

The Supplemental Generic Environmental Impact Statement...

...on the Oil, Gas and Solution Mining Regulatory Program

***Well Permit Issuance for Horizontal Drilling And High-Volume
Hydraulic Fracturing to Develop the Marcellus Shale and
Other Low-Permeability Gas Reservoirs***

TCCOG – November 5, 2009

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Presentation Topics

- I. The overall regulatory framework for NYS DEC's review (**SEQRA, Environmental Impact Statements- EIS, the process**)
- II. What's a **Generic Environmental Impact Statement**, much less a **supplemental GEIS**?
- III. What's what in the key documents
 - A. the **Draft** SGEIS itself
<http://www.dec.ny.gov/energy/58440.html>
 - B. the **scoping document** for the SGEIS
http://www.dec.ny.gov/docs/materials_minerals_pdf/finalscope.pdf
 - C. the 1992 final **GEIS**
<http://www.dec.ny.gov/energy/45912.html>
- IV. **Comments on Draft** SGEIS that are most likely to succeed...



[For DEC's Marcellus home page see:](http://www.dec.ny.gov/energy/46288.html)

<http://www.dec.ny.gov/energy/46288.html>

KEY SEQRA STEPS REMAINING

- PUBLIC COMMENT PERIOD

- Public Hearing(s)



- DEC PREPARES FINAL sGEIS

- AGENCY ISSUES FINDINGS

- Basis for policy decision, new regulations

- Timing: if following typical timeline, findings likely in January

Last scheduled public hearing:
Nov 18 in Corning/(Nov 19 in Ithaca)
Last day written comments accepted:
NOW December 31, 2009

Final SGEIS includes the draft SGEIS (plus any revisions/supplements); copies or summaries of substantive comments received; and the DEC's response to the substantive comments.

SEQRA in NYS:

Authority, intent and purpose (§617.1)

PROTECT THE ENVIRONMENT

(b) In adopting SEQR, it was the Legislature's intention that all agencies conduct their affairs with an awareness that they are stewards of the air, water, land, and living resources, and that **they have an obligation to protect the environment** for the use and enjoyment of this and all future generations.

TAKE ENVIRONMENTAL FACTORS INTO CONSIDERATION

(c) **The basic purpose of SEQR is to incorporate the consideration of environmental factors into the existing planning, review and decision-making processes** of state, regional and local government agencies at the earliest possible time. To accomplish this goal, SEQR requires that all agencies determine whether the actions they directly undertake, fund or approve may have a significant impact on the environment, and, **if it is determined that the action may have a significant adverse impact, prepare or request an environmental impact statement.**

BALANCE SOCIAL, ECONOMIC AND ENVIRONMENTAL FACTORS

(d) it is the intention of this Part that a **suitable balance of social, economic and environmental factors be incorporated into the planning and decision-making processes** of state, regional and local agencies. It is **not** the intention of SEQR that environmental factors be the sole consideration in decision-making.

SEQRA in NYS:

More than procedural... but how much more?

Unlike the almost wholly procedural national law (NEPA) in NYS agencies have the duty to:

“choose alternatives which, consistent with social, economic, and other essential considerations, to the maximum extent practicable, minimize or avoid adverse environmental effects, including effects revealed in the EIS process.”

SEQRA in NYS – what it's not

Think less of a political framework than of a legal one:

- Evidence (about impacts/mitigations) & substantive arguments (more likely to?) count
- The number of pro versus con “votes”/ opinions don't (less likely to?) count

SEQRA in NYS – the EIS



- An Environmental Impact Statement is required if the lead agency (in this case, the DEC) decides, based on preliminary review, that the action as proposed “**may have a significant adverse impact on the environment**”.
- The vast majority of projects or actions that undergo environmental review do NOT result in an EIS
 - Uncounted (literally) thousands of environmental reviews each year, somewhat more than 100 EIS’s per year has been typical
 - Approximately 50-70 SEQRA decisions in NY courts yearly

EIS Content I



All draft EIS's *must* include the following elements:

- Descriptions and/or evaluations of:
 - the **proposed action**, its purpose, public need and benefits
 - the **environmental setting** of the areas to be affected
 - the **potential significant adverse environmental impacts** (reflecting severity & likelihood)
 - the **impact mitigation measures**
 - the range of **reasonable alternative actions .. that are feasible, considering the objectives and capabilities of the project sponsor**, including a “no action” alternative.
- A list of any underlying studies, reports, etc. used for EIS

EIS Content II



“Only where applicable and significant”

- reasonably related **short- and long-term impacts, cumulative impacts**
- those adverse environmental impacts that **cannot be avoided or adequately mitigated**
- any **irreversible and irretrievable commitments of environmental resources**
- any growth-inducing aspects** of the proposed action
- Impacts on the **use and conservation of energy**
- Impacts on **solid waste management** and solid waste management plans
- [more]

What's a Generic EIS?

Specialized, much less common kind of EIS

Purpose is to assess the environmental impacts of certain kinds of proposed actions:

- ❓ An entire program or plan having wide application or restricting the range of future alternative policies or projects
 - includes new or significant changes to existing land use plans, development plans, zoning regulations or agency comprehensive resource management plans
- ❗ **Separate actions having generic, similar or common impacts (see p. 1-3)**
- **Actions likely to have cumulative impacts**
 - ❗ – a number of separate actions in a given geographic area which, if considered singly, may have minor impacts, but if considered together may have significant impacts
 - ❗ – a sequence of actions, contemplated by a single agency or individual

Generic Environmental Impact Statement

on the Oil, Gas and Solution Mining Regulatory Program

- Prepared 1988 -1992
- Has served as basis for oil and gas industry regulations in NYS since then
 - Serves as “guideline for environmentally acceptable oil and gas drilling and development, solution salt mining, underground storage of gas, geothermal development, and drilling of stratigraphic and brine disposal wells in all of New York State.”

Supplemental GEIS

- Being undertaken because DEC agreed that there may be “significant adverse environmental impacts which were not addressed in the GEIS.”
 - DEC based decision on “three key factors”
 - required water volumes in excess of GEIS descriptions
 - possible drilling in the New York City Watershed, in or near the Catskill Park, and near the federally designated Upper Delaware Scenic and Recreational River
 - longer duration of disturbance at multi-well drilling sites
- GEIS will be superceded by the Supplemental GEIS only for topics newly analyzed, ie.
 - “Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs”

So, is the GEIS important for understanding the SGEIS?

- **Sometimes contains important background information, conclusions... be alert for passages like the following from SGEIS:**
 - **6.12 Community Character Impacts:** Many of the community character impacts associated with horizontal drilling and high volume hydraulic fracturing **are the same as those addressed in the 1992 GEIS, and no further mitigation measures are required.**

Supplemental Generic Environmental Impact Statement (SGEIS)

Final Scope – released on February 6, 2009

Guiding document for draft SGEIS in which DEC...

(after a public comment period on the scope – 3,770 comments received)

- **listed the topics it would cover in the SGEIS**
- **listed topics (suggested) it would NOT cover in the SGEIS**

Included in Final Scope

- Many topics were included in the scope. All topics that were included need to be addressed in the draft SGEIS.
 - However, the scope often does not give clear guidance as to how the topics will be addressed.
 - Can range from a few terse sentences to a complex evaluation based on independent studies.

Scope Example: Cumulative Impacts

- Review and assessment of the information and methodologies available for estimating the potential **rate of Marcellus Shale development**, including a description of likely development based on the information and methodology deemed most applicable and appropriate.
- **Assessment of the levels of activity** within a reasonable temporal and geographic framework that may result in adverse cumulative impacts with respect to **noise, visual effects, air quality** and **water resources**
- **Evaluation of the cumulative impacts of multiple water withdrawals**, considering the scale of other everyday withdrawals, the non-continuous nature of withdrawals for well development, and the likely time frame for taking into account the natural replenishment of water sources.
- A description of the **mitigation measures available** to prevent significant adverse cumulative impacts **associated with individual well pads and within defined geographic areas**

Final Scope: Not Included Because “not appropriate for GEIS”

- **Prohibitions/Off-Limits Areas/Specific Scenarios, Places, Resources**
 - Not to be considered under generic, but rather **site specific review**
- **Staffing & Enforcement Concerns**
 - Considered in the **budget planning and legislative processes, administrative policy making** as necessary, not in environmental review designed to “prevent problems” that require enforcement
- **Exceptions from Public Disclosure of Chemical Information**
 - Exceptions from public disclosure are **governed not by SEQRA, but by New York’s Public Officer’s Law (Freedom of Information Law) and the Department’s Records Access Regulations.**
- **Health Impact Assessments/Epidemiological Studies**
 - while the SGEIS **will identify the necessary controls to preclude exposures, it will not include a health impact assessment**

Final Scope:

Also not included because “**not for SEQR review**” and
or under jurisdiction of other authorities

- Pipeline rights-of-way and eminent domain
- Private leasing issues such as royalty rates, and non-payment of royalties
- Local communities’ preparedness to respond to complaints and emergencies
- Tax assessments on gas wells, gas production or water use
- Federal highway safety
- Wellsite health and safety plans
- Requirement for well operators to establish rapid response teams
- Proof of well operators’ liability insurance
- Requirement that natural gas produced from the Marcellus Shale be reserved for essential local services and purposes
- Likelihood and effects of a potentially transient workforce
- Potential positive or negative impacts on property values
- Compulsory integration
- Production metering

DEC Draft SGEIS Organization & Content

- I. [Introduction](#) – 5 pages
 - II. [Description of Proposed Action](#) – 38 pages
 - III. [Proposed SEQRA Review Process](#) – 14 pages
 - IV. [Geology](#) – 36 pages
 - V. [Natural Gas Development and High Volume Hydraulic Fracturing](#) – 158 pages
 - VI. [Potential Environmental Impacts](#) – 163 pages
 - VII. [Mitigation Measures](#) – 112 pages
 - VIII. [Permit Process and Regulatory Coordination](#) – 10 pages
 - IX. [Alternatives](#) - 11 pages
- Also: [Glossary](#), [Bibliography](#), [Consultants](#), [Bibliography](#), [Appendices](#)



DEC Draft SGEIS

Shorter “Read Me” Chapters

CH. 1 INTRODUCTION – 5 pages

1.1 DESCRIPTION OF THE PROPOSED ACTION

1.2 REGULATORY JURISDICTION

1.3 PROJECT LOCATION

1.4 STATE ENVIRONMENTAL QUALITY REVIEW ACT

1.4.1 Generic Environmental Impact Statement (GEIS)

1.4.2 Supplemental GEIS (SGEIS)

1.4.3 Well Permit Applications & the Environmental Review Process

CH. 8 PERMIT PROCESS AND REGULATORY COORDINATION – 10 pages

8.1 INTERAGENCY COORDINATION

8.1.1 Local Governments

8.1.2 State

8.1.3 Federal

8.1.4 River Basin Commissions

8.2 INTRA-DEC

8.2.1 Well Permit Review Process

8.2.2 Other DEC Permits and Approvals

8.3 WELL PERMIT ISSUANCE

8.3.1 Use and Summary of Supplementary Permit Conditions for High-Volume Hydraulic Fracturing

8.3.2 High-Volume Re-Fracturing

Ch. 9 ALTERNATIVE ACTIONS - 11 pages

9.1 PROHIBITION OF DEVELOPMENT

9.2 PHASED PERMITTING APPROACH

9.2.1 Rate of Development and Thresholds

9.2.2 Regional Cumulative Impacts

Conclusion/Recommendation

9.3 GREEN OR NON-CHEMICAL Fracturing Technologies And Additives

9.3.1 Environmentally-Friendly Chemical Alternatives

9.3.2 Summary



DEC Draft SGEIS

Impact (and Mitigation) Chapters

6.1 WATER RESOURCES

- 6.1.1 Water Withdrawals
- 6.1.3 Surface Spills and Releases at the Well Pad
- 6.1.4 Groundwater Impacts Associated With Well Drilling and Construction
- 6.1.5 Hydraulic Fracturing Procedure
- 6.1.6 Waste Transport
- 6.1.7 Centralized Flowback Water Surface Impoundments
- 6.1.8 Fluid Discharges
- 6.1.9 Solids Disposal
- 6.1.10 Potential Impacts to Subsurface NYC Water Supply Infrastructure
- 6.1.11 Degradation of New York City's Drinking Water Supply

6.2 FLOODPLAINS

6.X PRIMARY AND PRINCIPAL AQUIFERS

6.3 FRESHWATER WETLANDS

6.4 ECOSYSTEMS AND WILDLIFE

- 6.4.1 Invasive Species
- 6.4.2 Centralized Flowback Water Surface Impoundments

6.5 AIR QUALITY

- 6.5.1 Regulatory Analysis
- 6.5.2 Air Quality Impact Assessment

6.6 GREENHOUSE GAS EMISSIONS

- 6.6.1 Greenhouse Gases
- 6.6.2 Emissions from Oil and Gas Operations
- 6.6.3 Emissions Source Characterization
- 6.6.4 Emission Rates
- 6.6.5 Drilling Rig Mobilization, Site Prep. and Demobilization
- 6.6.6 Completion Rig Mobilization and Demobilization
- 6.6.7 Well Drilling
- 6.6.8 Well Completion
- 6.6.9 Well Production
- 6.6.10 Summary of GHG Emissions

6.7 CENTRALIZED FLOWBACK WATER SURFACE IMPOUND...

6.8 NATURALLY OCCURRING RADIOACTIVE MATERIALS

6.9 VISUAL IMPACTS

6.10 NOISE

6.11 ROAD USE

6.12 COMMUNITY CHARACTER IMPACTS

- 6.12.1 Land Use Patterns
- 6.12.2 Environmental Justice

6.13 CUMULATIVE IMPACTS

- 6.13.1 Site-Specific Cumulative Impacts
- 6.13.2 Regional Cumulative Impacts

6.14 SEISMICITY

- 6.14.1 Hydraulic Fracturing-Induced Seismicity
- 6.14.2 Summary of Potential Seismicity Impacts

Navigating the Scope & Draft SGEIS Online

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 - 2.1.2.2 Fluid Removal From Well Site and Ultimate Disposition of Returned Fluids
 - 2.1.2.3 Trade Secret Status of Additive Formulas or Constituents
 - 2.1.2.4 Re-Fracturing
 - 2.1.3 Well Testing
 - 2.1.4 Natural Gas Production
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 - 4.1.3 Air Quality Impacts
 - 4.1.3.1 Greenhouse Gas Emissions
 - 4.2 Water Resources
 - 4.2.1 Water Withdrawals
 - 4.2.1.1 Susquehanna River Basin

2.1.2.4 Re-Fracturing

Notification to and approval by the Department have not been required for routine well workover or servicing operations that do not result in alterations to a well's downhole casing configuration or designated use and status.

• Because of the possibility, not addressed in the GEIS, for additional high-volume hydraulic fracturing subsequent to the initial well completion, the dSGEIS will address the potential impacts of re-fracturing wells and will evaluate the need for additional procedures to avoid or mitigate such impacts.

2.1.3 Well Testing

Wells are typically tested after drilling and stimulation to determine their productivity, economic viability, and design criteria for a pipeline gathering system if one needs to be constructed. If no gathering line exists, well testing necessitates that produced gas be flared. Regulations require the Department's approval for any flaring longer than a 48-hour cleanup period after completion or stimulation plus a 24-hour test period. Flare approvals typically require (1) notification to the appropriate Division of Mineral Resources field office, local officials, law enforcement, fire departments and adjacent landowners, (2) adequate wellhead design and equipment to control the well, (3) proper fluids handling and disposal, (4) proper construction and maintenance of flare equipment to prevent damage to surrounding vegetation, (5) minimization of night flaring to the extent practical and (6) an on-site presence by company personnel.

• The dSGEIS will consider whether any aspects of testing shale wells after high-volume hydraulic fracturing warrant additional regulatory control.

2.1.4 Natural Gas Production

After stimulation and testing, completion equipment and any fracturing fluid tanks are removed and a production wellhead and gas gathering system are installed. As described in Chapter 10 of the GEIS, various gas treatment equipment may also be required to remove water and impurities from the extracted gas so that it is suitable for sale into a transmission pipeline. A brine tank will be installed on site if necessary. The storage of production brine in on-site pits has been prohibited in New York since 1984.

Any pits used for drilling or stimulation operations are reclaimed and the site is re-graded to the extent feasible to match it to the adjacent terrain. Department inspectors visit the site to confirm full restoration of areas not needed for production.

The GEIS states that "[P]roducing wells and their associated facilities usually cover only 10 to 15 percent of the original drillsite."²³ This statement was based on single-well drill pads. Drilling of multiple wells from somewhat larger common pads is anticipated for Marcellus Shale development.

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Public Hearings, Written Comments

- **Your presumed goal**
 - to get your comments on the formal record
 - to influence the DEC decision
- **“Written and oral comments receive equal consideration”**
- **DEC is required to respond to comments that are “substantive”**



DEC's responses to comments

(see <http://www.dec.ny.gov/permits/56407.html>)

Must the lead agency respond to all comments raised?

- The lead agency must respond to **substantive comments**.
- **General statements of objection or support** should be noted in the comment summary, but **need no response**.
- **Speculative comments**, or assertions that are not supported by reasonable observations or data, **need no response**.
- The lead agency may choose to **group comments by topic, and respond only once for each topic**, so that responses in the final EIS are not repetitive.

Who decides what comments are "substantive," requiring response?

- The **lead agency** decides.

How does the lead agency decide which comments are substantive for Final SGEIS?

- Assesses the **relevance** of the comments to identified impacts, alternatives and mitigation
- Do the comments raise important, **new environmental issues, not previously addressed**.
- Is **clarification** of scientific terms, concepts or data interpretation necessary? Minor corrections, typos, etc. should be corrected.
- The lead agency **may choose to explain** why an impact is not significant, why a particular topic is not included in the final EIS, or how mitigations would work.
- When a subject has been **raised frequently, even if "not relevant", it is "good practice"** to address that topic at least briefly.

DEC's response to GEIS comments ('92)

- Seven topics were raised so frequently that the Department decided it was more efficient to prepare general Topical Responses instead of repeatedly responding to the same points
 1. Public taking without compensation
 2. Visual resources and assessment requirement
 3. Environmental assessment form and site-spdc permit conditions
 4. **Access roads as part of project**
 5. Reasons for including the proposed regulations in the **GEIS**
 6. Surface/mineral **owner lease conflicts**
 7. Soil as a public natural resource



Public Hearings, Written Comments

- **Public Hearing Schedule**

Details at <http://www.dec.ny.gov/energy/58705.html>

- October 28, Sullivan County Community College, Loch Sheldrake, NY
- November 10, Stuyvesant High School, New York, NY
- November 12, Chenango Valley High School, Chenango Bridge, NY
- November 18, Corning, NY
- November 19, State Theatre, Ithaca, NY (TCCOG)



Written Comments

- May be submitted at public hearings.
- Other written comments will be accepted by DEC through December 31, 2009.
 - Submit comments through online submission system, via email, or traditional mail
 - Online submissions, see <http://www.dec.ny.gov/energy/58705.html>
 - Traditional mails ATTN: dSGEIS Comments, Bureau of Oil & Gas Regulation, NYSDEC Division of Mineral Resources, 625 Broadway, Third Floor, Albany, NY 12233-6500
- All comments received “will be given equal consideration”.



Comments/Procedures

- DEC Staff will be available prior to the start of each session to answer individual questions about the format and contents of the draft SGEIS
- Speakers required to **sign-in upon arrival and will be called in the order registered.**
- To accommodate as many people as possible, there will be a **five-minute limit on oral presentations.**
- Speakers may supplement their oral presentations with written comments.
- Formal presentations (Power Point, ect.) cannot be accommodated
- **Submitting a written comment**

