



# STONEWALL and STONY MOUNTAIN (GUNTON) SUMMARY

## DRILL STEM TESTS AND PRODUCTION MAPPING

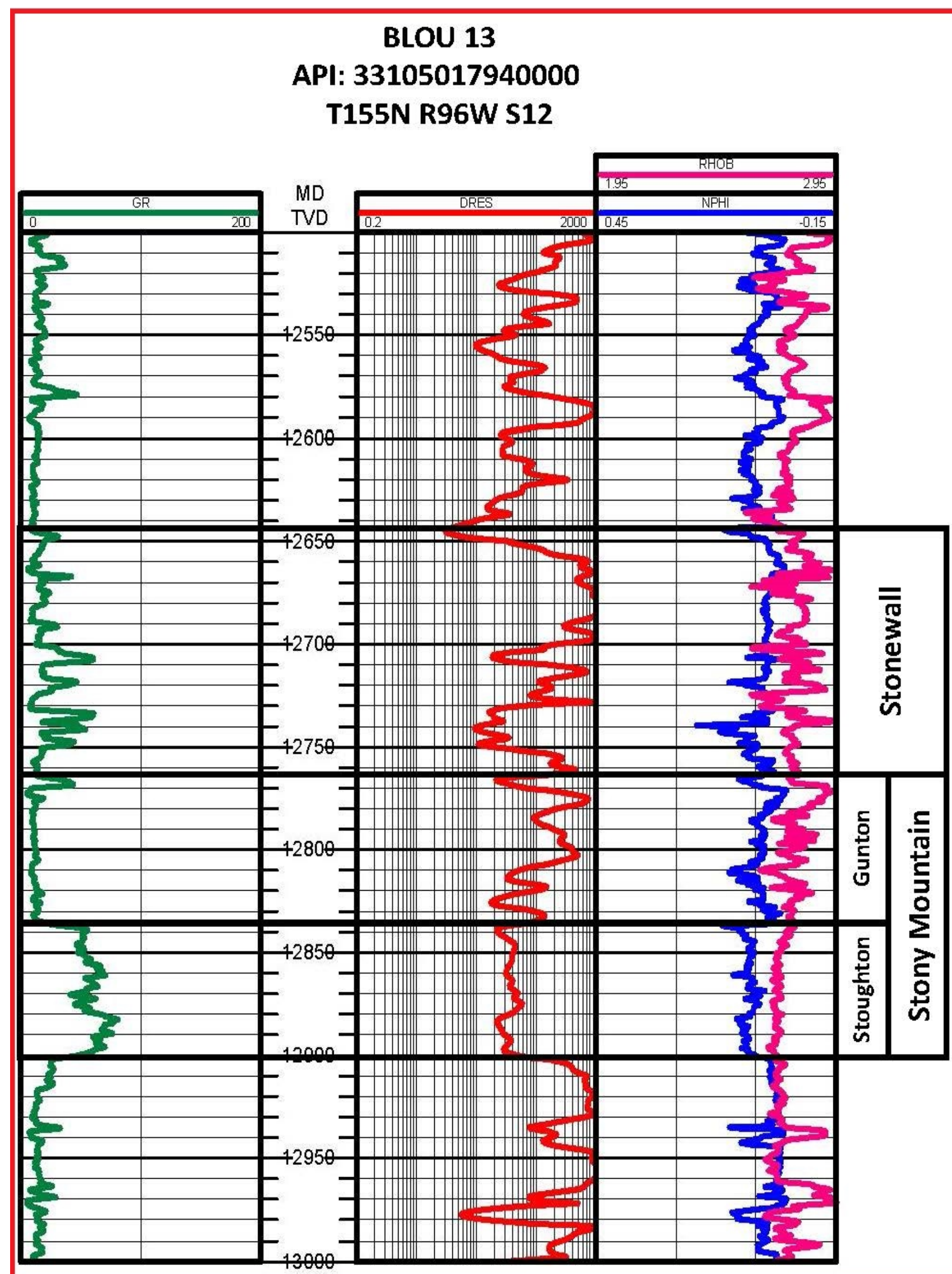
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2020

In order to better facilitate petroleum exploration and development in the Williston Basin, the North Dakota Geological Survey (NDGS) has published a series of production-related maps and corresponding data sets. These maps sets include production and drill stem test (DST) results with an accompanying spreadsheet for easy data extraction. The primary goal of this project is to create a database showing the distribution of hydrocarbons within each productive unit.

Prior to this project, over 55% of the DST results in the state did not have an associated geologic interval. The NDGS utilized a series of filters in Petra and Excel to unite formation tops with DST results. Now over 95% of DST results are associated with a geologic interval. After removing failed (misrun) DSTs, the remaining DST results were then separated into three groups. The first group (Positive DSTa) contains wells that have recovered oil or gas (in either the drill pipe or the sampler), or those that list oil or gas as the primary component of the fluid/gas mixture (e.g. 10' mud cut oil) in the description. Secondly, Positive DSTb wells display results for oil or gas as the secondary component of the fluid/gas mixture (e.g. 50' gas cut mud). Although Positive DSTb wells do show signs of hydrocarbons, the hydrocarbon signal is considered weaker than those in the Positive DSTa group. Lastly, the Negative DST results have no indication of hydrocarbons. Detailed information for each DST (time-pressure data, interval depths, fluid and gas recovery information) can be accessed through the well file database maintained by the North Dakota Industrial Commission (NDIC) Oil and Gas Division.

Production for each well was determined using the NDIC's Production Pools and associated monthly production totals. The production pools utilized are shown on the Production Map for each interval. Cumulative production for each well was calculated through September 2019.

This project is a summary of the Stonewall and Stony Mountain Formations' production and drill stem test results. Map sets include a production map, cumulative production map and DST results in North Dakota's portion of the Williston Basin. The Stonewall and Stony Mountain Formations are highlighted by the red box on the North Dakota Stratigraphic Column on the left. A representative log of the Stonewall and Stony Mountain Formations is shown below along with a map showing the well's approximate location.

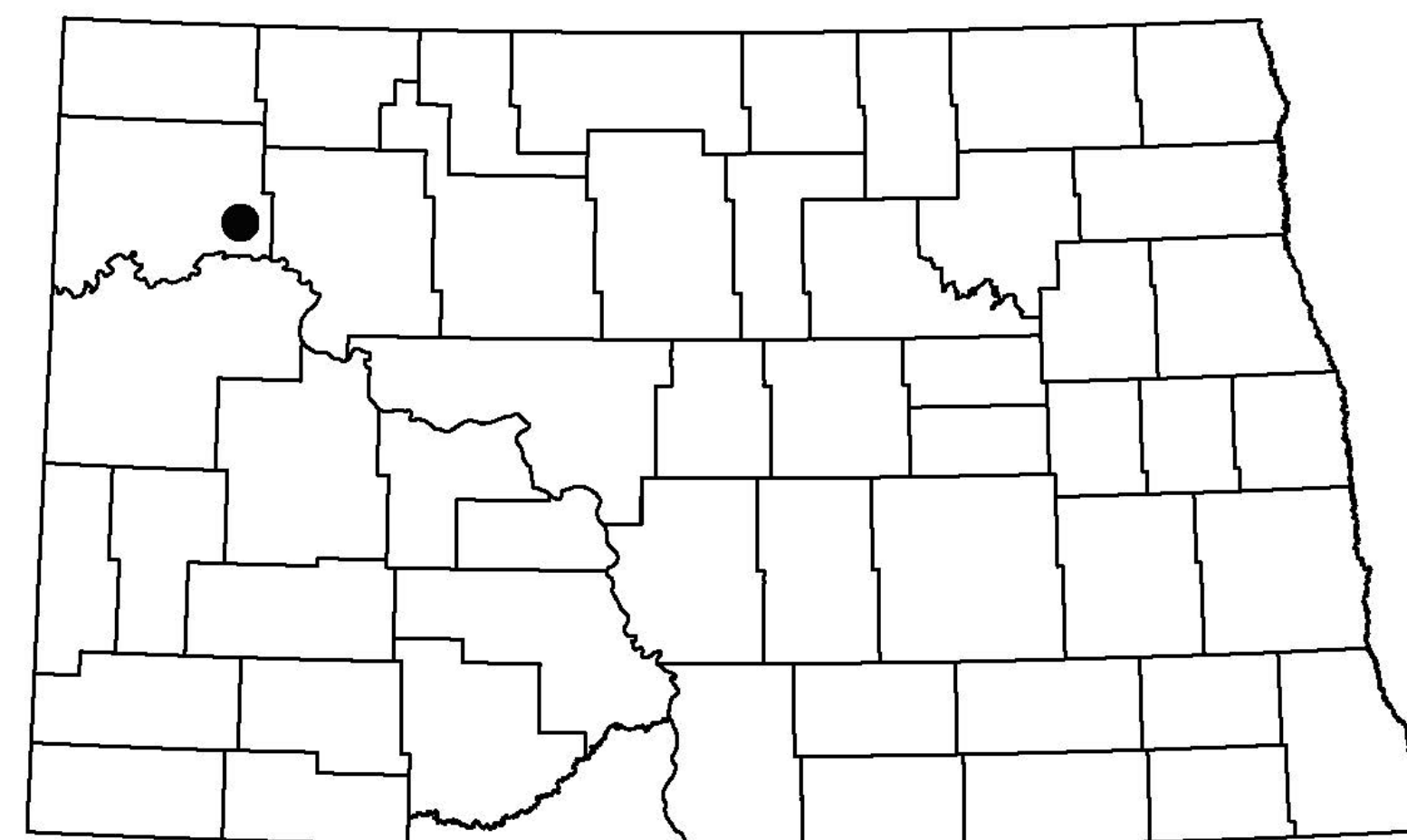


The Stony Mountain formation is separated into two members. The Gunton Member is the primary hydrocarbon reservoir of the Stony Mountain Formation.

### References

- Murphy, E.C., Nordeng, S.H., Juenker, B.J., and Hoganson, J.W., 2009, North Dakota Stratigraphic Column, North Dakota Geological Survey, MS-91, 1p.
- North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Statistics, retrieved October 2019, <https://www.dmr.nd.gov/oilgas/>

### NORTH DAKOTA LOCATION MAP

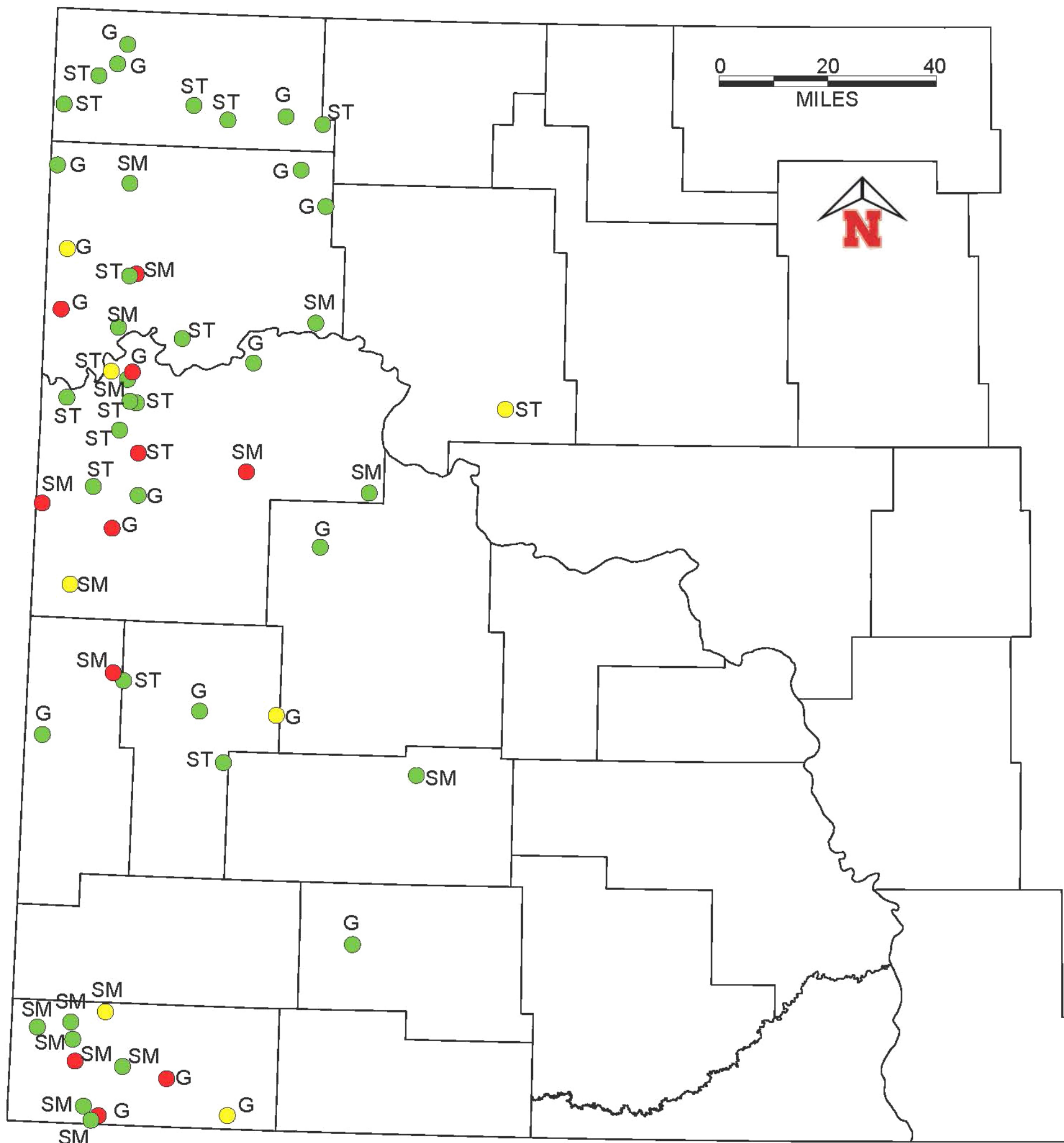



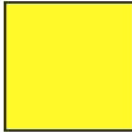

AGE MILLIONS OF YEARS BEFORE PRESENT	ERATHIEM	SYSTEM	SEQUENCE	ROCK UNIT		
				GROUP	FORMATION	MEMBER
0.01	QUATERNARY	Holocene	TEAMS	OAHE	RIVERDALE PICK CITY AGUE BROWN MALLARD ISLAND	RED RIVER VALLEY
		Pleistocene		COLEHARBOR	ROCKWELL POPULAR RIVER BRENDA FALCONER BROOK SAGEWIND SNOW SCHOOL DAMEL HORNED VALLEY MORRISON HILLS MEDICINE HILL	ST. BELLAIRE CHALSY BUTTE MADISON ST. BELLAIRE MADISON
				(Unnamed Unit)		
2.6	INDIGENE	Pliocene	TEAMS			
5.3		Miocene				
23.0		Oligocene		WHITE RIVER	BRULE	
35.5	CENOZOIC	Eocene	TEAMS			
55.8						
65.5	TERTIARY PALEODIENE	Paleocene	ZUNI			
65.5	CRETACEOUS	Upper	ZUNI			
99.6	MESOZOIC	Lower	ZUNI			
145.5	JURASSIC		ZUNI			
201.6	TRIASSIC		ZUNI			
251.0	PERMIAN		ABSAROKA			
299.0	PENNSYLVANIAN		ABSAROKA			
318	CARBONIFEROUS MISSISSIPPIAN		ABSAROKA			
359	DEVONIAN		KANSASIA			
416	SILURIAN		KANSASIA			
444	ORDOVICIAN		TIPPECANOE			
488	CAMBRIAN		SAUK			
542	PRECAMBRIAN		STRUCTURAL PROVINCES			



# GUNTON, STONY MOUNTAIN AND STONEWALL DRILL STEM TEST RESULTS

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-  **POSITIVE DSTa**
  - (1) Oil or gas recovered in sampler and/or pipe (e.g. 275' Free Oil)
  - (2) Description with oil or gas as the primary component of fluid/gas mixture (e.g. 150' mud cut Oil)
-  **POSITIVE DSTb**
  - (1) Description with oil or gas as the secondary component of fluid/gas mixture (e.g. 150' Gas cut mud)
  - (2) Hydrocarbons present but a weak indication in DST
-  **NEGATIVE DST**
  - (1) No Oil or Gas reported

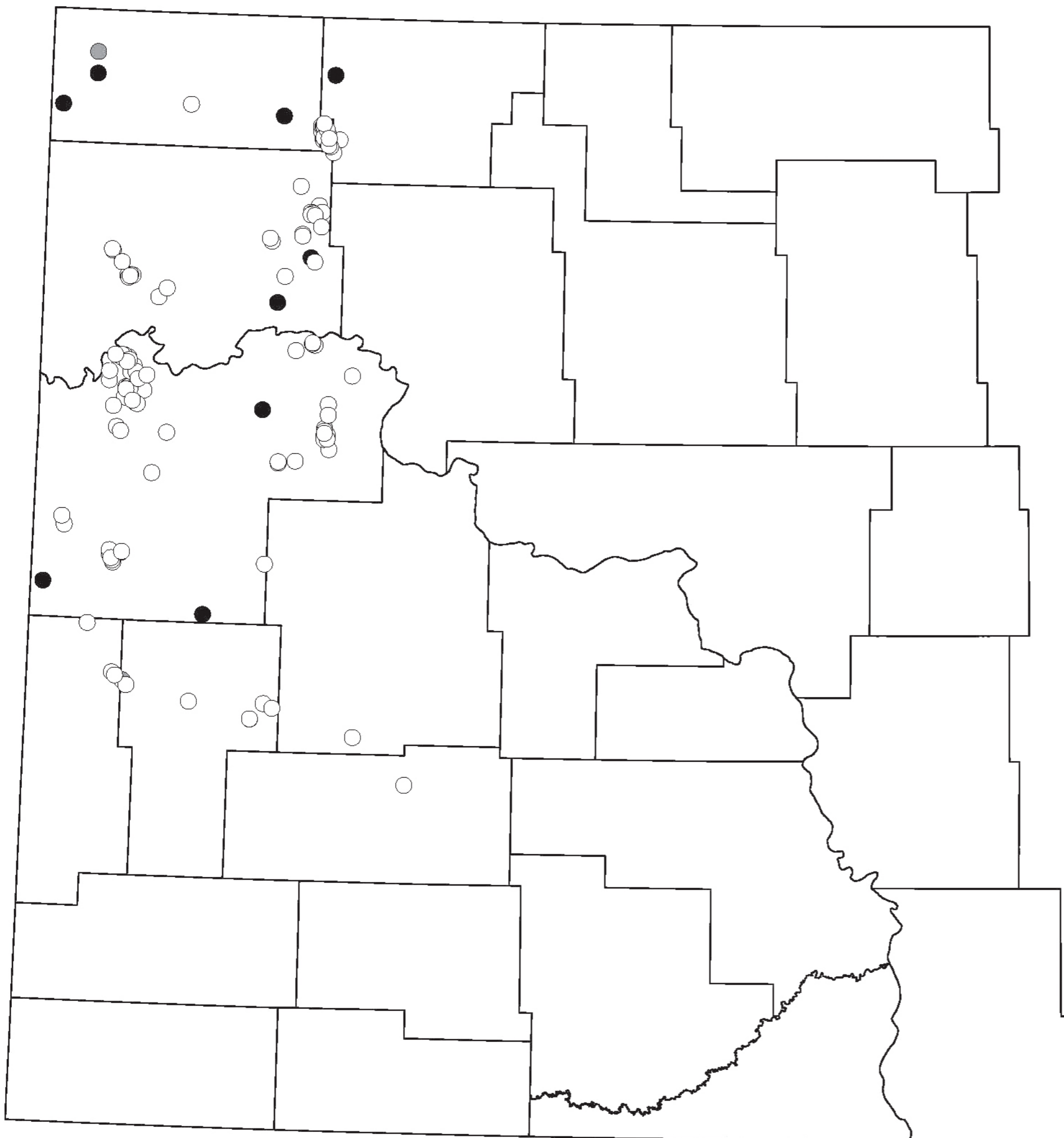
## MAP ABBREVIATIONS




G - GUNTON DST  
SM - STONY MOUNTAIN DST  
ST - STONEWALL DST



# GUNTON, STONY MOUNTAIN AND STONEWALL OIL PRODUCTION

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-  Gunton Production
-  Stonewall Production
-  Stony Mountain Production

## NDIC Production Pools Utilized

Stonewall  
Stony Mountain  
Gunton





# GUNTON, STONY MOUNTAIN AND STONEWALL CUM OIL PRODUCTION

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