

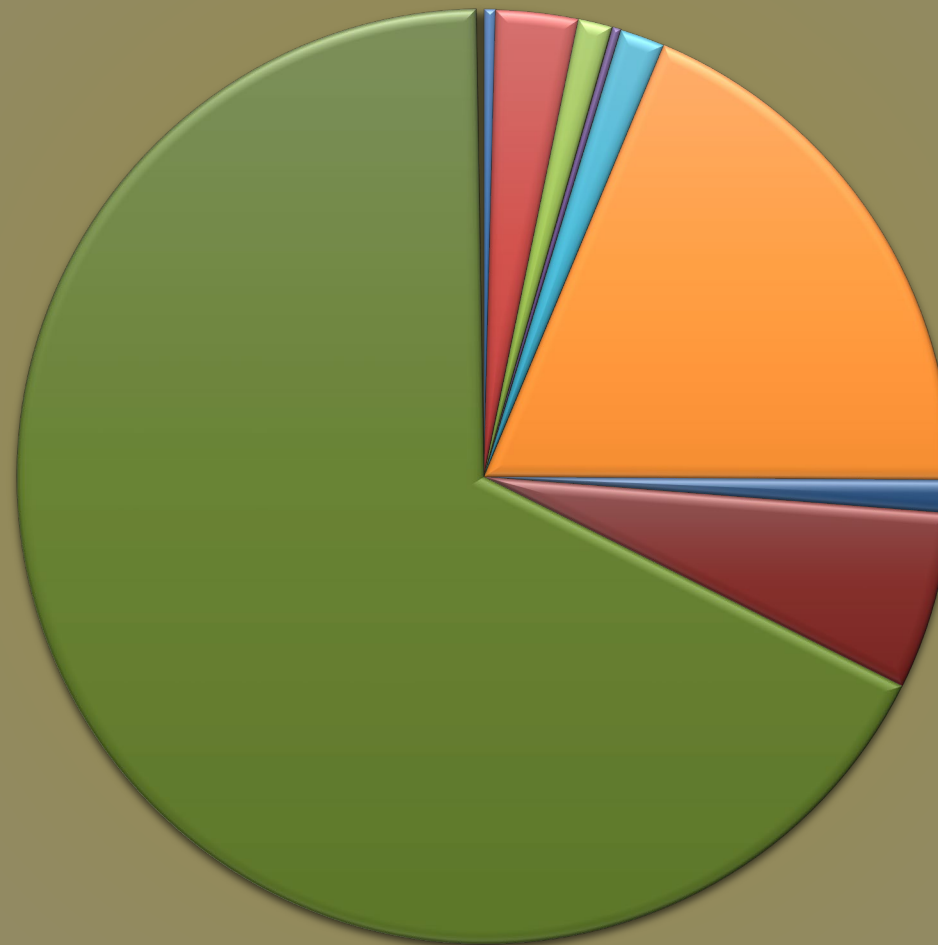


Maximizing Lateral Well Oil
Production from
Conventional Carbonate
Mission Canyon Reservoirs
in North Dakota

OGRP Review
January 24, 2025
Bismarck, ND

North Dakota Cumulative Oil Production By Formation

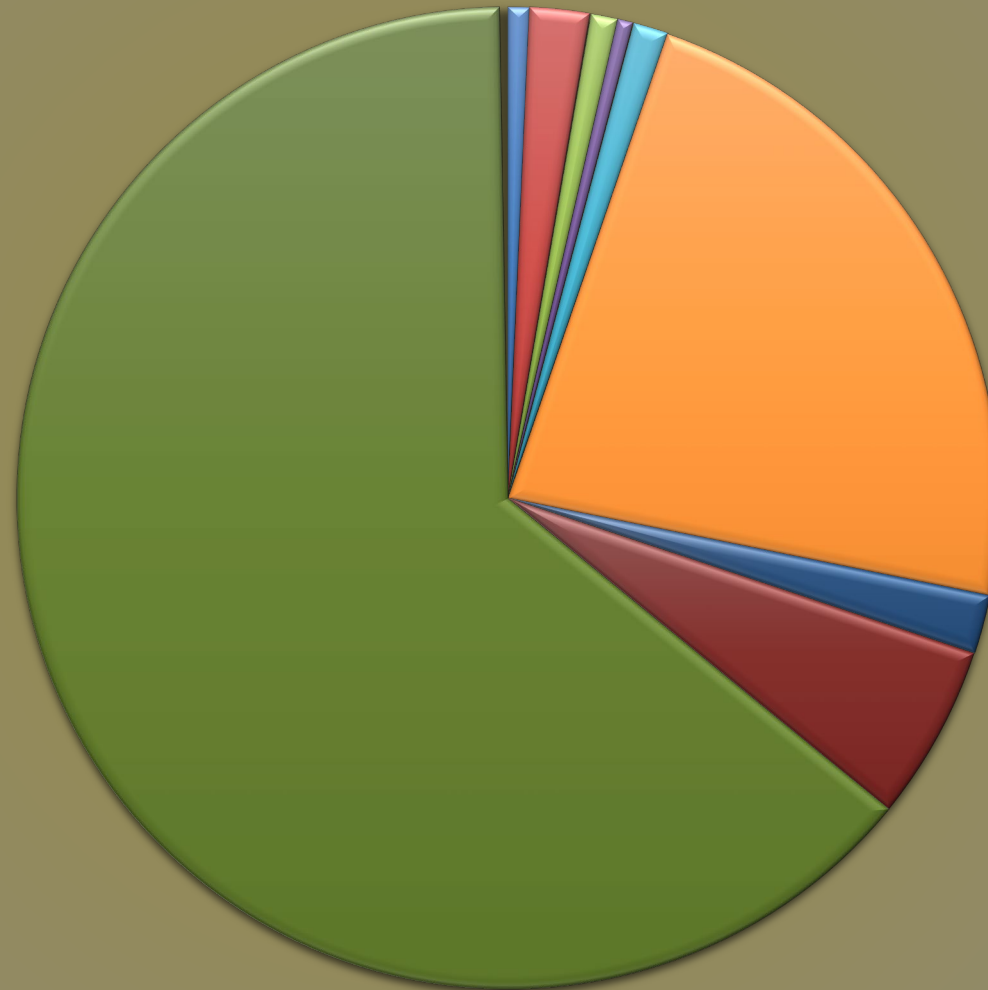
**5,567,590,678
Barrels of Oil**



- BIRDBEAR
- DEVONIAN-DUPEROW
- SILURIAN
- STONEWALL
- TYLER/HEATH
- MADISON GROUP
- SPEARFISH/MADISON
- RED RIVER GROUP
- BAKKEN/THREE FORKS
- DAWSON BAY
- WINNIPEGOSIS

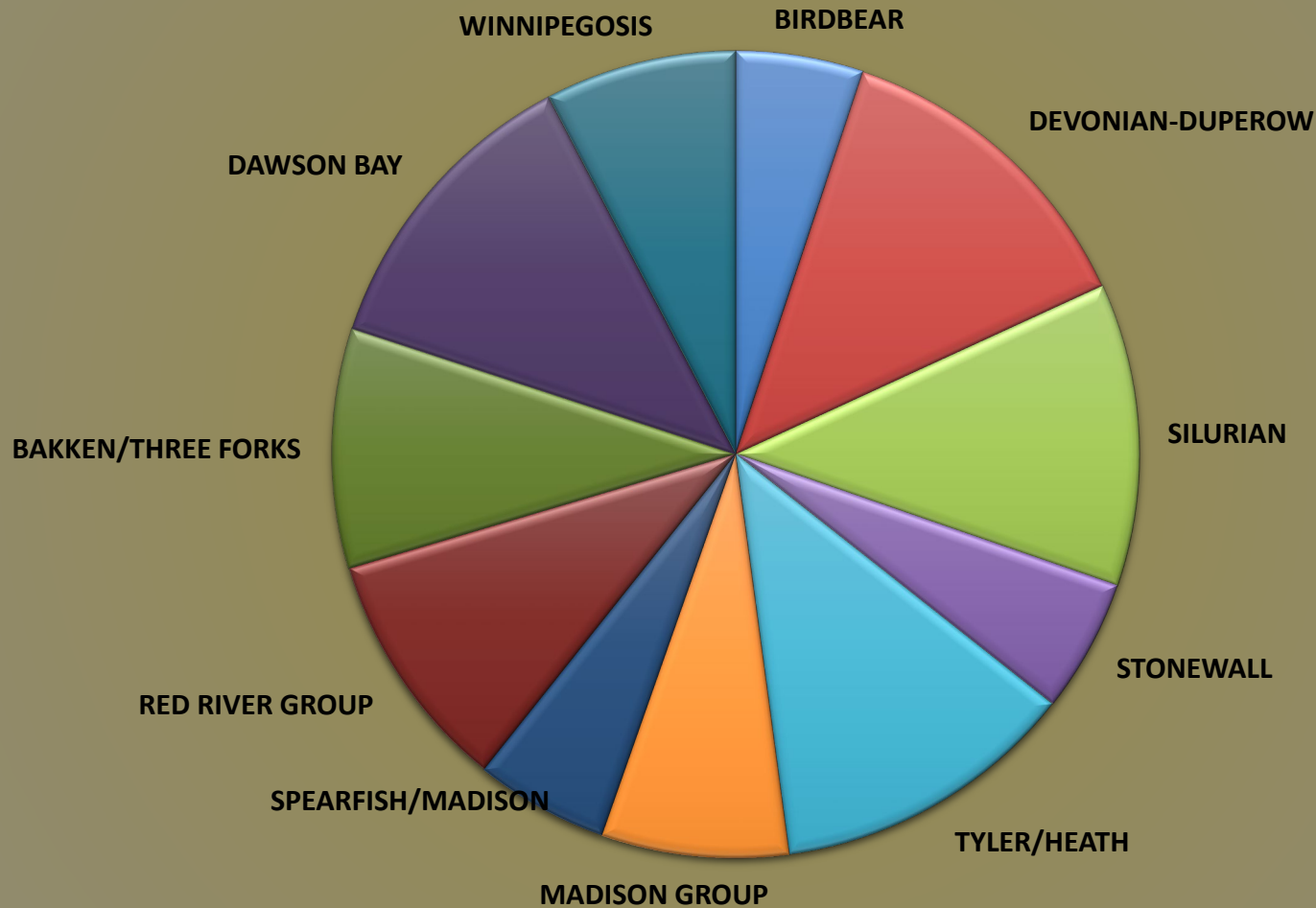
North Dakota Total Well Count By Formation

25,146
Total Wells



- BIRDBEAR
- DEVONIAN-DUPEROW
- SILURIAN
- STONEWALL
- TYLER/HEATH
- MADISON GROUP
- SPEARFISH/MADISON
- RED RIVER GROUP
- BAKKEN/THREE FORKS
- DAWSON BAY
- WINNIPEGOSIS

North Dakota Cumulative BO/Well By Formation



-  BIRDBEAR
-  DEVONIAN-DUPEROW
-  SILURIAN
-  STONEWALL
-  TYLER/HEATH
-  MADISON GROUP
-  SPEARFISH/MADISON
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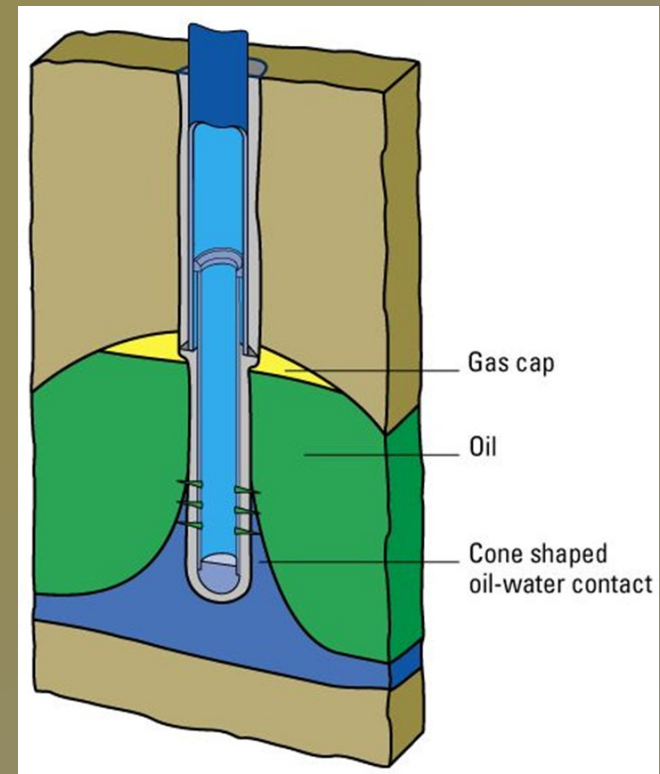


Proposal Overview

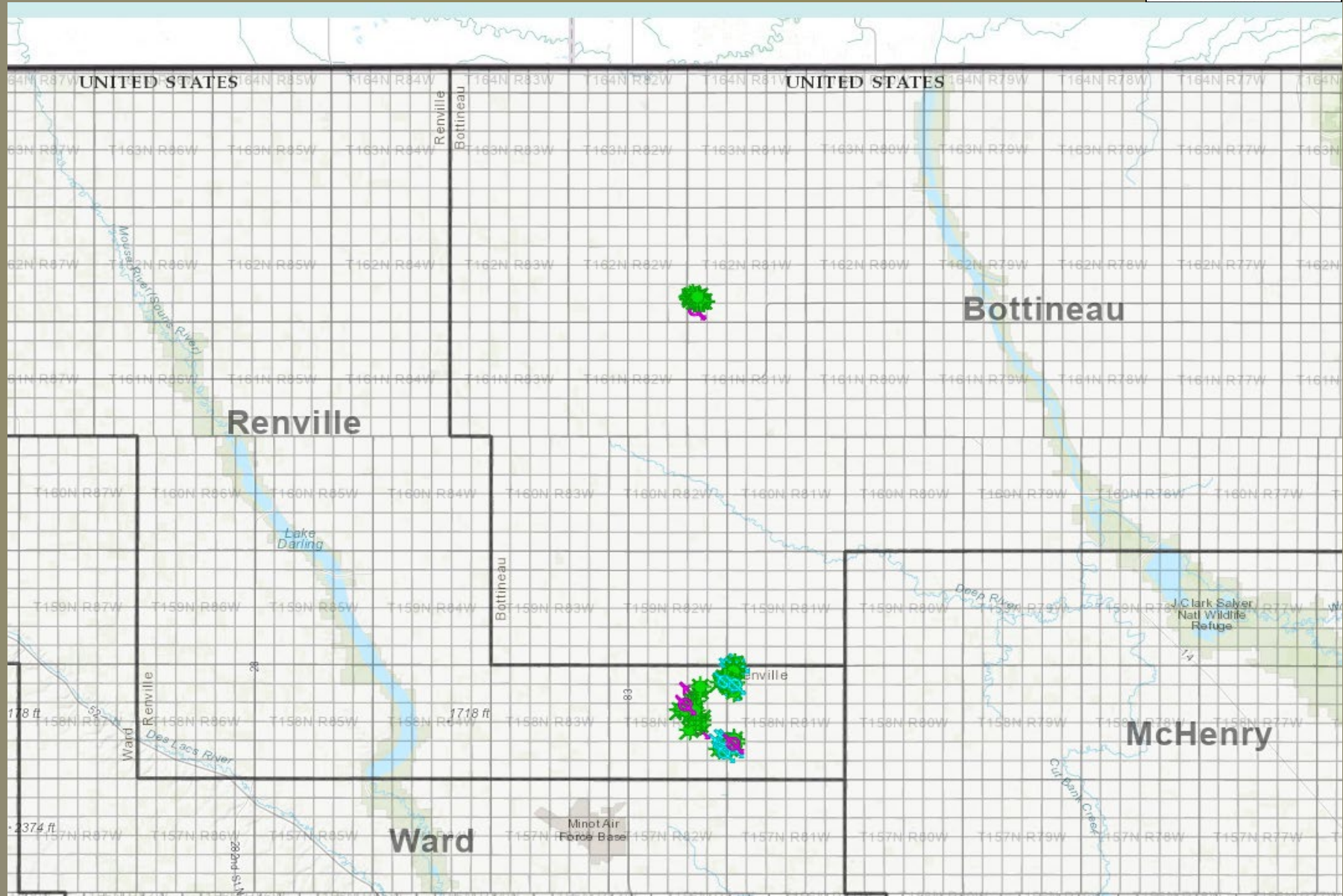
- Operating water driven carbonate reservoirs are challenging without:
 1. Understanding producing reservoir geology and petrophysics
 2. Monitoring reservoir pressure
 3. Water coning mitigation
 4. Adequate fluid handling
- The subject proposal's intent is to understand the Wayne Field reservoir through modeling and collection of data to increase lateral productivity.
- Our hypothesis is that water cone mitigation by using a liner and open hole sliding sleeves/packers will increase lateral effectiveness through strategically segmented take points over open hole completion. Making the lateral more productive by accessing stranded reserves.

Water Coning

- Water Cone – the vertical change in an oil water contact profile (OWC) as a result of drawdown pressure during production.
- Coning is typically associated with water driven reservoirs or water assisted reservoirs with an apparent OWC. Coning can shorten economic well life & result in bypassed reserves.
- Critical Flow Rate – maximum production rate without water break through.



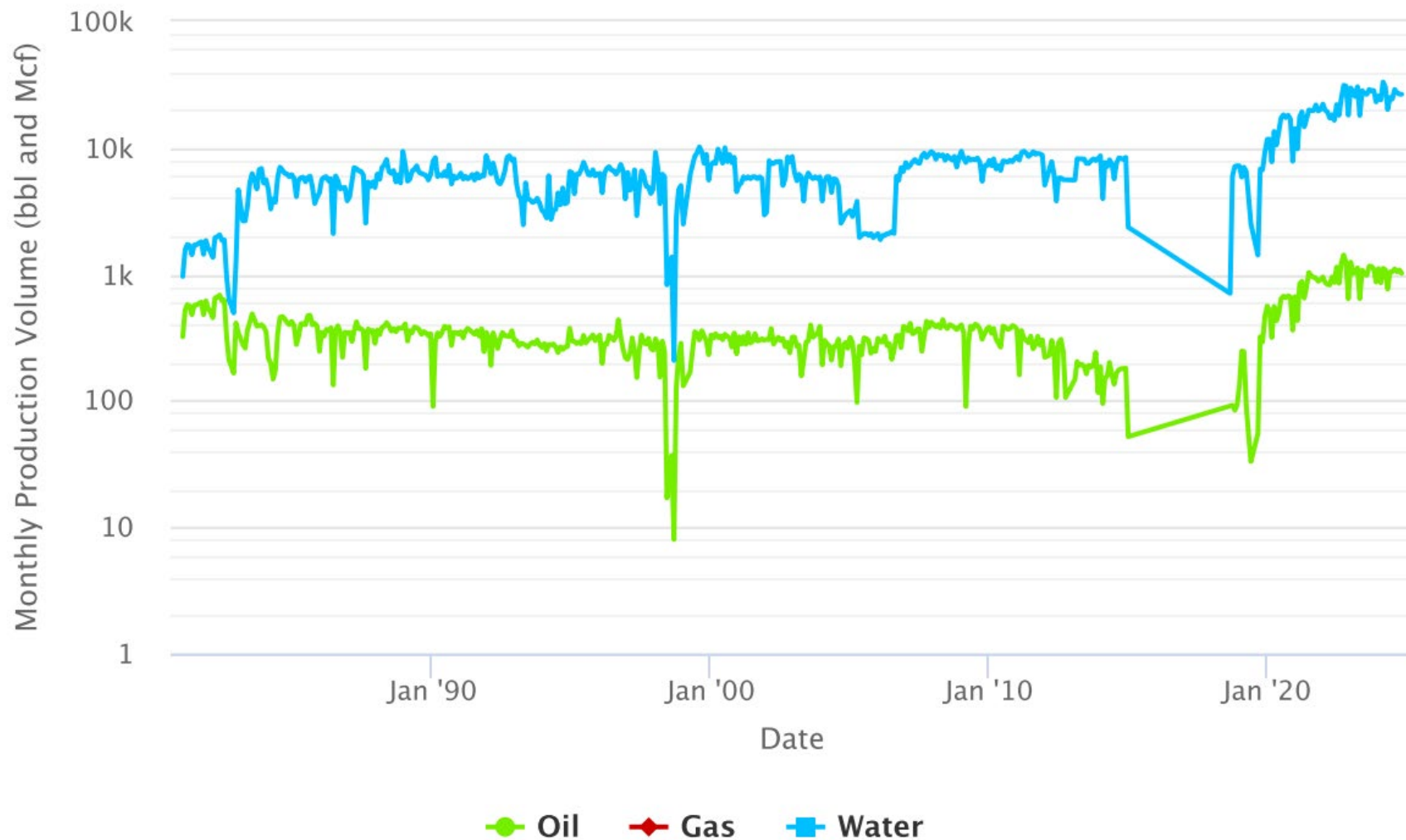
Wayne Field to Glenburn Field



L Weber 3 (Glenburn Field)



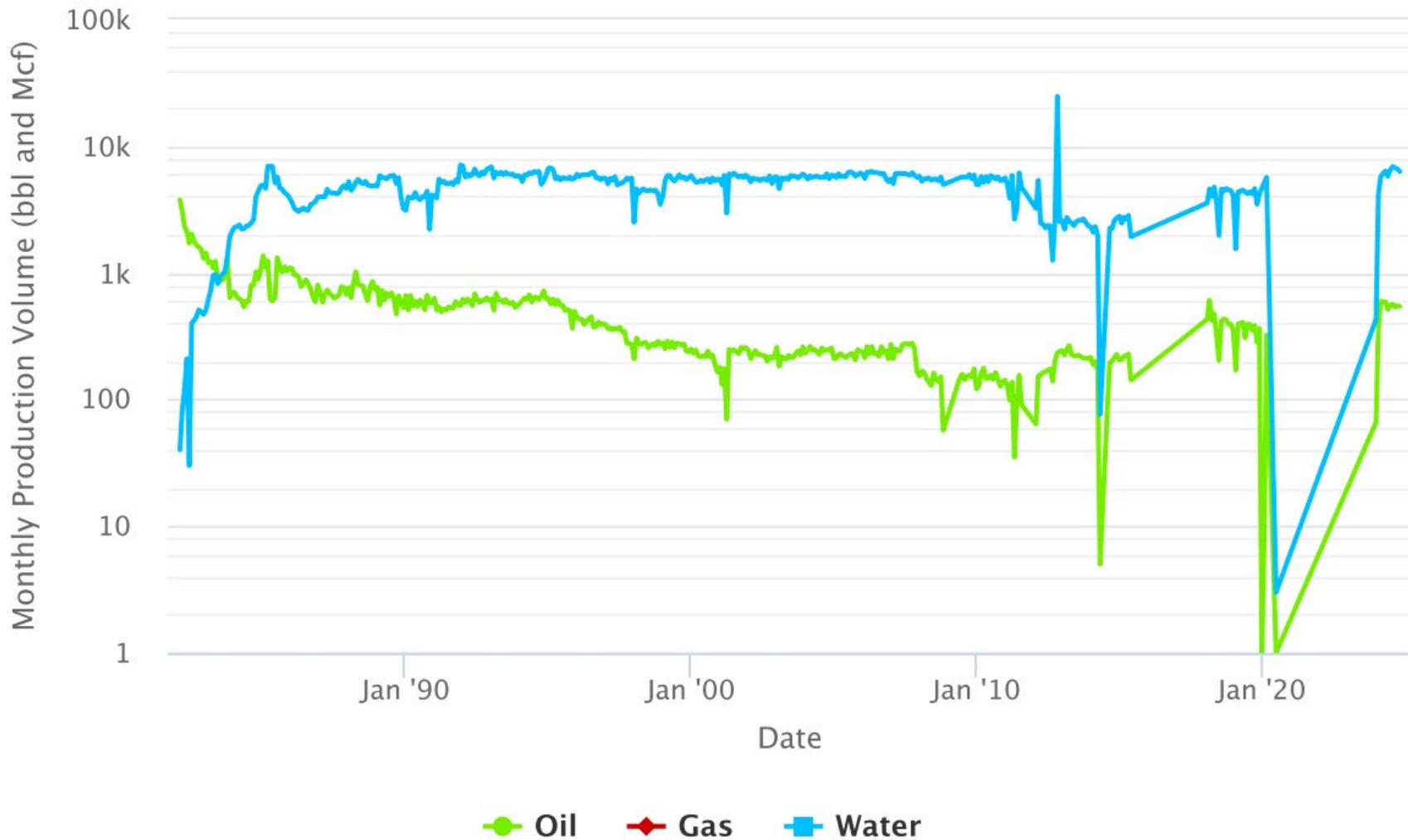
Monthly Production



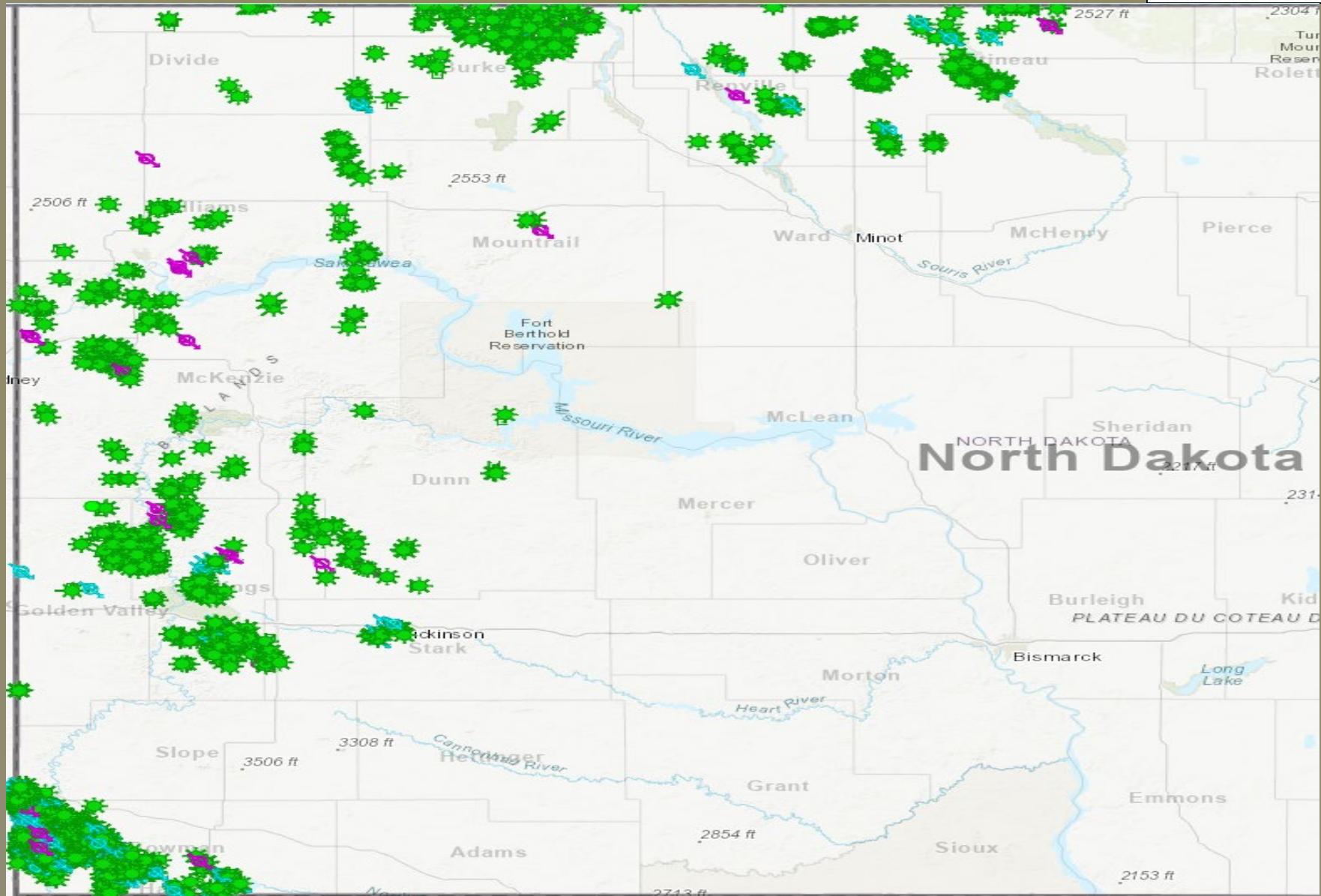
Hedges 6 (Wayne Field)



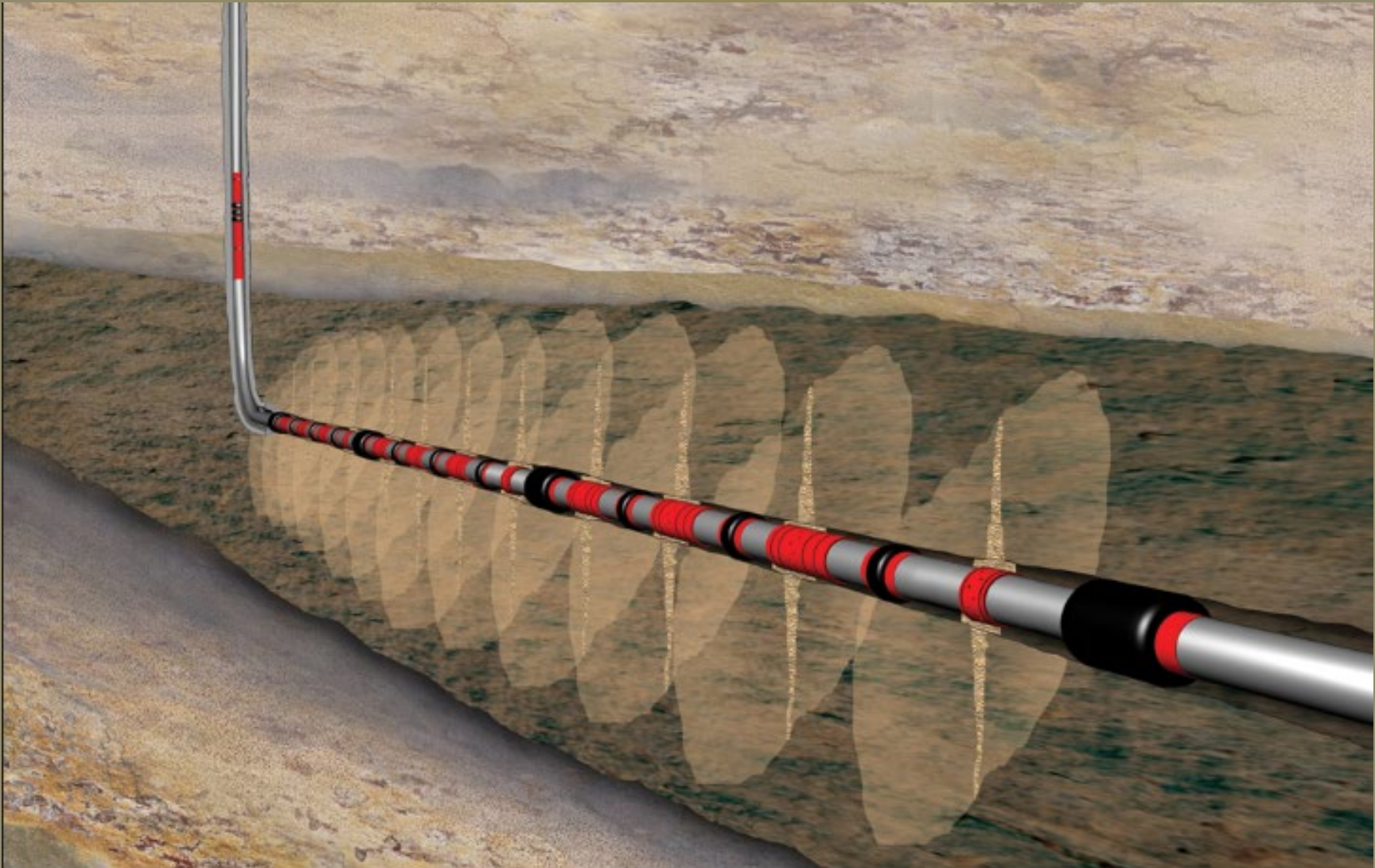
Monthly Production



Conventional Horizontals



Liner BHA & Operation





Wayne Field Success

- By Cobra Oil & Gas Corp. bonding & assuming operations of Wayne Field, the State of ND saved >\$1.1MM in plugging in reclamation expenditures.
- Cobra Oil & Gas Corp. operates 96 open hole horizontal Madison wells in 6 counties.
- Statewide there are \approx 840 unplugged open hole horizontal Madison wells in 12 counties.
- If only 100 of those 840 wells yield an additional 100,000 BO each by using research generated from Cobra/EERC projects, that equates to an additional 10,000,000 BO that wouldn't have been recovered.
- Standards of success should be considered to be: Increasing oil production, increasing oil cut, decreasing production decline. Each of these factors will extend economic life of applicable project wells.

THANK YOU!!!



THE FUTURE'S SO BRIGHT

