

2011

# HORIZONTAL DRILLING WITH HIGH VOLUME HYDRAULIC FRACTURING

## Fact Finding Summary

In view of our community's vision statement in the Town of Scipio's 2011 Comprehensive Plan, this study group researched, collected, discussed and compiled information on the impact of HORIZONTAL DRILLING WITH HIGH VOLUME HYDRAULIC FRACTURING to aide the Scipio Town Board, who make wise decisions for the future health and well being of our town and community.

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The Community Vision Statement from the Town of Scipio's 2011 Comprehensive Plan states, "The Town of Scipio would like to preserve its rural character, scenic beauty and cultural and historic assets, and protect its natural and agricultural resources as it continues to accommodate new growth and services that meet the changing needs of the community." Starting with this statement as our guide, this study group targeted the impact horizontal drilling with high volume hydraulic fracturing (HVHF) would have on our economy, rural character and natural resources.

Although the Town of Scipio could experience short-term economic benefits, these are likely to be outweighed by long-term costs (both economic and social). In the short term, the Town could expect:

1. Increased population, which could benefit local businesses
2. A limited number of construction jobs
3. Increased service and retail jobs

When the drilling abates, the short-term benefits, such as they are, disappear as well. The research indicates that economic expectations are often unrealistically high, even in the short term. According to the Northeast Regional Center for Rural Development at Pennsylvania State University, rural communities can often be overwhelmed and unprepared for potential growth problems. Small communities are also prone to unexpected social problems such as crime, dissatisfaction within the community, and mental health issues. (Jacquet, NERCRD)

The short-term economic benefit to rural regions, followed by a long-term loss after the rapid decrease in drilling activity, is described succinctly as a "Boom-Bust Cycle" by Christopherson and Rightor from Cornell University City and Regional Planning. They point out that the "bust" can come more rapidly than expected with "adverse implications for tax revenues and jobs". There is growing evidence that after the "boom and bust," communities expecting an economic advantage can find themselves in a much worse condition. "When the economic waters recede, the flotsam left behind can look more like the aftermath of a flood than of a rising tide". (Kay D, CRD)

Evidence and studies show that agriculture and industrialized natural gas drilling can not co-exist if we want a healthy, sustainable, local food supply. Key concerns are with soil contamination from explosions, spills and leaky pipe lines; with naturally occurring radioactive materials (NORMS) that bioaccumulate in the food chain; heavy metals like strontium, arsenic, barium, cadmium, chromium, lead and mercury that are found in drilling waste and get in the water and food chain. Water usage in agriculture remains in the hydrologic cycle while most water used in horizontal drilling with HVHF is lost forever, never to be usable again. Small spills during the process of hydrofracturing can have big effects on livestock by contaminating their drinking water or the grasses that they eat. (Fracking Our Foodshed)

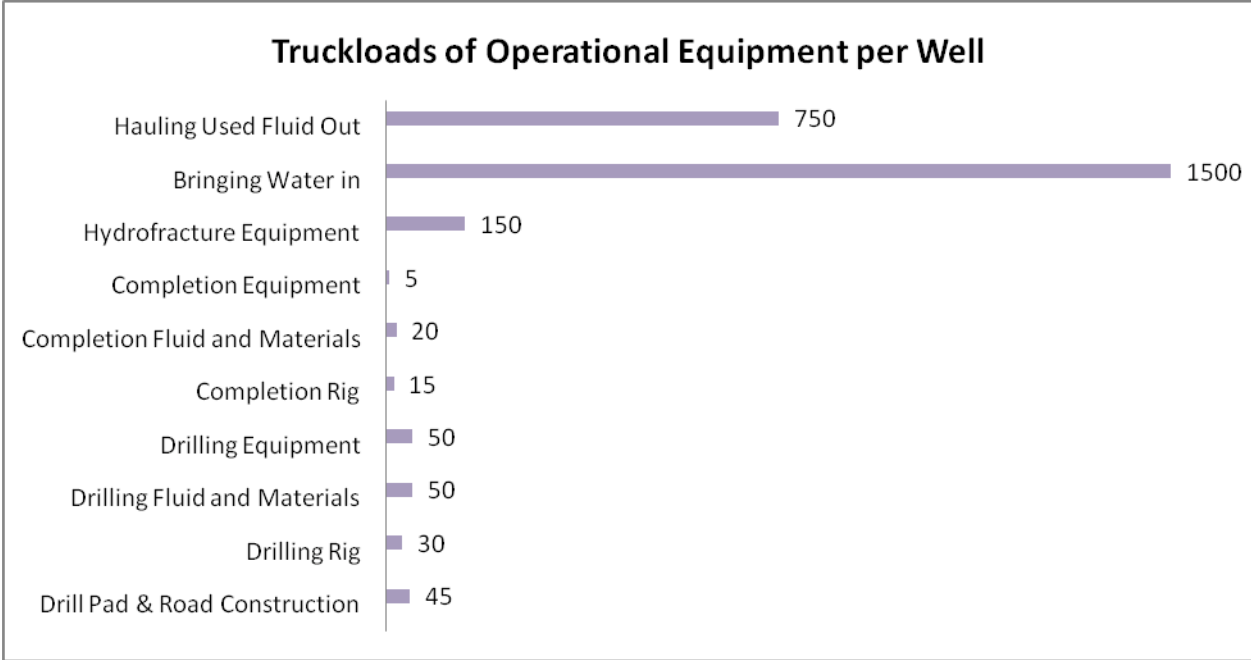
Based on 17,973 acres with oil/gas leases in Scipio, current data forecasts up to six well pads may be developed with six to ten wells per pad.(rdSGEIS) The potential of thirty-six + horizontal wells drilled with HVHF methods increase the truck traffic and impact on town roads. It is difficult to properly account for the costs of environmental degradation, damage and general wear and tear to infrastructures, health effects, pollutions impact on other industries, and the impact on property values. The risks are staggering to consider. New York State allows for compulsory integration which is a controversial method drilling companies use to access gas. Our Environmental Conservation Law § 23-0901 allows DEC to deputize a driller subject to a DEC hearing, to force unwilling property owners into a spacing unit if the drilling company otherwise controls 60% or more of the acreage (83% of the acreage in the Town of Scipio is

leased) in the spacing unit either by lease, deed, or voluntary integration, which itself involves lease swaps among leaseholds to form the spacing unit. (Radow, 2011) The property owner can be particularly vulnerable when the drilling process involves horizontal drilling with HVHF. Homeowners can be confronted with uninsured property damage for activities that they cannot control. Many are finding they unknowingly violated their mortgage by entering into the gas lease and have no insurance coverage in case of a drilling loss. A growing number of banks will not give new mortgage loans on homes with gas leases as they do not meet secondary mortgage market guidelines. (Radow, 2011) In NYSDEC’s revised draft Supplemental Generic Environmental Impact statement (rdSGEIS) chapter 6 it states; “Property was associated with a 22% reduction in the value of the property if the well was situated within 550’ of that property.

The impact on health and well being is a concern. Emissions from diesel generators, drill rigs, trucks; and compressors and flaring of wells create volatile organic carbons and nitrogen oxide which will react with sunlight to form ozone. Increased rates of respiratory health problems and lung disease will be directly associated with elevated ozone levels.

With the heavy truck traffic associated from horizontal drilling with HVHF threatening to degrade roadways, towns are faced with additional costs. Many local governments are considering a road use maintenance agreement reached directly between the municipality and the individual drilling company using the roads, which will hold the company accountable for damage and repairs. Local governments may enact zoning laws for usage of town roads.

The following chart depicts the estimated number of truckloads of equipment and supplies for **ONE** horizontally drilled HVHF well. Some pads in New York State may have up to 10 wells per site.



Data compiled by the National Park Service.

Noise from gas development comes from a number of sources: truck traffic, drilling and completion activities, well pumps and compressors. For some landowners, noise from gas operations is so loud or of such a different sound quality that it makes them feel as if they are living in an industrial zone. For people who live in rural areas, the arrival of a new, industrial noise source can greatly disturb the natural environmental soundscape. Noise levels associated with gas compressors varies with the size of the compressor and distance from the compressor; and it changes with shifts in wind direction. (shaleshock.org) As this industry works 24/7, noise and lights, as well as significantly increased truck traffic on local roads are some of the potential impacts on our existing rural character.

When referring to the entire process of horizontal fracking enormous volumes of water and chemicals are used. The massive industrial endeavor demands two to four million gallons of water for a single lateral, as well as 15,000 to 60,000 gallons of chemicals; multiply those quantities by the number of wells drilled. Transporting the liquids involves fleets of tanker trucks and large storage containers. Numerous tanks are also needed to store the chemically laden flowback water after wells have been fractured. Up to 75% of what is blasted down comes back up. It is laden not only with a cocktail of chemicals used to help the fracking fluid flow, to protect the pipe and kill bacteria but often radioactive materials and salts are retrieved. (Mooney, 2011)

The EPA is only midway through a major safety study due in preliminary form in late 2012. There is a real vulnerability in having toxic chemicals in these volumes blasted underground. The threat is this industrial process may directly contaminate drinking water. Unexpected naturally occurring pathways/faults create for gas or liquid to travel between deep shale and shallow groundwater due to the closely spaced vertical wells and the multiple fracks per horizontal lateral. Faulty cementing accounts for a number of groundwater contamination cases from horizontal drilling with HVHF wells. The weak casing potentially opens a pathway for flowback water and gas to seep into groundwater.(Mooney, 2011) Currently, the NYSDEC lists one active vertical gas well in Scipio. Seven other gas wells operated by Devonian Energy, Meridian, or Hensoil have expired permits or been plugged/abandoned.

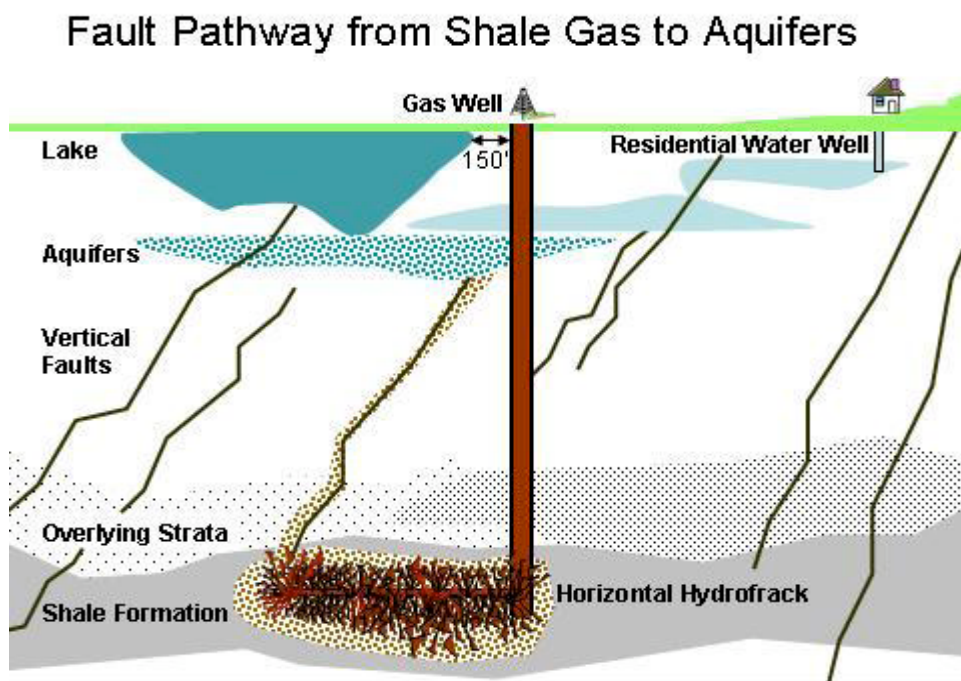


Figure1 – Northrup JL., Otsego 2000, Potential Leaks From High Pressure Hydro-Fracking of Shale

Hydraulic fractures grow in the direction perpendicular to the minimum direction of stress in the Marcellus shale region which is horizontal. As a result fractures grow vertically above and below the horizontal fracture.(Northrup, 2010) When a fluid is injected into a rock unit, there is a possibility that it can migrate to an existing fault or faulty system.

Three important points related to our water resources and horizontal drilling with HVHF are:

- Supplying water for well construction without impacting local water resources.
- Avoiding degradation of small watersheds and streams as substantial amounts of heavy equipment and supplies are moved on rural roads.
- Determining the proper methods for the safe disposal of the large quantities of potentially contaminated fluids recovered from the wells.(Soeder, 2009)

The Environmental Protection Agency (EPA) has cited concerns about potential impact to human health and the environment that warrant further scientific and regulatory analysis. Of particular concern to EPA are issues involving water supply, water quality, wastewater treatment operations, local and regional air quality, management of NORMS disturbed during drilling, and cumulative environmental impacts of horizontal drilling with hydraulic fracturing for natural gas extraction.

In light of our findings, this group encourages the Scipio Town Board, in all its legal capacity to protect our community from this heavy industrial process as it does not fit the vision stated in the 2011 Comprehensive Plan.

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