

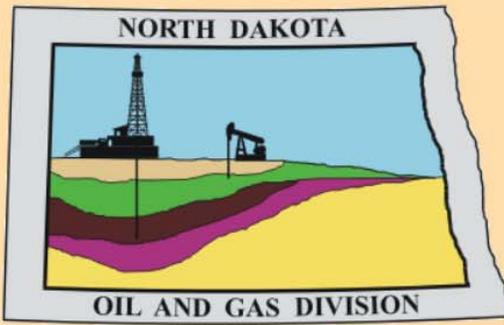
RULES AND MITIGATING SPILLS

*Energy Development and Transmission
Committee*

Bismarck, ND–July 8, 2014



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Welcome to the North Dakota Industrial Commission, Department of Oil and Gas Division, Home page.

[Director's Cut - 05/13/2014](#) and [Recent Presentations](#)

The Director's Cut is an update on current activity in the North Dakota oil patch from the Director of the ([View past Director's Cuts](#) [Webinars](#))

View [press releases](#) from the Oil and Gas Division

[North Dakota Industrial Commission Permitting Policies](#)

["Diesel fuel" in HF stimulation now requires UIC approval](#)

[Bakken and Three Forks Information!](#)

[Class VI Primacy Application for the authority to regulate the Geologic Storage of Carbon Dioxide](#)

Available on the ND Petroleum Council web site are the [Surface Owner Information Center](#), the [Royalty Owner Information Center](#) and the P that were used at the [2012 Williston Basin Petroleum Conference](#).

The Oil and Gas Division regulates the drilling and production of oil and gas in North Dakota. Our mission is to encourage and promote the development, production, and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers, and the general public realize the greatest possible good from these vital natural resources.

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RULES AND MITIGATING SPILLS

- **Remediation Projects**
- **Monitoring Methods**
- **Enforcement**
- **Rules**

Bruce E. Hicks
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RULES AND MITIGATING SPILLS

- **Remediation Projects**
- **Monitoring Methods**
- **Enforcement**
- **Rules**

RULES AND MITIGATING SPILLS

- **Remediation Projects**

- **Leo Hallof**
- **Cramer**
- **Charbonneau Creek**
- **Canada**
- **AWPSRF (fund if no responsible party)**

RULES AND MITIGATING SPILLS

- **Remediation Projects**

- **Leo Hallof #1 (File #90074)—Bot Cty**

- **Commenced inj June 1989**

- **April 9, 2013 leak discovered**

- **Hole in surface pipeline going to wellhead**

- **High press injection line**

- **600 dump trucks of impacted soil taken to Clean Harbors**

- **NDDH required drain tile to remediate ground water**

- » **Flooded location in Sep, Oct, Nov 2013**

- » **Ground frozen to depth of 8' last winter**

- **Remedial work ongoing**

RULES AND MITIGATING SPILLS

• Remediation Projects

- Cramer SWD #1 (File #90090)—Bot Cty**
 - Commenced in November 1997**
 - July 21, 2011 leak discovered**
 - Hole in surface gathering pipeline**
 - Transfer line (3” fiberglass)**
 - Calcium nitrate applied to topsoil**
 - NDDH required drain tile to remediate ground water**
 - » 22” rain in May-Sep 2013**
 - » 26,268 bbls removed in 2013**
 - » Ground frozen to depth of 8’ last winter**
 - Remedial work ongoing**
 - > \$1million on reclamation to date**

RULES AND MITIGATING SPILLS

- **Remediation Projects**

- **Wolf #1 (File #90107)—McK Cty**

- **Charbonneau Creek**

- **Commenced inj February 2005**

- **Jan 2006 leak discovered**

- **Defective seal in poly pipeline**

- **Transfer line**

- **NDDH jurisdiction**

- **Remedial work ongoing—8 yrs**

- **> \$3 million on reclamation to date**

RULES AND MITIGATING SPILLS

- **Remediation Projects**

- **Saskatchewan/Manitoba—Canada**

- **Evaporation pits allowed in 1960s**
 - **Excavated under pits**
 - **Found & removed salt block**
 - **Installed drain tiles**
 - **Amendments**
 - » **Calcium nitrate**
 - » **Gypsum**
 - **Remedial work ongoing—11 yrs**
 - **Cost \$? mil**

RULES AND MITIGATING SPILLS

- **Remediation Projects**

- **AWPSRF (Abandoned Well Plugging & Site Reclamation Fund)**

- **\$7,873,000 in Fund (5-31-2014)**

- **\$5 mil/yr, \$75 mil cap**

- **40 projects currently**

- **22 illegal dumping**

- » **9 projects closed**

- » **\$90,000 cost**

- **18 reclamation sites**

- » **Est \$100,000 ea (\$1.8 mil total)**

- **1000 evaporation pits**

- **\$2 mil ea (\$2 bil total)**

- **10 projects/yr (100 yrs)**

RULES AND MITIGATING SPILLS

- Remediation Projects
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RULES AND MITIGATING SPILLS

- **Monitoring Methods**
 - **Metering**
 - **Pressure Monitoring**

RULES AND MITIGATING SPILLS

- **Monitoring Methods**

- **Metering**

- **Best meters**

- **Full pipe**

- **Gas-free fluid**

- **0.25% accuracy**

- » **10,000 bbls/day SWD => 50 bbls/day undetected**

RULES AND MITIGATING SPILLS

- **Monitoring Methods**

- **Pressure Monitoring**

- **Gauges**

- **Low press on gathering lines—undetectable leaks**

- » **Elevation changes**

- » **Density changes in various inj fluids**

- » **Temp changes in long inj lines (winter)**

- » **Press gauge inaccuracies**

- **Hi/Lo pressure shut-off in use**

- **Pressure Test—best for leak detection**

- **Test pipeline**

- **Detect small leaks**

- **Many systems require annual pressure tests**

- **Pipeline Safety Task Force**

- **OGD participates**

- **Developing best management practices**

RULES AND MITIGATING SPILLS

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RULES AND MITIGATING SPILLS

- **Enforcement**

- **Initial warning: at field level**
- **Second warning: letter to operator**
- **Third warning: file official complaint**
 - **Settle with consent agreement w/o hearing**
 - **Hearing before Office of Administrative Hearings**

RULES AND MITIGATING SPILLS

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RULES AND MITIGATING SPILLS

- **Rules**

- **NDAC Sec 43-02-03-29 (Pipeline Installation)**

- **Resistant to external corrosion**

- **Resistant to transported fluids**

- **Minimize interference**

- **Agriculture**

- **Road & utility construction**

- **Secondary stresses**

- **Backfilled to prevent damage to pipe**

- **Abandoned pipeline**

- **Physically isolate from operating system**

- **Purge with water, air, or inert gas to remove all fluid**

- **Cap or plug ends of abandoned line**