North Dakota Department of Mineral Resources



http://www.oilgas.nd.gov

http://www.state.nd.us/ndgs

600 East Boulevard Ave. - Dept 405 Bismarck, ND 58505-0840 (701) 328-8020 (701) 328-8000

OIL & GAS ACTIVITY

First barrel of oil produced in April 1951

1 Billionth barrel of oil produced in October 1989

2 Billionth barrel of oil produced in November 2011

3 Billionth estimated in 2015-2016 Produced in January of 2015

4 Billionth estimated in 2018

2,944 conventional wells

9,715 Bakken/Three Forks wells

12,659 active wells





OIL & GAS ACTIVITY

- Statewide May Production:
 - Oil: 37 million barrels = 1.2 million barrels/day
 - Natural Gas: 50 billion cubic feet = 1.6 bcf/day
 - Rigs: 73
 - 2015 Average: 114 all time high was 218 on May 29, 2012





TYPICAL HORIZONTAL OIL WELL



- 9 5/8" surface casing
- 7" production casing
- 4.5" liner & frac string
 - 30-40 swell packers

Upper Bakken Shale

Lower Bakken Shale

Middle Bakken 10,000'

- sliding sleeves
- = 5 layers of protection

Phase 3 "Harvest" 6 – 28 or more wells per spacing unit



6 wells producing - drilling 7-12 - and 13-18 soon



- 1,320 ft. same-zone spacing
- 34 new wells (gross)

31 new wells (gross)

Source: Continental Resources



Vern Whitten Photography

shall,	nd			

pizza near NYC

Get Directions History

Search

Parshall, ND 58770, USA

miles of gravel road needed reduced 10 fold

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Places
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Sightseeing Tour
Make sure 3D Buildings
layer is checked
Temporary Places
miles of pipeline
needed reduced
10 fold





Oil & Gas Pipeline Jurisdiction:

House Bill 1333(2013):

Requires GIS shape files to be submitted. (Aug. 1, 2011 or newer)

Requires confidential installation dataset to be submitted.

Allows owner or tenant to request pipeline locations within bounds of real property.

Allows Tax Dept. access to information.

House Bill 1358 (2015):

Requires engineering construction design drawings, list of independent inspectors, plan for leak detection (after August 1, 2015).

Requires independent inspectors certificate of testing after 60 days.

Commission may now require a bond.

Surface owner may now share GIS information.

Appropriates money for reclamation program & pipeline technology study.

Requires rule making for feasible, costeffective and necessary improvements to pipeline safety and integrity.

Western North Dakota Gathering Pipelines

Estimate 12,700 miles pre August 2011 + 4,900 miles August 2011-December 2013 + 2,650 miles per year 2014-2020 = 36,000 miles



8,500 miles within OGD database







N.D. Oil and Gas Division Gathering Lines Home Page

General Information

Submit Gathering Line Data

Request Information About Gathering Lines On Your Land

Report a Gathering Line Incident

5 requests for location

Zero incidents reported

Gathering Lines Home Submit Data	Request Data Report Incident Oil & Gas Home Page	Latitude (if known)	
		0.00	
Report a Gathering Line Incide	Longitude (if known)		
	0.00		
* If the incident involves a spill or release of pro	Township		
Division's <u>spill report</u> , this form is only for pul	olic submissions.	Select Township 💌	
		Range	
Reporting Party Information	Incident Details	Select Range 💌	
Reporting Furty Information	Incident Discovery Date	Section	
Reporting Party First Name	7/7/2015	Select Section 💌	
	IncType	Quarter	
Demosting Destrict and Name	Select Incident Type	Select Quarter	
Reporting Party Last Name	Description of Incident and Current Conditions	Quarter Quarter	
		Select QQuarter 💌	
Street Address of Reporting Party		Other Location Description	
City			
State			
Select State	Pipeline Operator (if known)		
Zipcode			
	Was Pipeline Operator Notified?	Submit	
	O Yes		
Email	© No	If you have trouble submitting the form or image.	
	Please unload a photo of the pipeline incident (This is require	Please complete the form, print and include a photograph of the incid	
Phone	These apload a photo of the pipeline incident (This is require	NDIC Oil and Gas Division	
	Upioad Pipeline Incident Photo (4 meg max file size):	Attn : Gathering Line Incident	

Select files...

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Surface Owner Resources:

Here you will find the notice to surface owners concerning the right of compensations for damages caused by oil and gas operations. The North Dakota Department of Trust Lands website offers examples of oil and gas leases and poor agreements. It also has the results of the most recent State Land Department quarterly oil and gas lease auction.

A statement of intention to succeed to the ownership of mineral interest form is also available for surface owners wishing to claim abandoned minerals under their property. (Please be advised that the statement of claim and succession claim forms are available as a convenience. Any additional fees assessed in filing these forms are not the responsibility of the DMR.)

in addition, the ND Department of Agriculture has a Mediation Service to assist surface owners and energy companies in resolving "split estate" surface damage disputes. For more information, go to the North Dakota Mediation Service web page.

The National Ground Water Association (NGWA) and the Ground Water Protection Council (GWPC) have made available a <u>water-testing brochure</u> for household water well owners living near oil or gas development and completion activities, including hydraulic fracturing. The brochure walks water well owners through how to go about getting their water tested prior to oil and gas activities to establish baseline water quality. It then provides guidelines for retesting he water after oil and gas development and completion activities. Addressed in the brochure are issues such as "chain-of-custody" testing to ensure unbiased, accurate sampling and test results, what constituents to test, what to do if one's water quality changes, and where to get more information. The brochure is not intended to provide guidance for regulation. It is merely designed to provide generalized information to landowners. The information it contains has been designed to cover every unique circumstance of local geology or geochemistry. Therefore, it should be used only as guidance for landowners.

The ND Petroleum Council has developed informational web pages for surface owners.

Pipeline Information

f you are a land owner and would like to report an incident related to a gathering line on your land, please go to the N.D. Oil and Gas Division Gathering Lines Home Page and click on "Report a Gathering Line Incident".

Pipeline restoration and reclamation program-The NDDA program connects landowners and tenants experiencing pipeline reclamation and restoration issues with an independent ombudsman to assist them in working with pipelin companies.

The goals of the program are to help landowners/tenants regain confidence that their land will be restored properly and to allow pipeline companies to continue to put more pipe in the ground.

Landowners or tenants who are dissatisfied by the response of a pipeline owner/operator in dealing with the reclamation of their property can contact the NDDA for assistance at 701-328-2231 or 1-800-242-7535, or go to the Pipeline Program webpage to submit their request.

Mineral Owner Resources:

Pipeline Reclamation Problems?

- DEEP RUTS/UNEVEN GROUND
- IMPROPER VEGETATION RESEEDING
- POOLING WATER

- SLUMPING
- SOIL EROSION
- TOPSOIL REPLACEMENT

WE CAN HELP

The North Dakota Department of Agriculture's new program can assist in resolving land surface issues and concerns with pipeline restoration and reclamation.

For assistance, contact us at 1-800-242-7535 or visit us online at www.nd.gov/ndda.



AGRICULTURE COMMISSIONER DOUG GOEHRING

43-02-03-29. WELL AND LEASE EQUIPMENT. Wellhead and lease equipment with a working pressure at least equivalent to the calculated or known pressure to which the equipment may be subjected shall be installed and maintained. Equipment on producing wells shall be installed to facilitate gas-oil ratio tests, and static bottom hole or other pressure tests. Valves shall be installed and maintained in good working order to permit pressure readings to be obtained on both casing and tubing.

All newly constructed underground gathering pipelines must be devoid of leaks and constructed of materials resistant to external corrosion and to the effects of transported fluids. All such pipelines installed in a trench must be <u>installed in a manner</u> <u>that minimizes interference with agriculture, road and utility construction</u>, the introduction of secondary stresses, the possibility of damage to the pipe, and tracer wire shall be buried with any nonconductive pipe installed. When a trench for an oil and gas underground gathering pipeline is backfilled, it must be backfilled in a manner that provides firm support under the pipe and prevents damage to the pipe and pipe coating from equipment or from the backfill material.

Inspection & Enforcement



Each District Office Receives: +1 ET Field Inspection & +1 ET Pipelines Field Inspection

Funding in House Bill 1358

SECTION 6-

38-08-04.5. Abandoned oil and gas well plugging and site reclamation fund

e. Reclamation and restoration of land and water resources impacted by oil and gas development, including related pipelines and facilities that were abandoned or were left in an inadequate reclamation status before August 1, 1983, and for which there is not any continuing reclamation responsibility under state law. Land and water degraded by any willful act of the current or any former surface owner are not eligible for reclamation or restoration. The commission may expend up to one million five hundred thousand dollars per biennium from the fund in the following priority:

- (1) For the restoration of eligible land and water that are degraded by the adverse effects of oil and gas development including related pipelines and facilities.
- (2) For the development of publicly owned land adversely affected by oil and gas development including related pipelines and facilities.
- (3) For administrative expenses and cost in developing an abandoned site reclamation plan and the program.
- (4) Demonstration projects for the development of reclamation and water quality control program methods and techniques for oil and gas development, including related pipelines and facilities.

Funding in House Bill 1358

SECTION 8-

\$1,500,000 for the purpose of funding a special project through the energy and environmental research center (EERC) at the university of North Dakota during the biennium beginning July 1, 2015, and ending June 30, 2017. The special project must focus on conducting an analysis of crude oil and produced water pipelines including the construction standards, depths, pressures, monitoring systems, maintenance, types of materials used in the pipeline including backfill, and an analysis of the ratio of spills and leaks occurring in this state in comparison to other large oil and gas-producing states with substantial volumes of produced water.

The NDIC shall contract with the EERC to compile the information and the center shall work with the department of mineral resources to analyze the existing regulations on construction and monitoring of crude oil and produced water pipelines, determine the feasibility and cost effectiveness of requiring leak detection and monitoring technology on new and existing pipeline systems, and provide a report with recommendations to the industrial commission and the energy development and transmission committee by December 1, 2015. The industrial commission shall adopt the necessary administrative rules necessary to improve produced water and crude oil pipeline safety and integrity. In addition, the industrial commission shall contract for a pilot project to evaluate a pipeline leak detection and monitoring system.

Funding in House Bill 1358

SECTION 9- \$500,000, or so much of the sum as may be necessary, for the purpose of conducting a pilot program involving the oil and gas research council in conjunction with research facilities in this state to determine the best techniques for remediating salt and any other contamination from the soil surrounding waste pits reclaimed by trenching between 1951 and 1984 in the north central portion of this state, for the biennium beginning July 1, 2015, and ending June 30, 2017.

The Final Pieces

SECTION 4. A surface owner may request a review of the temporarily abandoned status of a well that has been on temporarily abandoned status for at least seven years. The commission shall require notice and hearing to review the temporarily abandoned status. After notice and hearing, the surface owner may request a review of the temporarily abandoned status every two years.

SECTION 5. To provide for the confidentiality of well data reported to the commission if requested in writing by those reporting the data for a period not to exceed six months. However, the commission may release:

a. Volumes injected into a saltwater injection well.

b. Information from the spill report on a well on a site at which more than ten barrels of fluid, not contained on the well site, was released for which an oilfield environmental incident report is required by law.

Wells waiting on completion

• Price has driven wells waiting on completion



Gas Capture

Wells waiting on completion has helped drive the success of Gas Capture.

Order signed July 1, 2014 and implemented October 1, 2014.

Statewide 82% Statewide Bakken 83%

Non-FBIR Bakken 82%

FBIR Bakken 88%

Trust FBIR Bakken 87%

Fee FBIR 89%

Next Target: January 2016, 85% capture.

Oil Conditioning

- Signed December 9th, 2014; effective April 1, 2015.
- Goal: to produce a consistent product that does not exceed a vapor pressure of 13.7 pounds per square inch (psi).
- Achievable: IC prescribed temperatures and pressures, or through quarterly field testing.
- Result: a safer, stable, crude oil.
- Oil Conditioning <u>FAQ</u>