PRODUCTION
GAS CAPTURE
SPILL REPORTING
ROYALTY STATEMENTS
ORDINARY HIGH WATER MARK SURVEY

Raising the bar in 2018
North Dakota Average Monthly Rig Count

Record High: 218 Rigs  
May 2012

Current: 67 Rigs  
July 2018
North Dakota Average Monthly Rig Count

- Rig Count
- ND Sweet Oil Price
- Spuds / Month / Rig

- 1.70 Spuds/ Month/ Rig May 2018
- .92 Spuds/ Month/ Rig May 2012
Rigs
# Wells

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>14,755</td>
</tr>
<tr>
<td>Conventional</td>
<td>1,959</td>
</tr>
<tr>
<td>Bakken/Three Forks</td>
<td>12,796</td>
</tr>
<tr>
<td>Inactive</td>
<td>1,569</td>
</tr>
<tr>
<td>Waiting on Completion</td>
<td>955</td>
</tr>
<tr>
<td>Permitted</td>
<td>1,878</td>
</tr>
<tr>
<td>Increase Density</td>
<td>13,084</td>
</tr>
<tr>
<td>Total</td>
<td>32,241</td>
</tr>
<tr>
<td>Estimated Final</td>
<td>55,000-65,000</td>
</tr>
</tbody>
</table>
Rig & Well Counts

North Dakota Wells Producing

16,762 Wells Capable of Producing
May 2018

14,755 Wells Producing
May 2018
Oil & Gas Production

North Dakota Daily Oil Produced and Price

All-time high
1,244,629 barrels/day
May 2018
North Dakota Monthly Gas Produced and Price

All-time high
71,881,378 MCF
2,318,754 MCF/day
May 2018
Enhanced Oil Recovery (EOR)

- Injection of fluids or gasses into reservoir to “push” the additional oil and/or natural gas that was difficult or did not initially product to surrounding wells.
Enhanced Oil Recovery (EOR)¹

- EOG is the 1ˢᵗ company to say it has significantly increased oil production from an unconventional play using gas injection.

- Field tests since program started in 2013:
  - The production increases on 15 wells indicated from 30-70% reserve gains.
  - A 32-well test in 2016 added 300,000 bbl of oil at $6/bbl finding cost.
  - Work is ongoing on 100 wells in six areas in 2017.

¹ Source: EOG
Enhanced Oil Recovery (EOR)\(^1\)

**Inputs and Outputs**
- Additional capital costs average about $1 million per well
- The process uses associated gas from its wells
- Production response is in 2-3 months
- $1 invested adds $2 to net present value

**It Works if:**
- The formation is able to contain high-pressure gas injection near the well.
- Wellbores contact the most productive rock.
- The completion maximizes the fractured area within a restricted zone around the wellbore.

\(^1\) Source: EOG
Big Butte
Bear Creek
McGregor
Red Wing Creek
Red Rock
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Raising the bar in 2018
Gas Performance

Reference: JJ Kringstad – North Dakota Pipeline Authority
Gas Production Forecast

Reference: JJ Kringstad – North Dakota Pipeline Authority
Gas Capture Policy

NDIC Order 24665

Policy Goals

• Reduce flared volume of gas
• Reduce number of wells flaring
• Reduce the duration of flaring from wells

Visit Us: www.dmr.nd.gov
Gas Capture Policy

NDIC Order 24665

Policy Goals

• Reduce flared volume of gas
• Reduce number of wells flaring
• Reduce the duration of flaring from wells

Current Goal 85% Captured

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Gas Capture Policy

NDIC Order 24665

Policy Goals

- Reduce flared volume of gas
- **Reduce number of wells flaring**
- Reduce the duration of flaring from wells

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Gas Capture Policy

NDIC Order 24665
Policy Goals

- Reduce flared volume of gas
- Reduce number of wells flaring
- Reduce the duration of flaring from wells

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74% Oct 2014-Dec 2014
77% Jan 2015-March 2016
80% April 2016-Oct 2016
85% Nov 2016-Oct 2018
88% Nov 2018-Oct 2020
91% Nov 2020
Gas Capture Policy

What’s Next?

- New Gas Processing Infrastructure:
  - Oasis, Liberty Midstream, and Targa/Hess capacity to come in 2018

- Production Restrictions:
  - 200 bbls/day meeting at least 60% capture
  - 100 bbls/day restrictions on all other wells

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Gas Processing Plants
PRODUCTION
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Raising the bar in 2018
Unified Spill Reporting

Current Process

• Multiple places to submit forms

• Confusion among operators and public
Unified Spill Reporting

**Improvement Goals**
- One stop location for reporting
- Information sharing between agencies & databases
PRODUCTION
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Raising the bar in 2018
Royalty Statements

North Dakota Administrative Code: 43-02-06-01

Royalty Owner Information Statement

• **Price**: Addition of natural gas liquids to the price breakdown.

• **Deductions & Adjustments**: Will be broken into two sections
  • Adjustments: The amount and purpose of each adjustment or correction made
  • Deductions: The amount and purpose of each deduction separated into four categories:

Changes effective: July 1, 2019

• DMR completing compliance reviews – at this time none meeting impending requirement.
Royalty Statements

North Dakota Administrative Code: 43-02-06-01.1
Ownership Interest Information Statement

• Operator or payor shall provide the mineral owner with a statement identifying:
  • Spacing unit for the well (AND the effective date of the spacing unit change if applicable);
  • the net mineral acres owned by the mineral owner;
  • the gross mineral acres in the spacing unit; and
  • the mineral owner’s decimal interest that will be applied to the well.

• Statement will be sent within 120 days after the end of the month of the first sale of production from a well OR change in the spacing unit of a well.

Changes effective: July 1, 2019
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Raising the bar in 2018
April 21, 2017
• Legislature passes & Governor signs Senate Bill 2134

April 17, 2017
• Wenck study Ordinary High Water Mark of the Missouri River Bed Review released

June 20, 2018
• Written public comment period closed

June 26, 2018
• Public hearing
• 1,435 pages of written comments submitted by 26 entities.
• 11 representatives commented during the public hearing.

• …recommendation for calculating the acreages that are above and below the ordinary high water mark.
• …clarification of ownership of islands formed on the bed of the Missouri River after statehood.
• …redefining land labeled “flooded land” which was once used for ranching operations
Department of Mineral Resources and Wenck review comments and develop final recommendation to Industrial Commission.

Industrial Commission to adopt or modify recommendations.

Industrial Commission’s findings to determine the delineation of the ordinary high water mark for the segment of river addressed.