

# **Response to DRAFT Supplemental Generic Environmental Impact Statement On The Oil, Gas and Solution Mining Regulatory Program (dSGEIS), September, 2009**

## **By the Seneca Lake Pure Waters Association**

### ***Introduction***

This document provides comments on behalf of the Seneca Lake Pure Waters Association (SLPWA) on the Draft Supplemental Generic Environmental Impact Statement (dSGEIS) which was released on September 29, 2009. Our association of over 250 members represents property owners and residents in the Seneca Lake watershed. It was formed in 1991 to promote the understanding, preservation and improvement of the water quality, natural habitat and general environmental conditions of Seneca Lake and its watershed. The association supports scientific research, collects, preserves, publishes and disseminates information concerning Seneca Lake and its watershed and encourages and supports the enforcement of laws, regulations and patterns of development and technology aimed at preserving and enhancing the water quality of the lake. The association's website at <http://www.senecalake.org/> carries current information regarding its activities. This response to the dSGEIS will be posted on that website to inform our members and the interested public in the association's position.

SLPWA supports environmentally and fiscally responsible drilling for natural gas. SLPWA opposes drilling for natural gas under the vague guidelines and monitoring described in NYS DEC's dSGEIS. SLPWA believes that regulations and monitoring processes must be explicit in an improved DEC document in order to insure that this new activity, from beginning to end, can be done without risk to: (1) the environment (air, water, noise), (2) the infrastructure (counties and municipalities), (3) the local property tax burden, (4) the Finger Lakes expanding economic base (tourism, wineries, recreation) and (5) the individual property owner. New York State DEC and Federal EPA regulations must assure the safety of this process to our water, air and communities. That is the mission of these agencies<sup>1,2</sup>. The moratorium on drilling in New York State should continue until such laws and regulations are in place and supported by the general public.

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<sup>1</sup> <http://www.dec.ny.gov/about/511.html>

<sup>2</sup> <http://www.epa.gov/epahome/aboutepa.htm>

Seneca Lake occupies a pivotal position in Central New York State as a natural resource that provides its residents, local industries and businesses with water, as a recreational attraction for both residents and visitors to the area and as such is the basis of economic development and support for the region. The Finger Lakes Institute at Hobart and Smith Colleges in Geneva, New York which “is dedicated to the promotion of environmental research and education about the Finger Lakes and surrounding environments” in their 2007 report on Seneca Lake written by Dr. John Halfman, succinctly describe the importance of this lake as well as the consequences of not protecting this critical resource from pollutants<sup>3</sup>.

“Seneca Lake provides Class AA drinking water to ~80,000 people in the region with total permitted withdrawals of ~9 million gallons of water per day. The lake is also essential for the economic and social structure of the region by injecting ~\$100 million per year into the local economy through tourism and recreation alone, and influencing a tax base of over \$1 billion. Seneca Lake has over 50% of the water contained in all eleven Finger Lakes with a volume of 15.5 km<sup>3</sup> and depth of 186 m. Its watershed covers 1,586 km<sup>2</sup> (including Keuka watershed because Keuka flows into Seneca) and spans portions of Ontario, Seneca, Yates, Schuyler, Stueben (Keuka watershed) and Chemung counties. The lake surface area is 172 km<sup>2</sup>. Seneca’s surface and watershed areas are slightly smaller than those at Cayuga Lake. Its residence time is 18.6 years, the longest of the Finger Lakes (Wing et al., 1995; Callinan, 2001). This suggests that the lake responds slowly to pollutant threats and also remediation and other protection efforts. The complete response typically takes 5 to 10 residence times for conservative (nonreactive) materials. Thus, Seneca Lake is a critical resource for the region and should be protected now if water quality threats exist, because once stressed or perturbed, it will take a generation or more to restore the lake back to its less stressed state.”

Our association has two overarching comments about the dSGEIS which relate to the (1) organization of the document and (2) the objectives and orientation of the dSGEIS. We then identify specific concerns with the content of the document. Concerns are in the areas of (3) water sourcing, (4) pollution, (5) waste water, (6) impact on infrastructure, and (7) oversight responsibilities. These are organized under separate headings in the following sections of this response.

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<sup>3</sup> <http://people.hws.edu/halfman/Data/2007%20Seneca%20Report.pdf>

## **1. Organization of dSGEIS**

In responding to this dSGEIS our association notes that the complexity of this draft and its relationship to the Generic Environmental Impact Statement (GEIS) which has guided the operating procedure of the DEC for regulation of drilling and mining throughout New York State (since 1992) requires considerable study for a comprehensive response. The two documents in total contain over 1700 pages of text. In the interest of making such documents understandable by all parties concerned: (1) the regulators, (2) energy companies and their drilling partners, (3) the public at large and (4) the relevant public officials, the DEC would do well to simplify and combine these statements (GEIS and dSGEIS) into a more concise, useful and understandable format. While the readers appreciate the extensive “bookmarking” of the dSGEIS document for ease in access on the website, it is still a daunting task for the reader to extract specifics regarding regulations from this document. The 1992 GEIS is considerably more difficult to use since its availability online is posted as 58 separate files. For purposes of searching, our organization combined these files into a single composite document which totals 983 pages.

It is important to understand the technology, geology and history of this form of mining as a background to understanding the regulations, however these topics are interspersed with the regulatory suggestions that makes it difficult to sort out the regulations from background material.

An example that serves to illustrate this point is in Chapter 6 of dSGEIS entitled “Potential Environmental Impacts”. In scanning the Table of Contents of this chapter, the reader finds Section 6.5 titled “Air Quality” and within this section is sub-section 6.5.2.5 which is labeled “Conclusions”. The reader might surmise that this sub-section contains conclusions that dSGEIS has summarized on “Air Quality”. Instead the sub-section entitled “Conclusions” describes an air quality impact analysis and the word “conclusion” never appears in the rest of the section! A more organized and easier to follow approach to a combined set of these documents would be helpful to all concerned parties.

We are pleased that the DEC extended the comments period from 60 to 90 days for response to this complex document. However because this period encompasses several major holidays, we urge the DEC to extend the comment period through January 31, 2010 to solicit the best input possible from across the state on this very important

document that will set the environmental framework for New York State for this major regulatory program.

## **2. Objectives and Orientation of the Document**

The objective of this document is presumably to provide regulatory guidance for those who will be impacted by well drilling using horizontal drilling with hydraulic fracturing of the shale, such as (1) the regulators, (2) energy companies and their drilling partners, (3) the public at large and (4) the relevant public officials. In our judgment, it does not achieve this objective because the regulatory aspects of the document are too vague (except for those regulations controlled by state agencies other than DEC, such as DOT labeling etc.). This dSGEIS document like the earlier GEIS avoids any formal rules or regulations. They are alluded to but not spelled out. By avoiding formal rulemaking, this document puts the DEC in a position to make decisions on a case-by-case basis, at its discretion and without any public oversight. Discretionary, *ad hoc*, decisions on permits are inadequate to prevent and mitigate potentially significant adverse environmental impacts from horizontal drilling and high-volume hydraulic fracturing. We believe this draft needs to be substantially strengthened and should detail the specifics of such rules and regulations. Any revision of this document should also be open for further public comment.

We applaud inclusion of recent developments from the State of Colorado<sup>4</sup> in the dSGEIS. Based on years of experience with natural gas drilling the Colorado State Legislature and Governor recently gave final approval to thoroughly overhauled state rules governing production of oil and gas in that state (April 2009)<sup>5</sup>. New York State should adopt best environmental practices from states and countries who have more experience with horizontal drilling/hydraulic fracturing using environmentally benign chemicals and techniques<sup>6</sup>. The present vague rules in the dSGEIS will not be effective in protecting our environment.

The orientation of the dSGEIS leads the reader to believe that since hydraulic fracturing technology has been used in New York State for a long time, there are no new environmental issues with the proposed horizontal drilling/hydraulic fracturing processes for getting natural gas from the Marcellus Shale play. On page 7 it states:

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<sup>4</sup> dSGEIS, Section 5.18.14

<sup>5</sup> “Energy Safeguards Done Right”, Thomas Kenworthy, Center for American Progress, August 27, 2009 accessed at [http://www.americanprogress.org/issues/2009/08/colorado\\_energy\\_regulations.html](http://www.americanprogress.org/issues/2009/08/colorado_energy_regulations.html)

<sup>6</sup> dSGEIS, Section 9.3.1

“Well stimulation, including hydraulic fracturing, was expressly identified and discussed in the GEIS as part of the action of drilling a well, and the GEIS does not recommend any additional regulatory controls or find a significant environmental impact associated with this technology, which has been in use in New York State for at least 50 years.”

This statement is incredible and misleading! There are 5 mentions of “hydraulic fracturing” in the GEIS (1992) document (pages 184, 318, 319, 320 and 413 of the combined document) which refer to stimulating wells to improve production of oil (not gas) and the quantities of water that are specifically mentioned are 5,000 gallons per well (p. 319). These are all references to vertical well drilling. The above statement in the dSGEIS, leads the reader to conclude that this technology “does not require any additional regulatory controls”. In fact, the practice of hydraulic fracturing in horizontal drilling operations for natural gas is a very different application of the basic hydraulic fracturing technology. Hydraulic fracturing in horizontal drilling requires much greater quantities of water (0.5 to 6 million gallons per well) and drilling chemicals and has many ramifications that are quite different from those discussed in the 1992 GEIS document for vertical well stimulation.<sup>7</sup>

From the perspective of protecting the environment, which is the basic mission of the Department of Environmental Conservation, this embodiment of hydraulic fracturing needs to be looked at as a different technology, not treated as a technology that is known from our 50-year experience with vertical well regulation. The perspective that this is “known technology” permeates the entire draft and is patently wrong and misleading.

A second point regarding the orientation of the report is that it needs to present balanced guidance for all parties concerned. As written, the document appears to present an enabling posture to potential drilling and energy companies (presumably to attract them to New York State). Given that there are other parties who will be impacted by this activity, the document should also present guidelines for their consideration.

This should include local governance bodies such as municipalities, counties, etc who will be approached by the energy companies and drillers for water, wastewater treatment, trucking, traffic, emergency services etc. and how such organizations should prepare to best support and work with this new business opportunity. Recently, our

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<sup>7</sup> “Water-related Issues Associated with Gas Production in the Marcellus Shale, URS Corporation, Fort Washington, PA, September 16, 2009.

association was chagrined to learn that within the past few weeks, the Seneca County Board of Supervisors postponed the creation of a Marcellus Shale Task Force to prepare their county for this development. An official at that meeting was quoted as saying that “the county is poised to have a boom in natural gas drilling and that a task force could slow down the process.”<sup>8</sup> This incident betrays a lack of understanding of the coordination and complexity of the preparation that needs happen in a community so that the community has a plan for the development and is not left to react to circumstances.

In addition individual land owners whose land is likely to be leased to the energy companies for the production of the natural gas should be provided with guidelines relative to environmental issues they should understand in this partnership.

There are many dimensions that each party to this development needs to consider and at a minimum the dSGEIS should comprehensively cover those which have environmental impacts. For municipalities, for example, it should provide guidance considerations for the sale of water, the treatment of chemical waste and waste water as well as certain infrastructure issues such as trucking, roads, etc. For individuals, it should provide guidance in how to insure that their water and air sources are protected from contamination.

The dSGEIS should define each party’s areas of responsibility: those that accrue to various NY State agencies, those that are the responsibility of local governments, those that are the drillers’ and the energy companies’ and finally those that are the individual land owners. In discussing these responsibilities the document should assess responsibility for remediation of any environmental violation. In summary, dSGEIS should present a more balanced set of guidelines for all environmental responsibilities than the present document.

The DEC needs to go back to the “drawing board” with dSGEIS. If implemented, the vague procedures authorized in the dSGEIS under the oversight of the DEC will damage our watersheds, pollute our air and destroy our local economies. We cannot afford to expose our watersheds, water supplies and atmosphere to the toxic chemicals and described processes used in this new drilling technology without more detailed rules and regulations. In other industries, toxic releases are governed by the federal environmental laws, but the oil and gas industry enjoys sweeping exemptions from

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<sup>8</sup> David L. Shaw, *Finger Lake Times* , Wednesday, October 28, 2009

provisions in each of the major federal environmental statutes. Until Federal legislation is passed to require the oil and gas industry to meet the same environmental statutes that are required of other industries, the dSGEIS should protect our New York State environments and water supplies with surrogate requirements that meet the spirit of these Federal laws for other industries.

The sections that follow describe the major technical concerns that our association has with this document.

### **3. *Water Sourcing***

The U.S. Geological Service in a recent publication raises three major concerns related to Marcellus Shale drilling, two of which have to do with the sourcing of water for these drilling operations.<sup>9</sup>

“While the technology of drilling directional boreholes and the use of sophisticated hydraulic fracturing processes to extract gas resources from tight rock have improved over the past few decades, the knowledge of how this extraction might affect water resources has not kept pace. Agencies that manage and protect water resources could benefit from a better understanding of the impacts that drilling and stimulating Marcellus Shale wells might have on water supplies, and a clearer idea of the options for wastewater disposal.”

The amount of water required to horizontally drill and hydraulically fracture a new well ranges between 0.5 and 9 million gallons of water with a mean value that some estimates put at 3 million gallons per well. The dSGEIS notes that the Delaware River Basin and the Susquehanna River Basin Commissions are both developing regulations governing the sourcing of water for Marcellus Shale gas drilling. The cumulative effects of multiple drilling withdrawals must be considered by both commissions and embodied in the dSGEIS document.

These two commissions manage the water sources in the southern and eastern parts of New York State, whereas the Finger Lakes and their tributaries that are rich sources of excellent quality water in Central New York State are under the oversight of the Great Lakes Basin Commission. The dSGEIS indicates that water withdrawal from the Great Lakes Basin requires a permit from the DEC (as the New York State agency which acts on behalf of the Great Lakes Basin Commission in New York State) if the amount of water withdrawn exceeds 3 million gallons in any consecutive 30 day period. With the

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<sup>9</sup> USGS Fact Sheet 2009–3032

prospect of simultaneous, multiple drilling activities by different drilling operators, this permit requirement needs to be reexamined in light of the cumulative effect of water withdrawal from this basin that supplies water for all needs of Central New York State both present and future. For reference, the City of Geneva, New York (serving approximately 16,000 residents) treats 2 million gallons of water per day from Seneca Lake, which is an amount similar to that required to hydraulically fracture a well<sup>10</sup>. The dSGEIS needs to provide specific guidelines on how these water sources are to be managed given the magnitude of water that is planned to be used cumulatively in the multiple, simultaneous drilling operations.

Our association is in full support of the movement to develop legislation to safeguard New York's ground and surface water resources and supports the major provisions suggested by the coalition of environmental groups.<sup>11</sup> These major provisions are described in Appendix A to this report which also identifies the organizations that drafted these provisions.

#### **4. Pollution**

As with water sourcing, the cumulative effects of pollution of the air, water and noise needs to be understood and dealt with explicitly through worse case models in the dSGEIS. The dSGEIS presently deals with these effects as individual occurrences. It should also be obvious that the environment is a "system" in which water, air, plants and animals interact. This means that air pollutants can contaminate water and enter the plant and animal systems through both the air and water. These cumulative effects will be highly dependent on a variety of factors ranging from climate to regional population and industry densities. The statement in dSGEIS is too narrow since it deals only with each well pad and not with the cumulative effects of the environmental emissions and effluents in a given region or area.

##### *"9.2.2 Regional Cumulative Impacts Conclusion/Recommendation*

The approach for addressing regional cumulative impacts is to focus on the proactive siting of well pads as discussed in previous sections of this SGEIS. If the location and construction of each well pad is based on 'Best Practices' (See Appendix A, NTC) then the potential impacts will be lessened and/or eliminated. When applications are reviewed, it is recommended that DEC examine any

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<sup>10</sup> Annual Drinking Water Quality Report for 2007, City of Geneva Water Treatment Plant

<sup>11</sup> Appendix A of this document

negative issues that have occurred on adjacent spacing units to determine if there is a potential problem in the area that needs further scrutiny.”

The guidelines for dealing with cumulative effects are too limited and need to be broadened and strengthened through the analysis of model scenarios that describe worst possible cases that can be tolerated by a region.

Specifically, the higher than acceptable levels of naturally occurring radioactive materials (NORM) in many wells of the Marcellus Shale region<sup>12</sup> require that procedures be in place for handling cumulative radioactive wastes both in solid and liquid form before such incidents occur. The Department of Energy cautions<sup>13</sup> that:

“Over time, the radium, typically radium-226 and to a lesser extent, radium-228, can concentrate in pipe scale and oil sludge. These scales and sludges can contaminate soils and equipment. The presence of NORM in concentrations that exceed natural background levels may present a potential human health risk.”

Cumulative radioactive contamination can be a major problem in the Marcellus Shale drilling operations and both monitoring and mitigation of this type of cumulative contamination is not dealt with adequately in the dSGEIS. (The wastewater aspects of radioactive materials are discussed under “5. *Wastewater*” on page 14.)

The oil and gas industry has lobbied for and received significant exemptions from seven major federal environmental laws: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), the Safe Drinking Water Act, the Clean Water Act, the Clean Air Act, the National Environmental Policy Act (NEPA), and the Toxic Release Inventory under the Emergency Planning and Community Right-to-Know Act.<sup>14</sup> Because the citizens of New York are not protected by federal law from many environmental and health damages caused by oil and gas drilling and production activities, it is essential that our state laws provide this protection. While the dSGEIS needs to be consistent with NY State and Federal laws, these are issues which are being addressed by Congress through bills that have been introduced and will likely be passed. Revision of the dSGEIS should

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<sup>12</sup> <http://www.propublica.org/special/interactive-map-wastewater-samples-from-gas-wells-radioactivity-1109>

<sup>13</sup> [http://www.fossil.energy.gov/news/techlines/2000/tl\\_norm\\_website.html](http://www.fossil.energy.gov/news/techlines/2000/tl_norm_website.html)

<sup>14</sup> *The Oil and Gas Industry's Exclusions and Exemptions to Major Environmental Statutes*, Renee Lewis Kosnik, MSEL, JD, Oil and Gas Accountability Project, October 2007

anticipate that the exclusions of this industry from the Federal environmental laws that govern all other industries will be a thing of the past.

## **Water**

The DEC's 1992 Generic Environmental Impact Statement considered the potential environmental impacts of oil and gas drilling and production on water quality; on environmentally sensitive areas, such as Agricultural Districts, areas of rugged topography, wetlands, drinking water watersheds, freshwater aquifers and other sensitive habitats; and the impacts caused by drilling and production wastes, among other impacts. After reviewing these potential impacts, the dSGEIS concluded that issuance of a standard, individual oil or gas well drilling permit anywhere in the state, when no other permits are involved, does not have a significant environmental impact. A separate finding was made that issuance of an oil and gas drilling permit for a surface location above an aquifer is also a non-significant action, based on special freshwater aquifer drilling permit conditions implemented by the DEC. These conclusions in GEIS are a statement of action and but are unsupported with references to their basis. These need to be revisited in dSGEIS and referenced to support the conclusion.

The DEC should wait to issue its regulations on the potential effects that hydraulic fracturing in horizontal drilling until the EPA completes a new study on the risks that hydraulic fracturing poses to drinking water supplies as formally urged by a resolution of the U.S. House of Representatives passed on Oct. 29, 2009. The Senate is expected to pass an identical bill shortly and President Obama is expected to sign the measure into law soon after that. In announcing passage of the bill, Congressman Maurice Hinchey from the 22<sup>nd</sup> Congressional District in New York said,

"While natural gas certainly has an important role in our national energy policy, it's imperative that we take every step possible to ensure that our drinking water supplies are not contaminated or adversely impacted in any way. This legislation puts Congress on record in support of a new, comprehensive study that will examine the impact that hydraulic fracturing really has on our water supplies. The study results will put us in a position to take any further steps that are

necessary to protect our drinking water supplies from the chemical concoctions being pumped into the ground by energy companies."<sup>15</sup>

Congressman Eric Massa from the 29<sup>th</sup> Congressional District in New York succinctly summarized the issue<sup>16</sup>:

” Threats to New York state’s water resources are threats to the future of everyone living here. Potential benefits from the treasure of natural gas below us must be weighed against long-term risks to our water supply, agriculture, tourism and overall economic viability of the region.”

The lack of a scientific basis for excluding petroleum from the list of hazardous substances in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) which regulates the clean up of hazardous substances released into any part of the environment, including air, water, and land. Benzene, toluene, xylene and ethylbenzene, each of which is a component of petroleum, are included in Section 101(14) of CERCLA list of hazardous substances that are covered under the statute. Inexplicably, however, the last clause of Section 101(14) excludes crude oil and petroleum which contain these compounds. Thus, hazardous chemicals that would otherwise fall under the ambit of CERCLA are immune from the statute when encompassed in petroleum or crude oil. Irrespective of this legal “gerrymandering”, the dSGEIS should recognize the scientific soundness of including petroleum on its list of hazardous substances given that it includes a number of carcinogens and endocrine disruptors.

Chapter 7 of dSGEIS notes,

“... recommendations for enhanced procedures and permit conditions necessitated by the unique aspects of horizontal drilling and high-volume hydraulic fracturing. In addition, the proposed EAF Addendum contains a series of informational requirements, such as the disclosure of additives, the proposed volume of fluids used for fracturing, the percentage weight of water, proppants and each additive, and mandatory pre-drilling plans, that also serve as mitigation measures.”

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<sup>15</sup> [http://www.house.gov/list/press/ny22\\_hinchey/morenews/102909Fracturingstudy.html](http://www.house.gov/list/press/ny22_hinchey/morenews/102909Fracturingstudy.html)

<sup>16</sup> Finger Lakes Times, November 20, 2009, Letter to the Editor

This statement and the information in support of it, should be clearer and spell out that the permitting process for a given well, in a given location requires the full disclosure of chemicals and their composition as it is introduced into the well. Only through knowing this information will knowledgeable experts be able to model and judge the impact of such drilling on the water resources in and around the drilling location.

The Environmental Working Group (EWG) stated in recent testimony to the NYC Council that the leading reason to prevent natural gas drilling and hydraulic fracturing near drinking water supplies is the use of petroleum distillates, including diesel fuel, which are likely to contain benzene.<sup>17</sup> EWG notes that the DEC did not consider diesel-based fracturing fluid in the DSGEIS. The dSGEIS states that “diesel-based fracturing fluid is not proposed or reviewed by this Supplement....” Is dSGEIS specifically excluding diesel-based fracturing fluids from use in the Marcellus Shale drilling? If so, dSGEIS should address this limitation. EWG’s research shows that petroleum distillates are likely to contain benzene. EPA has found benzene to be a known human carcinogen that is toxic in water at levels greater than five parts per billion. Petroleum distillates are also likely to contain all of the so-called BTEX chemicals – benzene, toluene, ethylbenzene and xylene. The EPA has concluded that all of these substances are toxic in water at very low levels.

EWG noted that petroleum distillate in the form of diesel will be used to power drilling equipment even if petroleum distillates are not used in hydraulic fracturing. The DEC reports that an average of 29,000 gallons of diesel fuel was required to complete fracturing jobs in the Marcellus Shale in West Virginia and Pennsylvania. The result of the many uses of diesel is an increased likelihood that, somewhere in the drilling process, some quantity of petroleum distillate will spill or leak, threatening water supplies with benzene contamination. This issue should be addressed in a revision to dSGEIS.

Stormwater runoff is another area where the oil and gas industry has been exempted from the federal environmental laws. From 1987 until 2005, an exemption in the Clean Water Act (CWA) provided that no permit was required for stormwater runoff at oil and gas exploration, production, processing and treatment operations, and transmission facilities where the runoff consisted entirely of flows from conveyances such as pipes and ditches for rainwater collection, provided that the runoff was not contaminated by contact with raw materials or wastes. The EPA decided in 1990 and 1999 to assert its

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<sup>17</sup> [http://www.ewg.org/EWG\\_Warns\\_of\\_Drilling\\_Threat\\_to\\_NYC\\_Drinking\\_Water](http://www.ewg.org/EWG_Warns_of_Drilling_Threat_to_NYC_Drinking_Water)

authority to regulate certain stormwater discharges from oil and gas construction sites on the grounds that sediment from the construction site constitutes a pollutant. The 2005 Energy Policy Act amended the CWA to provide that sediment is not a pollutant. The broadened exemption provided in the 2005 Energy Policy Act applies to all oil and gas field construction activities and operations, including those necessary to prepare a site for drilling and for the movement and placement of drilling equipment.

Our reading of Section 7.1.2 implies that stormwater runoff is included in the permitting process as described in the dSGEIS. It should therefore supercede any Federal exclusions, a position that our association supports.

## **Air**

The dSGEIS document concludes in Section 6.5 that initial modeling results on air quality indicated compliance with the majority of ambient thresholds on the drilling site. However certain pollutants were projected to be exceeded due to specific sources emission rates and stack parameters provided in the industry report. The modeling indicated exceedences of New York 1 hour and annual guideline concentrations for few of the additive chemicals for both the onsite and centralized impoundments on the well pad. Cumulative modeling was not carried out.

Experience in the Barnett Shale demonstrates that drilling for natural gas destroys air quality. The drilling rigs use diesel-driven, mobile and stationary equipment that produce ground-level ozone. Gas field produced ozone has created a serious air pollution problem similar to that found in large urban areas, and can spread up to 200 miles beyond the immediate region where gas is being produced. The hydraulic fracturing with horizontal drilling presently occurring in Forth Worth, Texas, in the Barnett Shale has provided data to support this conclusion.

In contrast with DEC's modeling experiments, actual analyses of air quality were carried out during the past year by Rice University in the Dallas-Fort Worth Metroplex. Results have shown that drilling related emissions of carbon dioxide and two other major greenhouse gases underlying climate change were estimated to be roughly equivalent to the impact from two 750 MW coal-fired power plants. In addition, the study also concludes that peak summertime emissions of smog-forming emissions from production

activities in the Barnett Shale are about the same as the emissions from all the cars and trucks in the Dallas-Fort Worth Metroplex.<sup>18</sup>

We urge that a revision of the dSGEIS include a more thorough, cumulative analysis of air quality in regions of multiple well drilling and production operations.

## **Noise**

In Chapters 6 and 7 of dSGEIS there is a good analysis and mitigation recommendations respectively for noise pollution. Nonetheless, given the much more concentrated operations in horizontal drilling/hydraulic fracturing technology, the following statements in Chapter 7 of dSGEIS should be modified to reflect this larger and longer scale of the noisy operations.

“Given that the noise issues have been found to be similar for horizontal drilling with high volume hydraulic fracturing these findings are still relevant. The extended time period does make control of the noise impacts, while still temporary, essential. Since noise control is most effectively addressed at the siting and design phase it is important that the pad be properly located and planned, and horizontal drilling provides the flexibility to accommodate this.”

“Current regulations require that all wells on a multi-well pad be drilled within three years of starting the first well. Thus it is possible that someone living in close proximity to the pad will experience adverse noise impacts intermittently for up to three years.”

## **5. Wastewater**

The wastewater treatment process provided in the dSGEIS is inadequate to protect New York’s watersheds against contaminated water. The draft fails to adequately address the treatment and disposal of brine and water brought up to the surface in the drilling and fracturing process. Millions of gallons of water will be injected into the ground and an estimated 30% to 70% of the flowback fluid will resurface, bringing along with it toxic substances that are naturally present in underground oil and gas deposits including normally occurring radioactive materials, as well as the chemicals used in the hydraulic fracturing fluids. This wastewater must be treated prior to disposal. The report fails to address the treatment process as well as address the known contamination resulting from the treatment process.

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<sup>18</sup> [http://www.edf.org/documents/10487\\_BGuven%20VOC%20Report%20final%208\\_09.pdf](http://www.edf.org/documents/10487_BGuven%20VOC%20Report%20final%208_09.pdf)

Treatment of such wastewater in municipal wastewater treatment plants cannot be recommended until the effectiveness of these facilities in treating drilling wastewater is established. A DEC spokesman indicated that “there are no facilities specifically designated for treating them”<sup>19</sup> (*referring to wastewater containing radioactive material*). A number of municipal treatment facilities in New York State have violated their permit requirements repeatedly over the past 3 years.<sup>20</sup> It is clear that they are in no position to add unstudied industrial wastewater containing radioactive materials to their burden both from a capacity as well as an environmental basis.

Normally occurring radioactive materials in the Marcellus Shale presents a special hazard both in the region as well as with this drilling technology. Of 13 wells drilled in Schuyler and Steuben counties, 11 have shown levels of radioactive radium-226 in far in excess of the legally allowed level of 60 picoCuries per liter (pCi/L) for safe discharge<sup>21</sup>. This data is in contradistinction to the earlier reported data by the New York State DEC which indicated lower levels of radium-226 in some well samples<sup>22</sup>. With the very large volumes of flowback water containing this radioactivity, the dSGEIS has not indicated how such contaminated water will be handled and under what regulations, except to imply that it is the contractor’s problem. The DEC dSGEIS document needs to deal with this issue directly and specifically since it will be an issue throughout the Marcellus Shale as well as other shale deposit regions throughout New York State.

The USGS states “it is unclear how the chemistry and volume of the frack-flowback water will impact the operation of the treatment plants, the quality of the plant discharge water, and ultimately, the quality of the receiving stream or river.”<sup>23</sup>

The dSGEIS needs to deal with the wastewater disposal process more specifically and effectively. The alternative of trucking this wastewater to another state for treatment and disposal is a complicated solution from the standpoint of the additional risk and hazards of such an operation, however, there are sites in Texas, South Carolina, Utah and Washington that apparently accept such wastes<sup>24</sup>.

## **6. Impact on Local Infrastructure**

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<sup>19</sup> <http://www.propublica.org/feature/is-the-marcellus-shale-too-hot-to-handle-1109>

<sup>20</sup> <http://ftimes.com/articles/2009/10/04/news/doc4ac81352cfa56131909044.prt>

<sup>21</sup> <http://www.propublica.org/special/interactive-map-wastewater-samples-from-gas-wells-radioactivity-1109>

<sup>22</sup> <http://www.dec.ny.gov/chemical/23473.html>

<sup>23</sup> USGS Fact Sheet 2009–3032

<sup>24</sup> <http://www.nei.org/resourcesandstats/documentlibrary/nuclearwastedisposal/factsheet/disposal-of-commercial-low-level-radioactive-waste>

The dSGEIS should summarize the impact that this drilling and production activity will have on local municipalities and government. Some of these effects are interspersed throughout dSGEIS, however from the standpoint of aiding one of the government “partners” and through them, their constituencies, in this process, it would be well if these issues were summarized in a separate chapter in dSGEIS.

The permitting process provided in the dSGEIS is inadequate to protect New York’s watersheds against spills. Gas drilling companies are required to disclose the chemicals they use in their drilling operations, but they are not precluded from using toxic chemicals. Under the dSGEIS, the DEC will not take responsibility for cleaning up a spill or treating the water produced from drilling operations and as flowback from hydraulic fracturing. Those responsibilities are left to local governments

Local governments, organizations and individuals not directly involved in the drilling process will be actively impacted in a variety of ways. A partial list of these impacts follows:

- Local medical and emergency services will be asked to handle chemical and other accidents associated with this operation.
- Road repairs
- Traffic and road accident control
- Landscape appearance
- Erosion problems along roads caused by heavy truck traffic
- Additional analytical testing of water supplies
- Increased taxes to cover costs of local impacts which will not be offset by tax revenues until and unless wells become productive.
- Chemical spills on roadways

Since a good deal of the responsibility falls on the local communities where such drilling and production will occur, provisions should be made and spelled out in dSGEIS to cover the costs of the local impact through permit fees and/or taxes that can provide local governments with financial support as these drilling and production processes unfold.

## **7. Oversight Responsibilities**

The present DEC staff level is inadequate to handle the expected boom in drilling activity. There is no suggestion on how New York State will pay for the “army” of regulators needed to permit and monitor wells during construction, operation and closure. The dSGEIS document should address how the increased costs of the oversight will be paid for upfront as part of the permitting process so that the financial support of the oversight activities is “cost-neutral” to the taxpayers of the state.

### ***Summary***

In summary, our association believes the dSGEIS and the original GEIS documents are woefully inadequate when combined to represent the “Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program”, especially as we stand on the threshold of an expansion boom of drilling and exploitation of our natural gas resource. We have detailed in our response first, the lack of proper perspective of these documents as representing “environmental conservation”, which is the primary function of the Department of Environmental Conservation, as contrasted with the orientation of the documents that encourage economic development of these resources. Secondly, the documents are unimaginably confusing, complex and difficult to use for regulatory guidance and should be reorganized with a functional perspective. This is no place for history, geology, education and regulation to be intermixed. These should be clean, crisp and separate documents rather than a single omnibus, 1700 page tomb that is difficult to use for any of the foresaid purposes. In short, they should be rewritten to serve these separate and important purposes. With respect to specific technical concerns with the regulatory part of the dSGEIS we have specifically raised concerns in this response in the areas of (3) water sourcing, (4) pollution, (5) waste water, (6) impact on infrastructure, and (7) oversight responsibilities.

Natural gas has been in the Marcellus Shale for millions of years and it will be there for many years to come. Let us take a relatively short time now to make sure we don’t live with the environmental impact of drilling for this gas for generations to come. Let’s not pass along another set of problems when we can take a few additional months to make sure that New York State and the Department of Environmental Conservation has the proper regulations and is staffed to manage and regulate the drilling for the natural gas in the Marcellus Shale.

*Adirondack Council • Audubon New York • Catskill Mountainkeeper • Citizens Campaign for the Environment • Croton Watershed Clean Water Coalition, Inc. • Delaware Riverkeeper Network • Environmental Advocates of New York • Hudson River Sloop Clearwater, Inc. • Hudson River Watershed Alliance • Natural Resources Defense Council • New York Council Trout Unlimited • Sierra Club Atlantic Chapter*

In this memo, our organizations identify major provisions that we believe should be included in the “New York State Water Resources Protection Act” - legislation to safeguard New York’s ground and surface water resources.

### **1. A Strong Policy Statement**

The legislation, the New York Water Resources Protection Act, should include an affirmative statement of intent that reflects the Legislature’s continued commitment to water resource protection and serves as a general directive to the Department of Environmental Conservation (DEC), to implement the program. This policy statement should reaffirm and build upon the general policy statement present in Article 15. The policy should clarify that this legislation grants the DEC the authority to regulate current and projected water uses (and associated activities) so that the agency may adequately prepare for future impacts and protect valuable water resources.

Specifically, we urge that the bill set forth legislative findings including:

- (a) the state’s obligation to hold both its ground and surface water resources in public trust and to protect them for the long-term benefit of its people;
- (b) the state’s obligation to preserve water for essential uses at a higher priority than non-essential uses. Essential uses include high quality drinking water sources, wetlands, wildlife habitat and other important ecological systems;
- (c) the right of every New Yorker to safe, clean, sufficient, and affordable water;
- (d) the need to maintain adequate water flows and levels to protect fish, wildlife and other natural resources;
- (e) the need to safeguard and enhance opportunities for recreational use of state waters;
- (f) the need to preserve aesthetic values;
- (g) the need to protect existing private water uses dependent upon surface water flows;
- (h) recognition that the state’s surface and ground waters are public trust resources and that water withdrawals will be governed based upon the concept of sustainable yield (as defined in the statute) and by DEC implementing regulations.

### **2. Require Large Users to Obtain Water Withdrawal Permits**

The legislation should establish a permit application process that would apply to persons or corporations seeking to withdraw water greater than 50,000 gallons in any 24 hour period from one or more sources of surface or groundwater in New York State.

The DEC should be given explicit authority to lower the 50,000 gallons per day permitting threshold to appropriate, sustainable limits at its discretion, in watersheds that it deems stressed, or where the applicant cannot establish that the cumulative effect of multiple smaller water withdrawals does not have or will not soon have an adverse impact on the environment.

Such water withdrawal permits would initially be required only for persons or corporations seeking to undertake new or expanded water withdrawals. However, while allowing for a registration requirement for existing users at their current maximum annual and daily withdrawal rates, the legislation should also specify that within three years of enactment of this legislation all persons or corporations withdrawing water greater than 50,000 gallons in any 24 hour period (i.e., both new applicants and currently existing users) would be required to file for water withdrawal permits.

The bill should direct DEC to administer the water withdrawal permit program and to adopt such regulations as the Commissioner deems necessary to implement this statute. However, the legislation should not preclude municipalities from acting within their existing authority.

### **3. Require that Applicants for Water Withdrawal Permits Provide Specific Information to DEC**

The legislation should require that, in filing an application for a water withdrawal permit, each applicant for a DEC water withdrawal permit must submit the following information to the Commissioner:

- (a) purpose of the proposed water withdrawal;
- (b) whether the water to be withdrawn is necessary and to the extent that it is, whether such water can be derived from other alternatives including but not limited to conservation;
- (c) location and source of the proposed water withdrawal;
- (d) the capacity of the proposed project and the planned mean and peak daily, monthly and annual withdrawal volumes;
- (e) location of the applicant's proposed return water flows, if any;
- (f) estimate of the amount of water that will not be returned to the watershed or basin where the proposed withdrawal is located;
- (g) location, demand on and yield of existing sources of ground and surface waters already being utilized (or applied for) by the applicant across the state;
- (h) comprehensive hydrogeological test results (including borings) that assess the impact on the aquifer of the proposed amount of water extraction. These should include results that indicate the amount of water contained within the aquifer and aquifer's recharge rate;
- (i) any other likely effect that this extraction might have on the area;
- (j) the results of any binding public referendum in the community where the extraction takes place as to the support of the citizens in that community for said proposed extraction;
- (k) conservation measures instituted by the applicant prior to the application and the applicant's long-range water conservation plan to be implemented or continued after the issuance of a permit; and

(l) in the case of a proposed interbasin transfer, which would include the transfer of water in small containers or tanker trucks, an environmental impact report on the transfer that (A) considers the affect of the transfer on present and future water uses in the proposed donor basin; (B) includes a plan for meeting water supply needs and demands in the donor basin for a minimum of 25 years; and (C) analyzes the alternative solutions to the water supply or wastewater problem including conservation and comparative cost analysis of the proposed transfer relative to alternative measures (D) analyzes water composition to ensure that invasive species exist at levels less than one hundred times the International Convention for the Control and Management of Ships' Ballast Water and Sediments standard (E) analyzes water composition to ensure that any water being transferred will not negatively impact the quality of the receiving waterbody.

#### **4. Establish Criteria for Issuance of Water Withdrawal Permits**

The legislation should specify that water withdrawal permits will only be granted following DEC determinations that proposed withdrawals are consistent with DEC regulations and that the applicant can establish that such withdrawals:

- (a) will not exceed the natural replenishment or safe yield of the water resources to be utilized. The legislation should define safe yield in a way that recognizes the interconnectedness of surface water and groundwater supplies and recharge times and limits;
- (b) will not adversely impact public or private drinking water supplies; including existing and projected uses, safe yield of reservoir systems and reservoir and groundwater development
- (c) will not adversely impact the state's natural resources, including wetlands, rivers, streams, and aquifers nor adversely impact the protection, propagation and management of fish and other aquatic life, wildlife and the preservation of endangered species;
- (e) will not adversely affect wastewater treatment needs, flood management, water-based recreation, waste assimilation, agriculture, fish and wildlife and low flow and thermal requirements;
- (f) will not adversely affect existing ground or surface water users;
- (g) will not violate state water quality standards;
- (h) will not violate any other condition the Commissioner deems necessary for the conservation and protection of ground or surface waters of the state; and
- (i) will be fully compliant with provisions of all other federal, state and local environmental laws.
- (j) will not adversely impact the health or safety of the community or surrounding communities where the water will be extracted.
- (K) will not adversely affect existing and planned water uses in the area such as public water supplies, relative density of private wells, hydropower, flood management, water-based recreation, wetland habitats, waste assimilation and agriculture;
- (l) will be compatible with the policies and programs of the state of New York, as adopted or amended, dealing with long-range planning, management, allocation and use of the water resources of the state; and
- (m) be consistent with the streamflow protection standards as described below.

The legislation should direct the Commissioner to establish quantitative streamflow protection standards for the state's rivers and streams to be used as criteria for determining whether a proposed water withdrawal can be made without significant adverse impacts on the State's surface water resources. These standards shall be protective of natural aquatic life, be based on the natural variation of water flows and levels, and be developed using the best available scientific information and approaches, as well as ensure the chemical, biological and physical integrity of state waters.

The legislation should also direct the Commissioner to formally consult with federal, tribal, state, and town agencies when developing a draft water withdrawal permit regarding proposed withdrawals in specially protected areas (such as, but not limited to, the Adirondack Park, the Catskill Park, and others which may need additional over site due to there increased value related to special habitat, species, or public benefit).

### **5. Mandate Water Conservation Efforts in Connection with All Large Water Withdrawals**

The legislation should mandate that all permit applicants prepare, and submit, as part of the application process, a water conservation program for their business operation. The conservation program should include, among other things, the following requirements:

- (a) application of best management practices to detect and repair water leaks;
- (b) identification and installation of state-of-the-art water-conserving fixtures;
- (c) employee training regarding appropriate water conservation techniques;
- (d) public education regarding water conservation in connection with the use of water for which the applicant's permit is granted;
- (e) other water-conservation measures and goals as proscribed including pricing, conservation measures, drought protection measures, limiting unaccounted for water, etc; and
- (f) the legislation should incorporate the requirements for water conservation and efficiency programs set forth in section 4.2 of the Great Lakes – St. Lawrence River Basin Water Resources Compact regarding the installation of new groundwater wells.

These water conservation plans, as well as other conditions the Commissioner may include, should be mandatory for of all persons or corporations that obtain a water withdrawal permit from the DEC.

### **6. Specify Monitoring, Reporting and Conservation Requirements for All Water Permit Holders**

The legislation should direct that, in addition to such other requirements as the Commissioner may direct, each permit contain the following:

- (a) continuous on-site monitoring requirements and regular course-of-business record keeping of water withdrawals;

- (b) monthly reports which describe the amount of water withdrawn per each 24 hour period in the preceding month; and
- (c) a requirement to implement the approved water conservation program of the permit-holder.

The DEC should also be given discretion to require an applicant pay the expenses of third party monitor (selected by the agency) to ensure compliance with all permit conditions throughout the life of the permit.

All reports should be submitted to DEC in an electronic format and should be posted on the DEC website.

Further, the legislation should include provisions for private rights of action, including the right to seek attorney's fees, should it become necessary for citizens to enforce permit requirements and limits.

### **7. Provide an Opportunity for Public Comment on Draft Permits**

The legislation should provide that, following the submission of a water withdrawal permit application and a preliminary determination by DEC that the proposed permit application is complete and satisfied the applicable statutory and regulatory requirements, the agency will post the application online for 60 days to allow for public comment. The legislation should stipulate that following this 60-day comment period, the Commissioner will issue a draft water withdrawal permit and provide an additional public comment period of no less than 60 days. Legislation should then direct the Commissioner to hold a legislative public hearing or hearings on the draft permit and to hold an adjudicatory public hearing (if needed) consistent with the requirements of 6 NYCRR Part 624.4.

### **8. Set Forth Permit Term of Years and Requirements Permit Renewals**

The legislation should provide that water withdrawal permits issued by DEC will be valid for five years. However, the Commissioner should have authority to periodically investigate and review those withdrawals which are taking place pursuant to a permit. If s/he determines that there is any change in conditions under which the original permit was issued and/or any violation of the terms, limitations or conditions of the permit, the legislation should authorize the Commissioner to suspend or revoke the permit or request that the Attorney General bring an action to enjoin any violation.

The legislation should also direct the Commissioner to promulgate rules setting forth procedures for the renewal of water withdrawal permits by permit-holders. Among other things, rules should specify that permit renewals will only be granted to applicants whose water withdrawal operations are in full compliance with all current permit conditions.

### **9. Establish Permit Application Fees and Penalties at a Level Sufficient to Ensure Comprehensive DEC Oversight and Enforcement**

The legislation should direct the Commissioner to establish a registration fee, an application fee, and a schedule of fees for water withdrawal permits at rates sufficient to ensure that the agency has the staffing and other resources necessary to fully implement, oversee and enforce full compliance with the provisions of this statute. In addition, the legislation should direct the Commissioner to establish strict penalties—including permit revocation and monetary penalties—should a registrant or permittee violate permit or registration requirements and/or limits.

### **10. Require Existing Large Water Users to Register with DEC**

The legislation should specify that the permit requirements, set forth in section 2 above, shall apply initially only to persons or corporations intending to obtain permits for new withdrawals of ground or surface waters in New York State.

The legislation should direct anyone withdrawing ground or surface waters in New York State in amounts greater than 50,000 gallons in any 24-hour period during the year of the bill's enactment register current use with DEC by July 1 of the following year.

The registration form, should among other things, require all registrants to specify the location or locations of their existing withdrawals, the location of any surface waters within the area of influence of the withdrawals, the capacity, frequency and rate of withdrawals or discharges of said withdrawal, and a description of the water use(s) and water system.

The legislation should require that after the initial registration period—no more than three years after the effective date of the legislation—all users withdrawing water above 50,000 gallons in any 24 hour period in New York must apply for a permit. Additionally, any registrant seeking to increase the volume of the withdrawals, adding additional withdrawal points to existing operations or transferring ownership of the operation should be required to apply for a permit.

### **11. Direct both New and Existing Large Water Users to File Monthly Reports that Track Water Withdrawal Volumes**

The legislation should direct that, within 18 months after the effective date of the bill, all persons or corporations withdrawing ground or surface waters in New York State in amounts greater than 50,000 gallons in any 24-hour period during the preceding 12 months must install meters to measure their 24-hour water withdrawals, keep and preserve records of such withdrawals in their regular course of business and file monthly electronic reports with the Commissioner detailing daily water withdrawals over the preceding 12 month period.

### **12. Require the Permit Program to Be Consistent with State Water Resources Management Strategy**

The legislation should require that each water quality permit will be consistent with a state water resources management strategy, established pursuant to ECL 15-2901.

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