

STATE ENVIRONMENTAL REGULATION

Expert Analysis

DEC Gives Fracking A Major Push Forward

High-volume hydraulic fracturing, also known as “fracking,” received a huge boost on Sept. 7 when the New York State Department of Environmental Conservation (DEC) published a revised draft Supplemental Generic Environmental Impact Statement (SGEIS),¹ announced a 90-day public comment period, declared its intention to issue draft regulations in October, and indicated that it plans to hold four public hearings in November about the SGEIS and the draft regulations.

Fracking, a well stimulation technique that is used to extract natural gas from very tight rock, involves the controlled use of water and chemical additives, pumped under pressure into a cased and cemented wellbore.² In New York, the primary target for shale-gas development is the Marcellus Shale, which underlies about 18,700 square miles of the southern tier from the Catskills to the western part of the state. The deeper Utica Shale also has been identified as a potential target for shale-gas development; it underlies 28,500 square miles from the Adirondacks to the southern tier and east to the Catskills.³ Low-permeability reservoirs also may be appropriate for development by high-volume hydraulic fracturing.

With the SGEIS having been issued this month, and the comment period running, it appears that New York is poised to permit horizontal drilling and high-volume fracking to proceed in the state.

Background

The DEC prepared the SGEIS to satisfy the requirements of the State Environmental Quality Review Act (SEQRA).⁴ As noted in the SGEIS, the DEC already “has received applications for permits to drill horizontal wells to evaluate and develop the Marcellus Shale for natural gas production by fracking.”⁵ In reviewing and processing these and other permit applications, the DEC indicates it will apply the requirements contained in the SGEIS, the regulations once they are promulgated, and the 1992 Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program (“1992 GEIS”)⁶ throughout the state. There are, however, sensitive areas that the DEC wants declared off-limits to surface drilling for natural

By
Charlotte A. Biblow



gas using fracking. These include “the watersheds associated with unfiltered water supplied to the New York City and Syracuse areas pursuant to Filtration Avoidance Determinations issued by the U.S. Environmental Protection Agency, (EPA), reforestation areas, wildlife management areas, and ‘primary’ aquifers,”⁷ and additional setback and buffer areas.⁸

The DEC has been working on the SGEIS for about three years. Since the autumn of 2008, DEC personnel in the natural resources and environmental quality programs have been analyzing information about (i) the potential impacts of fracking operations on the environment, (ii) mitigative measures to prevent or minimize significant adverse impacts, and (iii) criteria and conditions for future permit approvals and other regulatory action.⁹

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In September 2009, the DEC issued a draft SGEIS (“2009 dSGEIS”) for public review and comment. In excess of 13,000 public comments were submitted to the DEC about the 2009 dSGEIS. Many of these comments expressed concern about fracking’s potential contamination of groundwater and surface drinking water supplies. A 2010 executive order of the governor required the DEC to revise the 2009 dSGEIS. That same executive order also prohibited the DEC from issuing permits for high-volume hydraulic fracturing until the SGEIS was finalized.¹⁰

On July 1, 2011, the DEC released a preliminary draft of the SGEIS. On Sept. 7, it released the revised draft SGEIS.

Projected Scope and Impact

The DEC expects fracking to have a significant impact on natural gas production in New York. Based on industry projections, the DEC believes 1,700 to 2,500 horizontal and vertical well permits

for development of the Marcellus Shale by high-volume hydraulic fracturing will be filed during “peak development” years¹¹ and 1,600 or more permit applications will be filed during an average year.¹²

The DEC believes that fracking will provide a substantial economic boost for the state in the areas of employment, wages, and tax revenue for state and local governments.¹³ Total direct employment from fracking could reach 6,198 full-time equivalent (FTE) workers under a low-development scenario and 24,795 FTE workers under an average-development scenario. The DEC estimates that these jobs could bring \$419.6 million to \$1.7 billion in earnings for workers.¹⁴

The DEC also indicates that fracking could generate indirect employment in other sectors of the economy. Indirect employment is expected to range from 7,293 FTE workers under a low-development scenario to an additional 29,174 FTE workers under an average-development scenario, with an additional \$202.3 million and \$809.2 million in earnings.¹⁵

Moreover, the DEC’s analysis indicates that fracking will lead to positive impacts on income levels in the state. When well construction reaches its maximum levels, total annual construction earnings are projected to range from \$298.4 million to nearly \$1.2 billion. Employee earnings from operational employment are expected to range from \$121.2 million to \$484.8 million. Additionally, indirect employee earnings are anticipated to range from \$202.3 million to \$809.2 million. The total direct and indirect impacts on employee earnings are projected to range from \$621.9 million to \$2.5 billion per year at peak production and construction levels in the 30th year of development.¹⁶

The DEC also points out that the state could receive direct receipts from the lease of state land for subsurface horizontal drilling. In addition, fracking could bring in between \$31 million and \$125 million a year in personal income tax receipts for the state, depending on the level of development assumed. Local governments could see a substantial increase in sales tax receipts and an increase in ad valorem property tax revenue. Indeed, the DEC claims that over the 30-year life of one single typical horizontal well, “a total of \$1.45 million in tax revenue could be generated.”¹⁷

Proposed Limitations

In Chapter 5 of the SGEIS, the DEC explains that the use of high-volume hydraulic fracturing

CHARLOTTE A. BIBLOW is a partner in the environmental, land use and municipal law and litigation departments of Farrell Fritz, and can be reached at cbiblow@farrellfritz.com.

with horizontal well drilling technology provides for a number of wells to be drilled from a single well pad. Although horizontal drilling results in fewer well pads than traditional vertical well drilling, these pads are larger and the industrial activity taking place on the pads is more intense. Also, according to the DEC, hydraulic fracturing requires chemical additives, some of which may pose hazards when highly concentrated. The extra water associated with fracking may result in significant adverse impacts relating to water supplies, wastewater treatment, and disposal and truck traffic. Horizontal wells, moreover, generate greater volumes of drilling waste.¹⁸

In Chapter 3 of the SGEIS, the DEC describes how it will use the 1992 GEIS and the final SGEIS to review applications to conduct fracking in New York. It describes how the DEC will use the proposed Environmental Assessment Form (EAF) addendum requirements and also identifies activities requiring site-specific SEQRA determinations of significance. Specifically, site-specific environmental assessments and SEQRA determinations of significance will be required for the following types of high-volume hydraulic fracturing applications:

(1) Any proposed high-volume hydraulic fracturing where the top of the target fracture zone is shallower than 2,000 feet along a part of the proposed length of the wellbore;

(2) Any proposed high-volume hydraulic fracturing where the top of the target fracture zone at any point along the entire proposed length of the wellbore is less than 1,000 feet below the base of a known fresh water supply;

(3) Any proposed well pad within the boundaries of a principal aquifer, or outside but within 500 feet of the boundaries of a principal aquifer;

(4) Any proposed well pad within 150 feet of a perennial or intermittent stream, storm drain, lake, or pond;

(5) Any proposed surface water withdrawal that is found not to be consistent with the DEC's preferred passby flow methodology; and

(6) Any proposed well location determined by the New York City Department of Environmental Protection to be within 1,000 feet of its subsurface water supply infrastructure.¹⁹

In all of these circumstances, the DEC is proposing to require a site-specific SEQRA assessment because, it believes, any of these applications is either beyond the scope of the analyses contained in the SGEIS or the DEC has determined that proposed activities in these areas raise environmental issues that necessitate a site-specific review.²⁰

The DEC also says that it will propose revisions or additions to its oil and gas well regulations²¹ and to other regulations and mitigation measures. The DEC's goal: to "ensure full review of the proposed environmental controls for high-volume hydraulic fracturing."²²

Other portions of the SGEIS describe the process for constructing access roads and explain why the DEC generally will require at least three strings of cemented casing in a well during fracturing operations: an outer string that will extend below fresh ground water and will be cemented to the surface before a well is drilled deeper, an intermediate casing string, and an innermost casing string that typically extends from the ground surface to the toe of a horizontal well.²³

Mitigation Measures

A key part of the SGEIS is found in Chapter 7, which describes the measures the DEC claims, if implemented, will "eliminate or mitigate" potentially significant adverse impacts from fracking. These include banning fracking in the New York City and Syracuse watersheds and in a protective 4,000-foot buffer area around those watersheds; on 18 other aquifers and certain state lands; within 2,000 feet of public drinking water supplies; and within 500 feet of private water wells.²⁴

The DEC also wants fracking on "principal aquifers" (or outside but within 500 feet of these aquifers) to move forward only following site-specific environmental review and upon the issuance of individual State Pollutant Discharge Elimination System (SPDES) permits for storm water discharges.²⁵

In addition, the DEC intends to require secondary containment and stormwater controls to mitigate the risk of a significant adverse impact to water resources from spills of chemical additives, hydraulic fracturing fluid, or liquid wastes associated with fracking. In addition, to ensure that wastewater from fracking is properly disposed, the DEC proposes to require that before any permit is issued the operator have DEC-approved plans in place for disposing of flowback water and production brine. The DEC also proposes to require a tracking system, similar to what is in place for medical waste, for all liquid and solid wastes generated in connection with fracking operations.²⁶

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The SGEIS proposes to expand the requirement for "closed-loop" drilling; according to the DEC, that will limit the risk of significant adverse impacts related to the disposal of pyrite-rich Marcellus Shale cuttings on-site. There are proposed air quality control measures and requirements to mitigate greenhouse gas emissions. The DEC says that to mitigate adverse impacts on wildlife habitat caused by fragmentation of forest and grasslands on private land, it is proposing to require that surface disturbance in contiguous forest patches of 150 acres or more and contiguous grassland patches of 30 acres or more within specified forest and grassland areas, respectively, be contingent on site-specific ecological assessments conducted by a permit applicant and implementation of best management practices identified through these assessments.²⁷

Other Control Measures

The DEC also proposes to impose a variety of other regulatory requirements and permit conditions on fracking. For instance, before a permit is issued, DEC staff will review the well site layout and conduct a site visit. Staff will also

review each well's proposed casing and cementing plans. DEC will also require plans for disposing of flowback water and production brine prior to issuing permits. Moreover, fracturing equipment components will be pressure-tested with fresh water, mud, or brine prior to the introduction of chemical additives, and flowback water stored on-site must use covered watertight tanks within secondary containment and the fluid contained in the tanks must be removed from the site within certain time periods.²⁸

An applicant must include a transportation plan with its permit application. The plan must include proposed truck routes, a road conditions assessment, disclosure of any local road use agreements and a demonstration that the proposed roads are sufficient to accommodate the proposed truck traffic.²⁹

Conclusion

More will be learned about the DEC's position on fracking once it issues draft regulations next month, responds to comments at the public hearings to be held in November in counties in the Marcellus Shale area as well as New York City, and finalizes the SGEIS after the comment period ends. What is clear, however, is that the DEC is willing to allow fracking on more than 80 percent of the Marcellus Shale where gas extraction is viable—and fracking almost undoubtedly will become a major industry in New York in the very near future.



1. <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf>.
2. See SGEIS, Executive Summary, at 1.
3. See SGEIS, Executive Summary, at 2 and Chapter 4, at 4-14 to 4-23.
4. See SGEIS, Executive Summary, at 2.
5. See SGEIS, Executive Summary, at 2.
6. <http://www.dec.ny.gov/energy/45912.html>.
7. See SGEIS, Executive Summary, at 2.
8. Forest Preserve land in the Adirondacks and Catskills is off-limits to natural gas development pursuant to the state constitution.
9. See SGEIS, Executive Summary, at 3.
10. See SGEIS, Executive Summary, at 3.
11. See SGEIS, Executive Summary, at 4 and Chapter 2, at 2-1.
12. *Id.*
13. See SGEIS, Executive Summary, at 17 to 18 and "Economic Impacts of High-Volume Hydraulic Fracturing in New York State," available at http://www.dec.ny.gov/docs/materials_minerals_pdf/econimpact092011.pdf.
14. *Id.*
15. *Id.*
16. *Id.*
17. *Id.*
18. See SGEIS, Executive Summary, at 6 to 8 and Chapter 5, at 5-1 to 5-38.
19. See SGEIS, Executive Summary, at 5 to 6 and Chapter 3, at 3-31 to 3-5, 3-8 to 3-9 and 3-12 to 3-13.
20. See SGEIS, Executive Summary, at 12 to 13 and Chapter 3, at 3-12 to 3-13.
21. See 6 NYCRR Part 550.
22. See SGEIS, Executive Summary, at 11.
23. See SGEIS, Executive Summary, at 22 to 23.
24. See SGEIS, Executive Summary, at 19 to 26 and Chapter 7, at 7-2 to 7-6.
25. See SGEIS, Executive Summary, at 23 and Chapter 7, at 7-22 to 7-25.
26. See SGEIS, Executive Summary, at 23 to 24 and Chapter 7, at 7-83 to 7-95.
27. See SGEIS, Chapter 7.
28. See SGEIS, Executive Summary, at 24 to 25 and Chapter 7.
29. See SGEIS, Executive Summary, at 25-26 and Chapter 7, at 7-109 to 7-110.