

CHAPTER VII

IMPACT OF HF and NATURAL GAS DRILLING OPERATIONS on COMMUNITY CHARACTER and QUALITY OF LIFE

“Local and regional planning documents are important in defining a community’s character and are the principal way of managing change within a community. These plans are used to guide development and provide direction for land development regulations (eg. Zoning, noise control, and subdivision ordinances) and designation of special districts for economic development, historic preservation, and other reasons.”¹

DEC has historically encouraged communities to develop comprehensive plans and zoning laws to protect their citizens and the surrounding environment. The Town of Rensselaerville developed its Comprehensive Plan and adopted it on March 8, 2007.² In its introduction, the Plan lays out its philosophy, which reflects the sentiments of the Town’s citizens:

“The principal theme of this Comprehensive Plan is to protect the abundant natural features and resources that contribute to those aspects of life in Rensselaerville most valued by residents. Our residents and landowners have been consistent in their overwhelming support for a plan to protect these resources. Maintaining un-fragmented open space while at the same time, ensuring that new growth is compatible with our resources, is critical to their long-term protection. This plan includes many strategies to maintain our rural character and open space such as protection of agriculture, and critical habitats, defining appropriate economic activity, and proposing open space oriented land use regulations.”³

The “Vision Statements” section of the Comprehensive Plan further explains the basis for the Plan; *“The Town of Rensselaerville is treasured by its residents as a place where*

¹ dSGEIS, September, 2011, Chapter 7, Section 12, p.145.

² Town of Rensselaerville Comprehensive Plan document, March 8, 2007.

³ Town of Rensselaerville Comprehensive Plan, March 8, 2007, p.4.

landscape, history, and community are tightly intertwined. For over 200 years, the Town has been distinguished by its location in the special environment of the Helderbergs.” The vision further emphasizes the fact that, *“Our quality of life is the guidepost we use to direct our community decision-making process, as defined by the valued attributes of rural character; active, sustainable agriculture; scenic beauty; cultural and historic richness; a healthy environment; diverse housing resources; and economic opportunity,”* and that *“The Town of Rensselaerville is committed to protecting the land and preserving our heritage of small densely populated hamlets surrounded by large parcels of open spaces.”*⁴

The words, *“rural character,”* are used throughout the plan. The pictures below demonstrate that rural character, and serve as an illustrated definition of rural character in the Town of Rensselaerville.⁵



⁴ Town of Rensselaerville Comprehensive Plan, “Vision Statements,” p.11.

⁵ Ibid. pp. 80-82.



The Plan encourages light industry which would “*exclude most resource and energy intensive industries, with the exception of wood products industries; it would exclude all industries with noxious air or water emissions and high noise or vibration levels.*”⁶ Vertical and horizontal hydraulic fracturing for gas or oil is, by definition, a *heavy industry*, so its impact upon the Town of Rensselaerville’s rural

⁶ Town of Rensselaerville Comprehensive Plan, p. 78.

character and quality of life is critical. How would this heavy industry, introduced into an agricultural, small community environment affect the Town of Rensselaerville's character and quality of life if it was to be allowed?

Pictures of Natural Gas Drilling Operations: (Photos: J. Davenport, SanAntonio News)



"Dust fills the air at a Chesapeake Energy Co. fracking operation."



Lowry Compressor Station, Washington County, PA. Winter 2009-2010.



Chesapeake Energy hydraulic fracturing operation, Eagle Ford shale formation, Texas.



"Welding crews are busy laying pipelines such as this one east of Karnes City, Texas in order to get oil and gas extracted from the Eagle Ford shale formation to market. Pipelines are critical because hauling by truck is more expensive."

The dSGEIS confirms that high volume hydraulic fracturing operations would have a significant impact on a community's character wherever drilling and production activities would take place.⁷ Development of this industry could lead to dramatic changes in the economic, demographic and social characteristics of a community. Unfortunately, the dSGEIS cannot determine if the impacts will be positive or negative.⁸ However, *"high volume is a different technique... the well pad is crowded with people and equipment... it is an industrial activity. There is no getting around it... trucks coming in and out off local roads, lots of tanks, lots of people, diesel equipment running full tilt. It's loud. It's got emissions... it is not something you would want to live right next door to, I can tell you that... lots of diesel engines on these well pads... lots of horse-power to send water down at high speeds to fracture..."* Steven C. Russo, Deputy Commissioner and General Counsel, NYS DEC.⁹

What are the potential positive and negative impacts on a local community's character and quality of life? Those who argue in favor of allowing high volume hydraulic fracturing point to the potential for improving local economies by creating jobs, and increasing business to local stores, gas stations, and restaurants. There is also the

⁷ dSGEIS, September, 2011, Chapter 6, p. 317.

⁸ dSGEIS, Chapter 6, p. 318.

⁹ Association of Towns for the State of New York conference in NYC, February 21, 2012.

possibility, if gas is found, for financial gain to those who lease their mineral rights.

In pointing to potential local economic gains, the DEC divided New York State into four representative regions: A, B, C, and the rest of the State. In its analysis, DEC assumes that 50% of all new well construction would occur in Region A (Chemung, Tioga, and Broome counties); 23% would occur in Region B (Otsego, Delaware, and Sullivan counties); 5% would occur in Region C (Chautauqua and Cattaraugus counties); and the remaining 22% of new well construction would occur in the rest of New York State.¹⁰

Region A, which is used to define an upper boundary of the regional socioeconomic impacts, DEC projects a direct construction employment range of between 2,204 full-time employees (FTE) construction workers at the maximum employment levels under the low development scenario to 8,818 FTE construction workers at the maximum employment levels under the average development scenario. The new production employment in region A is expected to range from 895 to 3,581 FTE production workers per year.

In contrast, employment impacts are not anticipated to be as large in Region C, which is used to define a lower boundary for the regional socioeconomic impacts. At the maximum employment levels under the low development scenario, an estimated 221 new FTE construction workers and 90 new FTE production workers would be needed for drilling and maintaining the new natural gas wells. These figures would increase to 882 new FTE construction workers and 358 new FTE production workers under an average development scenario.¹¹ And one would assume that the number of new jobs would be much lower than those created in Region C.

According to the DEC, indirect employment impacts are expected to range from a high of 650 to 2,600 indirect workers in Region A to a low of 66 to 263 indirect workers in Region C, depending on well development. DEC does not predict the number of indirect jobs for the fourth region.¹² However, with just 22% of direct and indirect new employment expected for the rest of the State, how much actual direct or indirect employment would be possible in the Town of Rensselaerville, which is a part of the fourth region? Also, one must consider that the gas industry goes through “*boom and bust*” cycles. And based upon Cornell Cooperative Extension data, many towns are worse off after the boom/bust economic cycle is over.¹³

Drilling any gas wells in the Town of Rensselaerville, would create many other impacts affecting both the character of the Town and the quality of life. The impact on housing is one such consideration. Typically, the construction phase of one high-volume hydraulic fracturing well is completed in three to four months. Therefore, the transient workers needed to drill these wells would likely only temporarily relocate to a specific area. Once those wells were completed, the workers would move on to another site. The influx of

¹⁰ dSGEIS, Chapter 6, p.217.

¹¹ dSGEIS, Chapter 6, p.220.

¹² dSGEIS, Chapter 6, p.224.

¹³ “Municipal Planning and Managing Potential Impacts from Natural Gas Development - Practical Steps Local Governments Can Take,” Dr. Tim Kelsey, Penn State, Cornell Cooperative Extension, power-point presentation “Roadshow III,” June 12, 2012.

workers who would move from one well development site to another would increase the demand for transient housing, such as rental properties and hotel/motel rooms.¹⁴ There are two important points to make here. First, none of the hamlets in the TOR have the rental capacity required to house workers for even one well site. Consequently those workers would probably find housing in surrounding areas and commute to work. The results would be increased traffic in the TOR, and reduced revenue since workers would be spending after hours in those other areas. And second, because there are few rental spaces available in the TOR, rents could be pushed very high. This could have a negative and permanent effect on local, permanent residents who rent apartments and rooms.

LOCAL GOVERNMENT TAX REVENUE

Another potential positive impact involves revenues for local governments. With sales tax revenue sharing, they could experience a substantial increase in sales tax receipts from the additional economic activity in the region. In addition, local governments could see an increase in *ad valorem* property tax revenue.

The term *ad valorem* is derived from the Latin *ad valentiam*, meaning "to the value." It is commonly applied to a tax imposed on the value of property. Real property taxes that are imposed by the states, counties, and cities are the most common type of *ad valorem* taxes. *Ad valorem* taxes can, however, be imposed upon personal property. For example, a motor vehicle tax may be imposed upon personal property such as an automobile.

An article of commerce may be subjected to an *ad valorem* tax in proportion to its value, which is determined by assessment or appraisal.¹⁵ In its application to gas wells in New York State, this tax is based upon the value of gas coming from a well after cost of development and market price are determined. If a well is a good producer, it could mean more taxes for a local government. However, if well is a low or non-producer, or if the market price of gas is low, it will mean a drastic reduction in potential tax revenues. The potential problems with gaining revenues is explained in a "white paper" produced for the Thompkins County Council of Governments:

"In New York, as in most states, the mineral interests are incorporated into taxation calculations only after they are "developed," hence their ad valorem ("according to value") quality is not taxable until those interests are extracted and sold. The taxable value is based upon the ultimate market value of the resource, minus permissible expenses and reduced by a permissible measure of risk. . Delays are even longer when production is intentionally put off due to the low price of gas. In addition to the apparently unavoidable procedural delays in taxing production, Bradford County, PA provides an example of why tax revenues will be delayed, perhaps for many years, after the impact costs of drilling are felt by the locales. In Bradford County, as of April 2011, the PA DEP had issued 1700 drilling permits; however, only 240 of those permitted wells were producing gas. It appears that most of the rest are being held for

¹⁴ dSGEIS, Chapter 6, p.244.

¹⁵ <http://legal-dictionary.thefreedictionary.com/ad+valorem>.

production at a later time, presumably when the price of gas has risen."¹⁶

Consequently, although there is a potential for increased revenues, they are not guaranteed. And, because of the potential delays due to a reduction in gas production, any revenues could be delayed for a long time.

There are additional potential impacts on the character and quality of life in local communities. First, as explained in other sections of this report, high volume hydraulic fracturing will require thousands of heavy trucks to travel by and through the Town's villages and hamlets. The heavy traffic over local roads can cause severe damage to both roads and bridges and even failure. The trucks are also noisy and pollute the air. With the huge increase in truck and employee traffic to and from the drilling sites, there is a much greater potential for more accidents and injuries to pedestrians and drivers alike. In its dSGEIS, the DEC recommends road use agreements between municipalities and drilling companies to determine truck routes. However, such agreements will not guarantee that trucks stay away from the villages and hamlets. That would all depend upon the location of drill sites. The actual drilling is also a very noisy process, and that process takes place 24 hours a day, 7 days a week.

NOISE IMPACTS

In an environmental report prepared for the Tompkins County (NY) Council of Governments is a discussion of noise decibels produced by high volume hydraulic fracturing. HUD and the EPA both set day and night exterior sound level values. The high limit of acceptable values is 65dBA or less. Values of between 65dBA and 75dBA are considered unacceptable, and over 75dBA are considered unacceptable. Typically the U.S. EPA sets the outdoor standard at 55dBA or less. This level of noise permits speaking normally, sleeping, etc.¹⁷ The report references some outdoor noise levels during natural gas drilling projects using high volume hydraulic fracturing. These are shown in the chart directly below. It depicts DEC's projected noise levels for various activities associated with drilling.

dSGEIS Projected Noise Levels Exceeding U.S. EPA and HUD Standards

Drilling Activity	Days Duration	50 feet	250 feet	500 feet	1,000 feet
Access road	3 - 7	89	75	69	63
Well Pad Preparation	7 - 14	84	70	64	58
Rotary air well drilling	25 - 35 per well	79	64	58	52
Horizontal drilling	28 - 35 per well	72	62	56	50
HVHF	2 - 5 per well	104	90	84	78

¹⁶ "White Paper on Taxation Issues Related to Gas Drilling," Tompkins County Council of Governments, Gas Drilling Task Force, February 12, 2012.

¹⁷ "Community Impact Assessment: High Volume Hydraulic Fracturing," completed for Tompkins County Council of Governments, Green Plan, Inc., December 15, 2011, p. 79.

Drilling a typical well pad with 10 wells means that drilling over the life of each well pad for over 350 days, 24 hours per day, and 7 days per week. Any homes within 500 feet of a well pad would be subjected to a year or more of noise levels continuously above EPA's and HUD's standards.¹⁸ It is important to note here that the well pad setback from private homes, as outlined in the 2011 dSGEIS, is just 100 feet. The decibel impact in the normally quiet country hamlets in the Town of Rensselaerville would be dramatic.

Noise sources associated with natural gas operations would include:

- Truck traffic
- General drilling, pipeline and fracturing activities
- Diesel engines (trucks, equipment, fracturing engines, compressor stations)
- Pipe cleaning (hammering)
- Air relief lines
- Cementing operations
- Flare testing
- Air rotary drilling discharge noise¹⁹

The DEC's noise mitigation strategies include: increasing the distance from listeners, directing sound away from listeners, scheduling the loudest activities for daytime hours, sound buffering (new or existing walls, hedge rows, etc.), and locating access roads "as far as practicable from occupied structures, places of assembly and occupied but unleased properties."²⁰

In NYS-DEC Policy DEP-00-1, noise is defined as any loud, discordant or disagreeable sound or sounds. More commonly, in an environmental context, noise is defined simply as unwanted sound.²¹ In the context of the quiet environs in the TOR, any change or increase in sound pressure, frequency, duration, or tone could be perceived as quite disturbing and uncomfortable.

A study conducted by the Colorado School of Public health states that the noise associated with natural gas drilling operations is not likely to cause any permanent hearing loss, but is more to result in sleep disturbance, annoyance and displeasure, and fatigue. Some individuals may experience larger health effects if the noise is significant.²²

VISUAL IMPACTS

In addition to an increase in noise, there is visual impact, the most significant of which would occur during the construction and development of a well pad. Although the DEC

¹⁸ Green Plan, Inc., p.79.

¹⁹ "Municipal Planning and Managing Potential Impacts from Natural Gas Development - Practical Steps Local Governments Can Take," Dr. Tim Kelsey, Penn State, Cornell Cooperative Extension, power-point presentation "Roadshow III," June 12, 2012.

²⁰ dSGEIS, Chapter 7, p. 128.

²¹ NYS-DEC Policy DEP-00-1 "Assessing and Mitigating Noise Impacts," February 1, 2001, p. 2.

²² "Health Impact Assessment for Battlement Mesa Garfield County Colorado, R. Wittler, MD, MSPH, Colorado School of Public Health, Aurora, Colorado, September, 2010.

recommends screening of sites and camouflage, it does not account for the acres of land that are clear-cut for the operation and remain that way. The impact on the aesthetics of the Town of Rensselaerville's landscape and vistas could be devastating and long term. *"Our natural resources are an essential part of our rural character, quality of life, and economic viability. Protection and stewardship of those natural resources through preservation of natural habitats, careful management of land/water resources, and conservation of existing agricultural lands is a high priority for the Town."*²³

One source of income for businesses in the Town is tourism. A reduction in the number of visitors who come to the Town for the scenic beauty, and tranquil environment could have a negative impact on those businesses. Finally, the introduction of pipelines to transport the gas could mar the countryside. The photo below shows one example of pipelines running through the countryside.



²³ Town of Rensselaerville Comprehensive Plan, p. 14.

CULTURAL & HISTORIC CHARACTER

Another main objective in the Comprehensive Plan is to “*promote the aesthetic, cultural and historic character of the town,*”²⁴ by maintaining the rural character of the landscape and preserving significant large parcels of undeveloped land and agricultural land.²⁵ Natural gas drilling operations and hydraulic fracturing does not fit with this objective. As stated in the TOR Comprehensive Plan,²⁶ residents are very proud of their local history and work through the Rensselaerville Historical Society and other civic and volunteer organizations to preserve and celebrate the Town’s natural beauty, historic landscape, buildings, and citizens and predecessors, as cherished parts of our rural quality of life.

A very special and recent historical event was the construction of the TOR Veterans Ring of Honor at the Rensselaerville Town Hall, all done with volunteer leadership, labor, and funds. Also, many citizens are very pleased to support a revitalized and reused historic structure, the Medusa General Store. Accomplishments such as these add to our valued community character and quality of life.

The TOR has several important historic areas including “*Archeologically Sensitive Areas,*” historic byways, the Potter Hollow School House, places of worship, cemeteries, places on the National and State Historic Registers, and historic markers. (See map, “*Archeologically Sensitive Areas,*” Appendix VII.) DEC requires that known archeological and/or historic resources which will be affected by drilling operations to be identified on its Environmental Assessment Form that must be attached to the drilling permit application.²⁷

The Preservation League of NYS (PL NYS) supports people and projects that “*champion the essential role of preservation in community revitalization, sustainable economic growth, and the protection of our historic buildings and landscapes*”. The historic district in the hamlet of Rensselaerville has been identified by the PL of NYS as one of “*Seven to Save,*” 2010. This designation allows the hamlet to receive technical assistance and apply for funding for identified projects.

In its comments to DEC, the PL NYS expressed concern that the dSGEIS “*lacks essential information and analysis in many critical areas related to historic resources, does not provide the requisite substantial evidence, and thus fails to take the “hard look” required by the New York State Environmental Quality Review Act (SEQRA) to identify and address potential significant adverse impacts to New York State’s historic and cultural resources.*”²⁸

²⁴ Comprehensive Plan, p.16.

²⁵ Comprehensive Plan, p.16.

²⁶ Comprehensive Plan, pp. 14-15.

²⁷ dSGEIS, Appendix 5, Environmental Assessment Form (EAF) For Well Permitting.

²⁸ Comments on the dSGEIS, Preservation League of NYS, January 10, 2012. dmackay@preservenys.org

The document cited above raises the following concerns about the impact of natural gas drilling operations on the following:

- Historic structures in the TOR which are eligible-for-listing
- Impact on heritage-based tourism
- Road use on key natural landscape features and aesthetics such as stone walls, small country dirt roads; traffic load and frequency on structural integrity of historic bridges, homes, barns, and of particular concern: the Town of Rensselaerville historic gristmill in the hamlet of Rensselaerville
- Pipelines, possibly <10 miles in length, that would not be regulated by the Public Service Commission, and their impact on aesthetics of rural landscape and vistas; Impact of compression stations on same

The PL of NYS concludes its remarks to DEC by saying that it “*must complete data collection and analysis work that is necessary to ensure that HVHF only occur where it poses no irreversible impact to the quality of the human environment. Included in this commitment to protect environmental quality is protection and stewardship of New York State’s rich legacy of historic and cultural resources.*”²⁹

It does not appear that natural gas drilling operations are consistent with the preservation of TOR historic and cultural resources, rural landscape and vistas or with “*Objective 5: to promote historic preservation as an economic benefit.*” There is concern that irreversible harm to these treasured local resources could occur.

FARMING AND AGRICULTURE

Another major ingredient in the character and quality of life in the Town of Rensselaerville is farming. Protection of open space and farming is critical to long-term planning in the Town of Rensselaerville. This is part of the Town’s rural character, healthful attractive environment, and has been proven to be good for the sustainable fiscal health of the Town.³⁰

The TOR is recognized as a farm-friendly community having passed a “*Right-To-Farm*” law, and is committed to the preservation and protection of its open rural space and supports agricultural activities. Open space and agricultural land are not considered a commodity, but a resource for future generations of potential future farmers.

Currently, the majority of the 71,017 acres of contiguous blocks of districted productive agricultural land in Albany County are in the towns of Berne, Knox, Westerlo, and Rensselaerville. These blocks of land can be seen in Appendix VII, Agricultural District #2 map. One of the requirements for gas well permitting is to identify if the proposed drilling site is on or near agricultural resources, which will then result in additional

²⁹ Preservation League, January 10, 2011.

³⁰ Ibid., p 5-6.

SEQRA review for the gas well permit. It should be noted that since the inception of Albany County's Agricultural District Program, participation has steadily increased.³¹

Convinced that NYS DEC "*has done its homework*", Chemung County Farm Bureau President, Ashur Terwilliger, voiced support for the protection of water resources, and also supports natural gas drilling as a way struggling farmers can pay property taxes and gain capital to reinvest in their farm businesses.³²

On the contrary, a farmer who is one of the major producers of pasture-raised beef in Delaware County, states that fracking will put him out of business.³³ Park Slope Coop, Brooklyn, a major buyer of agricultural products from NYS's Southern Tier has stated in an open letter to the governor and state legislature that it would have to stop purchasing agricultural products grown in areas affected by fracking due to the environmental contamination that results. The products affected would be from cut-flowers, all kinds of vegetables and fruits grown in the area, to livestock that are attracted to the salty wastewater, not to mention wild animals such as deer, turkey, and water fowl.

Farmers working toward a sustainable agricultural economy are quite concerned about the threat to clean water resources, which can affect property values and the quality of their agricultural products. For example, lettuce readily takes up toxins in soil – contaminated water would destroy what organic farmers are trying to achieve. Also at threat would be 90+ crop species that could be affected by increased ozone, in particular, clover, which is important to livestock and pasture health.

"Old dairy farming is on the cusp of a farm renaissance", states farmer Bruce Ferguson, with many farmers diversifying by adding things such as maple syrup and honey; smaller farms are cropping up that supply the major metropolitan area and are springing up on the buy-local movement.³⁴ And, beginning farm operations in Albany County has increased 29 - 34% with production mainly in specialty crops, poultry and eggs, sheep and goats, hogs, and grass fed beef.³⁵ The dSGEIS addresses potential job gains, but does not address jobs lost due to gas drilling operations, particularly in farming and agriculture, tourism, fishing, and hunting industries.

According to a study at Penn State, it is commonly thought that an income from leasing farm land for natural gas production will help farmers pay off debt, invest in new equipment, and remain on the land. Others suggest that farmers who gain a financial benefit from natural gas drilling just take the dollars and leave farming completely. Since drilling in Marcellus shale began in PA around 2007, the number of cows in surveyed counties from 2007-2010 have diminished inversely to the number of natural gas wells drilled – in other words, the more natural gas drilling there is, the greater decline in cow

³¹ Albany County Department of Economic Development, Conservation & Planning, <http://www.albanycounty.com/edep/agDistricts.asp?id=1162>.

³² "Farm Bureau members testify at DEC gas drilling hearing," Farm Bureau of NY, November 17, 2011.

³³ "Farmers Get Fracked," Tracy Frisch, ValleyTable.com, September – November 2011, pp. 47-52.

³⁴ Ibid.

³⁵ www.agcensus.usda.gov.

numbers. There are also concerns raised in the study about the impact drilling may have on other types of farming. More information and study is needed.³⁶

HUMAN HEALTH IMPACTS

The potential impacts associated with the activities covered by the Oil, Gas, and Solution Mining Regulatory Program can affect human health and quality of life, as one of key factors for maintaining optimum human health is having a healthy environment. *“It is less expensive to prevent pollution than pay for remediation of environmental problems, health care costs and lawsuit expenses.”*³⁷

Recent field studies conducted by the National Institute for Occupational Safety and Health (NIOSH) identified exposure to airborne silica as a health hazard to workers at hydraulic fracturing operation sites. The hazard alert warns that workers who breathe in silica increase the risk of developing silicosis, which causes inflammation and scarring of lung tissue, and reduces oxygen exchange in the lungs. Silica can cause lung cancer and had been linked as a cause of other diseases: chronic obstructive pulmonary disease (ex: emphysema), kidney disease, autoimmune disease, and tuberculosis.³⁸



“Silica dust cloud by worker delivering sand from sand mover to transfer belt.”

Photo credit: National Institute for Occupational Safety and Health (NIOSH)

People living near gas operations in several western states and in Pennsylvania have complained of a variety of ailments, including headaches, dizziness, burning eyes, breathing problems, skin rashes and sore throats. The gas production process creates a variety of noxious emissions involving many contaminants. However, there has been little research conducted on such exposure making it difficult to draw any conclusions.

Air pollution generally doesn't stay in one area and compounds that are heavier than air can migrate down-slope, or be blown to other areas. The source of some chemical air-borne

³⁶ “Pennsylvania Dairy Farms and Marcellus Shale, 2007-2010,” Pennsylvania State, Cooperative Extension, College of Agricultural Sciences, University Park, PA, 2012.

³⁷ “Findings Statement, number 3,” NYS DEC GEIS, 1992.

³⁸ <http://ehssafetynews.com/2012/06/23/osha-niosh-hazard-alert-worker-exposure-to-silica-during-hydraulic-fracturing-2/>.

contaminants associated with natural gas drilling operations is noted in the following chart.³⁹

POLLUTANT	SOURCE
Tiny particles	Diesel trucks, venting & flaring of natural gas
Nitrogen oxides	Compressor engines, diesel trucks, flaring
Hydrogen sulfide	Venting & flaring
Benzene	Venting & flaring, waste pits storing various drilling chemicals
Sulfur dioxide	Diesel trucks, natural gas engine exhaust, waste pits
Diesel fuel	Drilling chemicals, engines and heavy equipment
Volatile organic compounds	Venting & flaring, waste pits, engines, compressors

One study documents air toxins that increase the risk of negative health effects. Volatile organic compounds (VOCs), diesel and other particulate matter have the potential to produce undesirable results from cardiovascular disease, respiratory and neurological problems, to cancer. Those with existing respiratory diseases, along with children and older adults, are more likely to be vulnerable to air pollution.⁴⁰

The Town of Rensselaerville Comprehensive Plan sets another important objective, “*To encourage appropriate types of rural land use in an orderly manner to support safety, health and quality of life.*”⁴¹ Good health plays an essential role in enjoying a high quality of life. Unfortunately, a most critical issue has been omitted from DEC’s dSGEIS: a human health impact assessment from natural gas drilling operations. Although DEC Commissioner Joe Martens stated at a NYS Assembly hearing on October 6, 2011 that the NYSDOH should be involved with developing such an assessment, no such action has occurred to date.

DEC officials claim that they have fully considered the potential impacts HVHF would have on public health and NY communities if the proposed plan goes forward in NYS.

It has been recommended to DEC that a baseline of health status of the NYS population be documented, along with a systematic identification and analysis of direct and indirect health effects, a cumulative health impact analysis that includes a “worst case” assessment, and mitigation measures.⁴²

“This study would go a long way to answer the many questions New Yorkers have about what fracking would mean for their health if this goes forward,” Assemblywoman Barbara Lifton, Ithaca, NY. And, as natural gas drilling operations have headed Eastward across the country to more populated areas, more questions have been raised about the impacts such operations would have on human health.

³⁹ <http://nyrad.org/downloads/GaspingInTheGasFields.pdf>

⁴⁰ “Health Impact Assessment for Battlement Mesa Garfield County Colorado, R. Wittler,” MD, MSPH, Colorado School of Public Health, Aurora, Colorado, September, 2010.

⁴¹ TOR Comp Plan, Goal #1, p 16.

⁴² Letter to Governor Cuomo from various health professionals, October 5, 2011.

A 2008 white paper focusing on Garfield County, Colorado, explains that there is an increased risk to human health as drilling occurs in closer proximity to human populations, due to the increased exposure to hazardous chemicals and emissions associated with natural gas drilling operations. There is a growing body of scientific evidence that harmful human health and social impacts are associated with oil and gas development and more data and analysis is needed to protect public health.⁴³

However, because oil and gas drilling operations have been exempted from Federal statutes designed to protect the environment and public health, environmental monitoring, collection of exposure levels and medical effects have been difficult to monitor and evaluate to find any causal relationship between gas drilling operations and health effects.

Federal statutes from which oil and gas drilling operations have been exempted include provisions of the Clean Air Act (CAA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or the Superfund Act), and the Emergency Planning and Community Right to Know Act (the Toxics Release Inventory or TRI) - laws designed to protect the health of the American population by ensuring clean air and water.⁴⁴

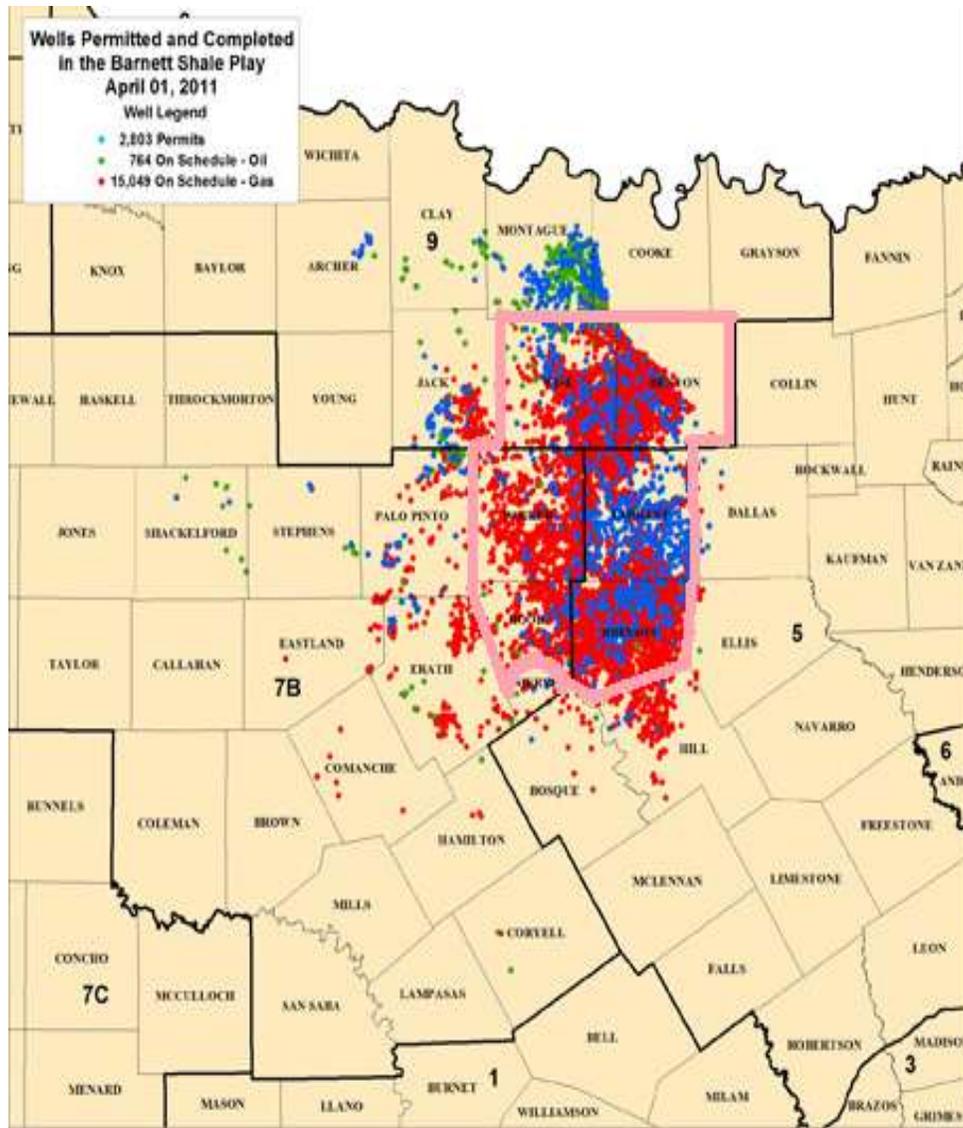
One analysis in the Barnett shale play, Texas, shows *invasive* breast cancer rates being highest in areas where there is heavy natural gas drilling, when comparing the incidence for the disease in other areas of Texas. The Centers for Disease Control and Prevention reported in 2011, that the six counties in Western Dallas-Fort Worth have the highest rates of invasive breast cancer in Texas, 60.7 per 100,000.⁴⁵ Although no definitive link has been made between the rising rates of invasive breast cancer and natural gas drilling operations, the six counties also have the greatest number of gas compressors, separators, tanks, and other above-ground points of emissions.⁴⁶

⁴³ "Potential Exposure – Related Human Health Effects of Oil & Gas Development," R. Witter, MD, MSPH, and others, Colorado School of Public Health, University of Colorado, Denver, September 15, 2008.

⁴⁴ "Protecting western communities from the health and environmental effects of oil and gas production," NR Mall, A., Buccino, S., & Nichols, J. DC: Drilling Down 2007.

⁴⁵ "Helping Rural Counties Access Breast Cancer Screening," Centers for Disease Control and Prevention, October 28, 2011. Content source: Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion. http://www.cdc.gov/cancer/breast/what_cdc_is_doing/success/tx1.htm

⁴⁶ "Six Counties Including Denton Have States Highest Incidence Rates," Peggy Heinkel-Wolfe, August 31, 2011.



The information concerning the higher incidence in invasive breast cancer in the counties noted in Texas has been disputed in a very emotionally charged article published in the NY Post by Phelim McAleer, branding the information lies.⁴⁷ A gas industry documentary entitled “*FrackNation*”, directed and produced by McAleer is scheduled to be released later this year.

As natural gas drilling operations enter geographic areas that are more densely populated, there are more questions being raised about the growing numbers of human health problems surfacing. Although human health is determined by many factors, access to clean drinking water and unpolluted air are basic requirements for good health. This requires that science directly study the impacts of natural gas drilling operations in order to fully protect public health.

⁴⁷ “Rewarded for breast-cancer lies,” Phelim McAleer, *NY Post*, August 2, 2012.

RECREATION

Many citizens of the TOR find great enjoyment being outdoors for fitness, and for sharing time with family and friends. The impact natural gas drilling operations would have on such experiences is likely to be negative, although a complete assessment would be needed. Potential risks to water quality, particularly in the form of sediment and run-off could affect fishing, and change the wild-life populations in the open spaces and forest areas in the TOR, possibly affecting hunting. Noise can be a disturbance to those who want to enjoy the quiet, affecting such experiences as sitting on one's porch enjoying a sunset or reading, to birding. Increased traffic associated with a heavy industry such as natural gas drilling can prove to be dangerous to bicyclists, horseback riders, and walkers alike. It is likely that recreational activities would be altered by natural gas drilling operations.

CONCLUSION

If natural gas drilling operations come to the Town of Rensselaerville, the impacts on the Town's character and quality of life for its citizens will be far reaching. Unfortunately, the DEC cannot determine if those impacts will be positive or negative.⁴⁸ The Town Board and citizens of the Town must decide what kind of stewards they want to be for the lands, environment, and general health of the population in the TOR. For, whatever their decision will be, the impacts on quality of life and the Town's character are likely to have long-term, irreversible effects.

⁴⁸ dSGEIS, Chapter 6, p. 318.