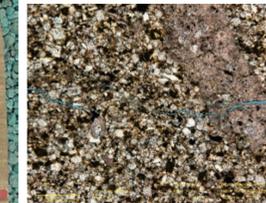
The combined facies is within the middle shoreface environment. Cores on the western side of the state show finer grained sediment similar to the other middle member facies. The northern and southern end of the Nesson is structurally high noted by the thinner interval and unconformable contacts with the overlying lithofacies.



NDIC File No: 13318

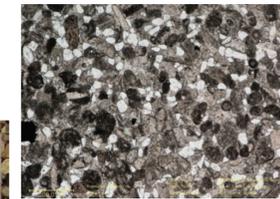


**Top Unit**  
 SWNE Sec. 4, T.148N., R.92W.  
 Shell Oil Co.  
 #22-4 Young Bear  
 KB = 2361



Very fine-grained quartz sandstone with a predominantly dolomitic cement. Abundant disseminated pyrite. Numerous open and healed microfractures and interparticle porosity.

**Second Unit**

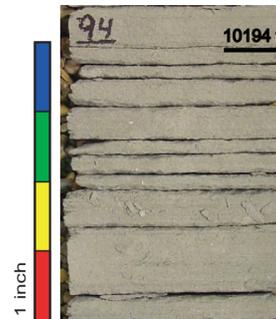


Wacke-packstone interbedded with ooids, quartz brachiopods and brachiopod spines. No visible porosity.



Siltstone to very fine-grained sandstone with calcite cement. Minimal intercrystal and inter-particle porosity related to dolomitization of the cement.

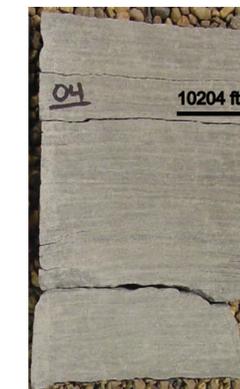
**Third Unit**  
 NENW Sec. 35, T.156N., R.93W.  
 Shell Oil Co.  
 #21-35 L. Texel  
 KB = 2409



Interbedded siltstone and very fine-grained quartz sandstone sequence with calcite cement. Limited interparticle porosity due to dolomitization of the calcite cement.

**Base Unit**

SWSE Sec. 15, T.145N., R.91W.  
 Pan American Petroleum Corp.  
 #1 Jacob Huber  
 KB = 2212



Sandy limestone interbedded with interparticle and fracture porosity. Locally abundant disseminated pyrite.

## Central Basin Facies

- Laminated Siltstone/ Very Fine-Grained Sandstone
- Waxy bedded Very Fine-grained Sandstone-Claystone
- Massive Siltstone
- Laminated Sandy Siltstone
- L2 Porosity Zone
- Overlying / Underlying Lithofacies / No Core
- Unconformity Surface
- 0- Limit of Central Basin Facies
- Limit of Lower Bakken Shale