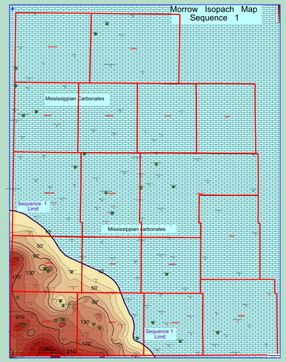
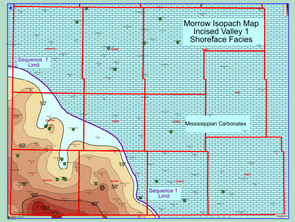
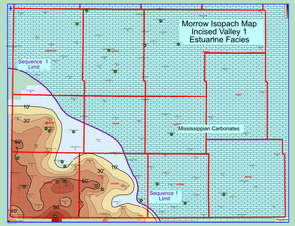
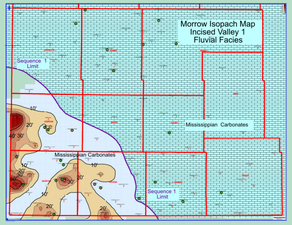
Sequence 1









Sequence Stratigraphic Surfaces

Gaskill 2-A, 6000.5'

Maximum Flooding Surface 1

Fretz 16-1, 5429'

Sequence Boundary 1

Incised-Valley 1

Overlying Mississippian carbonates, Incised Valley 1 is part of sequence 1, the oldest Morrow depositional Sequence.

Location: SW of study area.

Dimensions: 120 km long x 55 km wide.

Thickness: Thickens to south and west, up to 84 meters.

Trend: NW-SE.

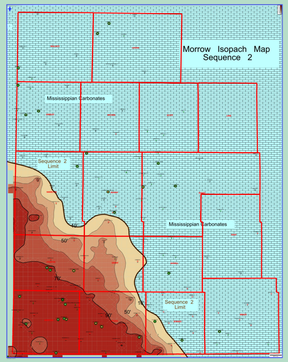
Three facies fill Sequence 1, (from bottom to top):

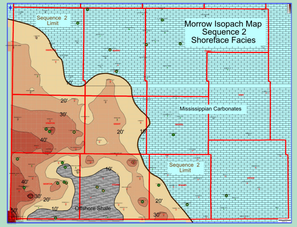
1) **Fluvial**, deposited directly above Mississippian carbonates; thickens to west up to 34 meters.

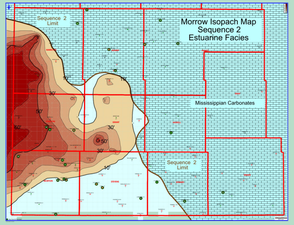
2) **Estuarine**, thickens to south up to 25 meters.

3) **Marine Shoreface**, thickens to south up to 46 meters.

Sequence 2







Sequence Stratigraphic Surfaces

Breeding Gas Unit F-1, 5231.8'

Maximum Flooding Surface 2

Breeding Gas Unit F-1, 5275'

Sequence Boundary 2

Sequence 2

Location: SW of study area.

Dimensions: 166 km in a NW-SE direction and 115 km SW-NE.

Thickness: Thickens to south and west, up to 33 meters.

Trend: NW-SE.

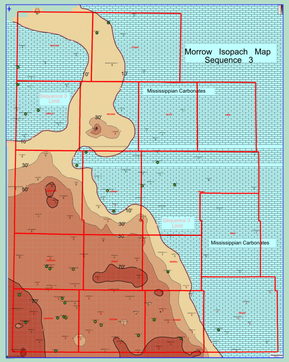
Facies:

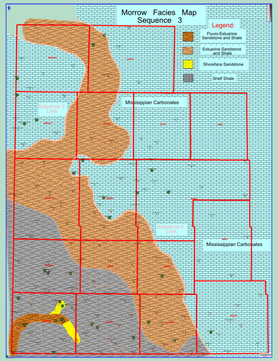
1) **Estuarine**, (TST) thickens to west up to 21 meters.

2) **Marine shoreface**, (TST) thickens to southwest up to 33 meters .

3) **Offshore shale**, (HST) thickens to west and south up to 10 meters.

Sequence 3





Sequence Stratigraphic Surfaces

Ellsaesser 1, 5312.5'

Flooding Surface

Ellsaesser 1,5332.4'

Sequence Boundary 3

Sequence 3

Location: SW and North Central part of study area.

Dimensions: 192 km in a NW-SE direction and 133 km SW-NE.

Thickness: Thickens to south and west, up to 30 meters.

Trend: NW-SE; N-S in north part of the area .

Facies:

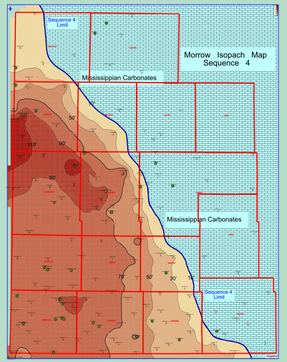
1) **Estuarine**, (TST) is found in north and central part of the area, up to 22 meters thick.

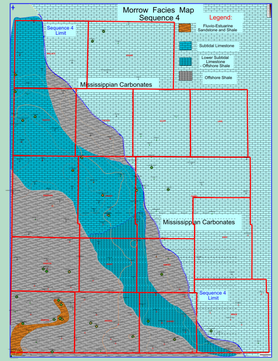
2) **Marine shoreface**, (TST) is located in SW part of the area, 3 meters thick .

3) **Fluvio-Estuarine**, (LST and TST) is in SW part of the area, up to 20 meters thick.

3) **Offshore shale**, (HST) thickens to west and south, up to 30 meters.

Sequence 4





Sequence Stratigraphic Surfaces

Rebecca K. Bounds 1, 5137.2'

Longwood Gas Unit 2, 4838.5'

Flooding Surfaces

Rebecca K. Bounds 1, 5221.6'

Longwood Gas Unit 2, 4904.5'

Sequence Boundary 4

Sequence 4

Location: Cover most of study area.

Dimensions: 270 km in a NW-SE direction and 145 km SW-NE.

Thickness: Thickens to west and south, up to 40 meters.

Trend: NW - SE.

Facies:

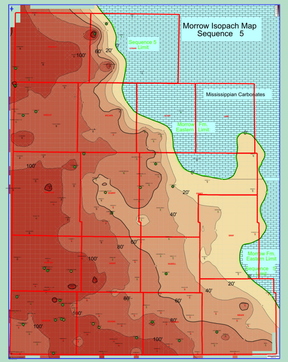
1) Low- energy open marine **subtidal carbonates** and minor paleosols, thickens to northwest up to 36 meters.

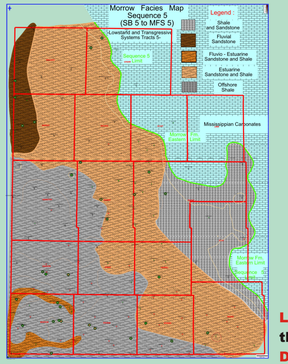
2) **Marginal Marine**, (interbedded silisiclastic estuarine and carbonates), up to 5 meters thick.

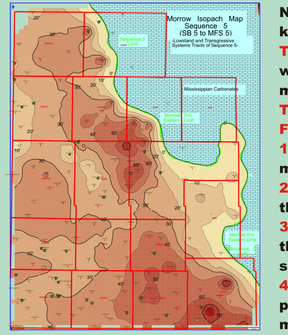
3) **Offshore Shale**, thickens to west and south, up to 28 meters.

4) **Fluvio-Estuarine**, in SW part of the area, up to 10 meters thick.

Sequence 5

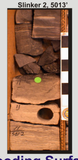






Sequence Stratigraphic Surfaces

Slinker 2, 5013'



Flooding Surface

Slinker 2, 5027.1'

Sequence Boundary 5

Sequence 5

Location: Covers totally the study area.

Dimensions: 270 km in a NW-SE direction and 217 km SW-NE.

Thickness: Thickens to west and south, up to 34 meters.

Trend: NW - SE.

Facies:

1) **Estuarine**, up to 20 meters.

2) **Fluvial**, in NW part of the area, up to 6 meters.

3) **Offshore Shale**, thickens to west and south, up to 34 meters.

4) **Fluvio-Estuarine**, in SW part of the area, up to 10 meters.