

2011 HOUSE ENERGY AND NATURAL RESOURCES

HB 1216

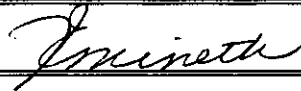
2011 HOUSE STANDING COMMITTEE MINUTES

House Energy and Natural Resources Committee
Pioneer Room, State Capitol

HB1216
01/20/2011
13187

Conference Committee

Committee Clerk Signature



To provide that hydraulic fracturing is an acceptable recovery process in North Dakota.

Minutes:

Rep. Porter: We will open the hearing HB 1216.

Rep. DeKrey: HB 1216 comes to us as a defensive measure. Presently hydraulic fracturing in gas and oil fields is going on in North Dakota. It is regulated by North Dakota and PSC. The purpose of the bill is to have this in our Century Code so that the people of North Dakota are comfortable with hydraulic fracturing. There is a lot of noise coming out of Washington, D. C. about the EPA getting a lot more stringent on carbon glazed fuels what is going to be acceptable and unacceptable and it is also policy that if a state has a statute in place, the federal cannot come in and overturn that state statute. We felt it is important to get into statute so that if we have any problems with EPA or any administration trying to stop us from doing hydraulic fracturing in the oil fields which would shut us down right now, we would have it in our statute that people in North Dakota are comfortable with hydraulic fracturing in the state of North Dakota.

This bill will not affect any of the agencies from North Dakota that are regulating the oil and gas industry or to change anything that they are doing now. It is a statement of support by the people of North Dakota.

Rep. Kasper: Would it be advisable to put an emergency clause on the bill?

Rep. DeKrey: I would be happy with that.

Rep. Porter: Any other questions in further support of HB 1216.

Lynn Helms: Director of the Department of Mineral Resources. Our oil and gas division regulates oil and gas drilling and hydraulic fracturing in the state. I am here to speak in support of the bill. I would like to make a couple of statements though, the industrial commission met yesterday and wanted me to make sure it was clear in the record as Rep. DeKrey stated that this bill in no way is intended to impinge on the ability of state agencies to regulate the practice of hydraulic fracturing. As I go thru my presentation I will touch on that subject. (See attachment 1.)

Rep. Porter: further questions for Mr. Helms

Rep. Kelsh: In the event of a leak or spill and human beings are exposed to these chemicals. Who is the responsible agency? Are the crews trained in areas to deal with those chemicals?

Lynn Helms: There are a number of people who are trained, all of the field inspectors are hazmat trained. They are first responders with the regards to the release to hydraulic fracturing fluid. If a farmer for example went to the emergency room saying they were exposed to these chemicals thru their drinking water the physician can access MDS sheets through the Dept. of Emergency Services. We have 24 hour manned contact at the Fraine Barricks these records must be kept for six years.

Rep. Porter: Further questions for Mr. Helms seeing none further testimony for HB 1216.

Todd Kranda: I am an attorney for the Kelsch Law in Mandan. I appear before you today as a lobbyist on behalf of the North Dakota Petroleum Council. We do support HB 1216. I do have some handouts that will give you some general information. (See attachment 2.)

Rep. Damschen: Questions for Mr. Kranda. Is there any further testimony for HB 1216?

Bill Shalhoob: I represent North Dakota Chamber of Commerce. We also support HB 1216. The two things that are going to slow down is the price of oil and the elimination of fracturing. (see attachment 3.)

Rep. Danschen: Any other questions from the committee? Is there further testimony in favor of HB 1216? Is there any testimony in opposition to HB 1216?

Mike McEnroe: I represent the North Dakota Chapter of the Wildlife Society. The chapter is opposed to HB 1216 because it seems to codify a contemporary opinion. (See attachment

Rep. Kasper: How many members do you have in North Dakota?

Mike McEnroe: We have 320 members.

Rep. Kasper: You have indicated the happening in Western North Dakota. I believe that incident was water spilled above ground. Is that correct?

Mike McEnroe: That is so, that is still part of the fracturing process. The chemicals are still present. Working with the chemicals above ground is probably more of a problem than the inserting them under ground.

Rep. Kasper: You are concerned about how the chemicals are stored. Where is your concern?

Mike McEnroe: Our concern is we have a lot of chemicals, 50,000 gallons of chemical. At some point during the drilling and fracturing process it being transferred to, stored above ground and pumped at a rate of 800 gallons a minute underground. There is the

opportunity for some accident to happen on the site. We do not know what we are approving until after an incident occurs.

Rep. Kreun: Do you have the same concern with all the other industries in North Dakota that are using chemicals like the farming industry. We also have the Railroad industry that comes through there. Do you require or ask for the same conditions?

Mike McEnroe: We don't require anything. We are just advocating that the state of North Dakota require safe guards on the hydraulic fracturing because of the quantity of chemicals we are talking about.

Rep. Kreun: Do you have the same concern, and go the other public meeting when they are available?

Mike McEnroe: We have made comments on the agriculture industry regarding various pesticides or herbicides that are used, but not as a boycott.

Rep. Kruen Basically you are in the same agreement as we are, if things are taken care of properly.

Mike Enroe: Yes, if things are done according to standards.

Rep. Damschen: Is there any further testimony? We will close the hearing on HB 1216.

Rep. Kasper: I move we add the emergency clause.

Rep. DeKrey: Second.

Rep. Kasper: I move a do pass at amended.

Rep. Hofstad: Second.

Yes 14 No 1 Absent 0 Carrier Rep. Kasper

January 21, 2011

VK
1/21/11

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1216

Page 1, line 2, after "Dakota" insert "; and to declare an emergency"

Page 1, after line 8, insert:

"SECTION 2. EMERGENCY. This Act is declared to be an emergency
measure."

Renumber accordingly

Date: 1-20-11
Roll Call Vote #: 1

2011 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1216

House House Energy and Natural Resources Committee

Legislative Council Amendment Number 11.0518.01001.02000

Action Taken: Do Pass Do Not Pass Amended Adopt Amendment
 Rerefer to Appropriations Reconsider

Motion Made By Kasper Seconded By DeKrey

Representatives	Yes	No	Representatives	Yes	No
Chairman Porter			Rep. Hanson		
Vice Chairman Damschen			Rep. Hunskor		
Rep. Brabandt			Rep. Kelsh		
Rep. Clark			Rep. Nelson		
Rep. DeKrey					
Rep. Hofstad					
Rep. Kasper					
Rep. Keiser					
Rep. Kreun					
Rep. Nathe					
Rep. Anderson					

Total (Yes) _____ No _____

Absent _____

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

voice note taken to add the emergency clause

Date: 1-20-11
Roll Call Vote #: 2

2011 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1216

House House Energy and Natural Resources Committee

Legislative Council Amendment Number 11.0518.010010200

Action Taken: Do Pass Do Not Pass Amended Adopt Amendment
 Rerefer to Appropriations Reconsider

Motion Made By Kasper Seconded By Hofstad

Representatives	Yes	No	Representatives	Yes	No
Chairman Porter	✓		Rep. Hanson	✓	
Vice Chairman Damschen	✓		Rep. Hunskor	✓	
Rep. Brabandt	✓		Rep. Kelsh		✓
Rep. Clark	✓		Rep. Nelson	✓	
Rep. DeKrey	✓				
Rep. Hofstad	✓				
Rep. Kasper	✓				
Rep. Keiser	✓				
Rep. Kreun	✓				
Rep. Nathe	✓				
Rep. Anderson	✓				

Total (Yes) 14 No 1

Absent 0

Floor Assignment Rep Kasper

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1216: Energy and Natural Resources Committee (Rep. Porter, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (15 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). HB 1216 was placed on the Sixth order on the calendar.

Page 1, line 2, after "Dakota" insert "; and to declare an emergency"

Page 1, after line 8, insert:

"SECTION 2. EMERGENCY. This Act is declared to be an emergency measure."

Renumber accordingly

2011 SENATE NATURAL RESOURCES

HB 1216

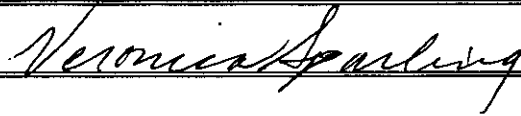
2011 SENATE STANDING COMMITTEE MINUTES

Senate Natural Resources Committee
Fort Lincoln Room, State Capitol

HB 1216
March 4, 2011
Job # 14964

Conference Committee

Committee Clerk Signature



Explanation or reason for introduction of bill/resolution:

A BILL for an Act to provide that hydraulic fracturing is an acceptable recovery process in North Dakota; and to declare an emergency

Minutes:

Testimony Attached

Chairman Lyson opened the hearing on HB 1216.

Senator Burckhard made a motion to combine for purposes of hearing HB 1216 and HCR 3008.

Senator Triplett: Second

The motion carried by voice vote.

Chairman Lyson opened the hearing on HB 1216 and HCR 3008.

Lynn Helms, Director of the Dept of Mineral Resources with the ND Industrial Commission, presented written testimony in favor of HB 1216 and HCR 3008. See **Attachment #1**. In the 30s oil was being stored in open pits in the ground because it was being produced faster than it was being sold. The Interstate Oil and Gas Compact Commission was formed, and it determined in a 1935 decision that the states would be the regulatory bodies to handle oil and gas regulations. In 1974 the Clean Water Act was passed. Ever since then the EPA has been trying to reverse the 1935 decision. Hydraulic fracturing has been around since 1949. Hydraulic Fracturing has been around a long time and has been studied twice by the EPA and twice by the Interstate Oil and Gas Compact Commission. They have not found a single connection between hydraulic fracturing and a drinking water contamination. It is being studied again now by the EPA. It is a states rights issue, different states can choose it or reject it. He explained the construction of the fracture equipment and the process of fracturing. MSDS sheets have to go to the site. When there is a spill, the Dept of Mineral Resources is called, and the Health Dept. is called. He talked about the ingredients of what goes into a hydraulic fracturing job. There are 15 common chemicals in a very dilute form. There shouldn't be fear of hydraulic fracturing. It has been regulated for

decades in ND. These two bills just put the decision into the hands of the state rather than the federal government.

Senator Hogue: Could you describe the EPA regulatory efforts to date?

Lynn Helms: The EPA secured funding from Congress for what was intended to be a 2 year study, then they went to their scientific advisory board as to how to proceed. Their advice was to hold some hearings around the nation. They held public hearings in TX, CO, NY, and PA. In these 4 public hearings they found out that the public wanted many aspects covered in the study, but they went back to the advisory board and decided to only study the effects on drinking water. They have submitted this to the advisory board for approval. This study will involve sampling wells and hydraulic fracturing fluid etc for 3 years. They are back at their advisory board with a draft study proposal.

Senator Hogue: Congress hasn't authorized them to implement any new regulations, just to study it, right?

Lynn Helms: That's right.

Senator Triplett: You indicated in your testimony that the bottom of our fresh water zone was at 2500 ft below the surface and the top of the waste water disposal zone is about 5000 ft below the surface. Could you describe for us the characteristics of what is between 2500 and 5000 that would give us the confidence that there won't be any interplay between those two zones?

Lynn Helms: There is a series of shales, bentonite clay, with no vertical or horizontal permeability at all. Bentonite is what we use to line pools and ponds and stock dams.

Senator Triplett: Is there a distinction between that layer and the formation in WY which has some permeability?

Lynn Helms: Yes, our geology is unique; not many states have the layer of 2500 ft of impermeable bentonite clay that we have.

Senator Triplett: Just to be clear, the geologic zones don't end at state boundaries, do they?

Lynn Helms: They certainly don't. For instance, the Williston Basin is in North Dakota, South Dakota, Montana, Saskatchewan, and Manitoba.

Senator Triplett: But in ND we don't have any of the problematic shale layers?

There was discussion about what you do with different kinds of shale and different kinds of fracking.

Senator Triplett: If you had created the world and could have chosen anything to place between the drinking water layer and the waste water disposal zone, what would you have placed there?

Lynn Helms: Bentonite is the most impermeable layer known to man.

Chairman Lyson: I passed out an email from the prime sponsor of the bill. See **Attachment #2.**

Ron Ness, ND Petroleum Council, spoke in favor of the bill. The Bakken requires a combination of horizontal reach and fracking. Our regulatory agencies do a great job. We have without question the best oil and gas regulatory agency. To affirm that, we put three of our highest elected officials in charge of the agency. We adopted our oil and gas rules and regulations before oil was discovered. Commercial accidents happen. We are going to have mishaps now and then. We have had over a million hydraulic fracturing stimulations take place and in the US and they can't find one. Diesel fuel is naturally found in our subsurface. There should not be concern with using diesel fuel in the fracturing and drilling of oil wells. This technology is increasing domestic production, creating jobs and economic recovery. Governor Hoeven went to Washington and is advocating this as a states' rights issue. We are confident we can regulate this process. He encouraged the committee members to go to the websites listed on the first page of Attachment #3.

Bill Shalhoob, representing the ND Chamber of Commerce, urged a Do Pass on HB 1216 and HCR 3008. It is a states' rights issue and important to the economy of our state.

Opposition

Ashley Lauth, Oil and Gas Organizer for Dakota Resource Council presented written testimony in opposition to HB 1216 and HCR 3008. See Attachment #4.

Mike McEnroe, representing ND chapter of the Wildlife Society, urged support of HCR 3008 but opposed HB 1216. See Attachment #5.

Kris Kitko, a folk singer/songwriter and public commentator living in Bismarck, presented written testimony in opposition to HB 1216 and HCR 3008. See Attachment #6. She stated that the air monitoring system in Williston was turned off in 2009.

Senator Hogue: Do they suspect that their problems are caused by airborne chemicals or from their drinking water?

Kris Kitko: It was initially air, but now it is air and water. In one case there are now air pockets in their water and the faucet whistles when the water is turned on.

Senator Triplett: Could I ask a question of Lynn Helms? On this carcinogens list in Attachment #4, which would qualify as elements naturally found in subsurface environments? See Attachment #4, paragraph #6.

Lynn Helms: Yes, looking at the list on Attachment #4, paragraph 6....If you would turn to Attachment #1, page 7, second box, fifth bullet is "petroleum distillates". That category of petroleum distillates is where those chemicals are found. As you can see, they typically represent about 0.088% of a frac fluid. Why are they in there? The companies wish that

they weren't and they are working on processes to eliminate them. In a formation like the Bakken, you have to include some soap-like chemicals to prevent the frac water from forming an emulsion with the formation fluid. That soap-like chemical will not dissolve in water in its native state. It initially has to be dissolved in a petroleum distillate like diesel fuel or naphtha and then it will unwind and dissolve in water. That is what they are used for, as an initial solvent. When you read the Congressional reports that show that ND in 2009 injected 3.1 million gallons of diesel fluid in hydraulic fracturing, the fact of the matter is there was 188 gallons of diesel fuel in that 3.1 million gallons. In their concentrated forms they are hazardous; in diluted form, they are not dangerous.

Senator Schneider: Does hydraulic fracturing cause any danger to ground water in ND?

Lynn Helms: I do not believe it does.

There was discussion about the Killdeer water supply. The threat is too small to be measured.

Chairman Lyson closed the hearing on HB 1216 and HCR 3008.

Senator Triplett: Would we want to put in some kind of a requirement about people having the right of access to the information at some level? Mr. Helms testified that his office has access to it and the data material sheets are already there and accompanying it. Just so the public can feel at ease, disclosure may be good. I would like the weekend to think about it.

2011 SENATE STANDING COMMITTEE MINUTES

Senate Natural Resources Committee
Fort Lincoln Room, State Capitol

HB 1216
March 17, 2011
Job #15553

Conference Committee

Committee Clerk Signature	<i>Veronica Spurling</i>
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Explanation or reason for introduction of bill/resolution:

A BILL for an Act to provide that hydraulic fracturing is an acceptable recovery process in North Dakota; and to declare an emergency

Minutes:

No Attachments

Chairman Lyson opened the discussion on HB 1216.

Chairman Lyson: The only opposition was from the Dakota Resource Council.

Senator Burckhard: The Wildlife Society was opposed unless there was full disclosure.

Senator Lyson: They can't give up their trade secrets. That is probably why the oil companies are opposed to full disclosure.

Senator Uglem: Made a motion for a Do Pass

Senator Burckhard: Second

Roll Call Vote: 6-0-1

Carrier: Senator Uglem

Date: 3-4-11
Roll Call Vote # 1

2011 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1216

Senate Natural Resources Committee

Legislative Council Amendment Number _____

Action Taken: Do Pass Do Not Pass Amended Adopt Amendment
 Rerefer to Appropriations Reconsider

Motion Made By Burckhard Seconded By Triplett

Carried by voice vote

Senators	Yes	No	Senators	Yes	No
Chairman Lyson			Senator Schneider		
Vice-Chair Hogue			Senator Triplett		
Senator Burckhard					
Senator Freborg					
Senator Uglem					

Total (Yes) _____ No _____

Absent _____

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

*Combine the hearing for
HB 1216 & HCR 3008*

Date: 3-17-11
Roll Call Vote # 1

2011 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1216

Senate Natural Resources Committee

Legislative Council Amendment Number _____

Action Taken: Do Pass Do Not Pass Amended Adopt Amendment
 Rerefer to Appropriations Reconsider

Motion Made By Uglen Seconded By Burckhard

Senators	Yes	No	Senators	Yes	No
Chairman Lyson	✓		Senator Schneider	✓	
Vice-Chair Hogue			Senator Triplett	✓	
Senator Burckhard	✓				
Senator Freborg	✓				
Senator Uglen	✓				

Total (Yes) 6 No 0

Absent 1

Floor Assignment Uglen

If the vote is on an amendment, briefly indicate intent:

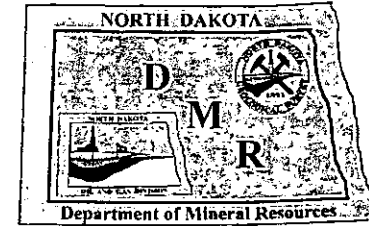
REPORT OF STANDING COMMITTEE

HB 1216, as engrossed: Natural Resources Committee (Sen. Lyson, Chairman)
recommends **DO PASS** (6 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING).
Engrossed HB 1216 was placed on the Fourteenth order on the calendar.

2011 TESTIMONY

HB 1216

Attachment 1



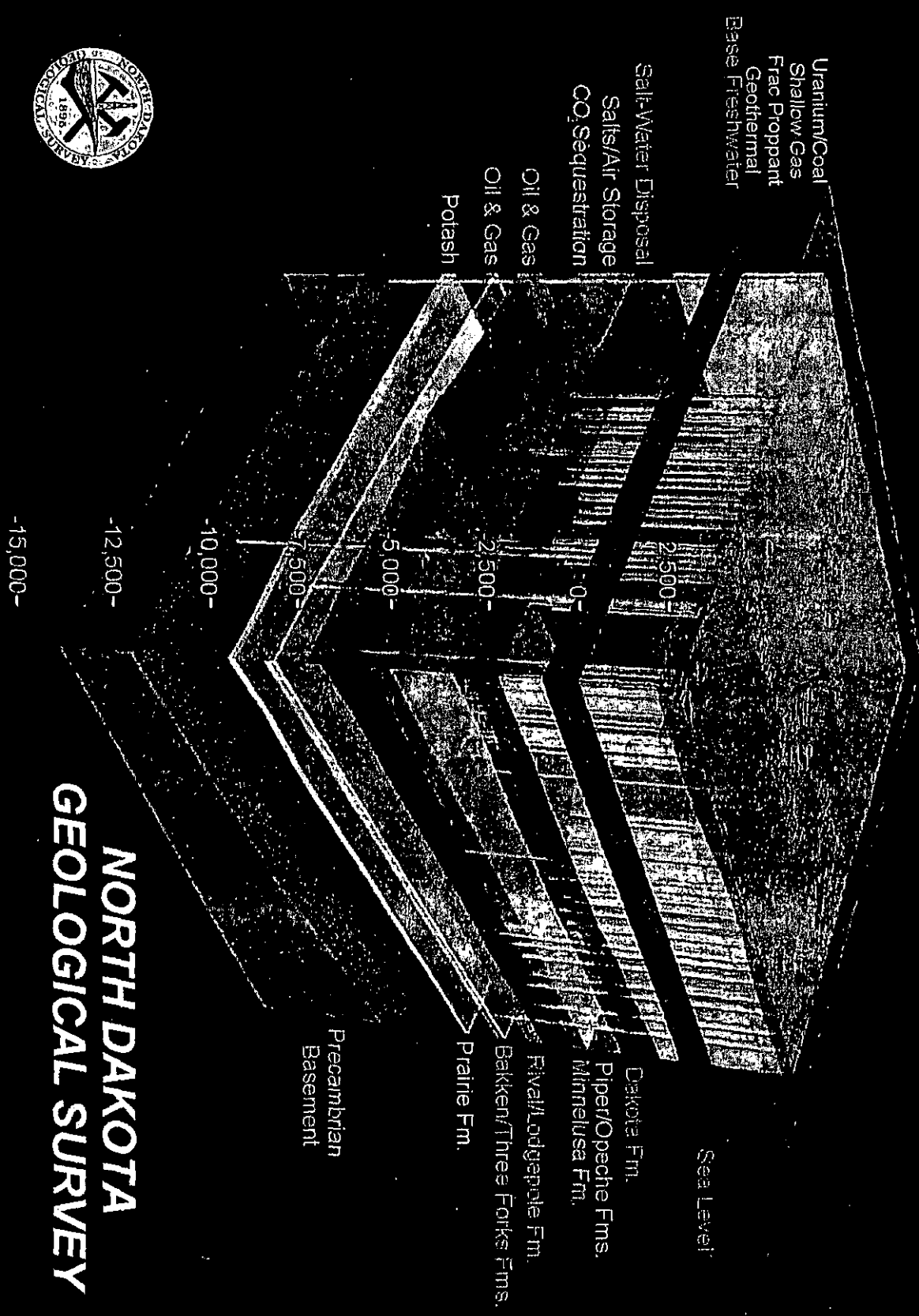
House Energy and Natural Resources Committee

House Bill 1216

January 20, 2011

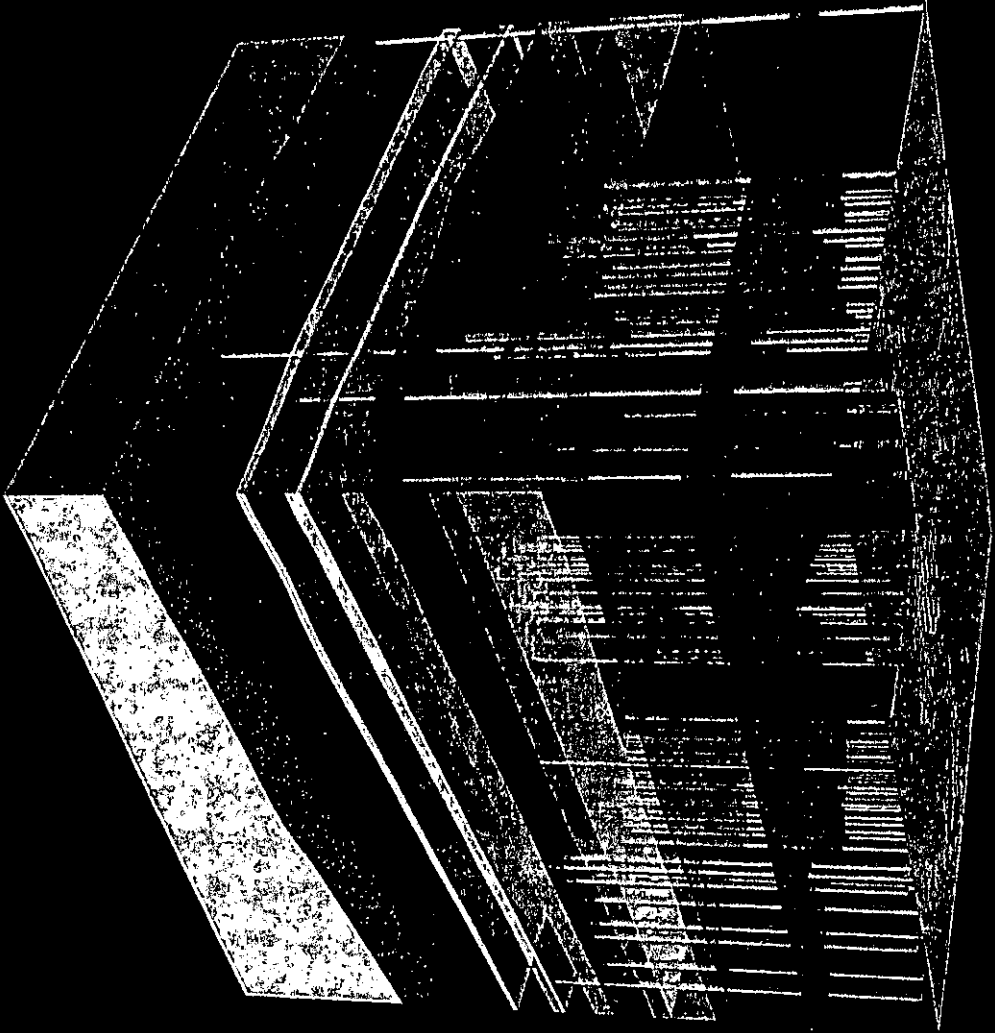
**Lynn D. Helms, Director
Department of Mineral Resources
North Dakota Industrial Commission**

Three-Dimensional Geologic Model of the Parshall Area



**NORTH DAKOTA
GEOLOGICAL SURVEY**

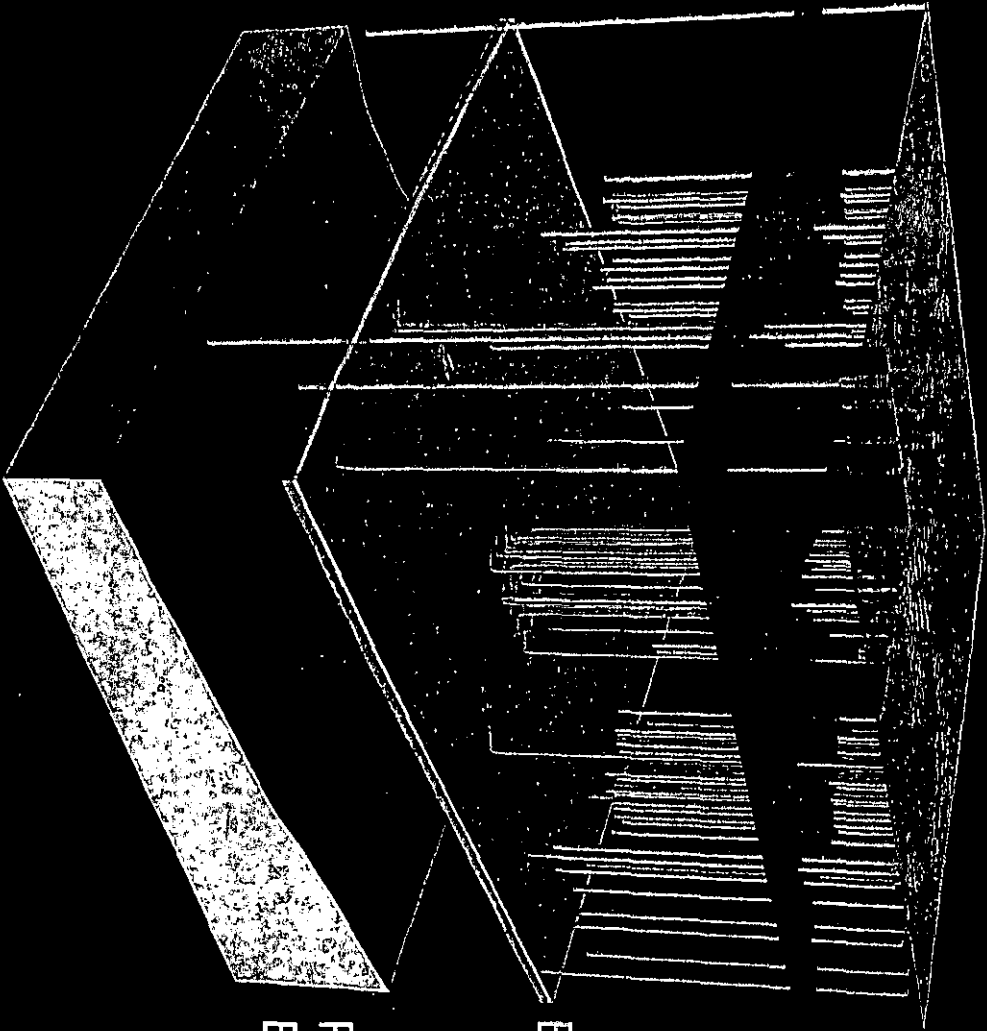
Salt-Water Disposal



1982-1975

Dakota Fm.

Oil & Gas

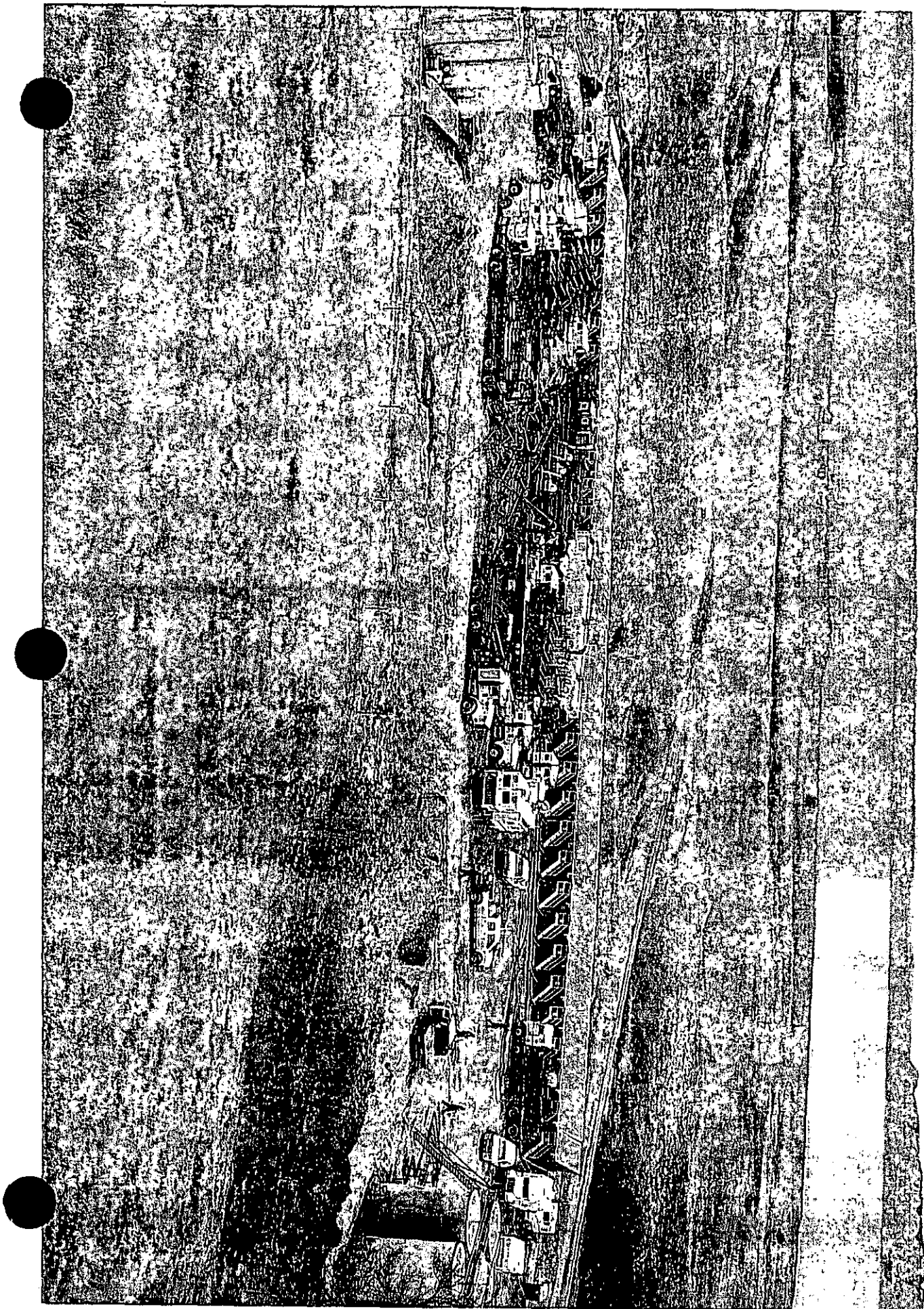


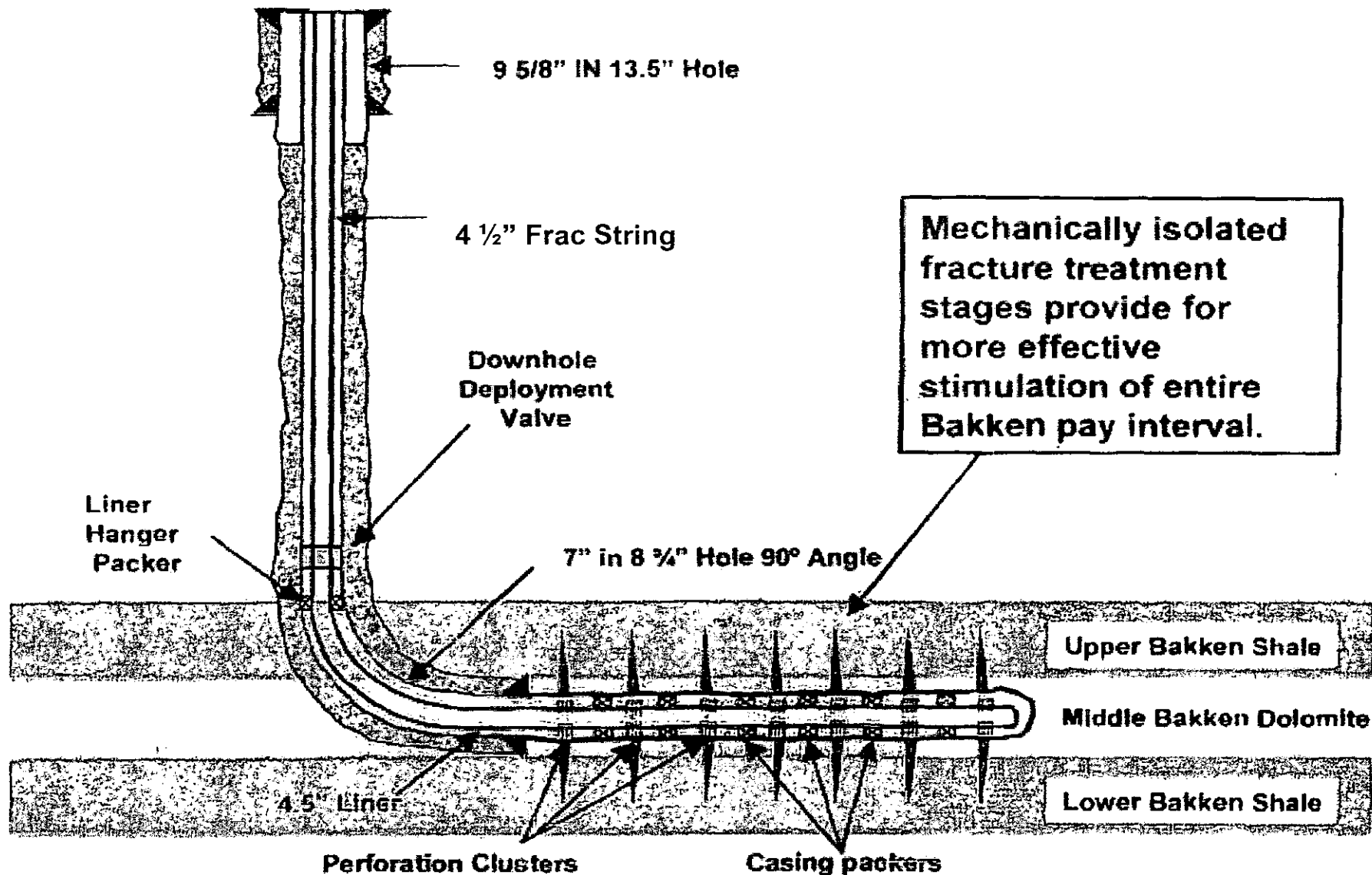
Bakken/Three Forks

Precambrian
Basement

ND Water Commission

61-04-02. Permit for beneficial use of water required. Any person, before commencing any construction for the purpose of appropriating waters of the state or before taking waters of the state from any constructed works, shall first secure a water permit from the state engineer unless such construction or taking from such constructed works is for domestic or livestock purposes or for fish, wildlife, and other recreational uses or unless otherwise provided by law. However, immediately upon completing any constructed works for domestic or livestock purposes or for fish, wildlife, and other recreational uses, the water user shall notify the state engineer of the location and acre-feet [1233.48 cubic meters] capacity of such constructed works, dams, or dugouts. Regardless of proposed use, however, all water users shall secure a water permit prior to constructing an impoundment capable of retaining more than twelve and one-half acre-feet [15418.52 cubic meters] of water or the construction of a well from which more than twelve and one-half acre-feet [15418.52 cubic meters] of water per year will be appropriated. If a permit is not required of a landowner or the landowner's lessee to appropriate less than twelve and one-half acre-feet [15418.52 cubic meters] of water from any source for domestic or livestock purposes or for fish, wildlife, and other recreational uses, those appropriators may apply for water permits in order to clearly establish a priority date and the state engineer may waive any fee or hearing for such applications. An applicant for a water permit to irrigate need not be the owner of the land to be irrigated.





Wellbore Schematic

Surface Location

300' FNL and 1320' FEL (approximate) of section 16

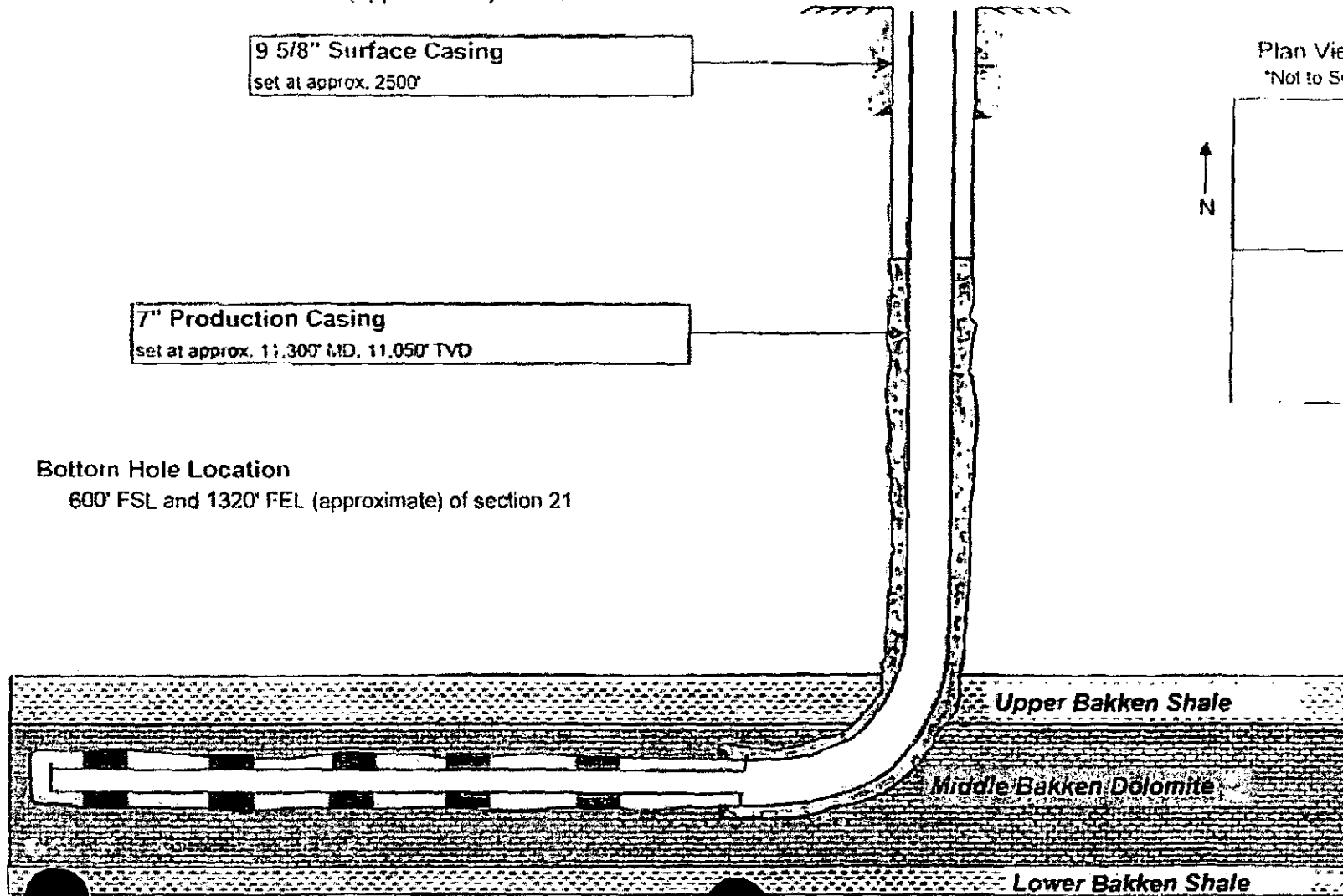
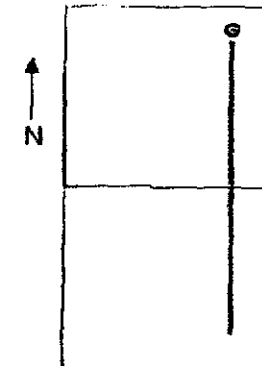
9 5/8" Surface Casing
set at approx. 2500'

7" Production Casing
set at approx. 11,300' MD, 11,050' TVD

Bottom Hole Location

600' FSL and 1320' FEL (approximate) of section 21

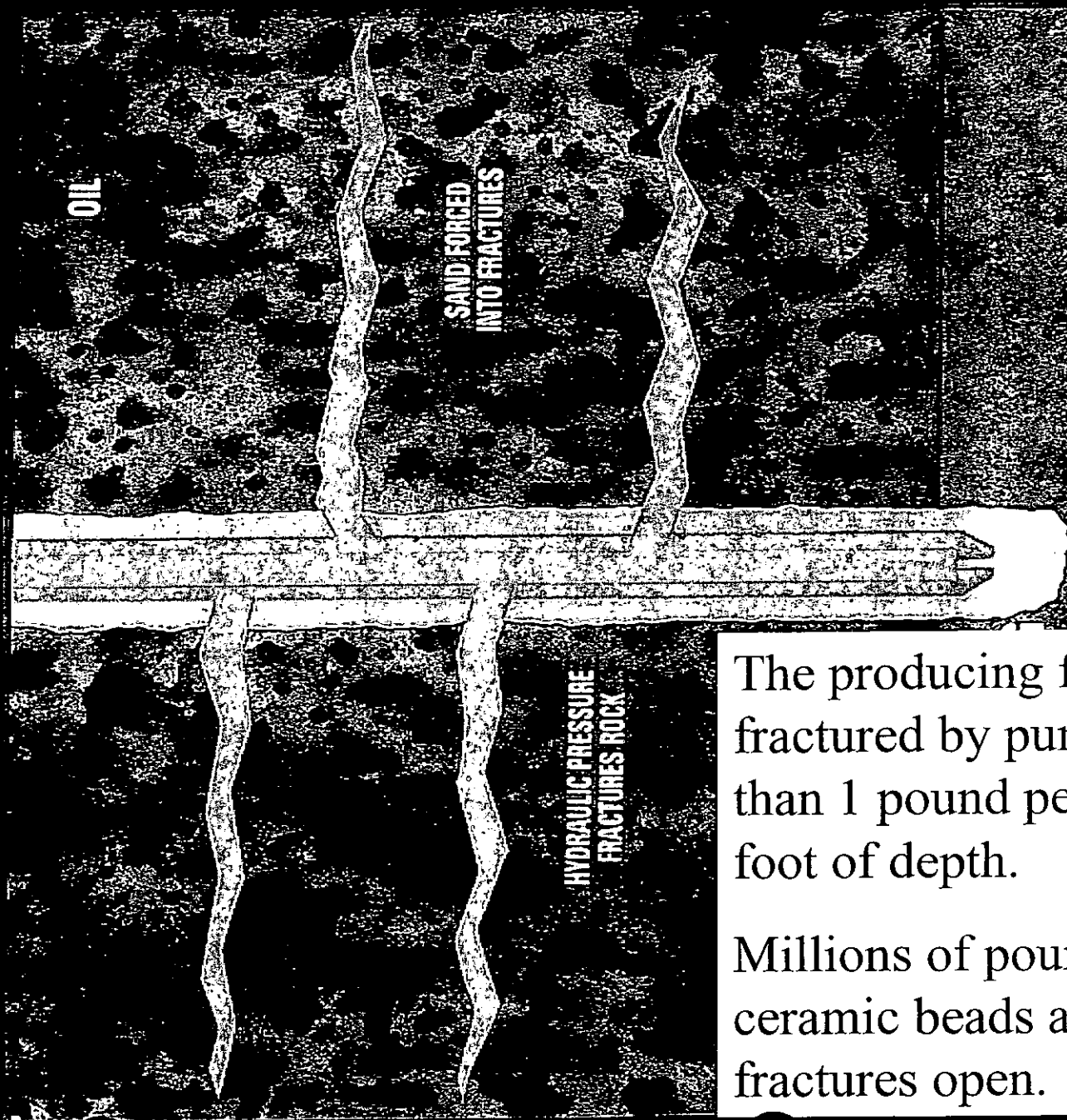
Plan View *
*Not to Scale



ND Industrial Commission

38-08-04. JURISDICTION OF COMMISSION. The commission has continuing jurisdiction and authority over all persons and property, public and private, necessary to enforce effectively the provisions of this chapter. The commission has authority, and it is its duty, to make such investigations as it deems proper to determine whether waste exists or is imminent or whether other facts exist which justify action by the commission. The commission has the authority:

1. To require:
 - a. Identification of ownership of oil or gas wells, producing leases, tanks, plants, structures, and facilities for the transportation or refining of oil and gas.
 - b. The making and filing with the industrial commission of all resistivity, radioactivity, and mechanical well logs and the filing of directional surveys if taken, and the filing of reports on well location, drilling, and production.
 - c. The drilling, casing, operation, and plugging of wells in such manner as to prevent the escape of oil or gas out of one stratum into another, the intrusion of water into oil or gas strata, the pollution of freshwater supplies by oil, gas, or saltwater, and to prevent blowouts, cavings, seepages, and fires.



The producing formation is fractured by pumping water at more than 1 pound per square inch per foot of depth.

Millions of pounds of sand or ceramic beads are pumped to hold fractures open.

- **Compound**
 - **Purpose**
 - **Common application**
- Fresh Water – 80.5%
- Proppant – 19.0%
 - Allows the fractures to remain open so the oil and gas can escape
 - Drinking water filtration, play ground sand
- Acids - 0.12%
 - Help dissolve minerals and initiate fractures in rock (pre-fracture)
 - Swimming pool cleaner
- Petroleum distillates – 0.088%
 - Dissolve polymers and minimize friction
 - Make-up remover, laxatives, and candy
- Isopropanol – 0.081%
 - Increases the viscosity of the fracture fluid
 - Glass cleaner, antiperspirant, and hair color
- Potassium chloride – 0.06%
 - Creates a brine carrier fluid
 - Low-sodium table salt substitute
- Guar gum – 0.056%
 - Thickens the water to suspend the sand
 - Thickener used in cosmetics, baked goods, ice cream, toothpaste, sauces, and salad dressing
- Ethylene glycol – 0.043%
 - Prevents scale deposits in the pipe
 - Automotive antifreeze, household cleansers, deicing, and caulk



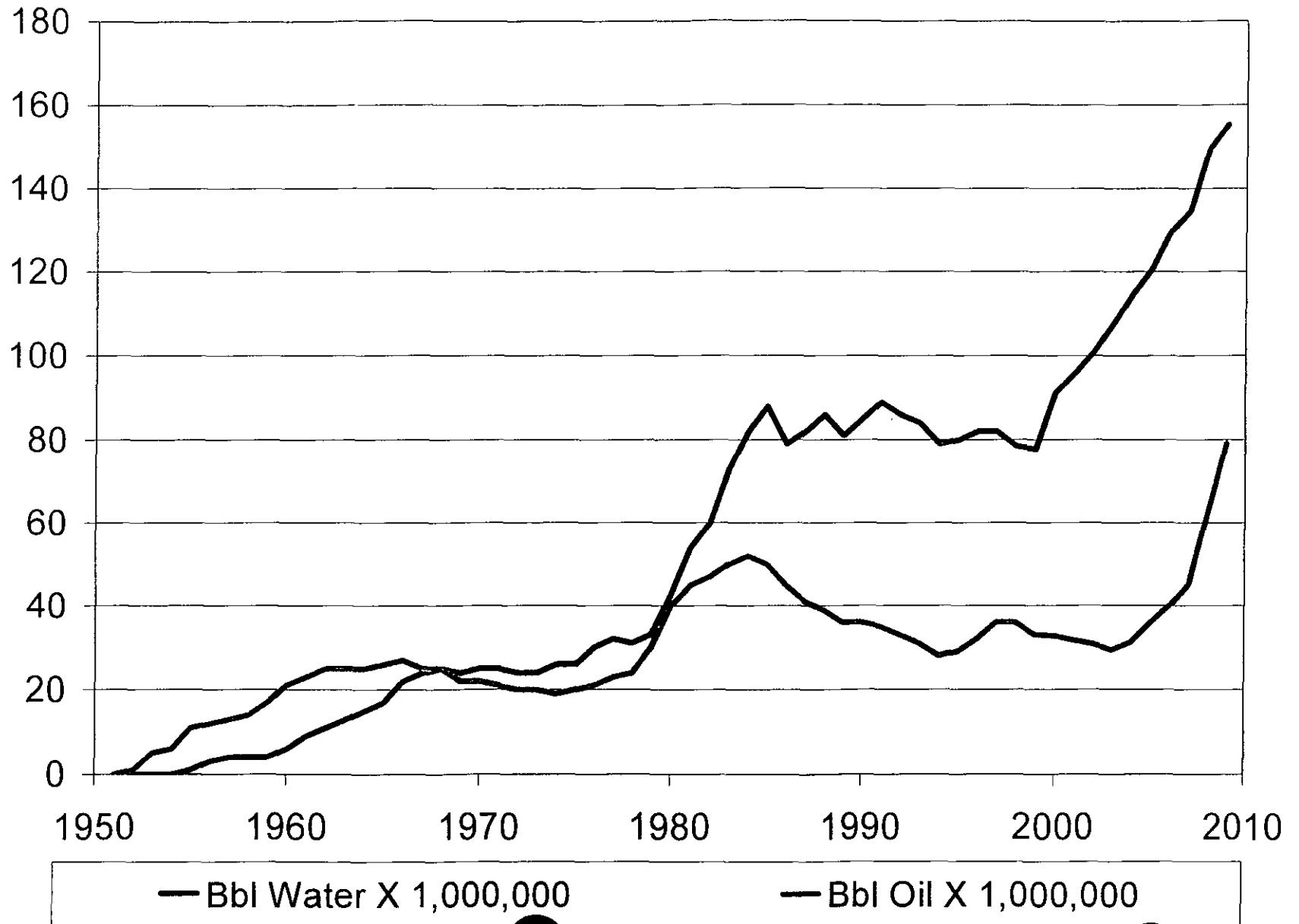
- EPCRA was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. These concerns were triggered by the disaster in Bhopal, India, in which more than 2,000 people suffered death or serious injury from the accidental release of methyl isocyanate. To reduce the likelihood of such a disaster in the United States, Congress imposed requirements on both states and regulated facilities.
- **Key Provisions of the Emergency Planning and Community Right-to-Know Act**
- **Sections 301 to 303. Emergency Planning** Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHSs) on-site in quantities greater than corresponding Threshold Planning Quantities (TPQs) must cooperate in emergency plan preparation.
- **Section 304. Emergency Notification** Facilities must immediately report accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to state and local officials. Information about accidental chemical releases must be available to the public.
- **Sections 311 and 312. Community Right-to-Know Requirements** Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) describing the properties and health effects of these chemicals available to state and local officials and local fire departments. Facilities must also report, to state and local officials and local fire departments, inventories of all on-site chemicals for which MSDSs exist. Information about chemical inventories at facilities and MSDSs must be available to the public.
- **Section 313. Toxics Release Inventory** Facilities must complete and submit a Toxic Chemical Release Inventory Form annually for each of the more than 600 Toxic Release Inventory (TRI) chemicals that are manufactured or otherwise used above the applicable threshold quantities.
- **Section 322 Trade Secrets** Facilities are allowed to withhold the specific chemical identity from the reports filed under sections 303, 311, 312 and 313 of EPCRA if the facilities submit a claim with substantiation to EPA.

- Sodium or potassium carbonate – 0.011%
 - Improves the effectiveness of other components, such as cross-linkers
 - Washing soda, detergents, soap, water softeners, glass and ceramics
- Sodium Chloride – 0.01%
 - Delays break down of the gel polymer chains
 - Table Salt
- Polyacrylamide – 0.009%
 - Minimizes friction between fluid and pipe
 - Water treatment, soil conditioner
- Ammonium bisulfite – 0.008%
 - Removes oxygen from the water to protect the pipe from corrosion
 - Cosmetics, food and beverage processing, water treatment
- Borate salts – 0.007%
 - Maintain fluid viscosity as temperature increases
 - Used in laundry detergents, hand soaps and cosmetics
- Citric Acid – 0.004%
 - Prevents precipitation of metal oxides
 - Food additive; food and beverages; lemon juice
- N, n-Dimethyl formamide – 0.002%
 - Prevents the corrosion of the pipe
 - Used in pharmaceuticals, acrylic fibers and plastics
- Glutaraldehyde – 0.001%
 - Eliminates bacteria in the water
 - Disinfectant; Sterilizer for medical and dental equipment





North Dakota Oil vs Water Production



ND Department of Health

23-33-04. Chemical use data and confidentiality requirement. The department may require chemical use data from product registrants on products that have been or may likely be found in ground water in order to conduct its ground water protection program. This information must include chemical registration data and sales information. The department shall keep this information confidential.

23-33-05. Ground water standards. The department shall establish standards for compounds in ground water as set forth by other states and the United States environmental protection agency unless new scientifically confirmed data provides justification for changing these standards.

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23-33-07. Notification requirement. Any person with verifiable information on the presence of contamination of ground water within the state shall notify the department regarding such contamination.



33-16-02.1-11. Discharge of wastes. Following are general requirements for all waste discharges or chemical additions:

4. Any spill or discharge of waste which causes or is likely to cause pollution of waters of the state must be reported immediately. The owner, operator, or person responsible for a spill or discharge must notify the department as soon as possible (701-328-5210) or the North Dakota hazardous materials emergency assistance and spill reporting number (1-800-472-2121) and provide all relevant information about the spill. Depending on the severity of the spill or accidental discharge, the department may require the owner or operator to:

- a. Take immediate remedial measures;
- b. Determine the extent of pollution to waters of the state;
- c. Provide alternate water sources to water users impacted by the spill or accidental discharge; or
- d. Any other actions necessary to comply with this chapter.



43-02-03-19.2. DISPOSAL OF WASTE. All waste associated with exploration or production of oil and gas must be properly disposed of in an authorized facility in accord with all applicable local, state, and federal laws and regulations. This is not to be construed as requiring the offsite disposal of drilling mud or drill cuttings associated with the drilling of a well. However, top water remaining in the reserve pit used in the drilling and completion operations is to be removed from the reserve pit and disposed of in an authorized disposal well or used in a manner approved by the director. The disposition or use of the water must be included on the sundry notice (form 4) reporting the plan of reclamation pursuant to section 43-02-03-19.

43-02-03-19.3 EARTHEN PITS AND OPEN RECEPTACLES. Except as otherwise provided in section 43-02-03-19, no saltwater, drilling mud, crude oil, waste oil, or other waste shall be stored in earthen pits or open receptacles except in an emergency and upon approval by the director. An earthen pit or open receptacle may be temporarily used to retain oil, water, or fluids generated in well servicing or plugging operations. A pit or receptacle used for this purpose must be sufficiently impermeable to provide adequate temporary containment of the oil, water, or fluids. The contents of the pit or receptacle must be removed within seventy-two hours after operations have ceased and must be disposed of at an authorized facility in accordance with section 43-02-03-19.2. The director may permit pits or receptacles used solely for the purpose of flaring casinghead gas. A pit or receptacle used for this purpose must be sufficiently impermeable to provide adequate temporary containment of fluids. Permission for such pit or receptacle will be conditioned on keeping it free of any saltwater, crude oil, waste oil, or other waste. Saltwater, drilling mud, crude oil, waste oil, or other waste shall be removed from the pit or receptacle within twenty-four hours after being discovered and must be disposed of at an authorized facility in accordance with section 43-02-03-19.2.

Attachment 2

Hydraulic Fracturing

Hydraulic fracturing is a technique used to allow natural gas and crude oil to move more freely from the rock pores where it is trapped to a producing well so it can be brought to the surface at higher rates. Application of hydraulic fracturing techniques, to increase oil and gas recovery, is estimated to account for 30 percent of U.S. recoverable oil and gas reserves and has been responsible for the addition of more than 7 billion barrels of oil and 600 trillion cubic feet of natural gas to meet the nation's energy needs.

Current industry well design practices ensure multiple levels of protection between any sources of drinking water and the production zone of an oil and gas well. Existing well construction practices that are standard in the industry and that are required by virtually all states, effectively protect underground sources of drinking water from impacts related to oil and gas exploration and production activities, including hydraulic fracturing.

Studies of the environmental risk of hydraulic fracturing performed by the U.S. Environmental Protection Agency (EPA) and others concluded that there were no significant environmental risks as a result of proper hydraulic fracturing. Further, the U.S. Department of Energy's (DOE's) Strategic Center for Natural Gas noted that more restrictive regulation of hydraulic fracturing, which may not increase the protection of underground drinking water, could have a deleterious effect on the supply of natural gas in the U.S.

API Position:

- State regulation of hydraulic fracturing began over 60 years ago. These regulations created a control system that has effectively protected ground water and drinking water sources. As reaffirmed by state regulators in October 2007, the current regulatory approach retains the effective state regulatory programs that protect the environment.
- Additional federal regulation of hydraulic fracturing is not needed.
- In our on-going effort toward continued improvement of oil and natural gas operations, API has developed new industry guidance documents on well construction, water use and management, and mitigating surface impacts. These guidelines provide an important complement to current well design practices (ex: steel pipe cemented to the rock through which a well is drilled), which ensure multiple levels of protection between sources of drinking water and the production zone of an oil and gas well.

What Does Every New Oil Well Mean to North Dakota?

A Typical North Dakota Oil Well Produces for an Average of 37 Years.

- If economical, additional secondary recovery efforts can be made to extend the life of the well.

In Those 37 Years, an Average Oil Well:

- Produces over 838,000 barrels of oil (60 barrels of oil per day)
- Generates \$57 million in gross profit
- Pays \$5,775,000 in taxes:
 - Gross production tax - \$2,665,000
 - Extraction tax - \$2,813,000
 - Sales tax - \$297,000
- Pays royalties to mineral owners of \$9,520,000
- Pays salaries of \$1,552,000
- Has operating expenses of \$1,666,000

The average cost of completing a well in North Dakota in 2010 was \$6.1 million.

Oil and gas development accounts for a major portion of the business for RECs in western North Dakota – as much as 75% in some instances.

Road contractors, electricians, welders, service companies, trucking companies, and many other local businesses and communities in western North Dakota rely on the oil industry for their livelihood.

About 34% of the gross value from a well is returned to the local economy in taxes, wages, and other expenses, which helps keep the local economy running, the government operating, and helps reduce your tax burden.



NORTH DAKOTA OIL FACTS

Did You Know?

- ▶ **North Dakota is the fourth largest oil producing state.** The state's average production in 2009 was more than 218,000 barrels of oil per day, totaling nearly 80 million barrels for the year, up more than 17 million from 2008.
- ▶ All-time production of crude oil in North Dakota amounts to more than 1.7 billion barrels.
- ▶ At the end of 2009, there were 5,200 wells capable of producing oil and gas in North Dakota. The average North Dakota well produced approximately 47 barrels per day.
- ▶ During 2009, **92.5 billion cubic feet of natural gas were produced** and 56.4 billion cubic feet of natural gas were processed in North Dakota.
- ▶ The drilling rig count, a prime barometer for measuring new oil and gas activity, averaged 52 rigs a day in 2009. The peak year for drilling rigs was 1981, with an average monthly rig count of 119. The all-time high was in October of 1981, with 146 operating rigs.
- ▶ There were 627 drilling permits issued during 2009, down 319 from 2008. Approximately 517 wells were completed in 2009.
- ▶ **Horizontal, or directional, drilling accounted for 95% of the new wells drilled in 2009** and 84.7% of the state's total oil production.
- ▶ The success ratio for new wells in existing fields in 2009 was 99% and for wildcat wells was 94%. A wildcat well is a new well drilled at least one mile from existing production. The overall industry success rate for new wells in North Dakota for 2009 was 98%.
- ▶ The deepest vertical well drilled in North Dakota in 2008 was 13,805 feet. **The average depth for a North Dakota well in 2009 was 17,035 feet.** The longest horizontal well drilled in North Dakota in 2008 was 22,174 feet.

WWW.NDOLC.ORG



- ▶ The average cost of completing an oil well in North Dakota was approximately **\$5.6 million** during 2009. The average cost of completing a well in 2008 was about \$5.4 million.
- ▶ There were **17 counties in the state in 2009 with commercial oil production**. Oil and gas exploration has occurred at some point in every county in the state except Traill County.
- ▶ **Mountrail County** was the top-producing county in 2009, accounting for 37% of the state's oil production. The other top-producing counties were Bowman, McKenzie, Dunn and Williams.

Employment

- ▶ The state averaged more than **5,508 North Dakotans** at work in the oil patch in fiscal year 2008-09. Peak oil field employment occurred in late 1981, when more than 10,000 people were working in the oil patch.
- ▶ **Each drilling rig results in approximately 120 direct and indirect jobs.**
- ▶ Other sectors of the petroleum industry include refineries, gas plants, pipelines, retail gasoline stations, wholesalers, and transporters. The industry altogether employed approximately 12,747 people in North Dakota during fiscal year 2008-09.
- ▶ In 2008, Job Service North Dakota reported the average yearly wage in the oil and gas extraction industry was **\$82,803**. That wage is 132.5% above the statewide average wage of \$35,618.

Oil Tax Revenues

- ▶ Production tax revenues for 2009 were more than \$392.9 million, representing a 25% decrease from 2008.
- ▶ Over the past 57 years, **the State of North Dakota has received more than \$791 million from oil and gas leases, bonuses, royalties and rentals on state land**. During 2009, more than \$36.4 million went to the Lands and Minerals Trust and more than \$120 million to the Board of University and School Lands Trust.
- ▶ U.S. Forest Service administered lands in the Little Missouri National Grasslands provided federal oil and gas revenues of \$34,184,078 during fiscal year 2009. Of that amount, one fourth, or \$8,546,019, was returned to McKenzie, Billings, Golden Valley and Slope Counties for schools and roads. In addition, Bureau of Land Management administered land produced \$54,067,250 during fiscal year 2009. Approximately half of that amount, \$26,492,948 (adjusted for new receipts sharing), was returned to the state's general fund and is the first money expended for education statewide.



Testimony of Bill Shalhoob
North Dakota Chamber of Commerce
HB 1216
January 20, 2011

Mr. Chairman and members of the committee, My name is Bill Shalhoob and I am here today representing the North Dakota Chamber of Commerce, the principal business advocacy group in North Dakota. Our organization is an economic and geographical cross section of North Dakota's private sector and also includes state associations, local chambers of commerce, development organizations, convention and visitors bureaus and public sector organizations. For purposes of this hearing we are also representing five local chambers with over 5,000 members. As a group we stand in support of HB 1216 and urge a do pass from the committee on this bill

North Dakota is in a unique and enviable position for current and future revenue projections. Much of our position is due to the incredible growth of the oil industry. We are dealing with the barricades to future growth such as transmission and transportation issues. There are threats we cannot control such as the world supply and price of oil. If HB 1216 eliminates the possibility hydraulic fracturing, and therefore industry ability to recover oil in the Bakken and other North Dakota formations, would ever be banned or governed by federal rule makers it should be passed immediately. We need to be in charge of our own future.

Thank you for the opportunity to appear before you today in support of HB 1216. I would be happy to answer any questions.

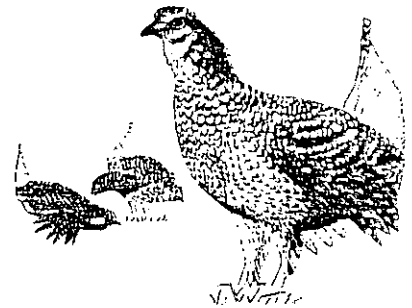
Attachment 4



North Dakota Chapter

THE WILDLIFE SOCIETY

P.O. BOX 1442 • BISMARCK, ND 58502



**TESTIMONY OF MIKE McENROE
NORTH DAKOTA CHAPTER OF THE WILDLIFE SOCIETY
ON HB 1216
HOUSE ENERGY AND NATURAL RESOURCES COMMITTEE
JANUARY 20, 2011**

Chairman Porter and members of the Energy and Natural Resources Committee:

My name is Mike McEnroe and I represent the North Dakota Chapter of The Wildlife Society. The Chapter is a professional organization made up of over 320 biologists, land managers, university educators, and law enforcement officers in the wildlife and natural resource field.

The Chapter is opposed to HB 1216, largely because it seems to codify a contemporary opinion. The Chapter is not opposed to the oil and gas industry, energy development, or fracking. The oil and gas industry has been and is an economic boon to the State; it is the main reason that the State is in a strong economic position.

The Chapter does not see how the industry is affected one way or another by HB 1216. It may be that it is an attempt to give fracking a free pass on further environmental review; it may be to give fracking continued exemption at the State level from EPA regulation.

Director Lynn Helms of the Mineral Resources Department recently stated after the two fracking incidents in western ND, "that something needs to be fixed". If something needs to be fixed, we suggest the fix before the endorsement.


The oil and gas recovery technology is growing at a phenomenal pace. Indeed, SB 2146 provides grants for research to increase the recovery rates for oil and gas development. Why endorse and codify a recovery practice today that may not be used in five, ten, or fifteen years.

The Chapter urges the Committee to give HB 1216 a Do Not Pass recommendation.

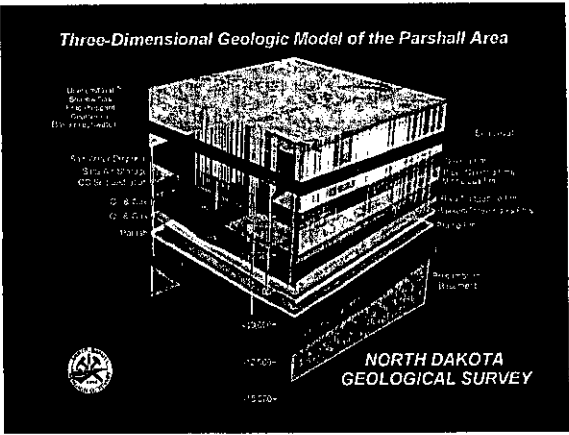
Thank you, and I will answer any questions the committee may have.

#1

Lynn D. Helms, Director
 North Dakota Industrial Commission
 Department of Mineral Resources



<http://www.dmr.nd.gov>
 600 East Boulevard Ave. - Dept 405
 Bismarck, ND 58505-0840
 (701) 328-8020 (701) 328-8000



North Dakota has been regulating the full life cycle of hydraulic fracturing for decades

- Water Commission regulates water appropriations
 - Guards against ground water withdrawals exceeding recharge
- The Industrial Commission regulates well permitting and construction
 - Assure that a minimum of 2 steel casings and 2 layers of cement are installed and tested between ground water and any fluids pumped into or produced from an oil and gas well.
- The Health Department and local Emergency Managers
 - Clean up of any discharge to the environment
 - EPCRA (material safety data on any released chemicals).
- The Industrial Commission regulates flow back water collection and disposal
 - SDWA UIC Class II underground injection program

EPA Study 2010-2014
will include the Killdeer site

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Western North Dakota

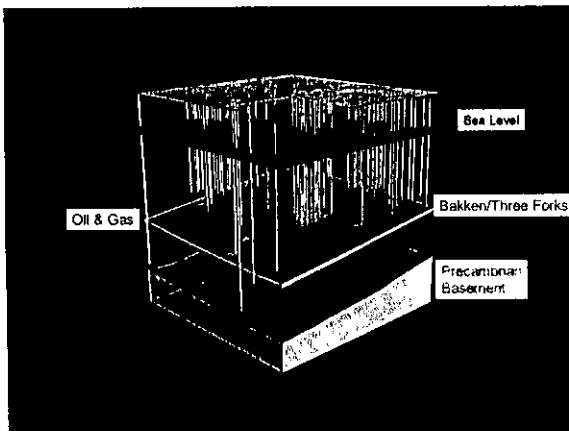
- 1,050 to 2,700 wells/year = 2,000 expected
 - 85-225 rigs = 10,000 - 27,000 jobs = 21,000 expected
- 10 - 25 million gallons frac water/day
 - Equal to 1" of water from Lake Sakakawea
- 10 to 20 years
 - 28,000 new wells expected = ±28,000 long term jobs

ND Water Commission

61-04-02. Permit for beneficial use of water required. Any person, before commencing any construction for the purpose of appropriating waters of the state or before taking waters of the state from any constructed works, shall first secure a water permit from the state engineer unless such construction or taking from such constructed works is for domestic or livestock purposes or for fish, wildlife, and other recreational uses or unless otherwise provided by law. However, immediately upon completing any constructed works for domestic or livestock purposes or for fish, wildlife, and other recreational uses, the water user shall notify the state engineer of the location and acre-foot [1233.48 cubic meters] capacity of such constructed works, dams, or dugouts. Regardless of proposed use, however, all water users shall secure a water permit prior to constructing an impoundment capable of retaining more than twelve and one-half acre-feet [15418.52 cubic meters] of water or the construction of a well from which more than twelve and one-half acre-feet [15418.52 cubic meters] of water per year will be appropriated. If a permit is not required of a landowner or the landowner's lessee to appropriate less than twelve and one-half acre-feet [15418.52 cubic meters] of water from any source for domestic or livestock purposes or for fish, wildlife, and other recreational uses, those appropriators may apply for water permits in order to clearly establish a priority date and the state engineer may waive any fee or hearing for such applications. An applicant for a water permit to irrigate need not be the owner of the land to be irrigated.

North Dakota has been regulating the full life cycle of hydraulic fracturing for decades

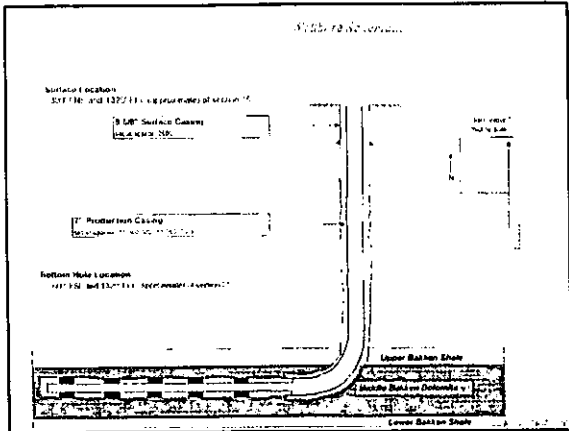
- The Industrial Commission regulates well permitting and construction
 - Assure that a minimum of 2 steel casings and 2 layers of cement are installed and tested between ground water and any fluids pumped into or produced from an oil and gas well.
- The Hydraulically Fractured formations are 6,000 to 8,000 feet below our fresh water formations.
 - Most formations between are impermeable shale, salt, and limestone

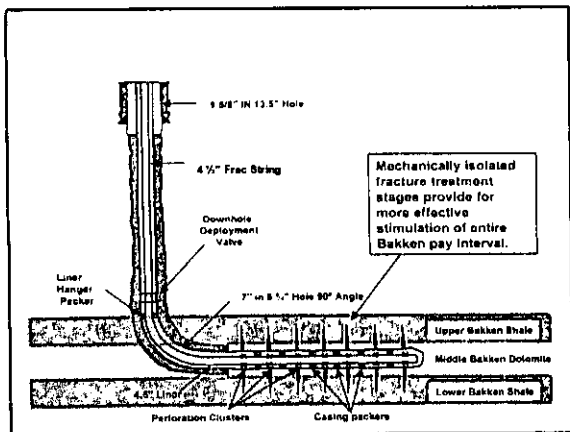


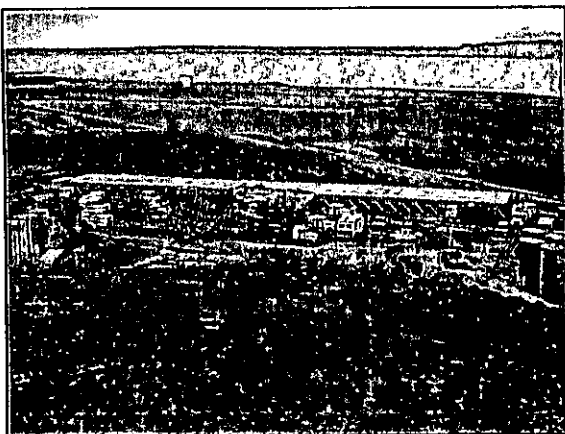
ND Industrial Commission

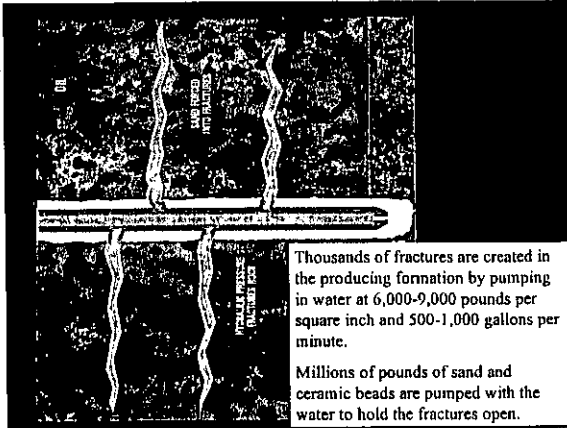
38-08-04. JURISDICTION OF COMMISSION. The commission has continuing jurisdiction and authority over all persons and property, public and private, necessary to enforce effectively the provisions of this chapter. The commission has authority, and it is its duty, to make such investigations as it deems proper to determine whether waste exists or is imminent or whether other facts exist which justify action by the commission. The commission has the authority:

1. To require:
 - a. Identification of ownership of oil or gas wells, producing leases, tanks, plants, structures, and facilities for the transportation or refining of oil and gas.
 - b. The making and filing with the industrial commission of all resistivity, radioactivity, and mechanical well logs and the filing of directional surveys if taken, and the filing of reports on well location, drilling, and production.
 - c. The drilling, casing, operation, and plugging of wells in such manner as to prevent the escape of oil or gas out of one stratum into another, the intrusion of water into oil or gas strata, the pollution of freshwater supplies by oil, gas, or saltwater, and to prevent blowouts, cavings, seepages, and fires.









Thousands of fractures are created in the producing formation by pumping in water at 6,000-9,000 pounds per square inch and 500-1,000 gallons per minute.

Millions of pounds of sand and ceramic beads are pumped with the water to hold the fractures open.

- EPCRA was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. These concerns were triggered by the disaster in Bhopal, India, in which more than 2,000 people suffered death or serious injury from the accidental release of methyl isocyanate. To reduce the likelihood of such a disaster in the United States, Congress imposed requirements on both states and regulated facilities.
- **Key Provisions of the Emergency Planning and Community Right-to-Know Act**
- **Sections 301 to 303. Emergency Planning** Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHSs) on-site in quantities greater than corresponding Threshold Planning Quantities (TPQs) must cooperate in emergency plan preparation.
- **Section 304. Emergency Notification** Facilities must immediately report accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to state and local officials. Information about accidental chemical releases must be available to the public.
- **Sections 311 and 312. Community Right-to-Know Requirements** Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) describing the properties and health effects of these chemicals available to state and local officials and local fire departments. Facilities must also report, to state and local officials and local fire departments, inventories of all on-site chemicals for which MSDSs exist. Information about chemical inventories at facilities and MSDSs must be available to the public.
- **Section 313. Toxics Release Inventory** Facilities must complete and submit a Toxic Chemical Release Inventory Form annually for each of the more than 600 Toxic Release Inventory (TRI) chemicals that are manufactured or otherwise used above the applicable threshold quantities.
- **Section 312 Trade Secrets** Facilities are allowed to withhold the specific chemical identity from the reports filed under sections 303, 311, 312 and 313 of EPCRA if the facilities submit a claim with substantiation to EPA.

North Dakota has been regulating the full life cycle of hydraulic fracturing for decades

- The Industrial Commission regulates reporting of any spills or releases
- The Health Department and local Emergency Managers regulate
 - Clean up of any discharge to the environment
 - EPCRA (material safety data on any released chemicals)
- The chemicals used are found in things we encounter daily and are in very low concentrations when mixed and pumped

ND Industrial Commission

43-02-03-30. NOTIFICATION OF FIRES, LEAKS, SPILLS, OR BLOWOUTS. All persons controlling or operating any well, pipeline, receiving tank, storage tank, or production facility into which oil, gas, or water is produced, received, stored, processed, or through which oil, gas, or water is injected, piped, or transported, shall verbally notify the director within twenty-four hours after discovery of any fire, leak, spill, blowout, or release of fluid. If any such incident occurs or travels offsite of a facility, the persons, as named above, responsible for proper notification shall within a reasonable time also notify the surface owners upon whose land the incident occurred or traveled. Notification requirements prescribed by this section shall not apply to any leak, spill, or release of fluid that is less than one barrel total volume and remains onsite of a facility. The verbal notification must be followed by a written report within ten days after cleanup of the incident, unless deemed unnecessary by the director. Such report must include the following information: the operator and description of the facility, the legal description of the location of the incident, date of occurrence, date of cleanup, amount and type of each fluid involved, amount of each fluid recovered, steps taken to remedy the situation, cause of the accident, and action taken to prevent recurrence. The signature, title, and telephone number of the company representative must be included on such report. The persons, as named above, responsible for proper notification shall within a reasonable time also provide a copy of the written report to the surface owners upon whose land the incident occurred or traveled. The commission, however, may impose more stringent spill reporting requirements if warranted by proximity to sensitive areas, past spill performance, or careless operating practices as determined by the director.

ND Department of Health

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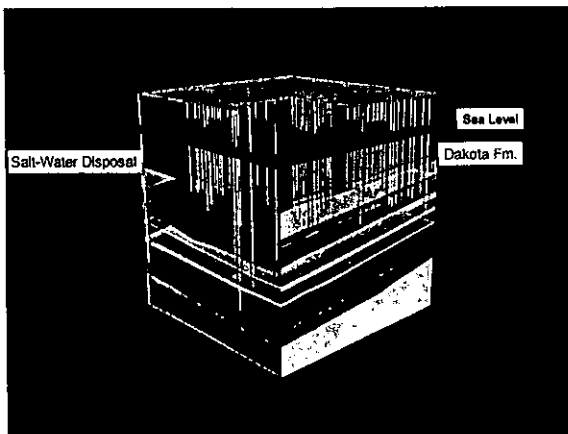
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North Dakota has been regulating
the full life cycle of hydraulic
fracturing for decades

- The Industrial Commission regulates flow back water collection and disposal
 - Storage in open pits is not allowed
 - Disposal wells are regulated under the SDWA UIC Class II underground injection program
 - The disposal formation is approximately 2,500 feet below our fresh water zones
 - The formations between are impermeable shale

43-02-03-19.2. DISPOSAL OF WASTE. All waste associated with exploration or production of oil and gas must be properly disposed of in an authorized facility in accord with all applicable local, state, and federal laws and regulations. This is not to be construed as requiring the offsite disposal of drilling mud or drill cuttings associated with the drilling of a well. However, top water remaining in the reserve pit used in the drilling and completion operations is to be removed from the reserve pit and disposed of in an authorized disposal well or used in a manner approved by the director. The disposition or use of the water must be included on the sundry notice (form 4) reporting the plan of reclamation pursuant to section 43-02-03-19.

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Lyson, Stanley W.

From: DeKrey, Duane L.
To: Friday, March 04, 2011 5:53 AM
Subject: Lyson, Stanley W.
Fracking bill
Importance: High

Stan,

I have Guard today, sat, sun so won't make committee today. Lynn Helms and Ron Ness both testified for the bill in the House. USFWS testified against it and I expect DRC to show up this time. The bill does nothing more than play defense against the federal Government. It's intent does not prohibit any regulation by the Feds or the State. If we have state a law on the books it would make it harder for the Federal Government to stop us from fracking. It is a simple statement that fracking oil and gas wells is an acceptable practice in ND.

Duane

#3

Hydraulic Fracturing 101

If finding and producing energy in America were as easy as Jed Clampett and his rifle made it look in the opening credits of the *Beverly Hillbillies*, we probably wouldn't have needed to pioneer a well stimulation technology known as hydraulic fracturing. But it isn't, and so we did – first using the process in 1947 to stimulate flow of natural gas from the Hugoton field in Kansas.

How successful was that first operation? All these years later, that's still the source of some friendly disagreement – but here's what's not: Over the past six decades, hydraulic fracturing has helped deliver more than 600 trillion cubic feet of natural gas to American consumers, the product of more than 1.1 million separate and successful fracturing applications during that time.

Today, nearly nine out of 10 onshore wells – natural gas and oil – require fracture stimulation to remain or become viable. And thanks to the emerging revolution in the development of U.S. shale gas, the technology is poised to play an even more important role moving forward – converting America's massive, untapped energy potential into the reality of millions of well-paying jobs, billions in state and federal revenue, and a real path to a clean and affordable energy future.

So how does this process actually work? Well, it starts with a good bit of water and a lot of sand. Mix those two together, apply a couple thousand pounds of pressure, and introduce them to a reservoir several thousand feet below, often with the help of a small percentage of additives that aid in delivering that solution down the hatch.






Then physics takes over. The force of the water creates a network of tiny fissures in the impermeable rock. The flow of water acts as a delivery mechanism for the sand, which finds its way into those newly created cracks and holds them open. This creates passageways through which the previously trapped natural gas can travel to get to the wellbore. The fracturing process is now finished; on average, it takes 3 to 10 days to complete.

Now it's time for the operator to remove the water, clearing the way for the newly stimulated well to produce energy for the pumps, the equipment, and the traffic that were needed to do the job – they're long gone. The operator typically leaves equipment behind. The rest of the site is remediated, often within 120 days.

Take some time to view the interactive animation that runs through the basic mechanics of fracturing a well. We've also linked to other party sources with additional information on the technology – where it's used, why it's used, and what independent studies show about its performance.

Thanks again for stopping by. Drop us a note with questions or suggestions by clicking on the envelope below.

Related Websites

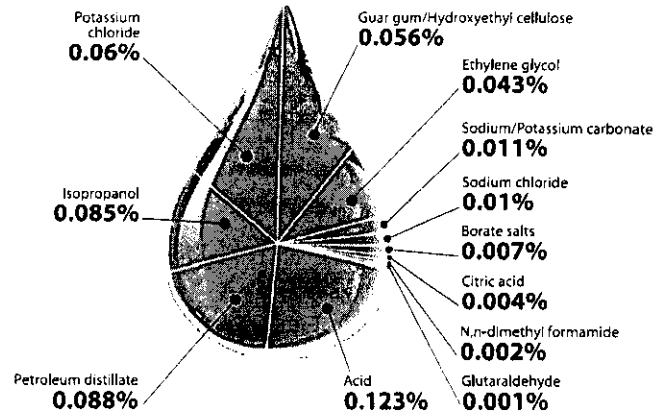
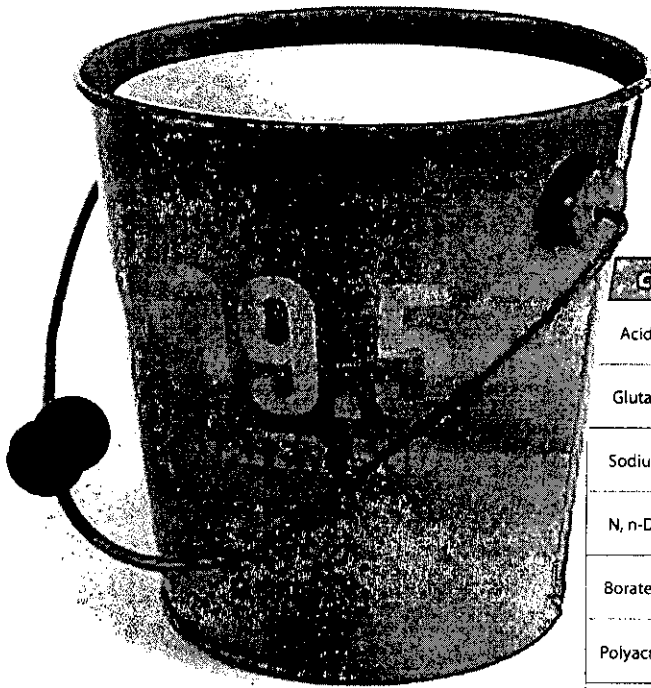
1. Energy in Depth: <http://www.energyindepth.org/in-depth/frac-in-depth/> 
2. American Petroleum Institute: <http://www.api.org/policy/exploration/hydraulicfracturing/> 
3. America's Natural Gas Alliance: <http://www.angas.us/learn-the-facts/extraction-101> 
4. U.S. Energy Information Administration: <http://www.eia.doe.gov/oiaf/aeo/lpna/gas.html> 
5. EPA – United States Environmental Protection Agency: <http://water.epa.gov/type/groundwater/uic/class2/hy> 

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A FLUID SITUATION:

TYPICAL SOLUTION* USED IN HYDRAULIC FRACTURING

0.49%
ADDITIVES*



Compound*	Purpose	Common application
Acids	Helps dissolve minerals and initiate fissure in rock (pre-fracture)	Swimming pool cleaner
Glutaraldehyde	Eliminates bacteria in the water	Disinfectant; Sterilizer for medical and dental equipment
Sodium Chloride	Allows a delayed break down of the gel polymer chains	Table Salt
N, n-Dimethyl formamide	Prevents the corrosion of the pipe	Used in pharmaceuticals, acrylic fibers and plastics
Borate salts	Maintains fluid viscosity as temperature increases	Used in laundry detergents, hand soaps and cosmetics
Polyacrylamide	Minimizes friction between fluid and pipe	Water treatment, soil conditioner
Petroleum distillates	"Slicks" the water to minimize friction	Make-up remover, laxatives, and candy
Guar gum	Thickens the water to suspend the sand	Thickener used in cosmetics, baked goods, ice cream, toothpaste, sauces, and salad dressing
Citric Acid	Prevents precipitation of metal oxides	Food additive; food and beverages; lemon juice
Potassium chloride	Creates a brine carrier fluid	Low sodium table salt substitute
Ammonium bisulfite	Removes oxygen from the water to protect the pipe from corrosion	Cosmetics, food and beverage processing, water treatment
Sodium or potassium carbonate	Maintains the effectiveness of other components, such as crosslinkers	Washing soda, detergents, soap, water softener, glass and ceramics
Proppant	Allows the fissures to remain open so the gas can escape	Drinking water filtration, play sand
Ethylene glycol	Prevents scale deposits in the pipe	Automotive antifreeze, household cleansers, deicing, and caulk
Isopropanol	Used to increase the viscosity of the fracture fluid	Glass cleaner, antiperspirant, and hair color

On average, **99.5%** of fracturing fluids are comprised of freshwater and compounds are injected into deep shale gas formations and are typically confined by many thousands of feet of rock layers.

Source: DOE, GWPC: Modern Gas Shale Development In the United States: A Primer (2009)

*The specific compounds used in a given fracturing operation will vary depending on source water quality and site, and specific characteristics of the target formation. The compounds listed above are representative of the major material components used in the hydraulic fracturing of natural gas shales. Compositions are approximate.

Testimony for Ashley Lauth, Oil and Gas Organizer for Dakota Resource Council, in Opposition to HB 1216
Senate Natural Resource Committee, March 4th, 2011

Mr. Chairman and members of the Committee, for the record my name is Ashley Lauth, I am the oil and gas organizer for Dakota Resource Council. I work with farmers, ranchers, landowners, and mineral owners on responsible oil and gas development issues in North Dakota.

Dakota Resource Council urges a 'Do Not Pass' recommendation for HB 1216 because authoritative studies based on scientific evidence have not conclusively ruled on the hazards of hydraulic fracturing, and because the chemical contents of hydraulic fracturing fluid crucial to producing scientific studies are not disclosed.

Dakota Resource Council maintains that the constituents of hydraulic fracturing fluid should be disclosed in the name of public and agricultural health. HB 1216 simply states the obvious. Hydraulic fracturing (fracking) has been used as a recovery process for years because state agencies already hold that it's an acceptable practice.

Therefore, this bill only posits that acceptable means a commonplace activity, not something that undergoes scrutiny of science or law.

Hydraulic fracturing is not simply a mechanical method confined by geology. It is a chemical process that destroys the inherent structural integrity of hard rock shale.

Some of the chemicals found to be in hydraulic fracturing fluid are well-known highly toxic carcinogens. Chemicals including **aromatic hydrocarbons such as benzene, toluene, ethylbenzene, and xylene**, methylcyclo-hexane, naphthalene, phenol, **thermogenic methane, tris 2-butoxyethanol phosphate (2 BE-P), diesel fuel**, ethane, propanes, butanes, pentanes, hexanes, heptanes, and octanes.

Furthermore, hydraulic fracking is a system, which not only includes injection, but storage, transport, pipelines, tanks, treatment, venting, etc. The potential hazards are not limited to surface and subsurface water (including drinking water); this is a major threat for air quality. Some of the main problems with any chemicals used in fracking are disposal (which in the case of drilling mud, can be open pits) and air volatilization, or off-gassing.

The Emergency Planning and Right to Know Act (EPCRA) states that chemical identities may be claimed as a trade except in the case of a spill. Facilities must immediately notify the Local Emergency Planning Committees and the State Emergency Response Commission if there is a release into the environment of a hazardous substance but only if it is equal to or exceeds the minimum reportable quantity set in the regulations.

Currently, it is difficult, if not impossible, to obtain specific information about a product's chemical ingredients, and the proportions or combinations of these chemicals present. It is difficult, as well, to find out what volumes of chemicals are being used during various oil and gas drilling, completion and production operations. Without such information, not only are communities and citizens kept in the dark about potential health impacts, but also the regulatory agencies cannot know what chemicals to sample for, in the event of a spill or release.

Because authoritative studies based on scientific evidence have not conclusively ruled on the hazards of hydraulic fracturing, deeming fracking "acceptable" does not mean that potentially hazardous chemicals in hydraulic fracturing fluid should not be disclosed. disclosure is not unfounded- it is being called for across the country because there is a sizable volume of documented cases which point to fracking as being potentially hazardous. people and lawmakers across the United States taking an earnest look at hydraulic fracturing and giving it the scrutiny that it deserves in order to protect the health of people and the land they make their livelihood on.

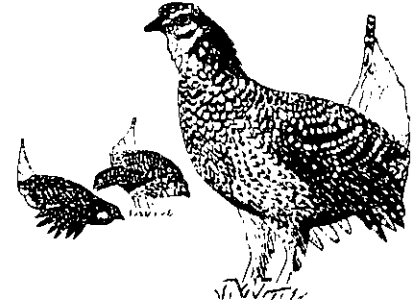
Hence, Dakota Resource Council urges a 'Do Not Pass' recommendation for HB 1216. Thank you.



North Dakota Chapter

THE WILDLIFE SOCIETY

P.O. BOX 1442 • BISMARCK, ND 58502



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**TESTIMONY OF MIKE McENROE
NORTH DAKOTA CHAPTER OF THE WILDLIFE SOCIETY
ON HB 1216
SENATE NATURAL RESOURCES COMMITTEE
MARCH 4, 2011**

Chairman Lyson and members of the Senate Natural Resources Committee:

My name is Mike McEnroe and I represent the North Dakota Chapter of The Wildlife Society. The Chapter is a professional organization made up of over 320 biologists, land managers, university educators, and law enforcement officers in the wildlife and natural resource field.

The Chapter is not opposed to the oil and gas industry, energy development, or hydraulic fracturing, referred to as fracking. The oil and gas industry has been and is an economic boon to the State; it is the main reason that the State is in a strong economic position.

During testimony in the House, it was stated that HB 1216 may give the State's oil and gas industry exemption from EPA regulations of fracking in the future. However, HB 1216 does not regulate fracking, it merely endorses it. We do not believe that HB 1216 would strengthen a State claim that the fracking process is already regulated. We would recommend that as part of the permit application, the developer be required to disclose the chemicals to be used in the fracking process in the permit application.

In a February 12, 2011 Bismarck Tribune article, Minerals Resources Department Director Lynn Helms in response to a question about disclosing the chemicals used in fracking, was quoted as saying, "We'd just bury ourselves in information. . . I don't think people read ingredients on the food they buy in the grocery store. This would just alarm people." If it would alarm people, ~~many~~ ^{maybe} there is a reason to have the information made part of the permit decision.

The Chapter urges the Committee to give HB 1216 a Do Not Pass recommendation unless full disclosure of the chemicals used in the fracking mixture are disclosed in the permit process.

Thank you, and I will answer any questions the committee may have.

March 4, 2011

The Honorable Stanley Lyson

Natural Resources Committee

RE: Opposition to House Bill 1287

Chairman Lyson and Members of the Committee:

My name is Kris Kitko; I am a folksinger/songwriter and public commentator living in Bismarck.

A few months back, I wrote and recorded a song criticizing state leadership during our oil boom. Specifically, I sang about problems that developed due to infrastructure neglect. I posted the song on the Internet, and it was viewed by thousands. The email and comments came streaming in—some criticizing me, others agreeing about infrastructure troubles.

And then a very different type of email began showing up in my inbox.

These emails spoke about strange illnesses that appeared when hydrofracking began near people's farms.

I'm holding a copy of medical test results sent to me by a farmer living in northwest North Dakota. Since fracking started near the family's home, they have been sick. She says of the results:

"My doctor told me that a normal germanium level on this test would be below 10. Mine is 52, and a second test done later came back at 48. My husband tested at 39. It has been at these levels for months. For arsenic, the doctor said that the highest it should ever be is 50 or less. Mine is 132.4."

They have spent thousands of dollars in ER visits because they often cannot breathe or walk steadily enough to get out and feed the cattle. They are in their forties. They counted approximately 25 storage tanks or drill sites within a ten-mile radius of their home and a few ponds that contain "produced water"—waste water from fracking. They enjoyed good health before these appeared.

Here's a picture of a mysterious rash that has plagued a family living near more fracking activity in North Dakota. It is shockingly similar to many other stories found in other parts of the country where fracking is occurring.

And then there's the photo of the barn cats and cattle with blood coming out of their eyes and noses. And what about hair falling out on the livestock, towels soaked in blood from

inexplicable bloody noses, and other ailments that have racked up thousands of dollars in medical bills for our families in North Dakota?

Recently, I visited with some of these farmers. They showed me their sick livestock, rashes, medical reports, veterinary bills, and how they have colored-coded the asthma inhalers for every member of the family. They took me to their homes and barns where the air made my eyes burn. This is out in open country where we supposedly have some of the cleanest air in the nation. They all say the same thing: These things happened when fracking began near their homes.

The emails are still coming. I did not ask for these emails, nor did I sing about—or even imagine—these problems when writing my song about infrastructure.

Hydraulic fracturing is not an acceptable recovery process; it is far from it. But if fracking is interrupted, many people in positions of power will lose out. North Dakota is a big state, but it's just a small town. We all know each other or can trace connections to each other quite easily. We North Dakotans, including the people who've been telling me their stories and sending photos, have a right to be protected from this unacceptable recovery process.

I urge you to recommend "Do Not Pass" on this bill.