Changing Dynamics of Oklahoma Oil & Gas Development
The Agency was established by the Oklahoma Constitution at statehood (1907).

Commissioners, elected statewide, head the agency.

About 400 employees, 2 main offices, 4 field offices.

The Oklahoma Corporation Commission (OCC) has regulatory powers over:

- Transportation
- Oil and gas
- Petroleum storage tanks
- Public utilities
OKLAHOMA CORPORATION COMMISSION
Jurisdiction

Electric utility companies
Gas utility companies
67 Telephone companies
0 Water companies
5 Cotton gins
000 Oil and gas well operators
81 Natural gas pipeline operators and 21 hazardous liquid pipeline operators operating over 40,000 miles of pipeline
4 Railroads with over 4,100 public at-grade crossings
473 For-hire and private motor carriers authorized to operate in intrastate commerce
2,150 Petroleum storage tanks currently in use
743 Owners of 2,925 active retail fueling stations
Oil and Gas Division
District Offices
<table>
<thead>
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<td>Plugged and abandoned wells</td>
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<td>Total wells drilled in history</td>
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<td>Active operators</td>
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<tr>
<td>Miles of pipelines</td>
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<tr>
<td>Pipeline operators</td>
<td>~257</td>
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Oklahoma Oil and Gas Production
(1900 - 2011)

Cumulative Production
(1900 – 2011)

Oil (BLLS):  14,982,947,921
Gas (BOE):  18,525,957,200
Total:       33,508,905,121

*BOE = BLLS OF OIL EQUIVALENT
## Intents to Drill: 2008 – 2014 Comparison

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<th>Month</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<td>187</td>
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<td>6,220</td>
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Completions by Well Type

- **Dry**: 7, 3, 4, 9, 3, 3, 5, 8, 11
- **Gas**: 61, 42, 33, 24, 42, 43, 39, 42, 42
- **Oil**: 183, 202, 180, 190, 159, 187, 169, 181, 173, 176

Year: 2013
Statewide OCC Well Completions
All OCC/IHS Wells 01/01/11-12/31/13
Oklahoma Corporation Commission
Horizontal Wells 01/01/11-12/31/13
Horizontal Completions

- Oil
- Gas
Hydraulic Fracturing
An accurate picture courtesy of Pinnacle

Woodford Shale (OK) Mapped Frac Treatments/TVD

Frac Stages [sorted on Perf Midpoint]
### STATE DISCLOSURE SUMMARY

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<th>MS</th>
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STATES REPORTING THROUGH FRACFOCUS

As of February 2014, fifteen states are using FracFocus for regulatory reporting:

Alabama
Colorado
Kansas
Louisiana
Mississippi
Montana
North Dakota
Ohio

Oklahoma
Pennsylvania
South Dakota
Tennessee
Texas
Utah
West Virginia
Welcome to FracFocus 2.0! We’re excited about our latest upgrades designed to dramatically enhance the site’s functionality for the public, state regulatory agencies and industry users. Our user-friendly ‘Find A Well’ chemical disclosure registry now includes more extensive search options.

FracFocus continues to evolve and expand, adding more participating companies and reported wells from across the country. Our continued success is the result of nationally recognized organizations working with state governments and the oil and natural gas industry to provide public transparency.

Looking for information about a well site near you?

Search for nearby well sites that have been hydraulically fractured to see what chemicals were used in the process.

FIND A WELL

FIND OUT MORE

TOTAL WELL SITES REGISTERED

6 8 3 1 4
Approximately 500,000 wells drilled more than 25 years ago, the Commission established ability to request/require reports and records on hydraulic fracturing/chemical treatment on any well. Cross references to rules regarding hydraulic fracturing:

- 8 hours advance notice of hydraulic fracturing required to be Conservation Division District Office or field inspector
- Horizontal wells hydraulically fractured on or after January 1, 2013 and other wells hydraulically fractured on or after January, 2014 required to be filed with FracFocus Registry
Approximately 5 acres in surface area

Water treatment of flow back water prior to input into pit

Devon Cana Project
Canadian County, OK
500,000 bbls
5 years/ $1M surety
24/7 security

60 Mil liner
Water Usage in Perspective

- Water Usage (x 1,000 gallons)

*Cultural Issues & Recommendations, OWRB, June 2011, p. 6

Woodford Shale Well: 7,518
Corn Circle Avg (126-ac): 57,480
OKC Daily Avg: 90,000
Growth by Water Use Sector (2010-2060)

- Irrigation = 25%
- Oil/Gas = 12%
- M&I = 28%
- Thermoelectric = 31%
Largest Water Demand Sector Growth (2010-2060)

Map of Oklahoma showing water demand growth by sector. The map is color-coded to indicate different growth percentages in various sectors. Key to map colors:

- Green: Crop Irrigation
- Light Blue: Municipal & Industrial
- Dark Blue: Oil & Gas
- Red: Self-Supplied Industrial
- Gray: Thermoelectric Power
- White: Counters

The map highlights specific counties with various growth percentages, indicating the areas with the highest water demand growth.
All Active Injection Wells Permitted at Greater Than 30,000 Bbls/day
Non-Commercial Disposal Wells
Oil and Gas Basic Applications

SPACING

VERTICAL UNITS

640

320 SU

160

SET BACK DISTANCES

HORIZONTAL UNITS

660 feet

330 feet

80 SU

80 LD

UNSPACED

640

320 SU

640 SU

Field Rules - Woodford Shale

Test

330 feet

165 feet
AC 165:10-3-28 (b)

5) **Completion interval** shall mean, for open hole completions, the interval from the point of entry to the terminus and, for cased and cemented completions, the interval from the first perforations to the last perforations.”
House Bill 1909
Shale Reservoir Development Act

provides two new tools for development of shale reservoirs:

1. Allows drilling of horizontal wells in shale reservoirs across existing unit boundaries, the costs, production and proceeds allocated to each of the affected units

2. Creates a new type of unit for horizontal shale development (a hybrid which incorporates portions of existing legal authority for drilling and spacing units and enhanced recovery units)

The new unit hybrid would be comprised of 2 governmental sections (i.e., 1,280 acres), but could be expanded up to 4 governmental sections under certain circumstances.

Creation of the new hybrid unit requires approval by 63% of working interest owners and 63% of the royalty owners in the proposed unit. (Analogous to the required approval for existing enhanced recovery units.)

To utilize either of these new tools, the applicant is required to submit a proposed plan of development for approval by the OCC and provide notice to all affected owners.

Amends Section 87.1 of Title 52 to clarify the ability to utilize irregular shaped units (e.g., 640-acre unit that is 1/2 mile wide by 2 miles long).

Amends Section 287.1 of Title 52 to clarify that enhanced recovery units are not available for any production (confirming a recent ruling by the OCC).

909 passed the House on March 17, 2011, by an 87-0 vote and the Senate by a 45-0 vote, and was signed by the Governor on April 13, 2011.
Multiunit Horizontal Well

The Act treats the lateral in each section as a separate well.

Example 6-1H(7) Well

4,500 feet

8,500 feet Total Completion Interval

Example 6-1H(6) Well

4,000 feet

52,941 mcf from Example 6-1H(7) – 100,000 mcf \times \frac{4,500}{8,500} = 52,941 mcf

47,059 mcf from Example 6-1H(6) – 100,000 mcf \times \frac{4,000}{8,500} = 47,059 mcf
CROSS UNIT APPLICATIONS (CUA)
(Through June 13, 2014)

SRDA (HB1909) April 13, 2011
First CUA filed May 31, 2011
Total CUA 324
Operators with filed CUA 24

Counties with CUA

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<th>County</th>
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<td>Logan</td>
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<tr>
<td>Noble</td>
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<td>Stephens</td>
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<td>Love</td>
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<td>Hughes</td>
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<tr>
<td>Multi-county</td>
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Multiunit Horizontal Well
Associated Common Source of Supply

18

Mississippi

19

Woodford

Hunton
Chapter 10 – Oil and Gas Conservation

Now back water pits > 50,000 Bbls and new Form 1014F AC 165:10-7-16 et seq. (Also allows temporary use by another operator)

Disposal wells and Form 1015 OAC 165:10-5-5

Notice

Non-commercial – <5,000 Bbls/day to each operator of producing unit or well within ½ mile radius; ≥5,000 Bbls 1 mile radius

Commercial – to each operator of a producing unit or well within 1 mile radius and to each surface owner or surface lessee adjacent and contiguous to the site. Additional surety requirements based upon proposed or existing facilities.

and application (soil farming) OAC 165:10-7-10, et seq. 50,000 surety
2014 PENDING RULE CHANGES

Drilling and Flaring  OAC 165:10-3-15
- Flaring only >50 mcf/d
  - Administrative permits have been required
  - New exemption for newly completed well
    - 48 hour notice
    - Unlimited for 14 days
    - Daily log preserved for 3 years

Well site and surface facilities  OAC 165:10-3-17
- Lease signs to include API number

Well logs  OAC 165:10-3-26
- Wireline to well logs; wireline surveys to formation evaluation,
  digital or paper
  - Daily volume and pressure recording for Arbuckle injection wells
    provided to OCC upon request  OAC165:10-5-7

Concurrent development  OAC 165:5-7-6
- Annual pressure tests for injection wells ≥20,000 bbls/d OAC 165:10-5-6
SEISMICITY ISSUES

Regulates Class 2 injection wells (including disposal wells) in Oklahoma, a state granted primacy by federal government for regulation of such wells.

The primary mission is to protect water resources and agreement on possibility of man-made seismicity. Oklahoma is a seismically active state, with recent earthquake swarms being unusual.

**Possible for OCC:** What, if any, connection exists between any of the seismic events and the oil and gas industry, and if there is a connection, what to do.

- Active response to seismic events in Oklahoma by OCC.
- Working with OGS on seismicity issue prior to the 2011 “Prague” earthquake.
- Funding fund further equipment deployment by researchers investigating Oklahoma’s seismic events (OCGS REPSEA Grant $1.8M).
- Sharing data with researchers on oil and gas activity in area of seismic events.
- Sharing data and approaches with other states – States First Initiative (GWPC, GCC).
- Working on developing best practices with all stakeholders in relation to seismicity.
  - Rules have been sent to the legislature, awaiting Governor’s approval.
  - Currently operating under National Academy “traffic light” approach.
  - New fault maps being generated.
Changing Dynamics of Oklahoma Oil & Gas Development