

**2013 SENATE NATURAL RESOURCES**

**SB 2206**

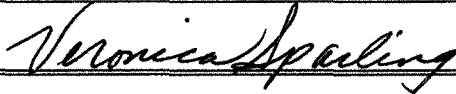
# 2013 SENATE STANDING COMMITTEE MINUTES

## Senate Natural Resources Committee Fort Lincoln Room, State Capitol

SB 2206  
January 24, 2013  
17681

Conference Committee

Committee Clerk Signature



### Explanation or reason for introduction of bill/resolution:

Relating to setbacks for oil and gas wells

### Minutes:

Written testimony attached

All committee members were present.

Chairman Lyson opened the hearing on SB 2206.

Senator Bill Bowman, representing District 39 which is in the oil patch, spoke in favor of SB 2006. He explained this bill is not to stop the oil companies, but to address a problem- the increased possibility of fires the oil wells may cause and the resultant danger to the residents of the area. This bill would require the wells to be placed a greater distance from residences. There has to be enough distance to allow residents to escape if a fire starts.

Frank Leppell, a rancher from McKenzie County, spoke in favor of the bill. He passed around pictures of what he sees from his house. See attached testimony #1. He worked in the oil field for 34 years, doing everything from the drilling to the reclamation of the wells. The flare fires usually happen after the well has been operating for some time. Liquids condense in a gas line. One day when the gas system is being pressured up they will have to pop off the flare. When they do that, they shove all the condensation out on the grass. Last fall there were three different flare pit fires. The last one took 1 ½ hours and they chased the fire for 2 ½ miles. It was in remote country. It took ½ hour to even get trucks to it. It went across private and government pastures and ended up in someone's backyard. If a local contractor hadn't taken a blade to make a firebreak, the farm would have been lost. More distance gives more lead time. With a ranching operation, if his pasture burns it will put him out of business.

09:10 to 10:26 There was discussion about whether the oil companies will accommodate the farmer/rancher's wishes as far as where to place a well pad.

Senator Triplett asked if the problem of fires from flares could be solved by the state regulatory agency creating and enforcing stricter rules to reduce or eliminate flares from the wells.

(11:20 to 11:40) Mr. Leppell explained there is no way to eliminate flares.

Senator Triplett asked if Mr. Leppell had any suggestions for reducing the incidence of fires on the well sites. Could the well pads be designed differently to avoid some of the risk of fires?

(12:10 to 12:50) Mr. Leppell said a different placement of the flare pit may help, or designing a different style of stack so it can't blow the oil out.

Myron Hanson, President of Northwest Landowners Association, spoke in favor of the bill. See attached testimony #2. The Landowners Association feels 1320 feet provides a much greater margin of safety for the individuals living in the oil impacted areas.

(14:48 to 17:20) There was discussion about whether the greater distance was needed for the single pad wells or for the multi-pad wells.

Dan Wogsland, Executive Director of the North Dakota Grain Growers Association, spoke in favor of SB 2206. See attached testimony #3.

(19:25 to 20:25) Theodora Bird Bear, a Dakota Resource Council member and a mineral rights owner and a surface owner, spoke in favor of the bill and expressed interest in amending the distance to a quarter of a mile. See attached testimony #4.

(25:50 to 28:30) There was a question about how the setback issue relates to the points in her testimony and whether she has evidence of the radioactive material being improperly disposed of.

Wesley Leppell spoke in favor of the bill. He feels the 500 feet limit causes danger to children who live near a well. Children are free to roam on a farm. They can quickly go 500 feet. He also spoke of his experience with the rural fire department. They are not allowed to go onto location of a fire. They have to just work to contain it to the location of the well. If a tank blows up within 500 feet of a residence, that is a dangerous situation.

(30:50 to 32:40) There was a discussion about whether a safety fence around the well pads would improve the situation. It would be safer but there is the one month of time during which the well is being dug that it cannot be fenced, then there is the problem of snow removal and weed eradication which are both impeded by having a fence there. Many times after the well has been established they will come back and shrink the pad. Then the fence will have to be reduced.

Chairman Lyson asked for someone to speak in opposition to the bill.

Ron Ness, President of the North Dakota Petroleum Council, stood in opposition to SB 2206. See attached testimony #5. He stated that the issues and concerns presented thus far in this hearing- fire, safety, etc.- are of utmost concern to the oil and gas producers who carry the full liability on that location. Those things are priority but in the 60+ years of North Dakota's oil and gas industry he doesn't think there has been a recorded case of a residence burning down. When you talk about fences, you end up with a law of unintended

consequences. Fences catch snow and create a barrier around the well site. There is a potential gas build up; there are farmers who want to farm that land. With new laws there are always unintended consequences. North Dakota has just recently addressed this situation and increased it from 350 feet to 500 feet. (36:00 to 36:30) He doesn't feel the proposed changes would improve the safety of the residents. Five thousand Bakken wells have been drilled in North Dakota since 2006. There are only a few landowners who have been frustrated because the parties could not agree. (37:50 to 41:20) Mr. Ness explained the layout of the wells and why the 500 foot setback works out so well for the industry. It minimizes the impact and the footprint and the cost and makes it possible to create a corridor of wells next to the roadways. With a larger setback, the oil and gas operations get moved out into the middle of the fields, significantly impacting the farming or ranching operations. The Bakken formation is a contributor to the nation's oil supply and has to be developed prudently. The North Dakota Industrial Commission has been very prudent. They have a checklist on their application process to make sure the 500 feet from an occupied dwelling is followed and the landowner has been notified, etc.

(41:30 to 43:19) Senator Murphy addressed Ron Ness. He referred to page three of attached testimony #5 which Mr. Ness had presented. He said the pictures on the bottom of the page are not very accurate representations of North Dakota. In western North Dakota it is not nearly that heavily populated. Mr. Ness feels it is still a good example. Some areas of Dickinson near wells are now becoming more heavily populated. People are not prohibited from building homes near an established well.

(43:27 to 44:30) There was discussion about the 1280 acre spacing units and the technology of longer laterals giving the industry more flexibility in terms of siting. Under Lake Sacajawea there are some companies experimenting with 2 ½ mile or 3 mile laterals. A well pad can be placed in the corner of the spacing unit and access all of the minerals, not leaving anyone out of that spacing unit.

(44:50 to 47:50) Jeff Herman, Regional Manager for Petro-Hunt, LLC, spoke in opposition to SB 2206. He presented plats for 4 different townships to show what the effect of the increased setback would be. See attached testimony #6. The circles on the maps show 1000 feet around every occupied residence. He agreed that Senator Murphy had a point that not every township would be affected, but some would be virtually unable to be explored if the setback were increased. He feels his company is able in most cases to satisfy the surface owner. Drilling long laterals gives you a lot of flexibility. This bill would also affect drilling vertical wells and sometimes a few hundred feet makes all the difference. Having more flexibility also helps to choose the best site based on the terrain.

(47:50 to 51:43) Senator Triplett asked if it would help to have more or stricter laws requiring the oil companies to have face to face meetings with land owners. Maybe there are only 10% of the oil companies who are running over the rights of the land owners, but would stricter laws help with that 10%? There was discussion about the merits of tightening the laws, but more laws would have ramifications for everyone.

(51:50 to 53:00) There was discussion about how other states are handling this issue. Some states are at 300 feet and most of them are at 500 feet. There was a question



whether cities or counties could zone the wells. North Dakota Industrial Commission is the only entity with that authority.

Chairman Lyson asked if there was anyone else to speak in opposition to the bill.

Chairman Lyson asked if there was anyone to speak in a neutral position.

Senator Hogue addressed a question to Lynn Helms, Director of Department of Mineral Resources and the Oil and Gas Division under the North Dakota Industrial Commission. Was there a significant decline in the number of disputes from landowners or occupants of dwellings out in the oil fields when the legislative body increased the setback?

Mr. Helms said when the setback was decreased (he means increased) in the 2005 session resulting in 2006 rule-making, about that same time is when the Bakken boom began. He's not sure there would be valid statistics available, but he did not see a decrease in the number of dissatisfied surface owners when it changed from 350 feet to 500 feet. He qualified that with the fact that there was an unprecedented drilling boom going on at the same time.

(55:00 to 56:20) He discussed the fact that a lot of science went into determining the 500 foot setback. Air quality measurement, geo-physical setbacks, and vibration and particle movement studies were all part of the science when the 500 foot setback was established. He encouraged the committee to revisit what had been presented in 2005. The concerns expressed today are valid but none of them are based on the science.

Senator Unruh asked Mr. Helms about H<sub>2</sub>S gas emissions. Was that part of the science considered at the legislative session that determined the setback would be 500 feet?

(57:00 to 57:45) Mr. Helms said hydrogen sulphide gas was part of that consideration and he described the specifics of how that is monitored.

Senator Triplett asked Mr. Helms to share with the committee what the existing safety regulations are concerning flares and possible fires.

(58:20 to 1:02:20) Mr. Helms stated that the rules had been modified twice in the last four years to deal with flare pits and fire around well sites. He went on to describe the regulations that exist, and mentioned it is possible to get a variance to the rules. In almost 62 years of gas production in the state there has been no documented case of a residence being burned due to a well site flare or accident.

(1:02:25 to 1:04:40) There was discussion about remote monitoring and remote shut in devices and fires being contained inside the dikes. A shut in does not protect the barrels of crude oil that may be at the site.

Any neutral testimony?

Chairman Lyson closed the hearing.

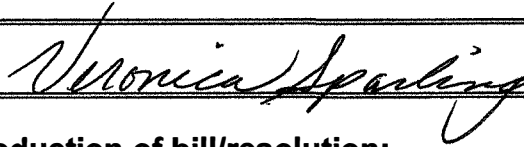
# 2013 SENATE STANDING COMMITTEE MINUTES

## Senate Natural Resources Committee Fort Lincoln Room, State Capitol

SB 2206  
January 25, 2013  
17737

Conference Committee

Committee Clerk Signature



### Explanation or reason for introduction of bill/resolution:

Relating to setbacks for oil and gas wells

### Minutes:

no testimony attached

Chairman Lyson called the committee's attention to SB 2206. He said there is nowhere in the US where the setback is greater than 500 feet.

Senator Triplett has asked for statistics of the number of injuries or loss of lives in oil field accidents for the past few years compared to the injuries or losses due to traffic accidents in the last few years in western North Dakota. Maybe there has not been a marked increase over the last few years. She feels if those statistics were available they could make decisions based on them. Maybe the money would be better spent making our highway safer.

Chairman Lyson mentioned he had spoken to the Fire Department Chief in Williston. In the last year they responded to four "possible fires". None of them were actual fires. There are more fires from lightening than from the oil field.

Chairman Lyson closed the discussion on SB 2206.

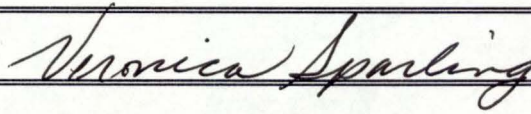
# 2013 SENATE STANDING COMMITTEE MINUTES

Senate Natural Resources Committee  
Fort Lincoln Room, State Capitol

SB 2206  
January 25, 2013  
17738

Conference Committee

Committee Clerk Signature



## Explanation or reason for introduction of bill/resolution:

Relating to setbacks for oil and gas wells

## Minutes:

No attachments

Chairman Lyson re-opened the discussion on SB 2206.

Senator Hogue spoke about the person who testified he could see flares out his front window. He had been hoping that incrementally increasing the setback would help with some of those cases, but the only thing presented in testimony was a child-safety issue and a child could run 1320 feet as well as he could run 500 feet. He didn't feel there was good evidence that the increase of setback would have a significant effect on fire safety or on quality of life issues.

There was discussion about the quality of life being affected by the danger of an oil well in close proximity to a dwelling, and the oil companies needing to take responsibility for the ways they are affecting the quality of life of the residents. Some oil companies have been responsive to the requests of the residents to place the well pad where it is more suitable to the residents. Some of them have not been as responsive. Some oil companies just send a hired contracted surveyor out and instruct him to mark the placement of a well. Maybe there could be a restriction that someone of authority from the oil company is required to have face to face time with the landowner when the placement is being decided so it doesn't become a battle later on. Fencing the areas was mentioned, especially close to residences. Could the county planners maybe get involved?

Senator Laffen mentioned that when he visited Norway to represent the state to talk about oil development, he heard how Norway handled their oil boom. Their oil was discovered out in the ocean. Fishing had been their major industry previous to the discovery of oil, so as they developed their policies for oil production they included the people from the fishing industry in their decision making. They have had great success with the two industries working together. The agriculture and ranching in our state will carry on long after the oil boom is done. He feels we should be including the agriculture industry and the ranching industry in the policymaking concerning the oil industry.

Chairman Lyson closed the discussion on SB 2206.

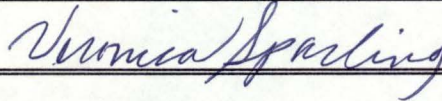
# 2013 SENATE STANDING COMMITTEE MINUTES

Senate Natural Resources Committee  
Fort Lincoln Room, State Capitol

SB 2206  
February 1, 2013  
18176

Conference Committee

Committee Clerk Signature



## Explanation or reason for introduction of bill/resolution:

Relating to setbacks for oil and gas wells

## Minutes:

No attached testimony

Chairman Lyson opened the discussion on SB 2206. He mentioned that in the United States there is no other state that has a setback of greater than 500 feet. He feels the maps presented during testimony show that the increased setback would hinder development.

Senator Unruh said she felt the current setback was reasonable.

Senator Triplett mentioned that most of the testimony dealt with safety concerns. She contacted Lynn Helms and found there are not very many fires on the sites and very few of the fires happen when no one is on site to deal with them. She is aware of the concern for public safety, but she doesn't feel this bill is the answer.

Chairman Lyson had also spoken to the Williston Fire Chief. He said he had no record of fires on the oil well sites.

Senator Burckhard made a Do Not Pass motion.

Senator Unruh seconded the motion.

Roll Call Vote: 6, 1, 0

Carrier: Senator Lyson

Date: 2-1  
 Roll Call Vote #: 1

**2013 SENATE STANDING COMMITTEE  
 ROLL CALL VOTES  
 BILL/RESOLUTION NO. 2206**

Senate Natural Resources Committee

Check here for Conference 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 Unruh

Senators	Yes	No	Senators	Yes	No
Senator Lyson	✓		Senator Triplett	✓	
Senator Burckhard	✓		Senator Murphy	*	✓
Senator Hogue	✓				
Senator Laffen	✓				
Senator Unruh	✓				

Total (Yes) 6 No 1

Absent 0

Floor Assignment Lyson

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

**REPORT OF STANDING COMMITTEE**

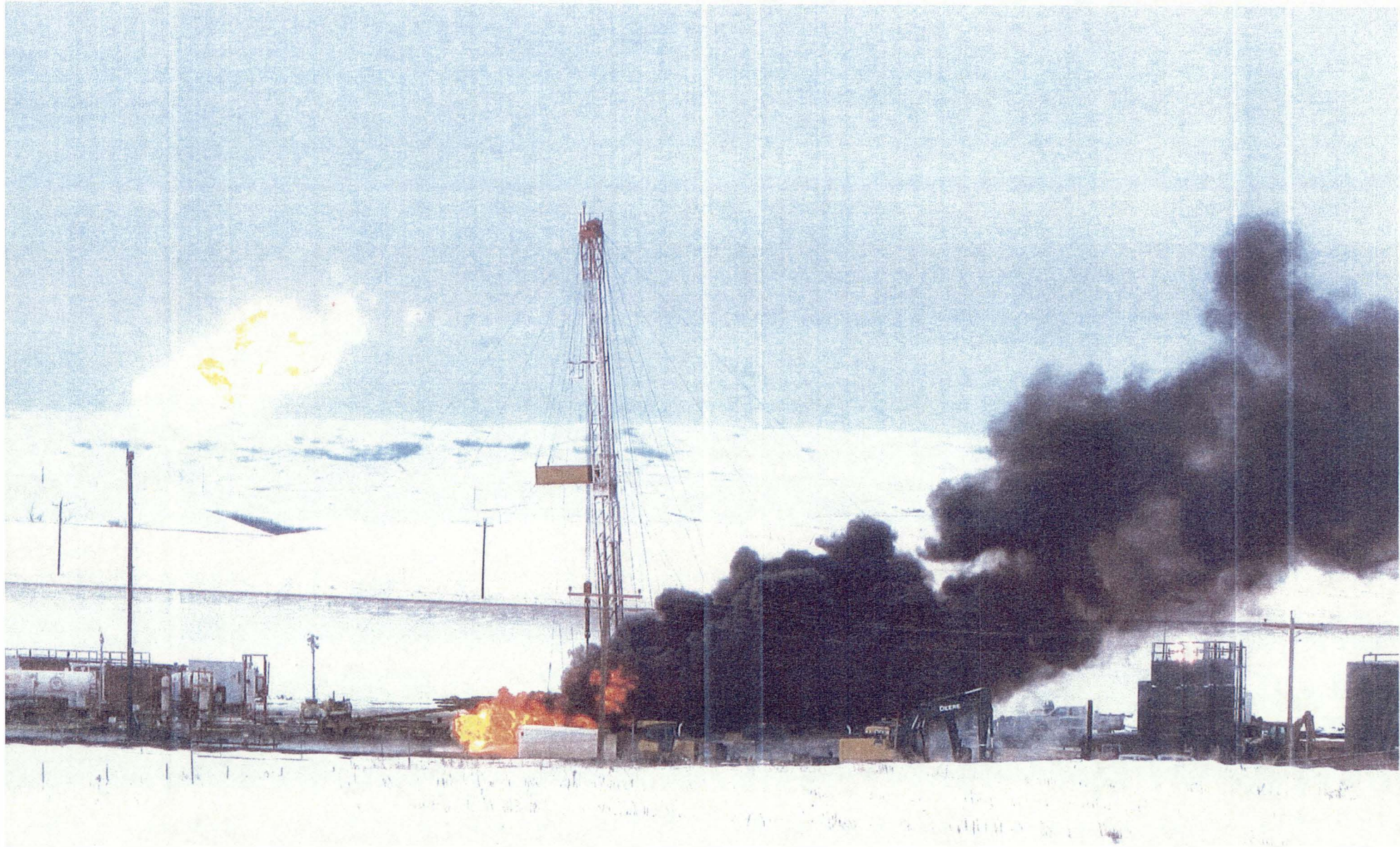
**SB 2206: Natural Resources Committee (Sen. Lyson, Chairman) recommends DO NOT PASS** (6 YEAS, 1 NAYS, 0 ABSENT AND NOT VOTING). SB 2206 was placed on the Eleventh order on the calendar.

**2013 TESTIMONY**

**SB 2206**



#1



01/09/2013





01/23/2013





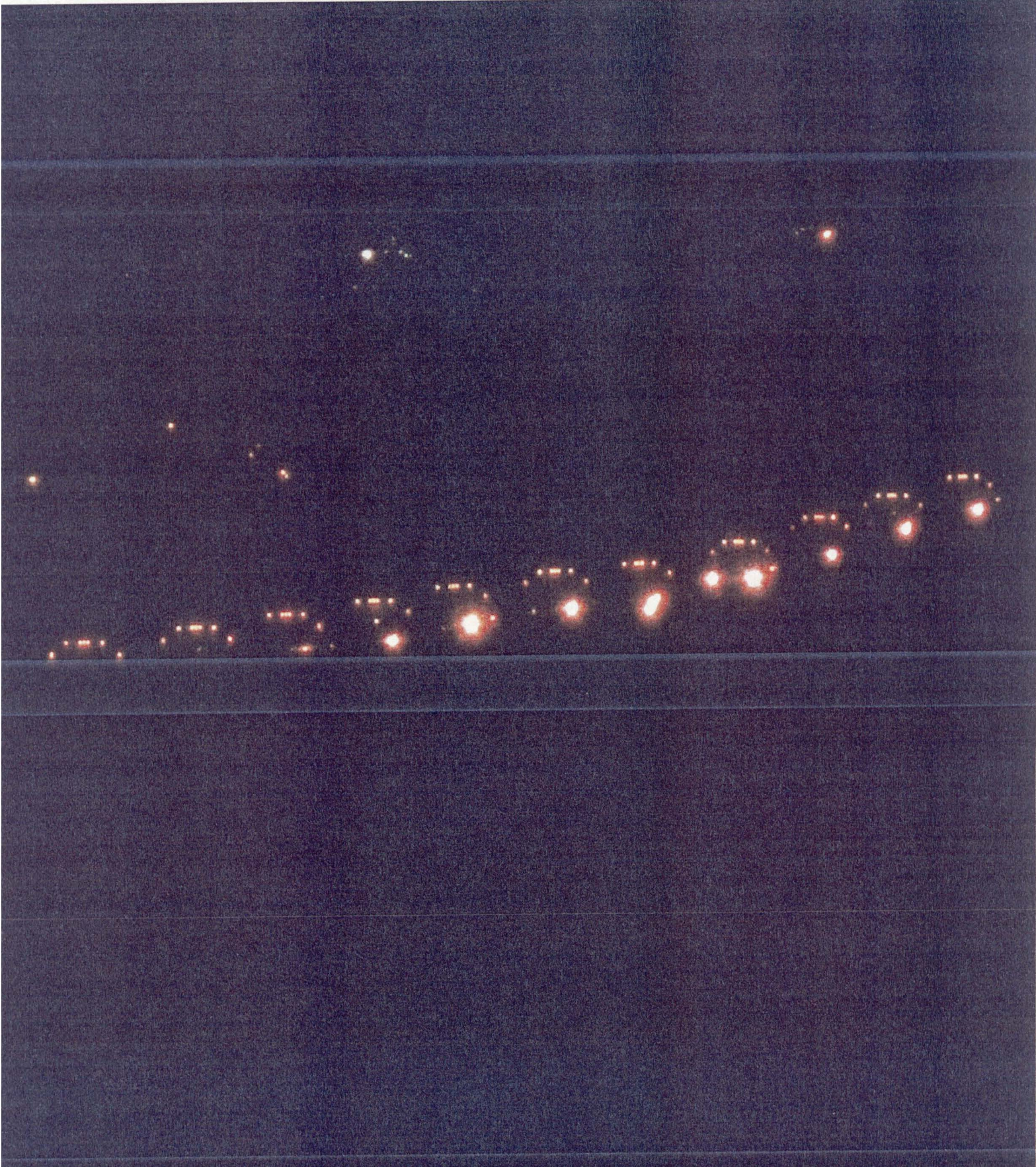
08/09/2012





11/05/2012





12/13/2012





01/09/2013



Mr. Chairman, Members of the Committee:

I am Myron Hanson, President of Northwest Landowners Association.

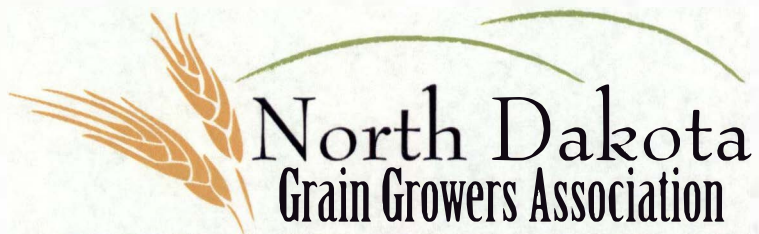
We support the idea of this bill that increases the setback requirements for the placement of an oil or gas production facility adjacent to an occupied home. We feel that the 500 feet in current law is simply too close to protect the health, safety, and quality of life of the farmers and ranchers living in the midst of this development.

H<sub>2</sub>S gas, spills, and fire represent a clear danger to those living in such close proximity to these facilities.

However, we feel that a setback of 1320 feet would provide a greater margin of safety for those individuals who reside in areas where the response time for emergency services personnel is often extended because of distance.

We support the committee's consideration of this bill, but urge you to adopt a greater distance than what is proposed in this bill.





Your voice for wheat and barley. www.ndgga.com

# North Dakota Grain Growers Association Testimony on SB 2206 Senate Natural Resources Committee January 24, 2013

Chairman Lyson, members of the Senate Natural Resources Committee, for the record my name is Dan Wogsland, Executive Director of the North Dakota Grain Growers Association. The North Dakota Grain Growers Association is in support of SB 2206.

During our deliberations at the North Dakota Grain Growers Association's Annual Meeting in December, 2012, NDGGA adopted the following resolution:

In order to protect one of North Dakota's most precious resources, its productive farm and ranch land, NDGGA hereby resolves that it supports that the setback for all drilling and production operations be increased from 500 feet to 1320 feet to protect the value of occupied farm and ranch homes.

Increasing the setback distances for drilling and production operations from occupied dwellings is the right thing for North Dakota. This isn't just an issue of economics; it is an issue of public safety. Additionally it is an issue of a show of respect by the drilling and production industry for the North Dakota farmers and ranchers who have lived on the land for generations and who will continue to live on the land long after the oil boom.

NDGGA is fully aware that the distance requirements contained in SB 2206 fall short of our Association's resolution; NDGGA would welcome an amendment that would change the language of the bill to read on lines 15 and 17 the distance of one thousand three hundred twenty feet. That said, NDGGA continues to support SB 2206 as a positive step in the right direction in regards to drilling and production operations setbacks.

Mr. Chairman, members of the Senate Natural Resources Committee some will say this legislation will create a hardship for the drilling and production industry; I would submit the current setback law creates a hardship for rural North Dakota. Therefore, Mr. Chairman, members of the Senate Natural Resources Committee, the North Dakota Grain Growers Association supports SB 2206 and would urge the Committee and the Senate to concur.

*NDGGA provides a voice for wheat and barley producers on domestic policy issues – such as crop insurance, disaster assistance and the Farm Bill – while serving as a source for agronomic and crop marketing education for its members.*

My name is Theodora Bird Bear and I live in Mandaree ND. I am a DRC board member (or DRC member) and I support my Keene ND neighbor, Wanda Leppell, in her efforts to protect the health and public safety of western ND residents by increasing the "setback" distance between a well site and an occupied home through Senate Bill 2206.

I suggest an amendment be added to this Senate Bill 2206, to increase the setback distance from 500 feet to 1,320 feet - or one-quarter mile - to help protect the health of western ND residents.

The location of a well site is both a human health issue and public safety concern in western ND. Last year, 2012, as reported in the state-wide newspapers, there were a number of well blow-outs, fires, and other events where the well site operators lost control of the well site. This resulted in dangerous conditions for both nearby residents and oil workers. Right now, well blow-outs, explosions, or fires from well sites can now potentially occur 500 feet from the door of any western ND resident. As legislators, do you support this?

A single well in western ND requires at least 2,000 truckloads of supplies, heavy equipment, the toxic fracking fluid, salt water, produced water - and the crude oil, if there is no pipeline. In interviews in the national news articles about the Bakken oil development, the ND Department of Health acknowledged they are not equipped to address the volume of spills of frack water, salt water, produced water in the agricultural and ranching lands of western ND. There is little or no protection for human health and the environment from this industrial development. As state legislators, do you support a western ND residents living 500 feet from the potential spills of toxic fluids from this industrial level of oil truck traffic? Potentially, the homeowner can also lose in the value of their home and the degraded value of their land.

The open flaring - 24 hours a day - emits visible smoke, soot or air pollution in the form of both particulate matter and gaseous chemical emissions in the air, all of which is inhaled by western ND residents. The particulate matter is minute enough to lodge in the lungs of both young children and adults in western ND. The smaller pollution particles can travel through the blood stream, accumulate in the human heart, and contribute to heart attacks and heart disease. 500 feet from any doorstep is not adequate enough to help

protect the lung health of children, the elderly, and all western ND residents.

We all need clean air to breathe. The Bakken oil and gas development in western ND is still just starting. In a January 18 Minot Daily news article, Lynn Helms was quoted as saying every square mile of subsurface will be drilled and fracked in western ND. The volume of well sites needed to do this - and particularly sites with multiple drilling - will further deteriorate air quality which is a significant factor in respiratory and heart disease. As a legislator, supporting an increased distance or "setback" from a well site to 1,320 feet, means you will support the good health of western ND residents now and in the future.

You may question whether the sources of this air pollution in western ND can be traced to oil and gas wells. The National Oceanic and Atmospheric Administration (NOAA) has just announced research which determined that emissions from oil and natural gas activities that have a **unique 'chemical signature'** that's very different from emissions from other sources, and it definitively identifies oil and gas wells as the major source of the high levels of VOCs like ethane and propane." Volatile organic compounds or VOC's create smog or ground level ozone which further damages the respiratory health of young children and adults in western ND.

A federal EPA study of over 100 well sites in Fort Berthold revealed that at least 17 well sites **each** produced nearly 18,000 tons **annually** of Volatile Organic Compounds (VOCs) into the air from just their storage tanks and the Heater-Treater produced gas.

Even with corrective measures, **each** of these 17 individual well sites still would produce nearly 9,000 tons **annually** of this air pollutant alone. And with corrective measures, another 31 wellsites still would **each** produce between 1,000 to 6,000 tons of Volatile organic compounds annually.

As was just reported in the January 19 Bismarck Tribune last weekend, the Watford City solid waste landfill - within range of from Wanda Leppell's home in Keene - is trying to keep the radioactive waste from oil and gas processes, out of their landfill. 33 truckloads of radioactive waste was turned away from the Watford City landfill. However, it was reported that only 20% of the dangerous Bakken radioactive waste is being properly disposed out-of-state. So, it's being dumped somewhere - most likely in

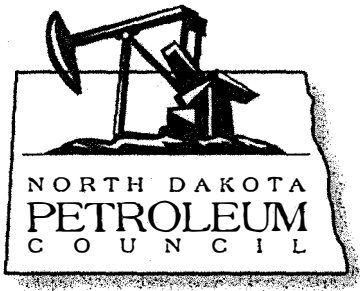
western ND. The news article reported that the State of ND - most likely the ND Department of Health - doesn't track this radioactive Bakken waste after it's turned away from landfills.

So, while drilling, fracking, and the trucking of toxic waste waters - like salt water, frack water, and produced water - can occur within 500 feet of an occupied home 24 hours a day in western ND - the ND Department of Health and responsible agencies have no similar capacity 365 days a year.

This means a lack of adequate monitoring and enforcement of toxic and radioactive waste. This also means that the health and safety of any western ND resident living near a well site needs the protection of an increased setback distance from the 500 feet to one-quarter mile, or 1,320 feet.

As legislators in this committee, you have the means to help protect the good health and also protect the safety of western ND residents. An amendment to Senate Bill 2206 to increase the "setback" distance from 500 feet to 1,320 feet - or one-quarter mile - is needed now.

Thank you.



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**Testimony of Ron Ness**  
**Senate Bill 2206**  
**Senate Natural Resources Committee**  
**January 24, 2013**

Chairman Lyson and members of the Senate Natural Resources Committee, my name is Ron Ness, president of the North Dakota Petroleum Council. The North Dakota Petroleum Council represents more than 400 companies in all aspects of the oil and gas industry, including oil and gas production, refining, pipeline, transportation, mineral leasing, consulting, legal work, and oilfield service activities in North Dakota. I appear before you today in opposition of Senate Bill 2206.

There are many stakeholders with an interest in the distance between an oil and gas facility and buildings. These include the surface owner, the mineral owner, the local government, and the oil and gas operator. The perception that distance from a well to a building is determined only by the oil and gas company is simply false.

Operators do not want to locate wells within 1,000 feet of buildings, but surface owner, legal, regulatory, and technical considerations often necessitate this outcome. Many elements play into the calculation of where to place a well: the property line, the mineral property boundaries, surface and lease agreements, development plans, encroachment on existing facilities, pipelines, lease lines, drilling spacing orders, access, centralization of facilities, technical limitations, and location of the resource. Any proposal of an increased setback ignores these issues and disregards the numerous parties with an interest in this distance, most importantly, the surface owner.

The proponents of these increased setbacks have likely not considered the resulting environmental consequences. Increased setbacks will ultimately result in more land disturbed and more time required for drilling to access these resources. A 1,000-foot setback reduces the flexibility in deciding the mutually best location of a well and discourages centralized placement of facilities. The handout I've provided addresses some of the consequences of increased setbacks, including inefficient land use, longer drilling time and more truck traffic, fragmented wildlife habitat, and loss of farmland. For example, a 500-foot setback impacts 18 acres of farmland, while a 1,000-foot setback impacts 72.

Increased setbacks also harm the royalty owner. Expanded setbacks increase development costs and decrease access certainty, putting millions of dollars of royalty interests at risk and potentially denying the mineral owner the right to their property.

In 2006, setbacks were increased from 350 feet to the current 500 feet requirement. Current setback rules acknowledge and accommodate these stakeholders and adequately address the perceived health and safety risks while allowing the surface owner, mineral owner, operator and regulators the ability to determine the best location of the well in order to maximize the resource and protect private property rights. For these reasons, we strongly urge a Do-not Pass on SB 2206. I would be happy to answer any questions.



## Consequences of Increased Setbacks

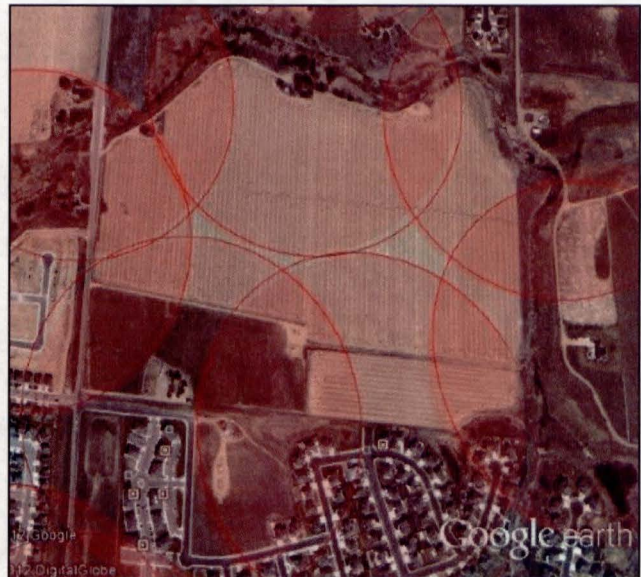
The proponents of 1,000-foot setbacks have likely not considered the resulting unintended environmental consequences. A 1,000-foot setback reduces flexibility in deciding the mutually best location of well and discourages centralized placement of facilities. For example, in an agricultural or development setting, a 1,000-foot setback increases the area of unavailable land by four times the surface area than that of a 500-foot setback.

### Environmental Consequences of 1,000-foot Setback

- Inefficient land use and increased sprawl
  - o Rural land owners would have less flexibility to efficiently site wells close to buildings or existing oil and gas facilities, reducing productive land and increasing facility foot prints.
  - o Developers would be forced to take up more land area as they expand development footprints to accommodate increased setbacks from oil and gas wells, increasing urban sprawl.
- Longer drilling time and increase drilling resource requirements
  - o Increased setbacks require longer drilling distances, requiring additional drill time resulting in more time on site. These longer drilling distances also require more drilling resources such as pipe, energy, and water. *Longer drilling times and distances also result in increased truck traffic. Or, if the well pad is moved into the spacing unit 1,000' plus feet you would reduce the lateral length in the pay zone which would result in a bigger footprint, less production and less tax to the State per well.*
- Decrease in wildlife habitat and open space
  - o The increase of roads and other necessary infrastructure results in the disruption of wildlife habitat and reduces contiguous open spaces as development is forced to increase its footprint.
- Loss of farmland
  - o 1,000 foot setbacks result in an inefficient use of surface area, reducing the amount of local food and fiber producing land. *For example, a 500-foot setback impacts 18 acres, while a 750-foot setback impacts 41 acres and a 1,000-foot setback affects 72 acres.* The following two photos depict how the same agricultural field would be affected by the current 150/350-ft setbacks vs. 1,000-ft setbacks:

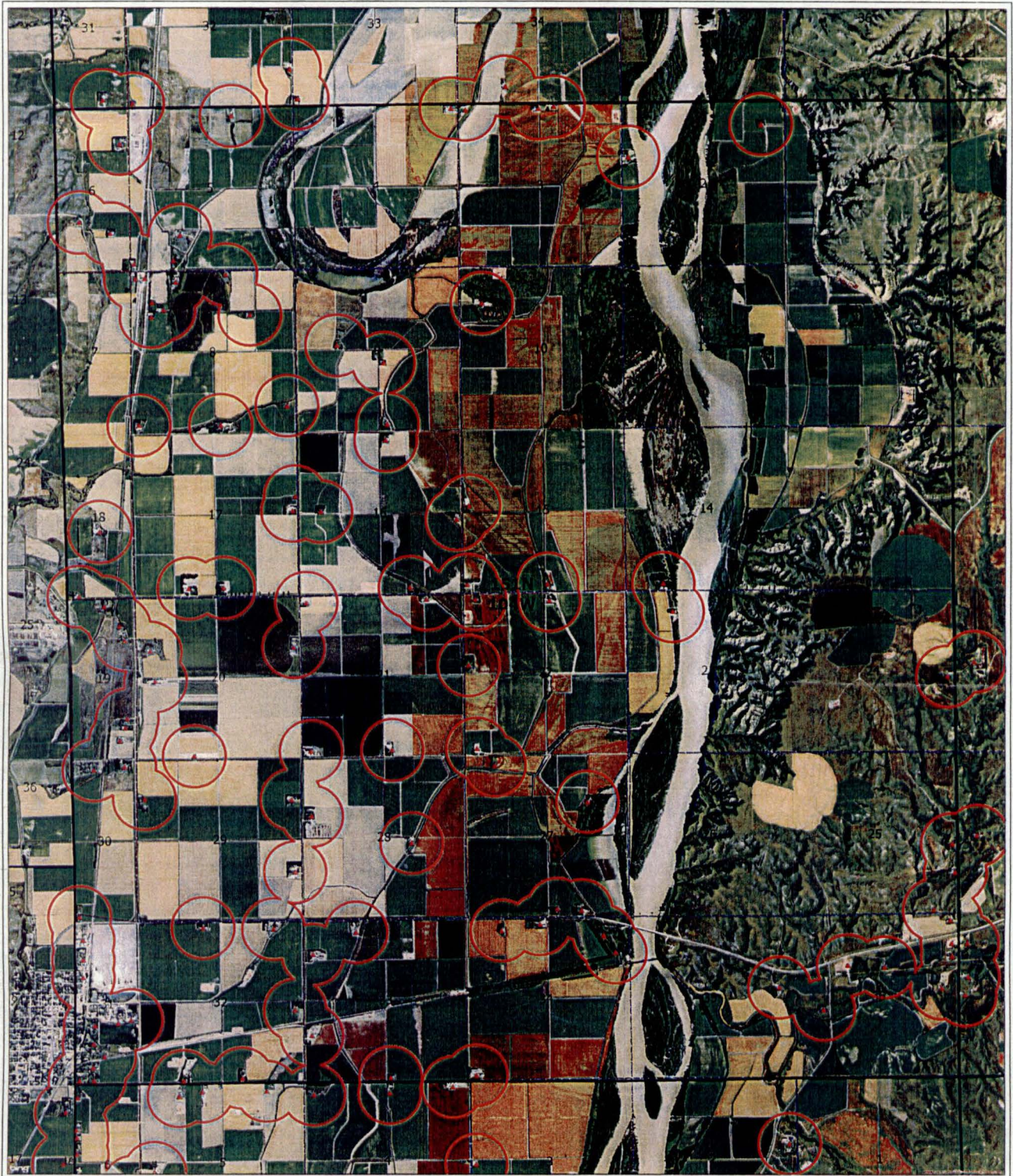


150/350-foot setbacks - Courtesy CO Farm Bureau



1000-foot setbacks - Courtesy CO Farm Bureau





1 inch = 0.17 miles  
 0 0.078 0.15 0.3 0.45 0.6 Miles

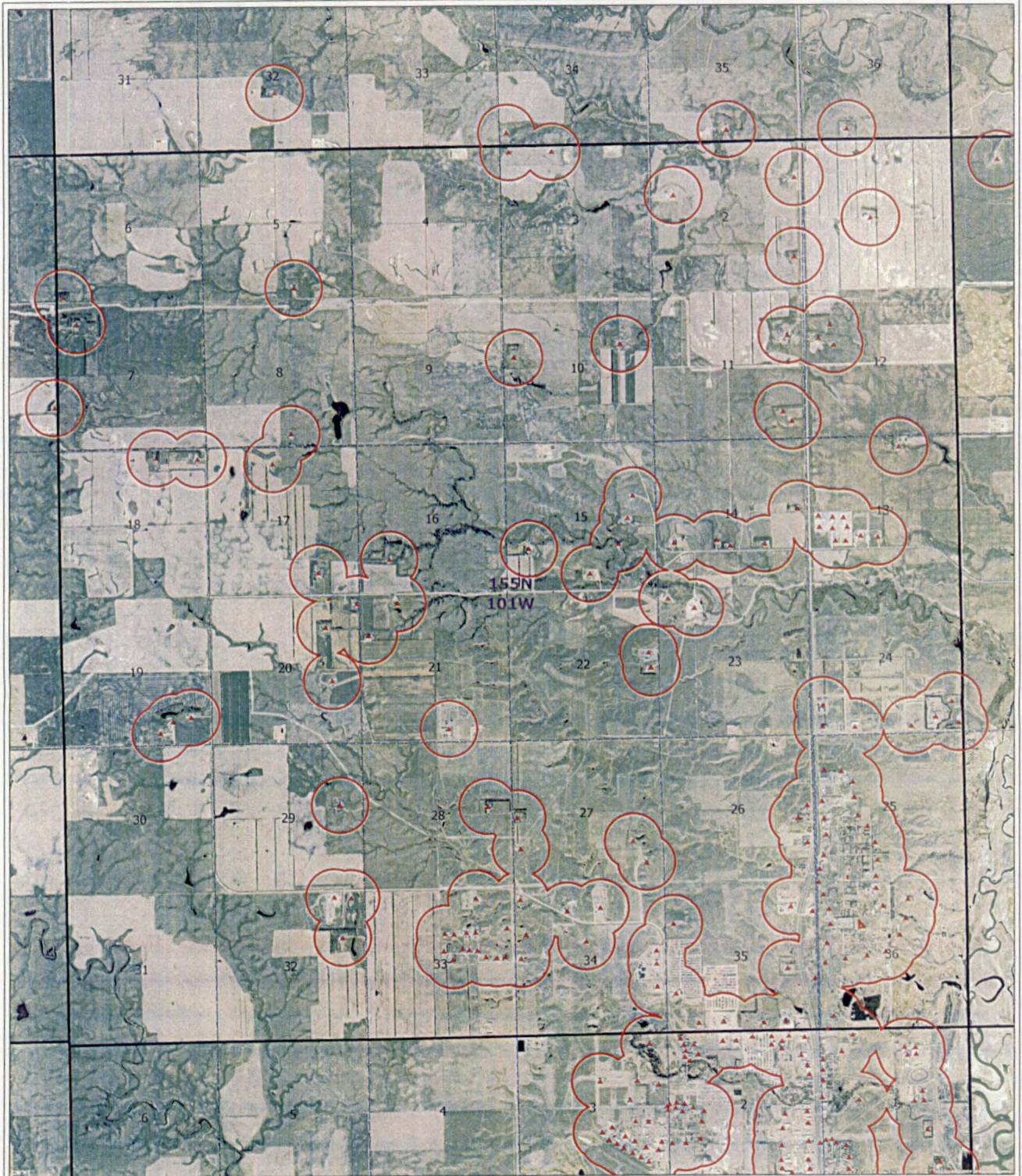
**151-104 Set Backs**  
 Date: 1/23/2013  
 Prepared by: Pano-Hunt, L.L.C.  
 1601 Elm Street, Suite 3400  
 Thanksgiving Tower, Dallas, Texas 75201-7201  
 Tel: 214-880-8400 Fax: 214-880-7101

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 Date: 1/23/2013  
 Path: \\Pano\GIS\GIS\_Data\Photo-Hard Print Maps\North Dakota\Special Requirement\Set Backs\151-104 Set Backs.mxd

**Legend**


- Farmsteads
- 1000' Farmstead Buffer
- 640 Spacing Unit
- 1280 Spacing Unit





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 Date: 12/22/13  
 Path: \\P:\GIS\GIS\_Data\155-101\155-101 Set Backs.mxd

1 inch = 0.19 miles  
 0 0.75 1.5 3 0.4 0.8 Miles

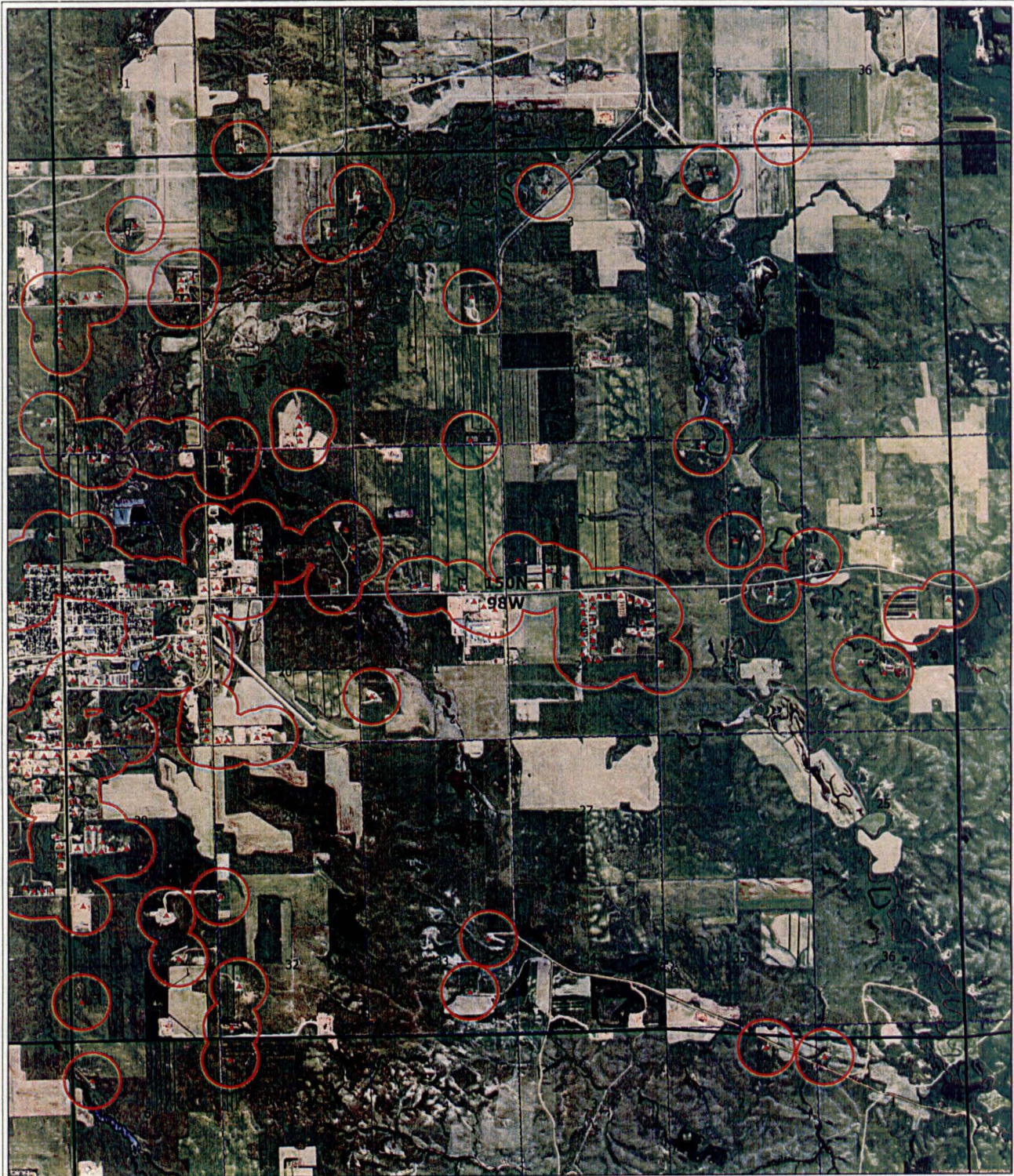


**155-101 Set Backs**  
 Date: 12/22/13  
 Prepared by:  
 Peto-Hunt, L.L.C.  
 1601 East Street, Suite 3400  
 The Woodlands, Texas 77380  
 Tel: 281-480-8400 Fax: 281-480-7101

**Legend**

-  Farmsteads
-  1000' Farmstead Buffer
-  640 Spacing Unit
-  1280 Spacing Unit





1 inch = 0.19 miles  
00 0.76 1.5 0.3 0.45 0.6 Miles





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Date: 1/23/2013  
File: 1011-021502\_GIS\_2013PetoHunt Fire Map\North Dakota\Special Request\Set Backs\150-98 Set Backs.mxd



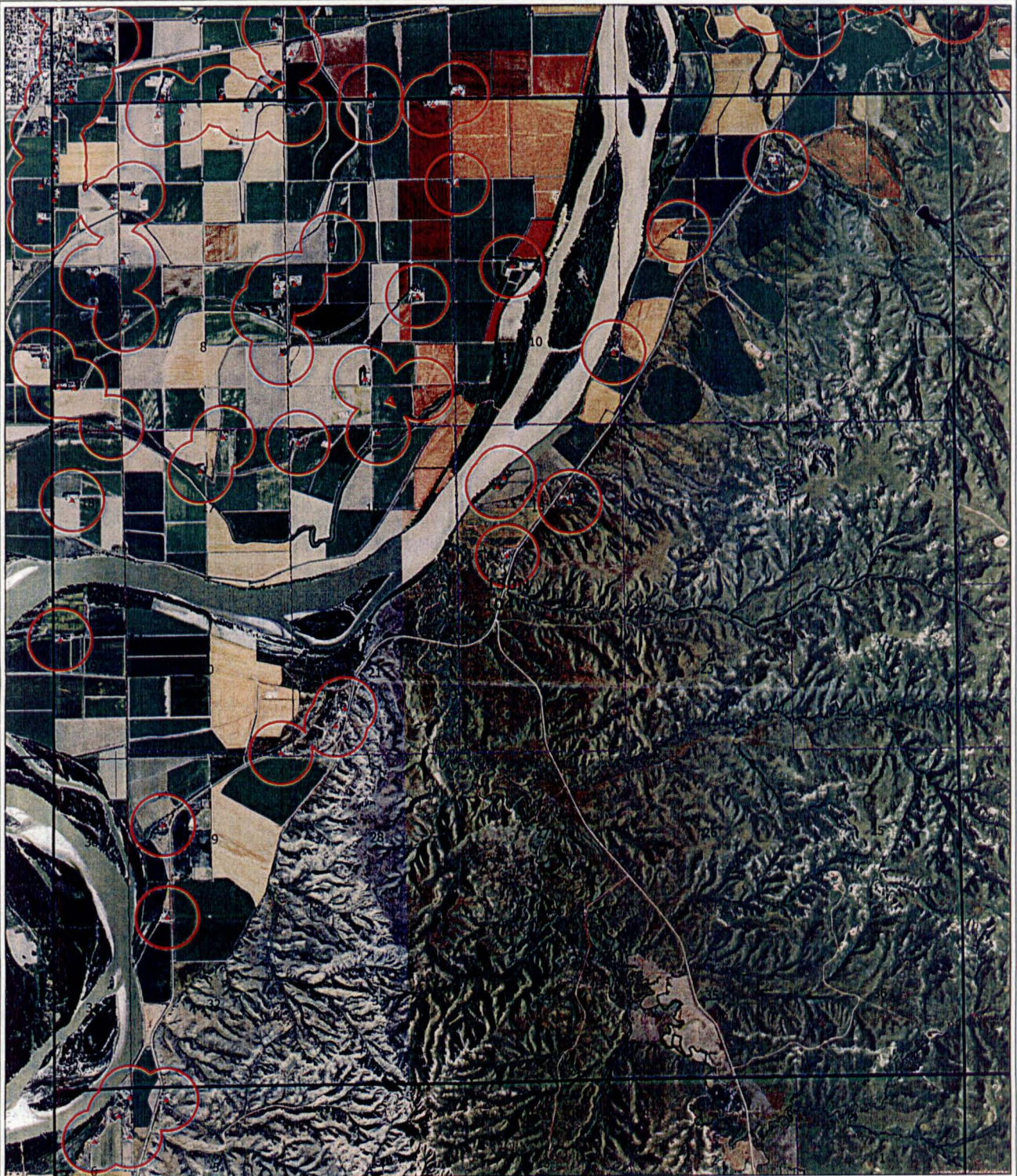
150-98 Set Backs

Date: 1/23/2013  
Prepared by:  
Peto-Hunt, L.L.C.  
1801 Elm Street, Suite 3400  
The Hanging Tower, Dallas, Texas 75201-3201  
Tel: 214-880-8400 Fax: 214-880-7101

### Legend

-  Farmsteads
-  1000' Farmstead Buffer
-  640 Spacing Unit
-  1280 Spacing Unit









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 Date: 10/20/13  
 Path: \\P11-GIS\GIS\103\_1030\Peto-Hunt\Pre Map\Map\150-104 Set Backs.mxd



**150-104 Set Backs**  
 Date: 10/20/13  
 Prepared by:  
 Peto-Hunt, L.L.C.  
 1601 Elm Street, Suite 3400  
 TheEnergyTower, Dallas, Texas 75201-7201  
 Tel: 214-860-8400 Fax: 214-860-7101

**Legend**

-  Farmsteads
-  100' Farmstead Buffer
-  640 Spacing Unit
-  1280 Spacing Unit