



**EXECUTIVE SUMMARY**  
**COMMENTS OF OTSEGO 2000 IN OPPOSITION TO**  
**THE dSGEIS FOR GAS DRILLING IN THE MARCELLUS SHALE**

The draft Supplemental Generic Environmental Impact Statement (dSGEIS) for natural gas extraction in the Marcellus Shale is severely premature, incomplete, and riddled with improper delegations of regulatory authority to other state and local agencies, and the drilling companies themselves. The document is so lacking in evidentiary support that it calls into question the objectivity and competence of the DEC to regulate these dangerous activities, which threaten the health and safety of all of New York's residents.

This regulatory failure is exacerbated by the fact that the DEC is now severely understaffed as a result of recent budget cuts imposed by Governor Paterson. In addition the DEC has a conflict of interest because it is charged with both advancing mineral rights development, while at the same time protecting the environment. The dSGEIS must be withdrawn for two reasons. First, so that data, which are missing or misleading can be corrected and supplied for public comment. Second, to allow time for the legislature to eliminate the understaffing and the conflict of interest under which the DEC is now operating.

**I. THE DATA ON WHICH THE DEC RELIES ARE INCOMPLETE OR HAVE BEEN DELEGATED TO OTHERS TO SUPPLY.**

A. Chemicals added to fracking fluids and toxicity data are not disclosed. The DEC claims that as many as 260 chemical additives could be used in the fracturing process, most known dangerous carcinogens. Yet, the composition of more than 40 compounds has **not** been disclosed by drilling companies and is not required by the DEC. Responsibility for response to and investigation of complaints regarding exposure to these chemicals is delegated to county health departments without comment by the DEC as to how these departments can respond when the chemicals themselves have not been identified.

B. Contaminated flow-back fluids have not even been identified or tested by the DEC, and water treatment facilities in New York State or elsewhere do not exist to handle this waste. Each well-pad will produce millions of gallons of flow-back fluids laced with the chemicals added to the fracturing fluid, as well as brine and radioactive components found in the Marcellus formation. The DEC admits that it does not yet know the composition of these toxic flow-back fluids or how much radiation they will contain. Even more significantly, treatment facilities in New York State or neighboring states, sufficient to handle the quantity and quality of these wastes, contaminated with

dangerous chemicals and radioactive materials, have not been identified because they do not exist. If this is not corrected before drilling begins, New York could be faced with millions of gallons of contaminated hazardous wastes standing in open holding pits or loaded in tanker trucks with nowhere to send them.

C. Based on the DEC's projections, hydraulic fracturing in New York State will consume *billions* of gallons of fresh-water resources *annually*. The impacts of such massive fresh-water withdrawals on aquifers, wetlands, fish habitats, and fresh-water drinking supplies are also not discussed by the DEC. This analysis is left respectively to the Susquehanna River Basin Commission and the Delaware River Basin Commission, even though the DEC admits these Commissions do not have the cumulative data of projected withdrawals on which to base their conclusions. This is another serious omission, which dooms the dSGEIS and requires its withdrawal.

D. The DEC estimates that 60-90% of the fracking fluids contaminated with carcinogenic chemicals will never be brought up to the surface. However, the DEC has failed to conduct tests to determine how long such fluids can remain trapped, where they may migrate as a result of seismic activity occurring either naturally or caused by further fracturing, and what effects such migration may have. The DEC's plan to allow tens of thousands of new wells to enter production and to cap them at the end of production, without retesting or monitoring them for underground fracking fluid migration is obviously flawed. Moreover, there is no stated remedy for remediation or containment should such fracking fluid migration be discovered.

E. The DEC admits that drilling in floodplains requires further analysis. The DEC then admits that floodplain maps for most of New York State are seriously out of date. In many instances the maps are as much as 20-30 years old. However, the DEC proposes to issue drilling permits for well-pads in floodplains without waiting until the floodmaps can be updated. The DEC does not explain why it purports to act in such haste and with such disregard for the safety of New York's citizens.

F. The DEC admits that each respective well-pad will require thousands of heavy truck trips to deliver chemicals, millions of gallons of fresh water, drilling machinery and the removal of millions of gallons of contaminated flow-back fluids. The impact of such heavy truck traffic on local and country roads, overpasses and bridges, and its effect on agriculture, schools, hospitals, and community activities is neither evaluated nor addressed by the DEC. Responsibility for road use is delegated to local authorities, although local authorities are provided neither notice of all drilling applications nor funds to assess, improve, or repair their roads.

G. Impacts of extensive infrastructure construction associated with natural gas extraction, including installation of transmission pipelines, compressor stations, and related facilities are not addressed by the DEC except to note that this analysis is delegated to the PSC. Even if another agency has jurisdiction over aspects of the proposed installations, New York Law requires the DEC, in its role as lead agency under SEQRA, to compile and analyze such data. Permitting cannot begin unless the impacts

of such infrastructure construction on a statewide, regional, and local basis are considered.

## **II. INFORMATION PROVIDED BY THE DEC IS FALSE AND MISLEADING.**

A. The DEC's claim that there is no evidence of contamination from hydraulic fracturing in New York State or elsewhere is incorrect. Evidence of serious contamination in New York State has recently been disclosed based on a review of the DEC's own files (see Natural Gas Quest: "State Files Show 270 Drilling Accidents in Past 30 Years," November 8, 2009, citing a survey by Walter Hang of Toxics Targeting, [www.toxicstargeting.com](http://www.toxicstargeting.com)). As to other states, statements attached to the DEC's draft at appendix 15, actually confirm that extensive claims of contamination were reported in other states. The declarants simply "attributed" these events to operator error, or well-casing failure, or other accidents, rather than to the pressurized stage of "fracturing." Thus, the referenced statements were prepared using a contrived definition of the process of fracturing and one which is inconsistent with the DEC's own usage in the dSGEIS. Such word games should have no place in a statutorily proscribed public hearing process.

B. The claim by the DEC that its drilling setback requirements of 150 feet from reservoirs, lakes, streams, and wells generally, and 300 feet from reservoirs, lakes, and streams in the New York City watershed, are based on a rational investigation are similarly misleading. These setback requirements are in fact taken from recommendations developed by the NYSDOH for siting of fresh-water wells away from "fertilizer mixing" and "chemical storage" areas. The DEC has simply adopted these guidelines, without further analysis, for millions of gallons of hydraulic fracturing fluids injected adjacent to fresh-water supplies. Similarly, the 1,000-2,000 foot setback from "municipal water wells" referenced by the DEC, is a holdover from vertical gas well development regulations contained in the original GEIS, issued in 1992, and was **not** developed by the DEC for horizontal hydraulic fracturing. Thus, there was no actual independent testing or consideration by the DEC of appropriate setback requirements for operations in the unique topography of New York State for horizontal hydraulic fracturing. This is inexcusable and casts doubt on every aspect of the DEC's work product.

C. The DEC's estimates of financial benefits to New York State are equally flawed and misleading. Benefits are projected without any reference to the true, externalized financial impacts to New York State's economy. New York is one of only three states (including Iowa and Pennsylvania) that do not impose any severance tax with respect to its mining operations. As a result New York State and its taxpayers (already financially in crisis) will be asked to bear the costs of regulation, enforcement, remediation, health costs, road repairs, real property losses, negative impacts on agriculture, tourism, and historic assets and countless additional expenses. At the very least, the DEC must consider these externalized costs and how they will be paid.

D. The DEC fails to disclose that with only 19 employees in its entire Division of Mineral Resources, due to severe budget cuts imposed recently by Governor Paterson, the Division will be unable to conduct the inspection, regulation and enforcement that will be required if horizontal drilling with high water volume hydraulic fracturing is commenced in New York State. These circumstances also explain why the DEC has been unable to enforce existing laws and perform clean up of existing spills previously reported in New York State. In addition the DEC is in a conflict of interest position. The DEC is charged with both advancing mineral rights development, while at the same time protecting health and the environment.

As a result of these budgetary constraints and the inherent conflict of interest, the DEC relied too extensively on industry lobbyists and consultants in the preparation of the dSCEIS and was unable to develop and review the information necessary for meaningful SEQRA review. These conflicts and budgetary constraints require resolution by legislative and political action before the process of effective environmental review with the DEC as lead agency can take place.

### **III. THE DSCEIS DOES NOT TAKE A “HARD LOOK” AT ALTERNATIVES AS REQUIRED BY NEW YORK LAW.**

The DEC admits that there are several alternatives to the plans for immediate massive drilling. Yet, the dSCEIS rejects each of these alternatives without meaningful discussion or analysis. The alternatives prematurely dismissed include drilling based on site-specific environmental review, phased drilling where drilling operations are commenced slowly and in limited areas to measure impacts and test regulations, and use of newly developed green drilling technologies. Also, the DEC fails to mention, let alone consider, that there are methods by which legal protections can be put in place through performance and clean-up bonds, and strict liability laws to protect the public.

The attempt by the DEC to proceed without even discussing these protections is inexplicable and casts doubt on its objectivity. It is particularly troubling because the natural gas reserves trapped in the Marcellus Shale constitute a non-diminishing asset which has been present for at least hundreds of thousands of years and which will remain in place for however long it takes to develop a responsible extraction program. There is no reason, except misplaced greed, to rush to commence drilling on this record, which threatens the health, water, agriculture, and historic assets of New York State.

For all of these reasons, the dSCEIS must be withdrawn and a ban on hydraulic fracturing in New York State must be imposed until responsible environmental review, on a complete and accurate record, can be accomplished.



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## **Comments of Otsego 2000 to dSGEIS Governing Natural Gas Drilling**

### **INTRODUCTION**

The draft Supplemental Generic Environmental Impact Statement (dSGEIS) regarding natural gas extraction in the Marcellus Shale utilizing horizontal drilling and hydraulic fracturing, issued by the New York Department of Environmental Conservation (DEC) on September 30, 2009, fails to meet the most basic elements of the State Environmental Quality Review Act (SEQRA). The document is severely premature and demonstrates that New York State is not yet ready to regulate or control this novel and hazardous method of natural gas recovery. The legal standards for allowing such activities to commence, without site-specific SEQRA review, have not been met. The faults in the dSGEIS are extensive and insurmountable. The draft should be withdrawn until the data and analyses, which the DEC admits throughout the document are missing or unavailable, are supplied and released to the public for full public comment.

The draft concedes that the data on which virtually all future regulation will be based have not yet been secured, let alone reviewed by the DEC. For example, on the crucial question of the composition of the chemicals and carcinogens that will be used in the process, the DEC acknowledges that the drillers still refuse to provide the necessary information required to assess and mitigate potential environmental impacts. The DEC also has not identified the composition of the toxic flow-back fluids, which will include radioactive materials from deep within the earth's surface. Treatment facilities to handle this quantity and quality of hazardous liquid waste in New York State or elsewhere are also not identified.

The same is true for all impacts governed by other state or local governmental agencies including, most notably: road use, fresh-water consumption, health risks, toxic flow-back water treatment, pipeline construction, noise, floodplain protection, and impacts on agriculture, recreational and historic resources. The DEC is inexplicably rushing ahead based on unsupported assumptions and impermissible delegation of these critical functions to other agencies and the drilling companies themselves. This violates the most basic requirements of SEQRA and must be corrected prior to acceptance of any final supplemental generic environmental impact statement.

Further, the dSGEIS contains numerous material omissions and misleading statements rendering it deceptive and legally flawed. These errors include the false claim that there is “no” history of contamination in New York or elsewhere due to “hydraulic fracturing.” These statements are inconsistent with the DEC’s own records, and are based on a contrived interpretation of the definition of hydraulic fracturing. The DEC should not attempt to mislead the citizens of New York on this important point, which goes to the very heart of the matters under consideration.

In addition, the DEC’s well-pad setback requirements are arbitrary and capricious. The DEC sets forth an array of well-pad siting guidelines that require further environmental review, implying that the required setbacks are based on a rational analysis. However, the setbacks adopted by the DEC permitting drilling to take place without further review 150 feet from reservoirs, lakes, and streams generally, and 300 feet from such resources in the New York City Watershed, are in fact completely arbitrary in addition to being discriminatory. They were simply lifted by the DEC from the New York State Sanitary Code for fresh-water well siting, without independent consideration of whether this was appropriate for hydraulic fracturing operations.

The DEC also predictably claims that the financial rewards of high-volume hydraulic fracturing are huge. These statements are no doubt true for the drilling companies and their agents, but they are clearly not true for the rest of New York. In making projections of economic rewards, the DEC completely fails to consider the externalized environmental and financial costs to the State of New York of permitting such operations. Most significantly, the DEC does not disclose that New York is one of only three states with mining operations that do not impose a severance tax. Without a severance tax, New York (already near financial collapse) simply does not have the resources to even begin to regulate and control this process.

The DEC also fails to disclose that due to budget cuts recently imposed by Governor Paterson, it now has only 19 people employed in its entire Division of Mineral Resources. This is totally insufficient to handle its current workload and does not begin to account for the increases in staff that would be necessary to inspect, regulate, and control horizontal drilling with hydraulic fracturing. Regulation without enforcement capability is a sham. Moreover, the DEC has a serious conflict of interest in being asked to advance gas drilling while at the same time being charged with responsibility for environmental protection and enforcement of federal environmental laws. This too is left undisclosed.

Finally, the dSGEIS does not take a “hard look” at alternatives, as is required by New York law. The DEC admits that there are several alternatives to the plans for immediate massive drilling. Yet, the dSGEIS rejects each of these alternatives without meaningful discussion or analysis. The alternatives prematurely dismissed include drilling based on site-specific environmental review, phased drilling where drilling operations are commenced slowly and in limited areas to measure impacts and test regulations, and use of newly developed green drilling technologies. Also, the DEC fails to mention, let alone consider, that there are methods by which legal protections can be put in place through performance and clean-up bonds, and strict liability laws to protect the public.

The attempt by the DEC to proceed without even discussing these protections is inexplicable and casts doubt on its objectivity. It is particularly troubling because the natural gas reserves trapped in the Marcellus Shale constitute a non-diminishing asset which has been present for hundreds of thousands of years and which will remain in place for however long it takes to develop a responsible extraction program. There is no reason, except misplaced greed, to rush to commence drilling on this record, which threatens the health, water, agriculture, and historic assets of New York State.

## **DISCUSSION**

### **I. THE dSGEIS IS SEVERELY PREMATURE: VIRTUALLY ALL NECESSARY DATA ARE MISSING.**

#### **A. Chemical Fracking Additives Are Not Identified And Complaints Are Improperly Referred To Health Departments Without Toxicity Data.**

The DEC admits that the chemical additives used in the fracturing process are known to be dangerous to human and animal health, including risks of central nervous system disorders, elevated risk of kidney and lung tumors, increased risk of leukemia, genetic damage and risks to the male and female reproductive systems (pp. 5:62-65; all citations are to the dSGEIS unless otherwise expressly indicated). The DEC then concedes that its current list of 260 chemicals used in this process is still incomplete and toxicity data are still missing.

The DEC unequivocally states that there are as many as “40 compounds which require further disclosure” and that other chemicals may be used which the DEC has not evaluated because “no chemical information was submitted” (p. 5:35). The DEC laments that: “compound specific toxicity data are very limited for many chemical additives to fracturing fluids...” (p. 5:53), and that many of the chemicals are “mixtures which require further disclosure to the DEC... before their health risks can be understood” (p. 5:60). See also the DEC’s statement that “readily available health effects information is lacking for many of these constituents” (p. 5:65). Nor does the DEC make any effort whatsoever to analyze the various health risks caused by exposure to *combinations* of these chemicals mixed together into the fracturing fluids.

Instead of securing these disclosures and taking the time necessary to assess these potential health impacts, the DEC concludes, remarkably, that no risks of contamination of groundwater or surface water with chemical additives are “foreseeable” (p. 8:7). The DEC then absolves itself of any need for further analysis by concluding that: “The *only* (emphasis added) exposure pathway to fracking additives is via air emissions from uncovered surface impoundments used to contain flow back water...” (Id.). Therefore, the DEC proposes full chemical disclosure will be required *only* with respect to “applications that propose the use of an open surface water impoundment” (p. 8:7).

Nor does the DEC propose to delay drilling until these disclosures are made. Instead it simply states it will issue permits requiring “receiving tanks” for storage of flow-back fluids (p. 7:35). This is transparently insufficient as it clearly does not account for risks of accidental fluid spills from the tanks, or during transportation to or from the site, and does not account for the 65-90% of fluids that are left in the ground after each fracturing cycle (p. 5:99).

Next, the DEC disclaims responsibility for investigation of or responses to complaints of exposure to these additives, including those that remain unidentified. Instead, responsibility for complaints, investigations, and responses are delegated to various county health departments (pp. 7:42 and 8:5). This is done without discussion of whether the respective county health departments are equipped or funded to handle the potential onslaught of complaints regarding such chemicals, including substances still unidentified. For example, some New York counties don’t even have a health department or any environmental services in their nursing practices.

The DEC is attempting to delegate to other agencies the responsibility for response to potential impacts, in this case exposure to known hazardous substances and carcinogens, without evidence of how those agencies will be capable of performing this work as to unidentified chemicals, how this work will be funded, and how much time is necessary before the local county health departments will be prepared to assume this task. Legally, the dSGEIS cannot be rushed through with this critical information missing.

## **B. Toxic Flow-Back Fluid Composition And Treatment Facilities Are Not Identified.**

With respect to the toxic flow-back fluids, the DEC estimates that there will be as much as “2.7 million gallons of flow-back water recovered within two to eight weeks of hydraulic fracturing a *single* well” (p. 7:34; emphasis added). The so-called “flow-back water” is in fact composed of both the hazardous chemicals added to the fracking fluid as well as naturally occurring contaminants, including brine and radioactive wastes brought up from deep within the earth’s surface. With respect to the composition of the flow-back fluids in the Marcellus Shale, the DEC again admits that the data it relies on are incomplete. The DEC states: “...to date Department staff has not seen any flow-back water analysis that tested for all the chemicals and compounds that could be present” (p. 8:7).

Elsewhere the DEC concedes that the flow-back “discussion was based on a limited number of analyses from out-of-state operations, without corresponding compositional information on the fracturing additives, so little information is available to document whether and at what concentrations most fracturing fluids occur in flow back water” (pp. 5:101-102 and 7:34). Lest there be any doubt, the DEC explains that samples of radioactive content of flow-back fluids are highly variable and will “require additional investigation” (p. 7:103). Lamely, the DEC proposes that, by the time the final dSGEIS is published, additional data and analyses may be made public (p. 5:102). Proceeding to

eliminate the possibility of site-specific SEQRA review, through a generic EIS, without such analysis in hand is premature and legally impermissible.

Interestingly, while the DEC lists the chemicals added to fracturing fluids as “hazardous,” (p. 5:67) the same chemicals found in “flow-back water” are treated as simple “industrial waste water” (p. 5:121). Additionally, the DEC insists that risks of contamination are not “probable” and that there are “appropriate spill containment and clean-up requirements for the accidental release of these contaminated fluids” (p. 7:34). However, it is not clear that the capacity to contain such spills actually exists. If it does, it should be disclosed. Furthermore, the DEC completely fails to address systems for dealing with transportation accidents which could occur while toxic chemicals are being delivered to the drilling sites or while the large volumes of toxic flow-back fluids, contaminated with those same chemicals plus brine and radioactivity, are transported from the drilling sites to be processed at unknown locations.

Perhaps most significantly, the DEC never deals with the fact that wastewater treatment facilities that are capable of handling the quality and quantity of flow-back fluids (contaminated with hazardous chemicals and radioactive materials) that the proposed level of drilling will generate do not presently exist in New York State. The DEC insists it will require disclosure of a “planned disposition” of the fluids without reference to whether an actual contract with a wastewater treatment facility ready to accept the waste from such wells will be required before drilling is permitted to commence (pp. 3:10-11). The Sierra Club Atlantic Chapter recently testified before the New York City Council that of 134 eligible pre-treatment plants in New York State referenced by the DEC, only 3 currently accept natural gas production water and they do so only in a limited capacity: “New York has virtually no waste water infrastructure to service the needs of the Marcellus Shale gas extraction industries.” (Sierra Club Atlantic Chapter, Comments to the New York City Council, Committee on Environmental, October 23, 2009).

Similarly, the DEC makes no mention of the capacity of plants outside of New York State to process flow-back fluids from wells in New York. Other states that produce gas from the Marcellus Shale or similar formations are likely to be hard-pressed to handle their own flow-back fluids. Drilling permits for each individual well should be contingent upon the driller having in hand an enforceable contract to reprocess all flow-back liquids from that well within a specified period of time. Without such assured reprocessing of flow-back fluids, New York could end up with thousands of open pits holding millions of gallons of toxic wastes waiting to be processed. Under such circumstances a period of heavy rain would be an unmitigated disaster for millions of people in New York as well as tens of millions downstream in the Susquehanna/Chesapeake watershed. The option of holding millions of gallons of these wastes in tanker trucks with nowhere to go is equally alarming. No rational regulatory process would fail to anticipate such risks.

### **C. Fresh-Water Loss Projections And Impacts Analyses Are Missing.**

The DEC reports that expected fresh-water consumption *per well* is estimated at 2.4 to 7.8 million gallons (p. 5:93). Elsewhere, the DEC estimates that 2,000 wells (plus or minus 25%) may be drilled *per year* (p. 6:144). Based on this estimate nearly 16 *billion* gallons of fresh water will be irretrievably consumed *each* year, i.e. “essentially lost to the basin’s hydraulic cycle” (p. 6:10). However, the DEC’s analyses of impacts to wetlands, aquifer depletion, and water quality degradation are superficial and based only on “approved” gas drilling applications to date. These are not disclosed, but must be insignificant relative to the DEC’s estimated future withdrawals. The DEC explains its reliance on “approved” applications, stating “volume of hydraulic fracturing will not be known until applications are recovered and renewed and approved or rejected by the appropriate regulatory agency or agencies” (p. 6:100). Thus, the DEC appears to admit that its analysis of fresh-water consumption is not based on actual projected rates of fresh-water withdrawals.

Ultimately, the DEC reports that authority to regulate fresh-water loss is delegated respectively to the Susquehanna River Basin Commission (SRBC) and the Delaware River Basin Commission (DRBC) on a case-by-case basis. The DEC indicates that the SRBC has opined that the projected consumptive use of fresh water “appears” to be manageable, without reference to what the consumption estimates were on which the SRBC supposedly based this conclusion (p.7:22). However, the DEC then admits that even if such conclusions are correct, they are not reliable because the potential exists for gas drilling and associated water withdrawals to occur “outside” the SRBC and DRBC jurisdiction and that the DEC’s current analysis does “not” comprehensively address the cumulative impacts of such clean water consumption (p. 7:23). This lack of consideration of anticipated cumulative fresh-water consumption impacts is another clear violation of SEQRA, rendering the dSGEIS fatally flawed.

#### **D. Fracking Fluid And Methane Gas Migration Analyses Are Missing.**

The DEC admits that there is a long history of seismic activity in New York State and that man-made actions such as high-volume hydraulic fracturing can also cause seismic events to occur (p. 4:24). However, the DEC fails to address how this seismic activity might affect the steel and cement in well-casings and the migration of fracking fluids. It is estimated that 65-90% of these fluids remain underground and do not return to the surface after drilling is completed (p. 5:99). Therefore, the migration of these toxic fracturing fluids to groundwater, surface water, and private wells as a result of seismic activity is a serious potential risk that must be addressed.

The DEC’s omissions in this context are particularly troubling because the DEC admits, “despite ongoing laboratory and field experimentation the mechanisms that limit vertical growth [of fractures] are not completely understood” (pp. 5:89-90). Moreover, the NYS Geological Society has identified natural fissures as a major source of fugitive methane. They have stated that fracking will cause “fractures not just where the gas is meant to escape but along unmapped fissure lines of least resistance—into large and small aquifers, individual’s wells, home basements, thus escalating a dangerous situation into an uncontrolled one.” (Sierra Club Atlantic Chapter Comments to the New York City

Council, Committee on Environmental Protection, October 23, 2009). In spite of these concerns, the DEC fails to address these risks and absolves the drilling companies of any duty to conduct monitoring of wells one year after the last fracking cycle takes place (p. 7:38). This is another example of regulatory failure that must not be permitted to stand.

#### **E. Updated Floodplain Maps Are Not Available.**

The DEC admits that the Susquehanna and Delaware River Basins are vulnerable to frequent flash floods and that “increased frequency and magnitude of flooding has raised a concern for unconventional gas drilling in the floodplains of these rivers and tributaries...” (p. 2:34). The DEC then admits that the current flood maps “do not reflect recent flood data” (p. 2:35). For example, Appendix 1, attached to the dSGEIS, shows that most flood maps in New York State are between 20 and 30 years old. Yet, the DEC plans to allow unconventional gas drilling without regard to the lack of updated floodplain data. The DEC simply suggests that the flood maps will be “checked” and that centralized flow-back impoundments will not be approved in a 100-year floodplain (pp. 2:34 and 7:72). This is irresponsible and contrary to legal requirements. The flood maps must be updated before any permits can be issued based on a generic EIS.

Furthermore, the DEC’s discussion applies only to containment ponds within a floodplain, as if the only way a containment pond would present an environmental hazard during a period of heavy rainfall is if the pond is situated within a 100-year floodplain. This completely ignores the risk of open containment pits located above a floodplain overflowing or bursting and flowing down into the floodplain and surface and groundwater sources within it. This is further evidence of the DEC’s failure to present a complete analysis of the risks and to provide realistic means to mitigate those risks.

#### **F. Road Impacts Analyses Are Missing.**

The DEC estimates that each multi-well pad will require between 5,000 and 8,300 truck trips to deliver and remove material from the well pad (p. 6:142). These truck deliveries will be hauling heavy drilling rigs, storage tanks, multiple millions of gallons of fresh water, hazardous chemical additives, millions more gallons of toxic flow-back fluids, and countless additional materials. Yet, the dSGEIS fails to address whether local country roads, overpasses, and bridges can sustain this level of use, how residents and agricultural operations using the same roads will function, and who will bear financial responsibility for the repairs which will be required as a result of such cumulative operations.

Conveniently, the DEC leaves these concerns entirely to local control and management (p. 8:4). The DEC “encourages” operators to secure road use agreements, but requires only that such agreements be filed for “informational” purposes. The DEC allows drillers to proceed without a road agreement based on simply a “plan” of estimated trucking hours and routes (pp. 7:10 and 8:4). The DEC suggests that county, town, and village governments should be “proactive” in exercising their authority under New York

State Highway Vehicle Laws to control these impacts (p. 7:110). This would include completion of road system integrity studies to determine necessary maintenance and improvements (Id.). However, there is no evidence that the local authorities have the time or resources to perform such integrity studies and to make the necessary improvements before drilling operations are permitted, or even that they will be provided notice by the DEC of what to expect. The DEC states it intends to provide notice to local communities only of the first application for a drilling permit within their borders and not of any subsequent applications (p. 8:3).

Further, the DEC does not indicate how long local communities may need to complete their surveys and repair work even if they could be put on notice and funded. The attempt by the DEC to delegate to local agencies the responsibility for analysis and mitigation of these important environmental impacts, without sufficient time, information, or funding, results in a dSGEIS that is legally flawed. It is not sufficient to delegate such tasks to others knowing they will be unable to accomplish them. At the very least, the dSGEIS must be withdrawn until local agencies are given a meaningful opportunity to complete the road surveys, accomplish necessary repairs, prepare road use agreements and all of the above are submitted for environmental review and public comment.

#### **G. Infrastructure Requirements And Impacts Are Not Addressed.**

Another missing piece in the dSGEIS is the failure to consider the impacts of infrastructure development that will be an integral part of Marcellus Shale development. Thus, there is no analysis of how construction and siting of a network of gas transmission pipelines, gas holding facilities, and associated compressor stations will impact the State and the regions in which they will be located. The DEC indicates that these matters are under the jurisdiction of the Public Services Commission (PSC) (pp. 5:133-136). However, the DEC's failure, as lead agency, to secure plans for such development and to analyze these aspects of the anticipated operations prior to permitting renders the dSGEIS incomplete and the DEC guilty of improper segmentation in violation of SEQRA.

#### **H. Noise Impacts Are Not Addressed.**

The dSGEIS states that: "With proper pad location and design the adverse noise impacts can be significantly reduced" (p. 6:138). However, there is no discussion of what decibel levels can be anticipated at the drilling pads or how the noise levels will compare to existing day and night conditions. Each horizontal well takes four to five weeks of continuous 24-hour-per-day drilling, with an additional 3 to 5 days for the fracturing process, followed by "flaring" for up to 30 days (pp. 6:132 and 5:125). Since a well pad can contain up to 16 wells drilled sequentially, it can be expected that significant industrial noise will occur for up to three years at each well-pad (p. 6:141-142).

The dSGEIS does not address how the noise from this activity will be controlled except to provide that drilling must be set back at least 1,000 feet from an "occupied structure"

(p. 7:107). Whether 1,000 feet is an appropriate setback and what affect exposure to noise from such industrial activity will have on human and animal health is not discussed. As presently drafted, the dSGEIS does not allow for public comment on operators' noise plans and does not require that the operator file a noise mitigation plan. The dSGEIS provides only that a noise abatement plan should be "available" at the DEC's request (p. 7:110). This is legally insufficient to address adverse noise impacts.

#### **I. Regulations Regarding Impacts On Historic Districts, State Parks, And Landmarks Are Not Provided.**

Impacts on historic districts, parks, and landmarks are also not addressed, except to state that they should be considered. For example, the DEC draft has no protection for State parks or historic districts. As drafted, wells could be drilled right next to State parks and in historic districts. In fact drillers have already leased land immediately adjacent to Glimmerglass State Park and within the Glimmerglass Historic District. Clearly any drilling adjoining State parks or historic districts must be afforded site-specific SEQRA review. The dSGEIS provides: "When a proposed activity might have a negative visual impact, appropriate mitigation conditions are added to the permit" (p. 2:37). In addition the DEC urges drillers to "consult" with local authorities and to "review" local land use policy documents (pp. 7:106 and 8:4). However, there is no discussion as to how any disagreement after "review" and "consultation" will be handled and no provision for other state agencies or local governments and the public to play a role.

The DEC erroneously concludes: "It is not possible to define the threshold at which development results in adverse noise, visual and community character impacts" (p. 6:145). In fact, such analyses are regularly conducted under SEQRA and there is a well-developed body of law to guide the regulatory agencies in making these decisions. The DEC's refusal to comply with these aspects of SEQRA is particularly troubling because the Marcellus Shale gas reserve is huge and drilling could proceed for decades without intruding on these special and sensitive areas. There is no burden on drillers and no significant diminishment of economic benefits in protecting these sensitive areas through site-specific SEQRA review.

#### **J. Cumulative Impacts Analysis Is Missing.**

While each of the omissions discussed above is significant in and of itself, the failure to consider the cumulative impacts of these matters constitutes an independent defect in the dSGEIS. The DEC complains 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..." (p. 6:143). The fact that it is difficult does not excuse the failure to conduct the cumulative impacts analysis that SEQRA requires. Thus, the DEC's conclusion that each application to drill a well will be considered as an "individual project" (p. 3:3 and 6) with respect to fresh-water consumption, infrastructure construction, traffic, chemical exposure, noise, impacts on agriculture, tourism, historic sites and all other impacts is a further independent and impermissible violation of SEQRA.



## **II. THE dSGEIS IS TAINTED BY MATERIAL OMISSIONS AND FALSE STATEMENTS.**

### **A. The DEC's Claims Of No Evidence Of Contamination In New York State Or Elsewhere Are False.**

The dSGEIS states “no documented instances of groundwater contamination are recorded in the NYSDEC files from previous horizontal drilling or hydraulic fracturing projects in New York” (p. 2:26). This is misleading. There have in fact been numerous and serious complaints of reported contamination found in the DEC's own files (see Natural Gas Quest: “State Files Show 270 Drilling Accidents In past 30 Years”, November 8, 2009, citing a survey by Walter Hang of Toxics Targeting, Inc. [www.toxicstargeting.com](http://www.toxicstargeting.com)). The confirmed examples of known accidents found in DEC files are particularly troubling because many remain entirely unpremeditated by the DEC after years of notice and waiting.

The dSGEIS also dramatically but falsely claims that there are no incidents of water contamination “attributed” to hydraulic fracturing anywhere that such operations have been commenced (pp. 5:147, 6:37, and Appendix 15). In fact, Appendix 15 shows that the DEC and its consultants are playing word games with the public on this important point. In Appendix 15, the quoted state regulators actually refer to thousands of claims of contamination; they simply conclude these claims are “attributed” to operator errors or equipment failures and “not hydraulic fracturing.” The regulators' argument is, apparently, that if hydraulic fracturing could be performed in a laboratory in the absence of operator error or equipment malfunction it would be utterly safe, or, perhaps, that nothing associated with hydraulic fracturing can be “attributed” to it except accidents that occur literally during the pressurized event of fracturing. Such reasoning is misleading to the public and legally flawed.

To comprehend the depth of the deception being practiced on the public, it is important to read the actual reports attached as Appendix 15, which contains 15 statements from “Regulatory Officials.” Each of these officials purports to conclude that there are no “documented,” “confirmed,” or “verified” instances of water contamination “attributed” to hydro-fracking. What the DEC fails to mention, which is included in the officials' letters, is that there have been numerous claims of contamination and damages. Here is an example: The Ohio Department of Natural Resources investigated a claim of natural gas invasion of fresh-water aquifers in Bainbridge Township. The Ohio regulators state the damage was caused by a “defective primary cement job on the production casing, which was further complicated by operator error.” However they still claim this was not “attributed” to hydraulic fracturing because it was caused by operator error.

The Pennsylvania Department of Environmental Protection admitted that they investigated close to 80 cases but the causes were related to “drilling through aquifers, improper design or setting of upper and middle well casing, or operator negligence.” Thus the cases were not “attributed” to hydraulic fracturing. The New Mexico Minerals and Natural Resources Department stated that “we currently list approximately 421

groundwater contamination cases caused by pits and approximately an equal number caused by other contamination mechanisms” but remarkably none where the “cause was claimed to be hydraulic fracturing.” The Texas Railroad Commission admits to “354 active groundwater cases [they do not mention their closed cases] attributed to oil and gas activity” and cases “due to blowouts that primarily occurred during drilling activity.” Kentucky admits that they have “alleged contaminations from citizen complaints, but conveniently, nothing that can be “substantiated.”

This is what the DEC relies on when they tell the public this process is safe and that there are no known incidents of contamination. It is clear from the DEC’s own documentation that very serious and extensive problems have occurred in various settings during the drilling and production from such wells. The DEC’s failure to acknowledge these events is misleading to the public.

### **B. The DEC’s Stated Setbacks Are Arbitrary, Capricious, And Discriminatory.**

The DEC claims it intends to “reduce environmental impacts to the maximum extent practicable” (p. 2:2) and that the “[m]itigation measures presented in the GEIS are protective of water resources in all watersheds and river basins statewide” (p. 2:27). Indeed, the DEC states “except for NYC’s subsurface water supply infrastructure, the same potential impacts exist statewide” (p. 6:3). However, the DEC has not explained how the inconsistent and contradictory SEQRA setbacks it proposes in the dSAGEIS will provide uniform protection or whether the proposed setbacks are supported by any rational basis whatsoever.

The proposed setbacks are internally inconsistent, as well as inconsistent with the setback requirements imposed by many other states which have considered these issues in connection with their own fracturing operations (pp. 5:146-160 and 7-71). In addition, industry groups have not developed “best practices” guidelines for such operations. Scott Krell, on behalf of the Groundwater Protection Council, has testified that: “a study of effective hydraulic fracturing practices should be considered for the purpose of developing Best Management Practices that can be adjusted to fit the specific conditions of individual states.... Of special concern are zones in close proximity to underground sources of drinking water...” (Appendix 15).

The DEC responds to these concerns with an ill thought-out and incomprehensible plan. The dSAGEIS allows drilling without further review just 150 feet from wetlands, springs, streams, reservoirs, lakes, ponds, and private wells (p. 2:25). Apparently, the DEC in its wisdom bases this setback on existing State Sanitary Code rules for fresh-water well siting away from “fertilizer” mixing (p. 7:67, citing Appendix 5-B of the State Sanitary Code). Thus DEC claims fertilizer mixing is “similar” to mixing millions of gallons of fresh water with known carcinogens for use as fracturing fluids at a well pad. The DEC then provides for a 300-foot setback for drilling adjacent to New York City watershed reservoirs, lakes, and streams. This setback is based on the same Sanitary Code provisions for fresh-water well siting distances from chemical storage areas (Id.). The

DEC claims it is the “largest setback required for *any* (emphasis added) potential contaminant by NYSDOH (Id.).

The DEC does not reveal whether the State Sanitary Code in fact concluded that this setback is appropriate for millions of gallons of toxic fracturing and flow-back fluids held in open pits adjacent to drinking-water supplies, or why the standards should differ based on which watershed it is in. In reality, the DEC lifted the setback requirements from NYSDOH Sanitary Code guidelines for the siting of fresh-water wells, which do not even mention hydraulic fracturing (Id.). Apparently the DEC conducted *no* independent analyses regarding the appropriate setbacks for horizontal drilling with hydraulic fracturing in New York’s hilly, rainy and populated terrain.

At the same time, the DEC specifies a 1,000 to 2,000-foot drilling setback from “municipal water wells,” based on such provisions for traditional vertical gas wells found in the DEC’s original GEIS, issued in 1992, which did not address horizontal hydraulic fracturing (pp.1:4, and 8:2). This 1,000-foot setback from municipal wells provides greater protection than the highest standard apparently imposed by the DEC for reservoirs, streams, and private wells borrowed from the State Sanitary Code, discussed immediately above. The DEC does not explain why it provides such excess protection only for “municipal water wells” and not for other sources of municipal or private drinking water.

Finally, the DEC remarkably claims that private ownership of land surrounding lakes that are a source of municipal and/or private drinking water sources is a further available mitigation option. The DEC postulates that private lakefront landowners can refuse to lease their land for drilling as a means of protecting water supplies (p. 7:70). However, it is self-evident that without proof that all surrounding lakefront landowners are similarly civic minded, any one non-complying owner can contaminate an entire lake.

It is obvious that these mitigation strategies proposed by the DEC are unsupported, inconsistent, discriminatory, and so flawed as to be arbitrary and capricious on their face. Are the rules for mixing fertilizer really comparable to the mixing of carcinogenic additives into millions of gallons of fracking fluids? Why is it that the New York City watershed is granted higher, albeit still insufficient protections? How is it that municipal water wells are given a higher level of protection than other municipal drinking-water sources such as reservoirs, lakes, and streams? There is no rational basis for such regulation and it is, therefore, not legally permissible.

### **C. Financial Benefits Claimed Are Grossly Misleading Because The DEC DOES Do Not Consider The Full Costs.**

Another flaw in the dSGEIS is its presentation of alleged financial benefits without disclosing the full costs of drilling operations to New York State and local governments in terms of regulation, enforcement, response to complaints, remediation of environmental and road damage, and liability for adverse health effects. Discussion of potential negative effects on property values, tourism, and agriculture as also omitted.

For example, the DEC cites the projected economic benefits in Broome County. It states that economic benefits will total \$7.6 billion dollars over a ten-year period in this county alone. But it appears that these benefits flow largely to the drilling companies. The only reported taxes to be paid on this fantastic sum appears to be sales taxes, property taxes, and license fees totaling less than 6%, which is clearly insufficient to compensate State and local agencies for externalized costs and diminished income from other sectors of the economy which will be adversely affected.

Significantly, New York is one of only three states with mining operations that do not impose a severance tax on mineral or gas extraction (the other two states are Iowa and Pennsylvania). Proceeding without a severance tax means that the mining companies are allowed to generate huge profits while leaving the costs of regulation and clean up to the citizens of New York. However, New York State, which is already near bankruptcy, is not in a position to pay the costs which will be incurred by health departments, transportation departments, water-treatment facilities, watershed commissions, and for the protection of health, agriculture, tourism, parks, schools, historic districts, and sensitive receptors of all kinds. These burdens should not be imposed on New York residents.

#### **D. The DEC Fails To Disclose Understaffing And Conflict of Interest, Which Undermines Its Ability To Regulate These Practices.**

The entire dSGEIS is based on the notion that the DEC has now and will have in the future the capacity to regulate the gas drilling industry in the State of New York. The reality is that the DEC is already a victim of severe budget cuts imposed by Governor Paterson (see e.g. Environmental Advocates of New York, Testimony to Assembly Ways and Means Committee, October 21, 2009). In fact, the DEC's Division of Mineral Resources, responsible for *all* permitting, compliance and enforcement for oil and gas extraction for the entire State of New York, is now operating with a total of only 19 employees statewide (New York Department of Environmental Conservation, Mineral Resources Division, official web-site). This staff is expected to regulate the existing 14,000 oil and gas wells and the 75,000 abandoned and capped wells already found in New York State (Id.).

This endemic lack of staffing is apparent in the DEC's reliance on industry consultants and drilling companies to prepare the dSGEIS, and in the draft's obvious shortcomings. Moreover the chronic understaffing explains why the DEC did not know of and has been unable to remedy the known drilling-related contamination which has already occurred in New York State as recently reported (see citation, above, to the Toxics Targeting, Inc. survey of DEC's own files). This is a very bad record on which to base a new, dangerous, and regulatory intensive hydraulic fracturing industry.

Another serious concern is the conflict of interest in which the DEC is placed. The DEC is statutorily required to advance the business of mining in New York so that "the greater ultimate recovery of oil and gas may be had" (New York Environmental Conservation Law [ECL], Sec. 23-2301). At the same time, the DEC functions as lead agency under

SEQRA, which requires it “to conserve, improve and protect its [New York State’s] natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state...”(ECL, Sec.1-101). New York is also a “primacy state” charged with direct enforcement of numerous federal environmental laws including the Clean Air Act and the Clean Water Act (p. 2:16).

This is an untenable conflict of interest for the DEC. It goes a long way to explain the serious flaws in the dSGEIS as it attempts to serve both mining interests and environmental protection. The legislative and the political process must address this conflict of interest if meaningful review under SEQRA and required enforcement of federal law is to be achieved. If this does not occur, the dSGEIS will be vulnerable to challenge in the courts and will never have legitimacy in public opinion. The failure of the dSGEIS to directly confront these systemic conflicts and limitations is another blow to the process and independently requires that the dSGEIS be withdrawn until unbiased review may take place.

### **III. DISCUSSION OF ALTERNATIVES IS TRUNCATED AND DOES NOT MEET THE REQUIREMENTS OF SEQRA.**

#### **A. Site-Specific Review For All High-Volume Hydraulic Fracturing Wells Is Not Considered.**

Throughout the dSGEIS the DEC explains that a supplemental generic EIS was necessary because high-volume hydraulic fracturing involved greater environmental impacts than conventional drilling, which is governed by a generic EIS. These additional environmental impacts are significant and have been described by the DEC as including: dramatically increased fresh-water consumption, longer duration of disruption at multi well-pad sites, and the fact that “total amount of fracturing additives is considerably larger than for traditional vertical wells” (pp. 5:66, 3:31, 5:21, and 1:4). It is immediately apparent that consideration of such dramatic impacts can only occur through a site-specific SEQRA review that allows for local government and public input.

In addition, throughout the dSGEIS, the DEC refers to the role of regulation by other agencies, including the PSC, SRBC, DRBC, county health departments, county and local highway departments, and parks and recreation offices. There are also admissions that agricultural districts, flood plains, historic sites, parklands, and other “sensitive receptors” must be separately considered. However this form of coordinated local regulation for a process as complex, novel, and extensive as hydraulic fracturing can only occur if site-specific environmental review is allowed. Thus the decision to proceed by way of a generic EIS in this context is flawed at its inception.

In fact, the DEC agrees that each gas play is “unique” and presents problems and solutions that are “unique to the play” (p. 9:7). The DEC itself insists that site-specific SEQRA review should be conducted in at least seven circumstances. Site specific review

is mandated within 1,000-2,000 feet of a municipal well; within 300 feet of New York City watershed reservoirs, lakes, or streams; within 150 feet of all other reservoirs, lakes, or streams, and private water wells; where there is a disturbance greater than 2.5 acres in an agricultural district; and where flow-back holding pits are closer than 1,000 feet to a reservoir, or 500 feet to a drinking-water supply, or 300 feet to a domestic well (pp. 3:12 and 8:2). However, the DEC does not explain why site-specific review should be limited to these instances and why all drilling adjacent to drinking water sources should not be subject to the same site-specific review. We believe site-specific SEQRA review should be required for all high water-volume hydraulic fracturing operations, and that this alternative should have been considered by the DEC as part of its “hard look” analysis under SEQRA.

### **B. Alternative Green Drilling Technologies Were Not Adequately Considered.**

The DEC concedes that several alternative fracturing processes that are less environmentally damaging than those currently used in the United States already exist and are being successfully implemented in the North Sea and Europe (p. 9:8). The DEC states that these alternatives merit further research and that they might well reduce environmental impacts, stating: “Therefore, further research into each alternative is warranted to fully understand the potential environmental impacts and benefits of using any of the alternatives” (Id.). The DEC even opines that some of these technologies may be adapted for use in New York: “If applicable, New York could choose to adopt the criteria used in Europe, or New York might choose to adapt the European criteria, as appropriate, or the US might choose to set up an independent scientific entity to evaluate all chemicals proposed for use within US territories...” (p.9:10).

These are remarkable admissions regarding potential methods for mitigation of some of the greatest risks of fracturing. It must be remembered that there is no stated reason for requiring immediate withdrawal of natural gas from the Marcellus Shale. The gas has been trapped there for hundreds of thousands of years and will be available for hundreds of thousands of years to come. Indeed, prices of natural gas are low now and there may be economic and strategic reasons to delay somewhat the withdrawal of this resource, at least until the safest method of extraction can be developed. There is, therefore, no valid reason to rush to drill and refuse to study the DEC-recognized alternatives. To proceed without this analysis is a direct violation of SEQRA.

### **C. Phased Drilling Is Rejected Without Adequate Consideration.**

Similarly, the DEC inexplicably fails to consider commencement of high-volume hydraulic fracturing, which is new to New York State and which has not been conducted in populous, hilly, rainy regions adjacent to ground- and surface water drinking supplies, on a “phased” basis. The DEC admits that it is “difficult” to predict the rate of gas drilling development, but concludes that phased permitting is not “practical” (p. 9:3). The dSGEIS concedes that “historically in New York and in other plays, development has occurred in a sequential manner over the years with development activity concentrated in one area then moving on with previously drilled sites fully or partially

reclaimed as new sites are drilled” (pp. 6:143 and 9:4). There is no explanation as to why such phased development should not be required for horizontal high-volume hydraulic fracturing.

This is particularly significant because high-volume hydraulic fracturing can occur almost anywhere. Gas is trapped broadly throughout the formation and an unlimited number of wells could be drilled. Indeed, as discussed above, the DEC projects that as many as 2,000 wells will be drilled in one year alone (p. 9:6). Thus the number of wells that might be drilled in the Marcellus play are in the tens of thousands. The DEC should be required to show that it has the staffing levels, regulatory controls, and related infrastructure, including toxic flow-back fluid treatment facilities in place, before permitting such unlimited drilling. Given the untested nature of such operations in New York State it is necessary to proceed with caution and to adopt as an alternative limited, phased high-volume hydraulic fracturing development. SEQRA requires that such a reasonable alternative be given the requisite “hard look.” The DEC has improperly failed to meet this test.

#### **D. Legal Protections Such As Strict Liability, Clean-up Bonds, And Post-Drilling Liability Are Not Addressed.**

While the DEC concludes that contamination is not “probable,” the fact is that there are no guarantees that there will be no environmental contamination and damages at any of the thousands of wells that the DEC is prepared to permit. There are legal remedies that can be imposed to protect landowners and communities should such damages occur. These legal protections include funded performance bonds, clean-up bonds, and strict liability by responsible corporate entities for future damages. Such provisions should be designed to prevent drillers from using practices such as establishing separate corporations for each well in order to escape liability for contamination and damage they cause.

The history of mining operations in the United States, as elsewhere, is replete with examples of environmental damage left unrepaired. There is no reason to allow drilling companies to reap huge financial rewards from these activities without provisions for remediation where damage is caused, leaving cash-strapped communities and individuals to clean up the mess. The DEC must discuss inclusion of such protections before any permits are issued.

### **CONCLUSION**

For all of the reasons stated above, and based on the full record before the DEC in connection with the preparation of the dSGEIS, we urge the DEC to honor its commitment to the citizens of New York State to protect our environment, drinking water, and health by withdrawing the dSGEIS until proper regulatory analysis and controls, consistent with New York law, can be accomplished. The impacts are too great and the risks too severe to do otherwise.