



January 11, 2011

dSGEIS Comments  
NYS Department of Environmental Conservation  
625 Broadway, 3<sup>rd</sup> Floor  
Albany, NY 12233-6510

**Re. Draft SGEIS, Public Comments, High Volume Hydraulic Fracturing, or HVHF, for Gas in the Marcellus Shale regions of New York State**

Dear Commissioner Martens, and DEC Staff:

**Summary of Concerns:**

*Adirondack Wild: Friends of the Forest Preserve* recognizes the NYS DEC for putting a great deal of effort into the dSGEIS and draft Regulations for HVHF. While the Adirondack Park and the Adirondack and Catskill Forest Preserve are largely out of bounds for High Volume Hydraulic Fracturing due to absence of Marcellus shale rock deposits in the case of the Adirondack Park, or prohibition against drilling on Forest Preserve, Adirondack Wild still has very serious concerns about HVHF and its anticipated widespread use in New York State. Many of these concerns are unaddressed in the dSDEIS, or inadequately addressed.

Here is a summary of our concerns:

- The dSGEIS fails to meet SEQR requirements by not assessing cumulative impacts of this industrial activity when spread across a very large, rural region of New York whose economic and employment prospects depend upon forestry, agriculture, research and education, fishing and other forms of tourism reliant upon the generally good quality of natural resources. DEC has the tools and experience to conduct strong cumulative impact assessment. You must use them.
- Wild conditions and ecological integrity of landscapes are seriously threatened with this method of gas extraction due to the intense and large spatial extent of industrialization - sheer number of potential wells, the footprint of these wells, the ecological impact beyond that footprint due to the spidering nature of horizontal drilling and necessary roads to service them. An extensive road network is the death knell to biotic integrity. The amount of water needed and wastewater produced is

staggering at the local and regional level, and the probability of spills and accidents are high.

- Large, existing contiguous blocks of wild land, be they private or public, are threatened with many forms of disturbance. Potential owners of future wild land might be bereft of any opportunity to acquire and manage for wild land values in future if HVHF is extensively practiced.
- Numerous sensitive wildlife species will be impacted throughout large areas of the state. The dSDEIS mitigation measures focus on rare, threatened or endangered bird species, ignoring smaller, less mobile forms of wildlife such as stream invertebrates, amphibians, as well as sensitive mammals.
- In the Adirondacks, shale deposits do exist in the so-called Trenton shale formations underlying the West Canada Creek and adjoining parts of the southern and southwestern Adirondacks. Under a relentless search for natural gas, producers might be encouraged to migrate northward to seek to exploit this formation. The Adirondack and Catskill Parks in their entirety, and buffer areas extending beyond the Parks should be prohibited from HVHF.
- While the EIS states that other state lands (beyond the Forest Preserve) are also out of bounds for HVHF, they would nonetheless be impacted because the regulations expressly (and we argue, unconstitutionally) permit their subsurface leasing for gas development via horizontal directional drilling from adjacent private lands. That horizontal drilling can extend 3,000 or more feet in any direction and thus state lands can be expected to be impacted beneath the surface.
- The subsurface leasing of gas and mineral rights underneath our state lands threatens the integrity of Article 14 of the NYS Constitution. The public owns all land rights to the Forest Preserve and state forests. These rights in land can not be severed, nor leased, sold or exchanged.

**Our detailed comments:**

**Land Use and Cumulative Impact Analysis:** Several thousand applications for HVHF annually are expected by DEC should permitting proceed. As many as 40,000 permits could be reached in 30 years. Each well pad and related road system is expected to radically clear, grade and alter 5-9 acres on the surface. Ecological impacts extend well beyond this acreage. In Pennsylvania, 3,000 Marcellus wells were drilled and used for HVHF since 2005. The spidering effect of these well sites and roads in the Marcellus regions of that state is astounding. The cumulative impact of these Marcellus well pads and roads are large, and make wild land protection goals well nigh impossible, to say nothing of maintaining or expanding viable wildlife habitats, the integrity of forests, streams, and wetlands, human employment and quality of life dependent upon these life support systems.

From our review of the dSGEIS, the document fails to assess cumulative impacts of this activity, as SEQRA requires. We remind DEC that “when an action with potential adverse effects on the environment is part of an integrated project designed to balance conflicting environmental goals...the potential cumulative impact of other proposed or pending projects must be considered pursuant to SEQRA before the action may be approved” (Court of Appeals, *Save the Pine Bush v. City of Albany*, 1987).

HVHF exemplifies an integrated project under DEC’s jurisdiction affecting many kinds of environments and ecosystems where the drilling and impacts of one well pad may be relatively insignificant until those impacts accumulate above and underground with others at nearby or connected well pads within a focus area. This SGEIS cries out for cumulative impact assessment. SEQRA demands it. The document’s argument that DEC can not accurately predict gas well development rates and patterns for a particular region or part of the state (page 9-4) is not at all persuasive. The entire document is based on an estimated 1600-3000 permits annually, and over a 30-year period. The dSGEIS references much information from HVHF in the Marcellus regions of Pennsylvania and other states. SEQRA requires that DEC utilize any and all information at its disposal to assist in the preparation of cumulative impact assessment.

The Nature Conservancy has graphically demonstrated the tools required, and the importance of conducting cumulative impact assessments of HVHF ( See “Assessment of Potential Impacts of HVHF on Forest Resources in Tioga County” by TNC, Dec 19, 2011). We quote from that report:

*Natural gas development will further fragment the remaining forest habitat and could, under an average development scenario, reduce forest habitat in the county by 18,674 acres to 21,667 acres (9% - 11%). In a high development scenario, forest habitat would be reduced or degraded by 27,920 to 32,341 acres (14% - 16%). The degree of development determines the potential for negative environmental impact. Given that Tioga County is in the region (Region A – Tioga, Broome and Chemung Counties) that DEC has identified as most likely to experience a high degree of natural gas development, the high development scenario values for forest impact are most likely.*

*As the maps illustrate, under the high development scenario, disturbance to key forest areas will be extensive, as almost none (1%) of the large, intact forest patches escape some level of impact from drilling (i.e., at least one well pad).*

*The amount of forest disturbance is highly dependent upon the development scenario, as between 21 (15%) and 132 (96%) of the 138 large forest patches (>500 acres) in Tioga County are predicted to have multiple well pads drilled on them.*

*The amount of new roads built to access drilling sites will vary substantially, depending upon the development scenario and could range from 70 miles of new roads to 450 miles. Under the high development scenario, there will be enough new roads within Tioga county to carry large trucks an equivalent distance of driving from Buffalo to Boston.*

This is a startling analysis for just one county, Tioga. DEC is obliged to expand this cumulative impact analysis throughout the affected Marcellus region of NYS. We reiterate key recommendations reached in the TNC report:

1. Cumulative ecological impact assessment is needed to evaluate the potential range of impacts on forest habitat, siting alternatives that reduce impacts to forested habitat and forest resources, and restoration efforts to reverse forest degradation and establish appropriate avoidance, minimization and mitigation of impacts.
2. NYS DEC should conduct spatial analysis “to project anticipated land disturbance and impacts on forest habitat in the Marcellus region similar to the analysis presented” in the TNC report. “This should include multiple build-out scenarios and multiple iterations of each scenario in order to better understand the likely impacts of development decisions. “

**Wildlife:** The dSCEIS states (6-81) that “for each acre of forest directly cleared for well pads and infrastructure in New York, an additional 2.5 acres can be expected to be indirectly impacted. Interior forest bird species with restricted breeding habitats, such as the black-throated blue and cerulean warblers, might be highly impacted.”

We argue this is an underestimate of ecological impacts of HVHF. It has been estimated by Dr. Michael Klemens (Klemens prefiled and direct testimony, adjudicatory hearing for APA Project 2005-100) that the ecological impact of new road development extends ¼- ½ mile on either side of the road. Salamanders and frogs crossing these roads to access breeding, vernal pools briefly in the spring, and then recrossing them to return to their upland habitats used the remainder of the year would be exposed to direct and indirect mortality, drying, trapping in ditches and other road infrastructure, and disruption of their movements. Klemens estimates that to preserve breeding populations of these animals, there should be no more than 25% alteration of the forested environment up to 750 feet away from the vernal pool envelope (100-feet from the edge of the pool).

Dr. Klemens notes (pre-filed, APA Project 2005-100): “People look at wildlife. They think wildlife moves in corridors. Wildlife moves across the landscape almost like sheet flow of water. There's movement all through the landscape. And that continues for some species, less effectively in a logged landscape, but it continues, and there's recovery. Once you put on a hard landscape of roads, development, and other amenities, you fragment that sheet flow of wildlife and organisms across the landscape.”

Dr. Michale Glennon reported (prefiled and direct testimony, adjudicatory hearing for APA Project 2005-100) that “our own research on the ecological effect distance of exurban homes in the Adirondacks determined effects to avian communities to a distance of 150m (Glennon and Kretser, In Prep). This effect distance is similar to that found by Odell and Knight (2003) for avian and mammalian communities in Colorado (180m), and that found for small mammal communities around exurban homes in the Adirondacks (150-250m, Danks 2008).”

Proposed regulatory changes to 6 NYSCR 190 and 52 are hardly adequate to protect sensitive fish and wildlife habitats. BMPs, or Best Management Practices are not meaningful in that such practices are not defined in regulation, and gas operators will have little guidance to prevent or minimize impacts. We urge that these BMPs be defined in regulation.

While we commend the dSGEIS for proposed mitigation measures that require site specific habitat and wildlife assessments in specified areas (within 150 or more acres of contiguous forest contained within a defined Forest Focus Area, or within 30 or more acres of contiguous grassland within a defined Grassland Focus Area) these measures are not spelled out in regulation, cover too few focus areas and species, and should be applied to a considerably smaller acreages.

The SGEIS uses the State Natural Heritage program and survey as the basis for determining presence or absence of rare, threatened or endangered species, or species of special concern. This important program is, in and of itself, insufficient for the declaration of presence or absence of such species and their habitats.

The SGEIS and Regulations should specify the scope, seasons and methods for surveying wildlife. Biological information is critical to making informed decisions. This SGEIS and the Regulations should require that information is collected in a rigorous manner to enable detection of key secretive species. While it is relatively straightforward to prove a presence, proving an absence is more difficult. Often, the absence of a species in an EIS is an artifact of lack of experience of the investigator and/or lack of effort required to detect certain species. Once critical resources, both habitats and species are identified, then mapping should be required, followed by delineation of areas needed for the species to breed, forage, den, and migrate which are added onto the site maps as constrained areas. Gas drilling footprints should only be placed on the landscape in areas that have been delineated as not impacting those mapped areas.

While the SGEIS requires pre-drilling and post-completion animal and plant surveys when well pads are located within the defined Focus Areas, the major emphasis appears to be the identification and conservation of rare, threatened or endangered bird species which require grassland or forest interior habitats. This scope is completely inadequate. Surveys should also include amphibians, reptiles, insects, small and larger mammals, and aquatic invertebrates.

Furthermore, there should be a much lower threshold for conducting a habitat assessment prior to drilling. 150-acres for Focus Areas are far too large a threshold. A lower threshold, of 25-50 acres, would better ensure that smaller, less mobile species like amphibians, aquatic invertebrates and their habitats are properly studied and evaluated prior to the permitting of drilling.

Defined Focus Areas should be expanded to include Important Bird Areas, and Bird Conservation Areas, all municipal and county preserves, and all lands contained within the State Open Space Conservation Plan.

**State Lands, and the New York State Constitution:** This dSDEIS prohibits surface activities for HVHF from taking place on all state lands, including reforestation areas outside of the Adirondack and Catskill Parks. The SGEIS states that the Forest Preserve is automatically exempt from drilling because of Article 14 prohibitions.

However, the SGEIS and proposed Regulations (Parts 52 and 190) state that while leasing of land for HVHF is prohibited on state land for surface drilling, nothing will prevent DEC from leasing subsurface state lands outside of the Adirondack and Catskill Parks for subsurface access to gas from adjoining private lands. HVHF wells, while going down as much as 2000 feet, then spread horizontally for up to 3500 feet where the fracturing of the Marcellus shale takes place. A well started on private land could and invariably will end up underneath state land. Subsurface impacts to state land may not be seen directly at the surface, but noise, lighting, truck and other disturbance from the adjoining well pad and road network will impact State Lands otherwise protected by the NYS Constitution. This will not do.

Article 14 of the NYS Constitution applies equally to Forest Preserve inside the Adirondack and Catskill Parks, and to Forest Preserve outside those Parks but within the ECL-defined Forest Preserve counties, and to Reforestation Areas and the State Nature and Historical Preserve. The statement in the SGEIS (at 7-101) which states that while surface disturbance of state lands is prohibited, there is no prohibition on accessing subsurface state lands for horizontal, directional drilling from private land is easily challenged. Lands and mineral rights beneath state lands can not be leased, sold or exchanged. These lands include the Forest Preserve inside and outside the two Parks (Article 14, Section 1) as well as State Reforestation Areas (Article 14, Section 3), as well the State Nature and Historical Preserve (Article 14, Section 4).

The public rights to all these lands are not severable. Those public rights embedded in the State Constitution include mineral rights at the surface and below ground. Scattered Forest Preserve parcels outside the Parks, all lands included within the State Nature and Historical Preserve, all State Parks, and all State Forests, all State wildlife refuges and all lands under conservation easement should enjoy the same surface prohibitions against hydraulic fracturing, as well as a regulatory prohibition against subsurface leasing. Surface and subsurface HVHF activity would diminish the multiple values of these lands held in public trust.

Article 14, Section 5 gives any citizen the right to enforce its provisions in court. Therefore, it behooves NYS DEC to prohibit surface as well as subsurface leasing and hydraulic fracturing affecting any of these state lands. All state lands should have a minimum one mile buffer from any HVHF practices. The State Constitution intends that subsurface leasing of state lands should be prohibited. 6 NYSCRR 190 and 52, and the SGEIS should be revised accordingly.

**Water Resources Integrity:** The sheer amount of water used and wastewater needing treatment is overwhelming. According to the SGEIS, Pennsylvania's experience is telling. Each well – and there can be multiple directional wells on any one drillpad – will require a likely 3-4 millions gallons of water annually for hydrofracking and related activities. With over two thousand wells expected to operate in a given year, the annual water withdrawals will exceed 9 billion gallons for this activity. While the SGEIS calculates that 9 billion gallons is just a tiny fraction (0.25%) of statewide annual water withdrawals (NYC withdraws a trillion gallons of water each day), small watersheds and streams and aquifers within them could be severely drawn down, especially in a drought. Wildlife and plant

populations requiring a high water table, vernal pools, or damp conditions throughout the year might be put at risk locally and regionally. Hand dug, or shallow wells that homes and communities rely on could be easily damaged.

**Climate Footprint:** There is a real question whether the climate gain from the use of natural gas produced by HVHF and its replacement of higher carbon content fuels will be completely or largely offset by enhanced methane releases which may be released incidental to gas extraction as bubbles throughout the horizontal wells, or from the “flowback” waters coming out of the wells. This SGEIS fails to calculate the true climate footprint of this activity under the anticipated scenario of several thousand permits per year.

**Private Lands:** Private landowners who consciously wish to avoid leasing their lands for HVHF and avoid the related impacts, including the owners of conservation land, may be drawn into the leasing scheme by “compulsory integration.” This term of art and law is part of the Environmental Conservation Law. Natural gas operators need to acquire mineral leasing rights from 60% of the acreage within a given, DEC-defined “production unit.” When they do, they can compel the owners of the remaining 40% of the acreage into the leasing program. Subsurface acreage beneath state lands could, for example, make up a great deal of the 60% requirement within a given “production unit.” Nearby private landowners who want nothing to do with gas leasing could thereby be drawn in simply due to the amount of state land reached below the surface by the directional drilling. Any private landowner who engages in a lease for subsurface gas might be unable to negotiate a new or renegotiate an existing mortgage as mortgages require the owners to have complete ownership of all rights to the land.

The ECL’s compulsory integration statute should be changed to eliminate the inclusion of subsurface state lands from mineral leasing in any given production unit.

Thank you for considering our comments.

Sincerely,  
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