



December 31, 2009

Pete Grannis
Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

RE: Comments on the Draft 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

Commissioner Grannis,

Environmental Advocates of New York, Atlantic States Legal Foundation and the National Wildlife Federation respectfully submit the following comments on the Draft 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 (hereafter referred to as dSGEIS).

Environmental Advocates' mission is to protect our air, land, water and wildlife and the health of all New Yorkers. Based in Albany, we monitor state government, evaluate proposed laws, and champion policies and practices that will ensure the responsible stewardship of our shared environment. We work to support and strengthen the efforts of New York's environmental community and to make our state a national leader.

Atlantic States Legal Foundation (ASLF) was established in 1982 to provide affordable legal, technical and organizational assistance to individuals, community groups, and other Non-Governmental Organizations (NGOs), as a way to effectively remediate threats to the natural environment.

The National Wildlife Federation (NWF) has 10 offices across the country, including our regional office in Montpelier, Vermont. NWF advocates reducing global warming pollution and building a new energy future, connects people to nature, and safeguards wildlife and people in a warming world.

We appreciate the time and effort the New York State Department of Environmental Conservation (NYSDEC) devoted to drafting the dSGEIS and the opportunity to comment on it. However, upon careful review, we have found numerous deficiencies in the proposed document, which are detailed below.

Therefore we request that the NYSDEC recall the dSGEIS and issue a second draft for public comment prior to authorizing any high volume horizontal hydraulic fracturing in New York State.

Our concerns are rooted in our analysis that the dSGEIS is deficient in many ways and fails to ensure the adequate protection of New York's environment and the health of its residents. Specifically, the dSGEIS:

- Fails to include any meaningful assessment of the cumulative impacts of drilling on a scale of 1,500-2,500 wells per year as contemplated in the dSGEIS and instead only considers the impacts of drilling on a well pad-by-well pad basis;
- Fails to prohibit the use of toxic, carcinogenic or otherwise harmful chemicals from being used in fracturing fluids;
- Fails to identify any exclusion zones for this type of natural gas extraction based on community needs (such as protecting unfiltered sources of drinking water), ecosystem sensitivity or other factors;
- Fails to propose any regulatory or statutory changes to safeguard New York's natural resources from industrial extraction of natural gas;
- Fails to include a meaningful assessment of alternatives, including a phased permitting approach and/or prohibitions on drilling;
- Fails to properly consider the potential for contamination of drinking water supplies and aquatic habitats as a result of spills and/or subsurface migration of contaminants. The extent of this particular inadequacy has been recently underscored by Toxics Targeting's report identifying more than 270 drilling-related spills and accidents in New York;
- Fails to identify circumstances under which a permit application would be denied or the process for denying a permit;
- Fails to include meaningful evaluation of NYSDEC's ability to implement protective measures given the agency's severe staffing shortages and resources;
- Fails to account for the fact that New York currently has no treatment options for the type and volume of wastes produced by high volume hydraulic fracturing and does not propose viable options for the short-term or long-term treatment and disposal of these wastes;
- Fails to require the approval or consultation of other divisions of NYSDEC that may have expertise in the regulation and oversight of similar activities and leaves the decision to issue a permit solely at the discretion of the Division of Mineral Resources (DMNR) (e.g. hydraulic

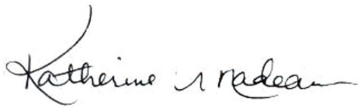
fracturing will create millions of gallons of toxic, briny wastes per well, and yet the Division of Water will not be included in evaluating an applicant's fluid disposal plan);

- Fails to include a process for ongoing fracturing fluid disclosure;
- Fails to establish true setbacks from water resources, infrastructure, or drinking water supplies, but rather defers decisions on creating such setbacks to site-specific State Environmental Quality Review Act (SEQRA) reviews; and
- Fails to identify current shortfalls in NYSDEC's existing regulatory authority that may intensify the type and magnitude of adverse impacts, such as the inadequacy of the State's wetlands protections.

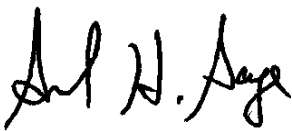
Our detailed comments on the dSGEIS follow the organization of the dSGEIS itself. Given the shortcomings summarized above, Environmental Advocates, Atlantic States Legal Foundation and the National Wildlife Federation maintain that high volume hydraulic fracturing and horizontal drilling should not be permitted in New York until better analysis of potential adverse impacts has been conducted, adequate mitigation measures have been proposed and vetted by the public, and New York has the laws, rules, regulations and staff necessary to oversee the large-scale natural gas production under consideration.

Please do not hesitate to contact me any questions. We look forward to the agency's response.

Sincerely,



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Chapter 2: Description of Proposed Action

1) Section 2.2: “Public Need and Benefit”

- a) While the dSGEIS describes potential revenues associated with extracting natural gas from the Marcellus Shale formation, there is no consideration of the costs to landowners, the State, and communities related to spills and emergency response, loss of tourism income, property value degradation, loss of ecosystem services due to habitat fragmentation or contamination, costs associated with identifying and supplying homeowners with new fresh water supplies, liability costs to landowners, etc. If NYSDEC were to include potential economic benefits due to natural gas exploration, the agency must also present the potential costs.
- **NYSDEC should include an accounting of landowner, state and local community costs in the next draft of the SGEIS.**

Chapter 3: Proposed SEQRA Review Process

2) Section 3.2: “Future SEQRA Compliance”

- a) The dSGEIS states:

“Upon final approval and filing of this Supplemental Generic Environmental Statement, and subsequent issuance of Supplemental Findings, the following will result:

- 1) An EAF [Environmental Assessment Form] Addendum for High-Volume Hydraulic Fracturing will be required in addition to the other well permit application materials. The EAF Addendum will provide the information necessary for Department staff to determine the next step based on the SGEIS Supplemental Findings Statement.
- 2) In cases where the SGEIS Supplemental Findings Statement indicates that the GEIS and the Supplement satisfy SEQRA, Department staff will not make Determinations of Significance or issue Negative or Positive declarations. Such projects have common potential impacts, and the GEIS and this Supplement identify common mitigation measures that will be implemented through existing regulatory programs and permit conditions. Staff will file a record of GEIS/SGEIS consistency and process the well permit application. Permit conditions will be added on a site-specific basis to ensure that the permitted activities will not have a significant effect on the environment.
- 3) If the proposed action is not addressed in the GEIS and the Supplement, then additional information will be required to determine whether the project may result in one or more significant adverse environmental impacts. The projects that the Department proposes fall into this category are listed in Section 3.2.3. Depending on the nature of the action, the additional information may include the Full EAF; topographic, geological or hydrogeological information; air impact analysis; chemical information or other information deemed necessary by the Department to determine the potential for a significant adverse

environmental impact. A site-specific or project-specific supplemental environmental impact statement may be required.”

The lack of a proposed method to deny a permit or mention of potential for permit denial is unacceptable. There are areas in New York State where drilling should not occur because of sensitive ecosystems, insufficient water resources, community impacts, or other variables. The agency must deny permits in these instances, yet there is no protocol or procedure included in the draft to do so. NYSDEC neither delineated procedures for denying permits on a case-by-case basis because of information contained within an application nor included a procedure for denying permits in a particular ecosystem or region due to particular sensitivity to the impacts of exploiting natural gas resources.

- **NYSDEC must include criteria and procedures for determining when permits will be denied for reasons including but not limited to site-specific concerns or permit application inadequacy.**

3) Section 3.2.1.1: “SGEIS Applicability – Definition of High Volume Hydraulic Fracturing”

- a) In the dSGEIS, NYSDEC contemplates defining 80,001 to 299,000 gallons of water used for hydraulic fracturing as that which “may be considered high-volume” despite noting that the GEIS only contemplated using 80,000 gallons of water for water-gel fracturing.

As the GEIS did not contemplate using an excess of 80,000 gallons of water, and the proposed action addressed in the dSGEIS contemplates using more than 80,000 gallons of water, all provisions contained within the dSGEIS should apply to all drilling activities above the previously assessed 80,000 gallon threshold, including all information requirements included in the proposed EAF Addendum.

- **NYSDEC should define all hydraulic fracturing activities using more than 80,000 gallons of water as high-volume hydraulic fracturing.**

4) Section 3.2.1.2: “Project Scope”

- a) We support defining every application to drill a well as an individual project. However, at the time of the first application at a site, NYSDEC must require the applicant to disclose if the well will be constructed as part of a single or multi-well pad and the ultimate size of the pad. Only with the understanding of the ultimate size of the pad can NYSDEC ensure that the entire pad will conform to appropriate setbacks during development and production.

- **NYSDEC should require the first application at a site to identify whether the well will ultimately be sited on a single or multi-well pad. The agency must base setback requirements and other considerations on the size of the entire well pad**

- b) According to the dSGEIS natural gas pipelines and conveyance infrastructure will not be considered part of the project scope and therefore the dSGEIS does not consider the associated environmental impacts. The agency cites the fact that the Public Service Commission (PSC) has jurisdiction over pipelines and infrastructure, and states that as the two principals guiding the pipeline and drilling processes are different (PSC and NYSDEC) the review cannot take place in this dSGEIS. However, the dSGEIS goes on to state:

“... it has been suggested that New York should have the option to certify and build pipelines in advance of well drilling targeting the Marcellus Shale and other low-permeability gas reservoirs.”

This section makes it clear that pipeline and gas transmission infrastructure will not be considered part of this environmental review. If, due to productivity and other factors, pipelines are to be built either before or simultaneously as wells are developed, such infrastructure must be considered part of the project scope to ensure that environmental impacts are identified and mitigated.

The consideration that the principals in drilling and pipeline operation may be different is not relevant, nor is it a reason to segment a project. If this rationale were to hold, hydraulic fracturing and drilling would be considered different projects because the two activities are generally performed by different companies.

- **NYSDEC must consider pipeline and gas transmission infrastructure part of the project scope and identify and mitigate for environmental impacts accordingly.**

5) Section 3.2.1.3 – “Size of Project”

- a) As stated above, the size of the project should take into account pipelines and natural gas conveyance infrastructure.
 - b) As stated above, the ultimate size of the pad should be defined when the application for the first well is submitted, so NYSDEC can ensure that the entirety of the pad—during development and production—conforms with setback requirements.
 - c) According to the dSGEIS, “centralized flowback water surface impoundments, when included in the project scope, may be as large as five acres for the impoundment itself...” we object to the use of flowback water surface impoundments under all circumstances. Any permit application that includes a flowback water surface impoundment should be denied.
- **NYSDEC should include transmission infrastructure as part of the size of the project and require applicants to define the ultimate pad size with the first application to drill at a project site.**
 - **NYSDEC should not permit surface flowback water impoundments under any circumstances.**

6) Section 3.2.2 – “EAF Addendum”

- a) The dSGEIS calls for an EAF Addendum with the application to drill the first well on a pad proposed for high-volume hydraulic fracturing (as stated earlier, all wells requiring in excess of 80,000 gallons of water per well should be considered high volume), with the applications to drill subsequent wells on the pad only requiring an EAF addendum “if the information changes” and prior to the high-volume refracturing of an existing well.

As each well is considered an individual action under SEQRA, we urge the agency to require an EAF Addendum for each well and to require that well-specific information on a multi-well pad be highlighted. If each well is a separate action, a full application must be required for each well.

- **All natural gas wells that are hydraulically fractured using more than 80,000 gallons of water per well must submit an EAF Addendum. If information changes from well to well on a pad, the Addendum should be highlighted to reflect those changes.**

7) Section 3.2.2.2 – “Water Source Information”

a) According to the dSGEIS:

“the operator will be required to identify the source of water used to be used [sic] for hydraulic fracturing and provide information about any *newly proposed surface water source that has not been previously approved by the Department* as part of a well permit application” (emphasis added).

In order to account for multiple withdrawals (from natural gas drilling operations or any other user) from a single source or any changes to the water source over time (due to natural variations, additional withdrawals from the source, climate change, or other changes), the NYSDEC must require source-water information with each application.

It is feasible that the agency may approve source water that, over time, may have additional stressors placed on it. Therefore, though NYSDEC may have once approved a source water for drilling, by the time additional applications are filed, the on-the-ground situation may have changed. In order to protect water resources and treat each well application as an individual project, source-water information must be included with each application.

- **Every application should include source-water information gathered at the time of the application to ensure that NYSDEC can account for changes in surface water bodies over time and permit withdrawals accordingly.**

8) Section 3.2.2.4 – “Water Well Information”

a) In addition to identifying all water wells—public and private—within ½ mile of any proposed drilling location, the operator should be required to certify on the EAF Addendum that owners of those wells will be notified in writing, a maximum of two weeks prior to the start of drilling and again at a maximum of two weeks prior to drilling and hydraulic fracturing, the expected dates these activities will occur. The list of recipients, a copy of the correspondence, and the date of correspondence should be filed with NYSDEC and kept with the permit application.

- **Well operators should notify all neighbors within ½ mile of any proposed drilling location in writing two weeks before drilling activities begin. Operators should file a list of recipients and a copy of the correspondence with the date of correspondence with NYSDEC to be kept with the permit application.**

9) Section 3.2.2.5 – “Fluid Disposal Plan”

a) Environmental Advocates, the National Wildlife Federation and Atlantic States Legal Foundation objects to the use of centralized surface impoundments.

- b) The dSGEIS states that the EAF Addendum will require information about flowback water disposal including “planned disposition (e.g., treatment facility, disposal well, reuse, centralized surface impoundment or centralized tank facility).” Neither centralized surface impoundments nor centralized tank facilities are a method of ultimate disposition. Wastes from either type of facility will still have to be treated appropriately prior to final discharge. Therefore, if applicants identify a centralized facility on an EAF Addendum, they should also be required to identify the location of the waste’s ultimate disposition.
- c) As part of the EAF Addendum, operators should be required submit a contract with the treatment plant that will accept the waste.
- d) The capacity of New York’s municipal plants and their ability to safely treat drilling and fracking waste is unclear. According to an article by ProPublica, only three of the 135 wastewater plants listed in the dSGEIS as possible treatment facilities for flowback water indicated that they would consider accepting such wastes.¹ By requiring a contract prior to issuing a drilling permit, NYSDEC is ensuring that the agency is not allowing the environmental impacts associated with well pad construction and well development without solving the problem of how to treat associated wastes. NYSDEC and the public will also then have notice and opportunity to evaluate the plant’s capacity to handle the wastes.
- e) The fluid disposal plan should be approved by the Division of Water prior to a permit being issued.
 - **NYSDEC should prohibit centralized flowback water impoundments.**
 - **NYSDEC should prohibit applicants from listing centralized tank facilities as the ultimate disposition for drilling wastes.**
 - **NYSDEC should require applicants to submit wastewater treatment contracts with the facility listed in the fluid disposal plan.**
 - **The Division of Water should approve a fluid disposal plan prior to NYSDEC issuing a drilling permit.**

10) Section 3.2.2.7 – “Invasive Species Survey and Map”

- a) We support requiring a comprehensive survey that documents the presence and identity of any invasive plant species. This information may prove valuable to New York’s attempts to identify and protect against future invasions and could identify responsible parties should an invasion occur. However, the current requirement for a survey of the “project site” is not defined in either the GEIS or the dSGEIS.
 - **NYSDEC should clearly define the term “project site” in the next draft of the dSGEIS.**

11) Section 3.2.2.8 – “Required Affirmations”

¹ http://www.propublica.org/feature/drill-wastewater-disposal-options-in-ny-report-have-problems-1229#nyc_wastewater_update. Accessed December 30, 2009.

- a) In addition to the listed affirmations, the operator should be required to submit a wastewater treatment contract, neighbor notifications to all well owners within ½ mile of the maximum horizontal extent of drilling, and neighbor notification to all residences and businesses within ½ mile. Notifications should be in writing, delivered a maximum of two weeks prior to the start of drilling and again at a maximum of two weeks prior to hydraulic fracturing, or the expected dates of these activities. The list of recipients, a copy of the correspondence, and the date of correspondence should be filed with NYSDEC and kept with the permit application.
- **In addition to the listed affirmations, the operator should be required to submit a wastewater treatment contract, neighbor notifications to all well owners within ½ mile of the maximum horizontal extent of drilling, and neighbor notification to all residences and businesses within ½ mile.**

12) Section 3.2.3 – “Projects Requiring Site-Specific SEQRA Determinations”

- a) The dSGEIS states:

“any proposed high-volume hydraulic fracturing where the top of the target fracture zone is shallower than 2,000 feet along the entire proposed length of the wellbore.” NYSDEC should insert the phrase “at any point” so that the text reads “...is shallower than 2,000 feet at any point along the...”

- **We support NYSDEC continuing to require site-specific SEQRA determinations for disposal wells, drilling in Agricultural Districts, and any proposals that require other agency permits.**

Chapter 4: Geology

13) General Comments on Chapter 4

- a) We are concerned that the chapter on geology contains no comparison of pre-fracturing and post-fracturing formation characteristics or potential formation damage. The assumption that fracturing fluids and wastewater will not migrate in sub-surface formations is based on the assumption that the low-permeability of the shale is maintained even after fracturing, and even after an intense amount of fracturing in a relatively small area, as is envisioned for multi-well pads. There is nothing in the dSGEIS to support such an assumption, however, and no reason to believe (without further information) that these wastes won’t migrate.
- b) This is a practice still in its infancy and until we know more assumptions such as this one may be perilous. According to the table on page 5-32 of the dSGEIS, it was only in 1991 that the orientation of induced fractures was identified. NYSDEC should take a precautionary approach in permitting and assume that fluids may migrate. Based on this assumption, the agency should issue a ‘hit-list’ of chemicals not be permitted for use in New York State or a list of approved, benign chemicals. Though naturally occurring faults were examined in Chapter 4 for their role in seismicity and potential for human-induced seismic activity associated with drilling, there was no investigation into their potential role as pathways for hydraulic fracturing fluid migration. Nor was there any assessment of the role that abandoned wells or wells in other formations may play in fluid migration. The next draft of the SGEIS must include this type of investigation and mitigate accordingly.

- **In the next draft SGEIS, NYSDEC should include studies on the formation characteristics of targeted formations both pre- and post-hydraulic fracturing to support the assumption that fractured formations will not allow for fluid migration.**
- **In the next draft SGEIS, NYSDEC should study naturally occurring faults and the potential for abandoned wells to promote fluid migration.**

Chapter 5: Natural Gas Development and High Volume Hydraulic Fracturing

14) Section 5.4 – “Fracturing Fluid”

- a) The signatory organizations are pleased that NYSDEC has required full disclosure of chemicals to be used in fracturing fluids. However, the agency notes that some compositional information is on file for 197 products and complete information is on file for only 152 products. We urge NYSDEC to require the compositional information for all known fluids intended for use prior to issuing the next draft of the SGEIS.

In addition, there is no ongoing process identified either in this section or in Chapter 7 (Mitigation) for the industry to submit compositional information on hydraulic fracturing chemicals or formulas as new products are brought to market. This is a failing of the dSGEIS that should be addressed before the next draft is issued.

- **NYSDEC must identify the process for ongoing fracking fluid disclosure and public notice once the SGEIS process comes to an end.**

15) Section 5.4.3 – “Composition of Fracking Fluids”

- a) In this section, the dSGEIS states, “Chemical constituents are not linked to product names in Table 5.6 because a significant number of product composition and formulas have been justified as trade secrets...” Though this may be the case, it is unlikely that county health inspectors, first responders, and NYSDEC inspectors will have access to information linking specific chemical constituents to products, even if without concentrations, to facilitate in spill or first response.
- b) In a number of places, including section 5.4 and Chapter 5 footnote 11, the dSGEIS references the fact that there are mixtures or products that require further disclosure to NYSDEC. The status of this disclosure is unclear, as is the question as to whether the agency is prepared to forbid the use of mixtures or products.

- **In the next draft of the SGEIS, NYSDEC should identify the process for notifying agency inspectors, first responders and county health inspectors of fracking fluid components.**
- **In the next draft of the SGEIS, NYSDEC must explicitly state that it will forbid the use of fracking fluids unless all disclosures are made and identify the process for ongoing fracking fluid disclosure and public notice.**

16) Section 5.7 – “Source Water for High-Volume Hydraulic Fracturing”

- a) As part of the source-water discussion, the dSGEIS lists the distance/route from the source to the point of use as a factor affecting the usability of a given source. We agree with this assessment and points out that given that the costs of trucking water across long distances will likely lead to more locally sourced water withdrawals, it is imperative that New York establish a comprehensive, statewide water withdrawal regulatory program. In addition, local sourcing for water withdrawals increases the need for a comprehensive cumulative impact assessment, one that assesses multiple users on a watershed or water body.
- **NYSDEC must ensure that a comprehensive cumulative impact assessment is undertaken to identify and mitigate for impacts to water bodies from withdrawals for natural gas extraction.**

17) Section 5.7.1 “Delivery of Source Water to the Well Pad”

- a) The dSGEIS contemplates that water may be delivered by pipeline without identifying which agency would be responsible for pipeline siting or environmental review or explaining why water lines were not addressed in the document.
- **In the next SGEIS draft, NYSDEC must assess the environmental impacts of water lines if they are to be allowed for use in natural gas extraction.**

18) Section 5.11.2 – “Flowback Water Handling at the Wellsite”

- a) This section describes considerations for using an on-site lined pit. We object to the use of pits under any circumstances due to the potential for failure, hazards to individuals, communities and wildlife, and the potential for mass contamination should a pit fail.
- **NYSDEC should prohibit the use of flowback water impoundments.**

19) Section 5.11.3 – “Flowback Water Characteristics”

- a) The dSGEIS mentions that this discussion is:

“Based on a limited number of analysis from out-of-state operations without corresponding complete compositional information of the fracturing additives that were used at the source wells... little information is available to document whether and at what concentrations most fracturing chemicals occur in flowback water. The Department anticipates that, by the time the final SGEIS is published, additional data and analyses will be made public...”

Environmental Advocates, Atlantic States Legal Foundation and the National Wildlife Federation submits that more analysis must be done prior to permitting any wells and/or allowing flowback water to be treated at municipal treatment plants. If plants cannot anticipate changes in flowback water over time, there is no way for operators to make informed decisions regarding whether to accept the wastes for treatment.

- **NYSDEC needs more information regarding the characteristics of flowback water and its variability prior to allowing treatment at municipal treatment facilities.**

20) Section 5.11.3.2 – “NYSDOH Chemical Categories”

- a) While presenting the New York State Department of Health's (NYSDOH) discussion of flowback water relative to chemical classes described in 5.4.3.1, the discussion should include reference points. When discussing the range of contamination levels, NYSDEC should include drinking water, allowable surface water discharge limits, or water quality standards to help identify the relative toxicity.
- **In the next SGEIS draft, NYSDEC should include reference points in the discussion on flowback water.**

21) Section 5.12.2.1 – “Centralized Storage of Flowback Water for Dilution and Reuse”

- a) In this section, the dSGEIS states that “storage impoundments would be fenced, with locked gates, to restrict access of non-company personnel and wildlife.” Not only is this not practical or feasible, especially in the case of birds, it is not enforceable. Tanks with secondary containment must be the only option available to drillers storing flowback water.
- **NYSDEC should not permit flowback surface water impoundments.**

22) Section 5.12.2.1 – “Membranes/Reverse Osmosis”

- a) The section number 5.12.2.1 has been used twice in this document.
- b) The dSGEIS states:

“this method may be able to treat TDS concentrations up to approximately 30,000 mg/L and produce water with TDS concentrations between 200 and 500 mg/L. This technology generates a residual – the concentrate – that would need proper disposal.”

Proper disposal is not defined in the document, waste is not classified, nor who is responsible for waste referenced.

- **If there is an additional waste produced using membranes/reverse osmosis, that waste should be characterized and its impacts identified and mitigated before permitting the process.**

23) Section 5.13.2 – “Reserve Pit Liner from Mud Drilling”

- a) The GEIS discusses on-site burial with the landowner's permission and the dSGEIS echoes this. We oppose on-site burial of pit liners. These liners will come into contact with toxic chemicals and may also become toxic. Any and all liners should be properly disposed of—not scattered across the state in what amount to potentially toxic shallow graves.
- **Reserve pit liners from mud drilling must not be permitted to be disposed of via on-site burial.**

24) Section 5.13.3 – “Flowback Water”

- a) The dSGEIS notes that municipal sewage treatment facilities were listed for possible flowback water disposal treatment in the GEIS. However, in section 6.1.8.1, the dSGEIS identifies the treatability of flowback water as a concern. According to that section,

“residual fracturing chemicals and naturally-occurring constituents from the rock formation could be present in flowback water and have treatment, sludge disposal, and receiving-water impacts. Salts and dissolved solids may not be sufficiently treated by municipal biological treatment and/or other treatment technologies which are not designed to remove pollutants of this nature.”

Given the treatment capabilities of most publicly owned treatment facilities (POTW’s), the salinity and toxicity of the flowback water (as noted in table 5-9), the prevalence of naturally occurring radioactive materials (NORM), facilities’ capacities, and secondary treatment’s reliance on sensitive processes to break down municipal wastes, treating flowback water from high-density shales such as the Utica and Marcellus at POTW’s should not be considered a solution in the next draft of the SGEIS. If New York is to allow for natural gas extraction in high-density shales, the State should require that the industry finance, construct and maintain treatment facilities capable of adequately treating flowback water prior to issuing high-volume horizontal drilling permits.

- **NYSDEC should not allow flowback water treatment at POTW’s given the nature of waste fluid. All flowback water should be treated at private facilities.**

- b) The dSGEIS notes that out-of-state industrial treatment plants were an identified option for flowback water treatment in the GEIS. If out-of-state industrial treatment plants are identified in a drilling application as the disposition for flowback waters, NYSDEC should require the applicant to submit a signed contract between the applicant and the treatment plant to certify that the plant has not only been identified as the ultimate disposition for the waste, but also that the plant identified is able and willing to accept it.

- **NYSDEC should require each applicant to submit a signed contract between the applicant and the treatment plant to certify that the plant has not only been identified as the ultimate disposition for the waste, but also that the plant is able and willing to accept it.**

25) Section 5.13.3.5/7.1.6.2 – “Road Spreading”

- a) The signatory organizations support banning the use of flowback water for road spreading. We call on NYSDEC to extend this ban to include all produced waters given the possibility for toxic contamination as a result of fracking chemicals.

- **No produced waters from hydraulically fractured wells should be allowed for road spreading.**

26) Section 5.13.3.6 – “Private In-State Industrial Treatment Plants”

- a) The natural gas extraction industry should be required to finance, construct and maintain treatment works capable of safely treating flowback water. NYSDEC should not allow POTW’s to accept wastes given their high salinity and toxicity and it should not be the burden of New York taxpayers to subsidize the treatment of this industry’s wastes.

- **All flowback waters should be treated at private treatment facilities.**

27) Section 5.16.5 – “Brine Storage”

- a) The dSGEIS states that at least one operator has indicated the possibility of constructing pipelines to move brine from the site. The agency responsible for overseeing the siting and environmental review for brine pipelines is not identified.
- **NYSDEC should identify the agency that oversees the siting and environmental review for brine pipelines in the next SGEIS draft. NYSDEC should also identify potential impacts and associated mitigation for brine pipelines as they are part of the process of extracting natural gas.**

28) Section 5.16.6 /7.1.6.2– “Brine Disposal”/”Produced Brine”

- a) The dSGEIS contemplates the use of brine, which returns to the surface as part of production and is therefore produced water, for road spreading. NYSDEC should not permit using produced waters from tight shales for road spreading due to the use of fracking fluids to extract gas from these formations and the potential for contamination if these fluids are spread on roadways—many of which are adjacent to ditches that carry runoff to local waterways.
- **Produced water should not be allowed for use in road spreading.**

Chapter 6: Potential Environmental Impacts

29) Figure 6.2 – “Maximum Approved Daily Consumptive Uses in the Susquehanna River Basin”

- a) This figure compares “Maximum Approved Daily Consumptive Uses in the Susquehanna River Basin.” While this provides some interesting information about water uses in the Susquehanna River Basin, the amount indicated for gas drilling is stated as an estimate. The table gives no indication as to how that estimate was calculated. Further, it is an estimate confined to one basin and presumably does not correlate to water use comparisons across the entire targeted area for extracting natural gas from the Marcellus and Utica shales—Western and Central New York, and the Southern Tier and the Catskills regions. Therefore this figure is misleading and downplays the potential impacts to waterbodies from large-scale withdrawals.

Finally, comparing the amount of water withdrawn for natural gas extraction to other large users, as this table attempts, is disingenuous. While it may be true that large power generation facilities or factories use more water than a single well, power facilities and factories are generally sited on large bodies of water so as to ensure that the amount of water needed is available. Therefore, though they may use more water there is more water available for use without degrading the water body or ecosystem.

The same is not true for withdrawals made for natural gas extraction. Wells are located where gas is located—not necessarily near bodies of water that can withstand large withdrawals and multiple users. Therefore, though others may use more water, it is more likely that large withdrawals for natural gas wells will occur on smaller, local water bodies with far greater impact.

- **Figure 6.2 should be stricken from the next draft SGEIS.**

30) Section 6.1.4 – “Groundwater Impacts Associated with Well Drilling and Construction”

- a) While the dSGEIS states that a wellbore that is ineffectively sealed could provide subsurface pathways for groundwater pollution from well drilling, flowback or production operations, the draft does not explore the impacts of abandoned wells may have on the drilling processes or water resources.

While the impacts of any ineffectively sealed wellbore may ultimately be the same, the fact that of the 70,000 known wells drilled in the state, the agency knows the location of only 30,000 of those wells, according to NYSDEC’s website.² Therefore, there are at least 40,000 opportunities for contamination that this draft does not evaluate or attempt to mitigate.

NYSDEC should mandate that a survey be undertaken within 2,000 feet of the wellbore (the same radius identified for ground water well location identification) to identify any abandoned wells. Should wells be identified, they should be reported to NYSDEC.

As drill pads with abandoned wells within 2,000 feet of a wellbore may not have the same environmental impacts as those identified in the dSGEIS, NYSDEC should conduct a site-specific SEQRA review.

- **All applicants should check for abandoned wellbores within 2,000 feet of the well pad. If an abandoned well is found, NYSDEC must be notified and an individual Environmental Impact Statement prepared.**

31) Section 6.1.11 – “Degradation of New York City’s Drinking Water Supply”

- a) Protecting New York City’s drinking water needs to be a priority for New York State. New York City is the State’s economic center and home to nearly nine million New Yorkers.

However, while there is concern about the degradation of New York City’s drinking water supply because it is unfiltered and the costs of providing filtration would be enormous (at minimum \$10 billion according to New York City’s December 22, 2009 comments on the dSGEIS³), there has been little attention paid to the fact that New York City is not the only city that relies on unfiltered drinking water.

- b) There should be a prohibition on natural gas extraction within the watershed of any unfiltered surface water supply. While the risks to New York City’s water supply have received a tremendous amount of public attention, it is not the only community water supply at risk. For instance, Syracuse’s drinking water is supplied by Skaneateles Lake, an unfiltered supply that overlies the Utica formation and an area where mineral rights within the watershed are being leased. NYSDEC should include a method in the next draft of the SGEIS, and it should include a

² <http://www.NYSDEC.ny.gov/energy/1532.html> Accessed on 12.26.2009.

³ http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/12_22_2009_impact_statement_letter.pdf Accessed on 12.26.2009

mechanism to prohibit permits from being issued within watersheds of unfiltered public or private water supplies.

- **There should be a prohibition on natural gas extraction within the watershed of any unfiltered surface water supply.**

32) Section 6.4 - “Ecosystems and Wildlife”

a) The dSGEIS does not adequately characterize wildlife impacts. The actions covered in the dSGEIS are anticipated to occur in areas not previously explored or exploited for natural gas extraction. Therefore, the limited wildlife assessment undertaken in the GEIS (limited to heronries, deer wintering areas, and uncommon, rare and endangered plants) is not sufficient to understand or mitigate impacts of actions described in the dSGEIS.

- **The next SGEIS draft must include an analysis of potential wildlife impacts including those to relatively undisturbed wildlife habitats on state lands, impacts to other species including rare and endangered species, and impacts to the Upper Delaware Important Bird Area.**

33) Section 6.6.3 – “Emissions Source Characterization”

a) The dSGEIS states,

“In this analysis, two transportation scenarios were developed and evaluated for the sourcing of equipment and materials, and the disposal of wastes (i.e. frac flowback waters, production brine). For simplification, any subsequent reference in this analysis to “sourcing” includes both incoming and outgoing equipment and materials to and from the wellsite or wellpad. Both transportation scenarios incorporated NTC’s estimates for truck trips, including the ranges of needed truckloads. An in-state sourcing option assuming a round-trip mileage of twenty miles (e.g., local) and an out-of-state sourcing option assuming a round-trip mileage of four hundred miles (e.g., originating from central Pennsylvania) were used to determine total vehicle miles traveled (VMT) associated with site preparation and rig mobilizations, well completion and well production activities.”

To assume a round-trip mileage of 20 miles for in-state sourcing is unfounded, especially given the dearth of useable water treatment facilities. To base emissions estimates on this assumption is to severely underestimate the amount of pollutants, including carbon dioxide, which will be emitted into New York’s air.

In one instance that Environmental Advocates of New York is aware of, a driller in the Town of Maryland (the Ross-1 well) was planning to transport wastes from a vertical hydraulically fractured well to Watertown because it was home to the closest plant that would accept the wastewater. That would have been a minimum 148 mile trip, one-way.

- **NYSDEC must use realistic assumptions on which to base emissions source characterizations.**

34) Section 6.10 – “Noise”

- a) The dSGEIS explains negative impacts of noise on nearby people, and details how the noise is created, yet fails to identify noise impacts to surrounding wildlife or how wildlife may or may not adapt to such impacts. Noise impacts to wildlife and habitat of the magnitude envisioned in the dSGEIS must be identified and mitigated in the next draft of the GEIS.

- **The next draft of the SGEIS must include wildlife impacts caused by noise.**

35) Section 6.13.1 - “Regional Cumulative Impacts”

- a) The dSGEIS states that

“the level of impact on a regional basis will be determined by the amount of development and the rate at which it occurs. Accurately estimating this is inherently difficult due to the wide and variable range of the resource, rig, equipment and crew availability, permitting and oversight capacity, leasing, and most importantly, economic factors...The timing, rate and pattern of development, on either a statewide or local basis, are very difficult to accurately predict.”

While assessing regional cumulative impacts may be difficult, it is required under SEQRA. If it is not possible to pinpoint cumulative impacts, NYSDEC should perform a reasonable worst-case scenario analysis to better understand the potential negative impacts of exploiting natural gas resources on a large scale.

- b) While it may be true that one well pad per 640 acre spacing unit is less than for single well pads with 40 acre spacing, it is safe to assume that there will be more than one pad operating within a particular region or watershed. Therefore, to base cumulative impact analysis and proposed actions to protect a larger region upon the impacts of a single well pad is useless.
- **NYSDEC’s regional cumulative impact analysis is inadequate. The next SGEIS draft must include a meaningful cumulative impacts analysis including a ‘worst-case scenario’ analysis.**

36) Section 6.13.2.1 – “Rate of Development and Thresholds”

- a) The dSGEIS notes that it is not possible to define the threshold at which development results in “adverse noise, visual and community character” impacts because of individuals’ varied perceptions of adverse impacts. The dSGEIS then goes on to state:

“as a result there is no supportable basis on which to set a limit on the rate of development of the Marcellus and other low-permeability gas reservoirs. It is certain that widespread development of the Marcellus Shale as described in this document will have community impacts that will change the quality of life in the affected areas in the short term. For the purposes of this review, however, there is no sound basis for an administrative determination limiting the shale development on the basis of those changes at this time. Accordingly, any limitation on development, aside from the mitigation measures discussed in the next chapter, is more appropriately considered in the context of policy making, primarily at the local level, outside of the SGEIS.”

This statement is inaccurate, misleading and absurd.

The reasons of “adverse noise, visual and community character impacts” are hardly the only rationale on which to base a requirement for a limited level of development, and quality of life is one of—but not the only—impact the agency should be concerned with.

The scarcity of wastewater treatment plants that can treat flowback fluids, air pollution and greenhouse gas emissions (especially localized impacts of air pollution if multiple pads are developed simultaneously in a particular town or region), an excessive number or cumulative amount of withdrawals from a particular water body or watershed, and limited staff and resources at NYSDEC and in county governments to oversee drilling and provide spill response are also good reasons to limit the amount of exploration for natural gas in the Marcellus Shale formation.

Additionally, to imply that localities can impose any restrictions on natural gas development is disingenuous. As NYSDEC is aware, under Article 23 of New York State Environmental Conservation Law (Mineral Resources),

“The provisions of this article shall supersede all local laws or ordinances relating to the regulation of the oil, gas and solution mining industries; but shall not supersede local government jurisdiction over local roads or the rights of local governments under the real property tax law” (NYS ECL 23-0303).

The dSGEIS is the appropriate vehicle for considering limited or phased development, and the fact that it does not is one of the document’s many deficiencies.

- **NYSDEC should analyze the option of phased permitting or limiting the rate of development in the next SGEIS draft.**

Chapter 7: Mitigation Measures

2) Section 7.1.1.1 – “NYSDEC Jurisdictions”

- a) The dSGEIS correctly states that New York has jurisdiction over wetlands regulated by Article 24 of Environmental Conservation Law. Yet under Article 24, the State has no jurisdiction over wetlands smaller than 12.4 acres or those not included on State Wetland Maps, regardless of size. Therefore, current jurisdiction does not protect wetlands from development and will not protect them from development associated with drilling.

The next SGEIS draft should propose a manner for protecting wetlands, as this dSGEIS has attempted to do with water withdrawals associated with drilling. Though we do not feel that the plan for regulating water withdrawals included in this dSGEIS is sufficient, we commend the agency for taking steps to protect water resources from excessive withdrawals. We call on NYSDEC to lay out similar specific safeguards to protect wetlands from the destructive force of gas drilling.

- **Current NYSDEC wetland protections are inadequate. NYSDEC needs to propose a method to protect wetlands smaller than 12.4 acres from natural gas development.**

37) Section 7.1.1.2 – “Other Jurisdictions – Great Lakes-St. Lawrence River Water Resources Compact”

- a) This section states, “Once New York establishes legislation to implement the compact, all new and increased water withdrawals must comply with the Compact’s decision-Making Standard...”

We disagree with this statement. The Compact was adopted in statute and requires New York to create a regulatory program. New York State Environmental Conservation Law Article 21, Title 10 (the Compact) Section 4.3, “Party Powers and Duties” as passed by the State Legislature and signed into law by Governor Spitzer in March 2008 states:

- “1. Each Party, within its jurisdiction, shall manage and regulate New or Increased Withdrawals, Consumptive Uses and Diversions, including Exceptions, in accordance with this Compact.
2. Each Party shall require an Applicant to submit an Application in such manner and with such accompanying information as the Party shall prescribe.
3. No Party may approve a Proposal if the Party determines that the Proposal is inconsistent with this Compact or the Standard of Review and decision or any implementing rules or regulations promulgated there-under. The Party may approve, approve with modifications or disapprove any Proposal depending on the Proposal's consistency with this Compact and the Standard of Review and decision.

As there is currently no such regulatory program and no language developing a Legislatively guided regulatory program was included in the law, the agency has the authority, granted by the Legislature, to develop a regulation program for withdrawals within the Great Lakes Basin that will satisfy the terms of the Compact.

- **NYSDEC must begin promulgating rules and regulations to implement the Great Lakes Compact so as to regulate water withdrawals within the Great Lakes Basin.**

38) Section 7.1.1.4 – “Impact Mitigation Measures for Surface Water Withdrawals”

- a) Environmental Advocates of New York, the National Wildlife Federation and Atlantic States Legal Foundation commend NYSDEC for proposing to regulate water withdrawals associated with natural gas extraction. This is a positive step toward protecting New York’s priceless water resources, especially smaller water bodies that would be disproportionately impacted by large withdrawals—even those withdrawals that may be short in duration. However, the “Natural Flow Regime Method” is flawed.

The Method does not take into account existing withdrawals in attempting to document the ‘natural’ flows on which to base pass-bys. Existing upstream withdrawals would diminish natural flows, so calculating pass-bys based on natural flows will not take into account the already-diminished flows and could further erode water quality, habitat, and ecosystem services. The Method does not account for potential impacts to other downstream users, nor will it mandate that downstream users decrease withdrawals to account for diminished stream flows. The Method also does not account for impacts to downstream ecosystems from multiple users who may or may not maintain pass-bys.

In addition, by employing the Method in a permit application-by-permit application manner proposed by the dSGEIS, the Method will not account for the cumulative impacts of multiple large withdrawals within a watershed or from a water body. The dSGEIS acknowledges such in section 7.1.1.5 (Cumulative Water Withdrawal Impacts). The Draft states:

“The stream gauge measurements which govern the pass by flow calculation reflect the natural hydrograph of an unregulated stream and do not take into account pre-existing or upstream withdrawals.”

NYSDEC should continue to assess these shortcomings and work to implement a withdrawal regulatory program that will take into account multiple users and cumulative impacts.

The agency should also identify water bodies inappropriate for water withdrawal and those that require more protective measures. The dSGEIS mentions trout waters as a type of stream that *should* require more protection, but the dSGEIS must require that all high quality waters and habitats, severely degraded or intermittent waterways, and water bodies that are home to threatened or endangered species be prohibited for water withdrawals.

NYSDEC should also stipulate how the agency intends to monitor and enforce withdrawal requirements and include requirements for equipment used to withdraw water including meters, and that reports from said meters be submitted to the agency. For further discussion, see comment number 40(c) below.

- **NYSDEC should implement a withdrawal regulatory program that will take into account multiple users and cumulative impact.**

b) In section 6.1.1.4 “Impacts to Aquatic Ecosystems”, the agency states:

“Improperly installed water withdrawal structures can result in the entrainment of aquatic organisms, which can remove any/all life stages of fish and macroinvertebrates from their natural habitats as they are withdrawn with water. To avoid adverse impacts to aquatic biota from entrainment, intake pipes *can* be screened to prevent entry into the pipe. Additionally, the loss of biota that becomes trapped on intake screens, referred to as impingement, *can* be minimized by properly sizing the intake to reduce the flow velocity through the screens (emphasis added).”

These identified negative impacts have no associated mitigation proposals. To say that intake pipes “*can*” be screened or that impingement “*can*” be minimized without providing any related requirements to do so is meaningless. The agency must address this issue with mitigation requirements in the next draft of the SGEIS.

- **The next SGEIS draft must propose mitigation measures to protect aquatic species from entrainment during water withdrawals for natural gas extraction.**

39) Section 7.1.1.5 – “Cumulative Water Withdrawal Impacts”

- a) The dSGEIS includes an irrelevant statement and should be stricken from the next draft. The dSGEIS quotes the Susquehanna River Basin Commission (SRBC) as regarding cumulative impacts as ‘manageable with the mitigation standards currently in place.’ This statement reflects the apparent view of one regulatory body which has more water withdrawal regulating and an enforcement power within its jurisdiction than NYSDEC has statewide. It also leads the reader to believe that the agency has mitigation standards currently in place, which is untrue.
 - b) The section goes on to state that “the potential exists for gas drilling and associated water withdrawal to occur outside of the Susquehanna and Delaware River Basins...” This statement should also be stricken. It is more than likely that gas drilling and associated water withdrawals will occur outside of the jurisdiction of the named agencies. There is known leasing occurring statewide on lands in both the Utica and Marcellus formations far beyond the reach of the river basin commissions. Natural gas companies are not leasing lands in areas that they do not intend to drill. Given the economics of trucking water, it is safe to assume that as often as possible companies will look to source water as close as possible to the well pad.
 - c) The section then goes on to state that, “adverse cumulative [water withdrawal] impacts *could* be addressed by the Natural Flow Regime Method described above *if* each operator of a permitted surface water withdrawal *estimated or reported* the maximum withdrawal rate and measured the actual pass-by flow for any period of withdrawal” (emphasis added). This is yet another example of the toothless nature of the dSGEIS. The agency should require that all operators report the maximum withdrawal rate and measure pass-by flows not merely contemplate that such activities may at some point occur.
- **NYSDEC should strike certain comments from the next dSGEIS draft. The agency should also require operators to report withdrawal rates and measure the actual pass-by flow for any period of withdrawal.**

40) Section 7.1.2 – “Stormwater”

- a) NYSDEC is considering including natural gas well development under the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity. We support including well development in the MSGP as a means to control stormwater runoff, which can have many detrimental impacts on nearby water bodies.

However, the dSGEIS is again weak on the issue. The next draft of the SGEIS should strike the statement:

“the Department is proposing the option of amending this Multi-Sector General Permit...”

The next draft of the SGEIS should include either a proposal to amend regulations, or a statement that these activities will be included. To propose an option to amend does not provide protection from runoff that our water bodies deserve.

- **NYSDEC should strike certain statements from the next draft SGEIS. The Multi-Sector General Permit should be amended to include natural gas extraction activities.**

41) Section 7.1.2.1 – “Construction Activities”

- **Environmental Advocates, Atlantic States Legal Foundation and the National Wildlife Federation support incorporating requirements associated with the General Permit for Stormwater Discharges Associated with Construction Activities into Sector AD of the MSGP.**

42) Section 7.1.3.1 – “Drilling Rig Fuel Tank and Tank Refilling Activities”

- a) The dSGEIS identifies that the diesel tank associated with the larger rigs may be larger than 10,000 gallons in capacity and in one location on a multi-well pad for the length of time required to drill all of the wells on the pad. In Chapter 5 of the dSGEIS, the draft states that each well could take four to five weeks to drill and postulates that there may be two rigs working on a multi-rig pad simultaneously. Given that, it could then be up to 20 weeks that a large diesel tank would be on-site assuming an eight-well pad. According to the dSGEIS:

The EAF Addendum will require information regarding the capacity and planned well pad location of rig fuel tanks and distance to any primary or principal aquifer, public or private water well, domestic-supply spring, reservoir, reservoir stem, controlled lake, watercourse, perennial or intermittent stream, storm drain, wetland, lake or pond within 500 feet of the planned tank location. *To the extent practical, the Department will encourage operators to position the tank more than 500 feet from these water resources.* (emphasis added)

NYSDEC should require operators to position the tank more than 500 feet from water resources

- b) The dSGEIS proposes supplementary permit conditions that will include secondary containment for all fuel tanks larger than 10,000 gallons and smaller tanks if the tank will be within 500 feet of listed water resources. We call on NYSDEC to require that all secondary containment systems be capable of containing 110 percent of the tank should a spill occur.
- **The agency should require operators to position fuel tanks more than 500 feet from water resources and require secondary containment capable of containing 110 percent of the tank’s capacity for all fuel tanks.**

43) Section 7.1.3.2 – “Drilling Fluids”

- a) In this section, NYSDEC is proposing adding supplementary permit conditions for multi-well pad high-volume hydraulic fracturing to limit open pits to a volume of 250,000 gallons, or 500,000 gallons for multiple pits on one tract or related tracts of land, in addition to other engineering requirements for these pits. This section goes on to state that more stringent requirements will be included in well permit conditions for applications in primary or principal aquifers areas or unfiltered water supply areas.

Drilling fluids and flowback water, even those from a single well, should not be stored in pits onsite anywhere in New York and NYSDEC should clearly prohibit onsite open pit storage for these fluids. All flowback water should enter a fluid containment or onsite fluid treatment system once it is extracted from the well.

This section contradicts section 7.1.3.4, which states that: “the Department proposes that flowback water handled at the well pad be directed to and contained in steel tanks.”

As stated above, we strongly support this approach.

However, the draft then goes on to propose requirements for centralized flowback water surface impoundments in section 7.1.7, which by their nature would be significantly larger and pose an increased risk over single-pad or single-well pit. Even with the engineering requirements proposed in sections 7.1.7- 7.1.7.5 and the prohibition on the use of centralized impoundments in the New York City watershed, we oppose the use of centralized impoundments and calls on NYSDEC to prohibit their use.

- **NYSDEC should not permit flowback water surface impoundments.**

44) Section 7.1.3.3 – “Hydraulic Fracturing Additives’

- b) This section discusses on-site practices for mitigating spills from additive containers, yet does not evaluate one of the most protective actions the State can against toxic chemicals—not permitting their use at all.

The agency should evaluate the chemicals submitted in response to information requests and develop either a hit list of chemicals of the most toxic that will not be permitted for use in New York (BTEX compounds should be included on this list) or take the precautionary approach and only allow chemicals that NYSDEC knows will not cause a degradation of drinking, surface, or ground water quality should they inadvertently enter the environment.

- **NYSDEC should develop a hit list of toxic chemicals that will not be permitted for use in New York or only allow chemicals that the agency knows will not cause a degradation of drinking, surface, or ground water quality should they inadvertently enter the environment.**

45) Section 7.1.3.4 – “Flowback Water”

- a) See comment # 43.

46) Section 7.1.4.1 – “Private Water Well Testing ”

- a) The signatory organizations strongly support conducting baseline testing of water wells prior to drilling activity. The dSGEIS states that:

“Supplementary permit conditions for high-volume hydraulic fracturing will require the sampling and testing of residential water wells within 1,000 feet of the well pad, subject to the property owner’s permission, or within 2,000 feet of the well pad if no wells are available for sampling within 1,000 feet either because there are none of record or because the property owner denies permission. All testing and analysis must be by an ELAP-certified laboratory, and the results of each test must be provided to the property owner and the county health department prior to commencing drilling operations.”

We call on NYSDEC to expand the requirement for testing to include all water wells within 2,000 feet of the well pad to be as protective of drinking water supplies as possible. We also call on NYSDEC to clarify the intent of this section by redrafting the sentence to read: “Supplementary permit conditions for high-volume hydraulic fracturing will require the sampling and testing of residential water wells by the applicant within 2,000 feet of the well pad...” In addition, the results of each test should be submitted to NYSDEC so the agency can begin to better understand the state of groundwater resources statewide.

The draft also calls on counties to serve as the first line of defense should contamination be detected in subsequent tests. The signatory organizations question the capacity of county health departments to handle the amount of information and follow up activity that may occur with this requirement. The State, who is solely authorized to regulate this industry, should be responsible for dealing with the ramifications should something go wrong. NYSDEC and NYSDOH are familiar with the chemical constituencies of flowback water and fracking fluids—at least more so than counties—and are the appropriate agencies to assess and mitigate any contamination that may occur.

- **In the next draft, NYSDEC should expand the requirement for baseline testing to include all water wells within 2,000 feet of the well pad and to redraft the section as described above.**
- **Baseline test results should be submitted to NYSDEC.**
- **NYSDEC should be the agency first contacted should contamination be suspected.**
- **The above should be included in the next SGEIS draft.**

47) Section 7.1.8.1 – “Treatment Facilities”

- a) We question POTW’s ability to adequately assess, and safely process the wastes associated with high-volume hydraulic fracturing. Given the risks to POTW’s themselves from the make up of these wastes (especially total dissolved solids and chlorides), the signatory organizations call on NYSDEC to require the natural gas industry to finance, construct and maintain their own treatment plants. Taxpayers should not be forced to absorb the costs associated with this industry.

The Draft refers to TOGS 1.3.8, “New Discharges to Publicly Owned Treatment Works,” as guidance to oversee drilling waste disposal via POTW’s. There are some questions and concerns associated with this approach.

While the TOGS calls for a headworks analysis prior (an analysis of a facility’s ability to process a wastewater constituent) to a POTW accepting waste, as does the dSGEIS, it is unclear how often the wastes would have to be characterized. Such wastes change substantially over time (as

documented by Penn State⁴), even from within a single well, generally getting brinier. Therefore a single analysis without ongoing wastewater characterization over time will not be protective of the facility or the environment. Environmental Advocates, Atlantic States Legal Foundation, and the National Wildlife Federation call on NYSDEC to require multiple wastewater characterization analyses from those operators seeking to dispose of wastes on an ongoing basis. In the instance of a single disposal of a full tank, a single characterization of wastes may be sufficient.

- **NYSDEC should not permit flowback water treatment in POTW's.**

48) Section 7.1.12.1 – “Setbacks from Ground Water Resources”

c) The dSGEIS states:

“Based on these existing DOH-established separation distances, the Department proposes that site-specific SEQRA review be required for the following high-volume hydraulic fracturing projects:

- 1) any proposed well pad within 150 feet of a private water well or domestic-supply spring, and
- 2) any proposed centralized surface flowback impoundment within 300 feet of a private water well or domestic-use spring...

...Based on the above information and mitigating factors, the Department proposes that site-specific SEQRA review be required for the following projects:

- any proposed well pad within 300 feet of a reservoir, reservoir stem or controlled lake;
- any proposed well pad within 150 feet of a watercourse, perennial or intermittent stream, storm drain, lake or pond;
- any proposed centralized flowback water impoundment within 1,000 feet of a reservoir; and
- any proposed centralized flowback water surface impoundment within 500 feet of a perennial or intermittent stream, wetland, storm drain, lake or pond.”

As the dSGEIS identifies the above setbacks as the minimum distance that a well can be safely sited near a water body or source, NYSDEC should not permit wells or well pads to be sited closer under any circumstances, regardless of whether a site-specific SEQRA determination is made. The NYSDEC should promulgate rules and regulations to prohibit well drilling within specified setbacks.

We believe that centralized flowback impoundments are not safe and should not be permitted, regardless of their proximity to water bodies.

⁴ <http://downloads.cas.psu.edu/naturalgas/pdf/updated%20wastewater%20webinar%20oct%202009.pdf> Accessed on 12.27.09.

- **The NYSDEC should promulgate rules and regulations to prohibit well drilling within specified setbacks.**

49) Section 7.2 – “Protecting Floodplains”

- a) Environmental Advocates, the National Wildlife Federation and Atlantic States Legal Foundation support prohibiting above ground flowback water piping and conveyances in 100-year floodplains.
- b) Natural gas wells should not be drilled within 100-year floodplains at all, as by their nature floodplains are areas that are prone to flooding.

- **NYSDEC should not permit wells within 100-year floodplains.**

50) Section 7.4.1.1 – “Terrestrial”

- a) We applaud the requirements in this section and the EAF Addendum to control and halt the spread of invasive species.

51) Section 7.4.1.2 – “Aquatic”

- a) This section, dealing with aquatic invasive species, lists the SRBC and DRBC’s protections against aquatic invasive species without addressing how the agency intends to protect against aquatic invaders statewide. The draft states:

“The measures and protocols adopted by the SRBC and DRBC appear to be sufficient to address the potential for transfer of invasive species associated with water use for high-volume hydraulic fracturing. To the extent that operators seek to obtain, transport, use, and discharge water outside the jurisdictional boundaries of SRBC and DRBC, the NYSDEC may consider requiring equivalent mitigation measures for both large-scale basins and at smaller scales to avoid invasive species transfer.”

This statement is inaccurate and misleading. The SRBC and DRBC have no jurisdiction outside of their basins, and as stated previously in these comments and repeatedly in the dSGEIS, drilling will be taking place across the Southern Tier, Central New York and the Catskills. At a minimum, drilling will occur in the Lakes Erie and Ontario Basins, in addition to the Susquehanna and Delaware River Basins. The Great Lakes are infested with invasive species, such as blue-green algae, which if allowed to spread, could devastate other water bodies. One only has to look as far as Pennsylvania to see the havoc and destruction that an invasive species can wreak on an ecosystem, as was the case with the massive fish kill in Dunkard Creek.

According to the *Pittsburgh Post Gazette*, “An invasive toxic algae, blamed for contributing to the massive Dunkard Creek fish kill along the Pennsylvania-West Virginia border, may have hitchhiked to the region aboard equipment used in Marcellus shale drilling.”⁵

⁵ <http://www.post-gazette.com/pg/09277/1003007-113.stm> Accessed 12.29.09

- **NYSDEC should require equivalent mitigation measures to avoid invasive species transfer regardless of where the drilling or water withdrawal occurs, and we call on the agency to do so in the next draft of the SGEIS.**

52) Section 7.8.2 – “Regulation of NORM in NYS”

- a) According to the dSGEIS,

“Analytical results from initial sampling of production brine from vertical gas production wells in the Marcellus formation have been reviewed and suggest that the potential for NORM scale buildup and other NORM waste may require licensing. The results also indicate that production water may be subject to discharge limitations established in Part 380.

Existing data from drilling in the Marcellus formation in other States, and from within NYS for wells that were not hydraulically fractured, shows significant variability in NORM content. This variability appears to occur both between wells in different portions of the formation and at a given well over time. This makes it important that samples from wells in different locations within NYS are used to assess the extent of this variability. During the initial Marcellus development efforts, sampling and analysis will be undertaken in order to assess this variability. These data will be used to determine whether additional mitigation is necessary to adequately protect the public health and environment of the State of New York.”

This section is unclear and does not provide any guidance as to how NORM will be regulated in New York or how POTW’s and the environment at large will be protected from NORM in produced waters. Nor does it provide mitigation for a known negative impact associated with the proposed action.

Rather than mitigating for a known adverse impact, this section merely states that it is important that samples from wells are used to assess the variability and that at some future point there may be further regulation. However, the draft does not stipulate who will conduct these samples or under what parameters, how will they be reported or to whom, and at what point will unacceptable levels be regulated or how that process will proceed.

- **The failure to fully analyze and mitigate for NORM is a clear shortcoming of this document. NYSDEC must fully assess and mitigate for impacts caused by NORM in its next draft SGEIS. No well permits should be issued until NORM is fully characterized and mitigated for.**

53) Section 7.13 – “Mitigating Cumulative Impacts”

- a) The entirety of the section devoted to mitigating cumulative impacts reads:

“7.13 Mitigating Cumulative Impacts

Mitigation of cumulative impacts associated with water withdrawal for hydraulic fracturing is discussed in Section 7.1.1.8.

Regarding other types of cumulative impacts, as determined by NTC in its study for New York State Energy Research & Development Authority and paraphrased in Section 6.13.2.1, “The rate of development cannot be predicted with any certainty ... Nor is it possible to define the threshold at which development results in unacceptable adverse noise, visual and community character impacts... There is no way to objectify these inherently subjective perspectives [and] ...there is no sound basis for an administrative determination limiting the shale development at this time.

The appropriate approach for minimizing cumulative impacts associated with noise, aesthetics, traffic and community character, therefore, is to encourage and adhere to the following practices:

- careful siting of well pads,
- use by the operators of site-specific visual and noise impact mitigation plans,
- negotiation of road use agreements with the appropriate local governing authorities, and
- recognition of and, to the extent practical, attention to local planning documents and policies.”

This is not a “hard look” analysis required under SEQRA and it amounts to overseeing natural gas drilling on the well pad-by-well pad level as opposed to a well-by-well level. That is unacceptable. It is obvious that if there are multiple pads in a particular area air impacts, water impacts and community impacts will be greatly increased.

If the agency feels it cannot conduct a cumulative impact analysis based on available information, it should at least look at a worst-case scenario to identify potential cumulative impacts and processes for avoiding or mitigating large-scale impacts.

However, we would point out that *Hazen and Sawyer’s* December 2009 report was able to quantify anticipated cumulative impacts within the New York City watershed. Though that report is specific to one region within the state, it illustrates that such calculations can be done. And if impacts can be identified then mitigation measures should be designed and implemented.

- **Environmental Advocates of New York, the National Wildlife Federation and Atlantic States Legal Foundation call on NYSDEC to conduct a meaningful cumulative impacts analysis and to refuse to issue permits for natural gas extraction using high-volume hydraulic fracturing and horizontal drilling until large scale impacts are fully understood and can be mitigated for.**

Chapter 8: Permit Process and Regulatory Coordination

54) Section 8.2.1 – “Well Permit Review Process”

a) The dSGEIS calls for the Division of Mineral Resources to maintain its lead role in the review of Article 23 applications including the fluid disposal plan, and though it is not specifically mentioned in the draft, this section seems to imply that it will also oversee water withdrawal portion of the application.

This is unacceptable. The Division of Water oversees all ground water and point-source discharges (including headworks analysis) and works with POTW operators on a daily basis. The Division of Water should assess the completeness of portions of applications (including the fluid disposal plan) dealing with waste fluids.

In addition, it is the Division of Water that maintains the water withdrawal reporting program and has the understanding and expertise to evaluate water withdrawal portions of permit applications. And it is the Division of Water with the technical expertise to evaluate SWPPP's and advise on construction/storm water permit implementation.

The next draft of the SGEIS should direct the various divisions within the agency to oversee the portions of Article 23 applications pertinent to their mission or area of expertise.

- **NYSDEC must coordinate permit review across all divisions so that those with relevant expertise have permitting authority over the appropriate portions of permit applications.**

55) Section 8.2.1.2 – “Required Hydraulic Fracturing Additive Information”

a) The draft proposes that full chemical disclosure be required with applications that propose the use of open surface impoundments. We disagree. Full chemical disclosure must be required with all applications for the purposes of spill response and mitigation, and to provide a better idea of what to expect in flowback water so that the agency may evaluate if the treatment facility identified in the application is capable of safely treating the waste. Furthermore, the agency must identify a process for ongoing disclosure and public notification.

- **NYSDEC must require full chemical disclosure for all applications that involve hydraulic fracturing.**

Chapter 9: Alternative Actions

56) Chapter 9 Introduction

a) The introduction to Chapter 9 cites that the 1992 GEIS called for regulations to develop permit conditions. The draft SGEIS fails to call for changes to official regulations such as those under 6 NYCRR parts 500-559.

- **The next draft SGEIS must recommend regulatory and/or statutory changes to codify recommendations made within the dSGEIS.**

57) Section 9.1 – “Prohibition of Development”

a) In the discussion on prohibiting development of the tight shale resources, the dSGEIS focuses only on the potential negative economic impacts associated with the option to prohibit

development in the Marcellus and Utica formations. There is no discussion regarding the potentially positive aspects associated with protecting water resources and minimizing industrialization in the affected areas.

- **NYSDEC must make a full accounting of the benefits of prohibiting natural gas development, in addition to potential economic drawbacks.**

58) Section 9.2 – “Phased Permitting Approach”

- a) This section states that the use of a phased-permitting approach to developing the Marcellus (and presumably the Utica, as well, as that formation is also included in this dSGEIS) was evaluated. However, there is no indication as to what type of evaluation was conducted that would lead the agency to the conclusion that it is not “practical or necessary given the inherent difficulties in predicting gas well development for a particular region or part of the state.”

This issue should be revisited and NYSDEC should justify how it reached this conclusion in the next draft of the SGEIS. The fact that the agency is unsure as to how quickly or what amount of development may occur in a given area is irrelevant in determining whether or not to limit growth. Relevant limiting factors could include water availability, potential community impacts, drinking water impacts should an accident occur, agency and county resources for permitting and overseeing the industry, interest in keeping more than a pre-determined amount of chemicals off the landscape or the roads, minimizing air impacts or greenhouse gas emissions in a given region, potential for too much development to destroy sensitive habitat, negatively impact migration patterns, or disrupt wildlife proliferation, or any other number of environmental or community impacts.

In addition, comparison of drilling rates or associated activity levels with New York’s history of drilling activity is disingenuous. Never before have prospectors, leasers, drillers, and operators focused activity on New York as they are now. Never before has New York had the pressure or opportunity to tap what the dSGEIS refers to in this chapter as “the largest known shale deposit in the world.”

- **NYSDEC must fully analyze the potential for limited development. Limiting development may be the only way to fully understand the full scale of potential impacts from this type of drilling and may be the only way to protect against negative cumulative impacts should natural gas extraction using high-volume hydraulic fracturing and horizontal drilling proceed in New York.**

Conclusion

It is critically important that NYSDEC explore all of its options to protect the State’s natural resources now—including imposing a phased permitting approach. Though the economic benefits from this natural gas rush will be temporary—just as they have been for every other fuel rush that this country has experienced—if New York does this right the benefits of clean, drinkable water will be with us for generations to come.