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Mr. Jack Dahl, Director
Bureau of Oil and Gas Regulation
ATTN: dSGEIS Comments
NYSDEC Division of Mineral Resources
625 Broadway, Third Floor
Albany, NY 12233-6500

RE: 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

Dear Mr. Dahl:

Thank you for the opportunity to comment on the dSGEIS for development of the Marcellus Shale. The Tompkins County Department of Planning appreciates the work that went into the development of the dSGEIS and the difficulties faced by NYSDEC in balancing the interest in protecting the environment while allowing for development of the State's natural resources. However, we feel that the dSGEIS has many defects that need to be addressed prior to issuance of any permits for the proposed drilling activities. Some of these defects are so serious that, unless they can be satisfactorily addressed through development of information and mitigation measures not currently in the dSGEIS, they raise serious questions as to whether the horizontal drilling and hydraulic fracturing of the Marcellus Shale is an activity that should be permitted at all in New York State.

Our comments are provided in three sections: the first are major conclusions that we have drawn and believe that the NYSDEC must address before the SGEIS can be considered complete; the second are more general comments on the contents of the dSGEIS that require significant expansion of the analysis in the current dSGEIS; and the third are specific comments and recommendations addressing specific sections of the dSGEIS.

MAJOR CONCLUSIONS

1. The dSGEIS does not comply with SEQRA. The dSGEIS does not evaluate all of the generic impacts of Marcellus Shale drilling on the environment and public health, and does not propose mitigation measures that sufficiently protect the public health and environment. Specifically, the dSGEIS fails to assess the life cycle analysis of greenhouse gas emissions from natural gas development, and does not address the cumulative impacts of gas drilling operations in any meaningful way. The Marcellus Shale resource is fundamentally different from prior natural gas development in New York State in that it is anticipated to be of relatively uniform distribution within a broad geographic area, which is likely to lead

to more intensive well development with the attendant network of access roads, pipelines and other facilities. It also requires a tremendous amount of water with chemical additives resulting in an additional anticipated infrastructure and energy use to both deliver water to the site and address wastewater treatment issues. These are likely to result in cumulative impacts of a scale and intensity unlike any prior natural gas development in the State, requiring an in-depth cumulative impact analysis that is lacking in the dSGEIS. The dSGEIS also improperly segments the SEQR process by failing to address the impacts of development of pipelines and pumping facilities necessary to transport the natural gas from the well sites to major transmission lines. The Public Service Commission, which regulates those facilities, should clearly be identified as an involved agency and included in a coordinated review, in the SGEIS process, of all aspects of the process of developing the Marcellus Shale resource, including all cumulative impacts. No new horizontal drilling using hydraulic fracturing should be permitted until and unless an adequate comprehensive environmental review is completed.

2. In addition to the major omissions identified above, the dSGEIS is incomplete because it inadequately addresses the impacts and mitigation measures required for those aspects of the process that are addressed in the dSGEIS. In several instances, the dSGEIS identifies potential environmental impacts of the proposed drilling operations but fails to recommend any mitigation measures to address those impacts. In other cases although mitigation measures are identified or alluded to they are not required. These incomplete portions of the dSGEIS need to be completed, and subjected to public review, prior to the issuance of any permits.

3. Mitigation measures should be required by regulation. The dSGEIS identifies a number of mitigation measures that NYSDEC “is proposing,” “may require,” “will encourage,” etc. Such mitigation measures should be required and codified in regulations. Since the mitigation measures are found throughout the document, it will prove difficult for anyone to identify all of the required mitigation measures absent the development of regulations. Also, the only way to maintain consistency in the application of mitigation measures and assure the public that their health and the State’s environment are being protected is for NYSDEC to promulgate regulations that identify, in detail, the mitigation measures that are required in the permitting process in order to minimize impacts on the environment. The regulatory rulemaking process should be subject to a public comment period just as the dSGEIS has been.

4. The dSGEIS is inadequate in addressing the impacts on water resources. The primary difference in the process for extracting natural gas from the Marcellus Shale versus conventional drilling is the tremendous amount of water used consumptively in the process and the huge volumes of wastewater resulting from the process. Although a number of measures are identified in the dSGEIS with respect to addressing impacts on water resources they are generally not sufficiently protective of this precious resource. The NYSDEC should, in all cases, require the most protective measures identified to mitigate potential adverse impacts on water quality. For example, the SGEIS should treat all municipal water supplies the same. The dSGEIS proposes different requirements within the New York City Watershed than within watersheds that are the sources of drinking water for other municipalities. The mitigation measures proposed for the New York City watershed should apply to the watersheds of all municipal water supply systems. Perhaps most problematic among the water resource issues is the manner in which flowback water is to be handled (see comments below pp. 7-50 through 7-58), where the treatment option requires a characterization of the flowback water that cannot be accurately conducted until drilling has occurred and wastewater has been generated. This creates the prospect of wastewater needing to be stored indefinitely in holding ponds or structures with no adequate treatment option available.

5. The dSGEIS should establish thresholds. The dSGEIS states in Section 6.13.2.1 [Pages 6-145 and 6-146] that the rate of well development cannot be predicted with any certainty and that it is not possible “to define the threshold at which development results in adverse noise, visual and community character impacts. Some people will feel that one drilling rig on the landscape is too many, while others will find the changes in the landscape inoffensive and will want full development of the resource as quickly as possible.” While we agree that people will disagree as to what thresholds should be established, we disagree that it is impossible to establish thresholds and the dSGEIS should have done so. This is a major

failing of the dSGEIS. One approach to this issue is to compare potential rates of development that could reasonably be expected based on what is known of the resource, the industry and experience in the development of similar energy resources. The impacts of varying rates of development could then be assessed and either the pace controlled through the permitting process in order to mitigate identified impacts of rapid development, or additional mitigation measures identified that would be required if the pace of development reaches certain thresholds. In any case, alleged inability to identify thresholds is not a valid excuse for not assessing the cumulative impacts of development.

6. The permitting process should more actively involve local governments. The dSGEIS identifies several areas where local involvement would help to mitigate potential environmental impacts. However, the dSGEIS does not propose any mechanism for providing that local input nor does it clearly identify what authority local governments may have to impact the gas development process. NYSDEC should establish a formal process for local governments to have the opportunity to address these issues prior to the issuance of any permits. Furthermore, if the SGEIS is purporting to rely on “local policy making” as a response to certain impacts, the document should clearly explain what type of process is contemplated and the authority of local governments to undertake and implement such a process.

7. NYSDEC should have the resources required to enforce the required mitigation measures. The dSGEIS identifies a number of mitigation measures that will require significant staffing to enforce. One could infer that some of the hedging on whether DEC inspection of certain activities will be required may be the result of uncertainty regarding staff resources that will be available. The SGEIS should identify clearly what resources are required to implement its recommendations.

8. The dSGEIS should have a sunset date. The technology surrounding natural gas drilling can change, providing the opportunity to require technology that has fewer impacts on the environment. In addition, the dSGEIS identified several reports on related topics that were not available during the preparation of the dSGEIS. We recommend that the SGEIS have a sunset date, no more than five years from the completion of the final SGEIS, in order to assess these changes.

GENERAL COMMENTS (organized by topic area)

Assessing Cumulative Impacts

If the Marcellus Shale gas resource is as great as is estimated, then broad-reaching cumulative impacts to New York State are likely to occur. The dSGEIS indicates that the cumulative impacts of horizontal drilling will mirror that of vertical drilling as it reiterates the 1992 GEIS: “Though the potential for severe negative impacts from any one site is low [sic]. When all activities in the State are considered together, the potential for negative impacts on water quality, land use, endangered species and sensitive habitats increases significantly.”(p. 6-141) The analysis of cumulative impacts in the dSGEIS, especially when addressing regional impacts, is incomplete. Its failure to adequately address cumulative impacts runs counter to the intent of a GEIS which is, in part, to assess impacts beyond just those that are site or project specific.

The dSGEIS indicates in Section 6.13.2.1 (p. 6-145 and 6-146) that the rate of well development cannot be predicted with any certainty and that it is not possible “to define the threshold at which development results in adverse noise, visual and community character impacts.” It actually is possible to define these thresholds, and many communities have done so as part of their comprehensive planning process. The Tompkins County Planning Department has attempted to quantify some of the potential impacts in Tompkins County.

If built out to the horizontal drilling spacing standards outlined in the dSGEIS, Tompkins County could anticipate one three acre site per 40 acres or one five acre industrial site per square mile (640 acres). In Tompkins County, assuming that a five-acre multi-well pad is located every square mile (the development pattern that would create the least cumulative impacts), and assuming that well pads would not be located within city or village boundaries, a total of 512 well sites could be developed. Further assuming that eight

wells would be developed on each well pad, we can begin to estimate the potential cumulative impacts of well drilling in Tompkins County.

Over 2,500 acres of land could be directly developed as well pads and nearly 60 miles of access roads to the well pads could be built. This would double the total industrial land use in Tompkins County. In Tompkins County under these conditions, over 1,000 acres of forestland would be developed and the forested landscape would be further fragmented (over 150 miles of 'edge' would be created).

According to the dSGEIS, each well could utilize 5 million gallons of water for hydro-fracking activities. Under the build-out conditions in Tompkins County this would result in total water usage of over 20 billion gallons. The three major water supply plants in Tompkins County use 7.17 MGD or 2.6 billion gallons of water per year. In other words, even if Marcellus Shale development was spread over 30 years the potential use of water for the hydro-fracking activities would be equivalent to 25% of all the water supplied by these public water supply systems during that time. If the build-out occurred over 10 years, the water used would equal 77% of the water supplied by these public water systems.

According to the dSGEIS, the development of a single well would generate 1,200 truck trips. According to the Ithaca-Tompkins County Transportation Council, the Metropolitan Planning Organization for Tompkins County, annually there are 602,250 heavy truck trips on State highways in Tompkins County. Thus the development of nearly 4,100 wells in Tompkins County would generate the equivalent of a 27% increase in heavy truck traffic on State roads in Tompkins County if it occurred over 30 years and an 82% increase in heavy truck traffic on State roads if it occurred over 10 years. What is even more significant is that very little of the current heavy truck traffic travels on local roads but it could be expected that virtually all of those trips generated by well drilling activity would use county and local roads for a portion of that trip.

Using the figures in the dSGEIS, over its 30-year lifespan, an eight-well pad would generate 1.28 million tons of eCO₂. The development of 512 pads in Tompkins County would generate 655 million tons of eCO₂. This is the equivalent of 516 years of emissions at current levels from all other locally generated sources in Tompkins County including residential and institutional buildings, industrial and commercial facilities, and all public and private transportation activities. Looked at another way this would mean that emissions in Tompkins County would increase by more than 17 times current levels every year for 30 years.

Despite the magnitude of these easily quantifiable impacts they receive virtually no analysis at all in the dSGEIS! If NYSDEC has better information from which to estimate these cumulative impacts that too should be included in the SGEIS.

In contrast to gas drilling, most existing industrial land use was sited after years of careful planning at the municipal level and review of site plans for specific activities and sites. This planning process assured that industrial land uses were located in areas that have infrastructure sufficient to support the activity, including major highways and public water and sewer infrastructure, and do not conflict with valued natural resources. Gas drilling, on the other hand, is likely to occur in areas that are not designated for, nor suitable for, industrial land uses, that have little or no infrastructure adequate to support the activity, and that have not been subjected to a comprehensive planning process to evaluate the impacts of this development.

In analyzing any proposed development, particularly industrial uses, a host of both qualitative and quantitative analyses are required. These include analyses of viewshed and traffic impacts of large scale projects to assist in assessing if they should be permitted and, if so allowed, what mitigation measures should be required. NYSDEC should conduct a "full-build out" analysis of what the cumulative impacts that wells, gathering lines, water storage facilities and roads will have on the New York State landscape. In supporting the statement in Section 6.13.2.1 (p. 6-146), "(A)ny 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,” NYSDEC should clearly give a major role to local governments to review site plans for well pads just as it does with other land uses. However, NYSDEC has asserted that local authority to review such activity has been precluded by the State of New York. The result will almost certainly be the degradation and fragmentation of our natural areas and rural landscape with serious negative impacts on a rural quality of life. The failure to address cumulative impacts on the landscape and on communities is a fatal flaw that undermines everything else in the dSGEIS.

Mitigating Cumulative Impacts

The dSGEIS is relatively silent on the question of how cumulative impacts of gas drilling can be mitigated. There are several ways to address some of the identified cumulative impacts (once NYSDEC has done a more thorough job of assessing them). The following are offered as examples of how several of the more obvious cumulative impacts could be addressed. We believe that this part of the dSGEIS needs to be totally revised and re-submitted for public comment.

Fragmentation of our forested landscape is one clearly identifiable cumulative impact with resulting adverse impacts on wildlife, watersheds and outdoor recreation, among others. State Parks, Forests and Wildlife Management Areas are the foundation of our State open space system. One way of mitigating the impacts of gas drilling activities on our forested landscape would be to prohibit any drilling or pipeline development activities on State Park, Forest and Wildlife Management Area lands. Adverse impacts of drilling on public lands can be clearly seen in the experience in the Allegheny National Forest in Pennsylvania. These should be avoided in New York State to protect the public’s long-term investment in our open space resources.

A complementary action could be to establish a land protection mitigation fund that would require well drillers to contribute monies to a state-operated fund that would protect targeted open space lands and help mitigate some of the impacts on wildlife due to habitat fragmentation. The State of New York already has established an Open Space Plan that could provide the basis for use of these funds. Appropriate funding levels could be established once NYSDEC has fully assessed the potential impacts on open space.

Similarly, if it can be shown that greenhouse gas emissions can be limited to an extent that would make the exploitation of this resource a viable energy alternative, a greenhouse gas mitigation fund could be established. The dSGEIS does assess the greenhouse gases that would be emitted from individual drilling operations. For example, using the figures identified in the dSGEIS, the Tompkins County Planning Department has estimated that greenhouse gas emissions in Tompkins County could total 2.3 billion tons eCO₂ over a 30 year period. Mitigation funds should be required to help offset these greenhouse gases through new or existing NYSERDA programs or through direct grants for such purposes to municipalities in affected areas.

In a related vein, the issue of groundwater contamination could be addressed. The dSGEIS states that the risk of groundwater contamination from well drilling is small. However, given the potential scale of development in New York State, the sheer numbers involved will almost guarantee that somewhere, at some time, such contamination will occur. For example, if the chance of contamination were only one one-hundredth of one percent for any one well, and if 5,000 wells were drilled in Tompkins County, the chances of groundwater contamination happening at least once would be nearly 40%. The cost of cleaning up contaminated groundwater can be ruinously high. A fund for groundwater cleanup could be established with contributions from all well drillers. The State would then have funds available to help pay potential cleanup costs and to do so promptly.

We would like to emphasize that such mitigation funds would not be an unfair burden on the industry or upon those who hope to profit from natural gas development. Rather, such funding mechanisms would prevent the very real costs of such development from being transferred to the general public or private individuals. The funds will provide the resources necessary to mitigate the impacts that would otherwise

degrade our commonly held resources. This could help assure that the costs of cleaning up from or offsetting the impacts of this development are borne by those who most benefit from it.

Partnering with Local Government

The dSGEIS identifies many issues, potential impacts, and mitigation measures that could benefit from a partnership between NYSDEC and local governments. In particular, local governments have experience in reviewing site plans for development projects of all types, including industrial development. NYSDEC should develop a procedure for the review of gas drilling site plans that takes advantage of this experience. NYSDEC could identify the scope of local government review of site plans (including such topics as noise impacts, visual impacts, and community character impacts) and could base its permit conditions on recommendations made by local governments. A portion of the well permit application fee should be provided to local governments to support this local involvement.

In fact, there are many ways in which local governments can help to address some of the potential environmental impacts that have been identified in the dSGEIS. Some of these include

- Helping to identify the existence of public or private water wells and domestic-supply springs near proposed drilling locations (see page 7-66)
- Reviewing required visual impact mitigation plans (see page 7-105)
- Reviewing existing comprehensive, open space and/or agricultural plans with regard to proposed drilling operations (see page 7-111)

Of course, this will require that NYSDEC give local governments adequate notice of and time to review proposed plans. NYSDEC should require that applicants provide an adequate number of site plans for NYSDEC to provide to local governments, including County governments and regional planning agencies, for their review. Local governments should be given at least 60 days to review these plans and to submit their comments to NYSDEC. NYSDEC could then determine the appropriate measures to require of the applicant prior to the issuance of permits.

One of the most puzzling statements in the dSGEIS is the assertion on page 6-146 that “any limitation on (drilling) 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.” The SGEIS does not shed any light upon how this “policy making” is to occur, under what legal authority it could occur, and what effect it could actually have on drilling development. Several private legal authorities have suggested that local municipalities retain land use regulatory authority for aspects of drilling activities such as lighting, visual impact, noise, and site plan review, that do not directly regulate the drilling process. NYSDEC should clarify the legal and regulatory authority at the local level that would allow the “policy making” referred to and the scope of what that “policy making” could address.

Incomplete Information

There are several places in the dSGEIS that acknowledge that reports and studies being undertaken by others would have been helpful in assessing and mitigating the potential environmental impacts of the gas drilling operations. These include the proposed state invasive species management plan (see page 7-74), the impacts of centralized flowback impoundment areas being worked on by the Marcellus Shale Committee and the Appalachian Shale Water Conservation and Management Committee (see page 7-95), and the need to better understand the variability of NORMs in the Marcellus formation (see page 7-102).

The dSGEIS should not have been issued until the reports that are underway were completed so that the public would have had an opportunity to review them and make comment based on the information contained within them. Completion of the SGEIS should be suspended until an additional supplement can be prepared to include this information.

Technological Advances

The technology used by gas drilling operations is constantly evolving. We have heard of trial efforts in Canada to use propane rather than water for well fracking. This has the potential, at least, to limit some of

the adverse environmental impacts associated with hydraulic fracturing activities. We understand that the dSGEIS could not address these potential future technologies. However, the SGEIS can, and should, establish a regular review of technological advances that have the potential to reduce adverse environmental impacts of gas drilling activities. We suggest a five year time period for NYSDEC to undertake these reviews in order to help protect the state's natural environment.

SPECIFIC COMMENTS (organized by page number)

Page 7-6. The dSGEIS states that the consumptive use of an average of 5 million gallons of water per day will require notice to the Great Lakes Basin Council. However, it is unclear how this will apply to gas drilling operations. Individual wells will not average 5 million gallons of water per day over a 90 day period but gas drilling operations as a whole may very well consume that much water. The SGEIS should clarify what specifically would be required. We recommend that permits be tracked in a way that allows notice to the Great Lakes Basin Council of cumulative use of water that meets or exceeds this threshold.

Page 7-6. The dSGEIS states that "Actions located within 100 feet of a DEC-regulated wetland require permits from the DEC." Other wetland resources should be considered as well. For example, in Tompkins County, there are approximately 5,630 acres of DEC regulated wetlands, while the National Wetland Inventory has identified about 19,800 acres of wetlands. All of these wetlands serve important roles to water quality, habitat, and other functions. Site-specific analyses should include mapping of all existing wetlands on a site and 100 foot setbacks from those wetlands should be imposed.

Page 7-7. The dSGEIS states that the "Great Lakes Commission does not have regulatory authority similar to that held by Susquehanna River Basin Commission (SRBC) and Delaware River Basin Commission (DRBC) to review water withdrawals and uses and require mitigation of environmental impacts." This is true. However, NYSDEC can and should establish a similar mechanism to use for gas drilling withdrawals within the Great Lakes basin as a mitigation measure to address the potential impacts on water resources from gas drilling. This is another example of a cumulative impact that was not adequately addressed in the dSGEIS.

Page 7-18. According to the dSGEIS, water withdrawals must provide passby flow based on 30% of average flows. Given the tremendous amounts of water that are required for hydro-fracking it is not clear that the passby flow requirement will avoid adverse impacts, including cumulative impacts within particular watersheds or on the biota within streams. At a minimum, the SGEIS should consider whether water withdrawals should be suspended under drought conditions.

Page 7-22. The dSGEIS states that the "Adverse cumulative 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 passby flow for any period of withdrawal." Although it is not clear that this would be sufficient mitigation, NYSDEC should require this as a mitigation measure for all surface water withdrawals. Water withdrawal requests should be tracked and reported on a watershed basis.

Page 7-23. The dSGEIS states that "Many adverse impacts may be avoided by planning a development to fit site characteristics, like avoiding steep slopes and maintaining sufficient separation from environmentally sensitive features, such as streams and wetlands." NYSDEC should require such planning as a mitigation measure to address these "many adverse impacts." A site specific analysis including local government involvement should be required.

Page 7-23. According to the dSGEIS, "The Department is proposing the option of amending this Multi-Sector General Permit to address a number of potential pollutant discharges associated with the subject operations." Proposing "an option of amending" a general permit for stormwater discharge is not a sufficient mitigation measure. NYSDEC should develop a general permit for stormwater discharges specifically for gas drilling activities.

Page 7-29. The dSGEIS notes the importance of proper maintenance of pit liners. However, the dSGEIS does not identify any required maintenance procedures. The SGEIS should identify and require specific maintenance procedures.

Page 7-29. The dSGEIS identifies the importance of basing the acceptability of pit construction and location on pre-site inspections. Also, the dSGEIS states that the “Department may also approve an extension if ... and the department has inspected and approved the storage facilities.” Concern remains over whether or not NYSDEC will have adequate staff available to conduct pre-site inspections and to inspect and approve storage facilities that are to be used for an extended period of time.

Page 7-32. The dSGEIS states “Specific secondary containment requirements will be included in supplementary well permit conditions for high-volume hydraulic fracturing on a site-specific basis if the proposed location or operation raises a concern about potential liquid chemical releases that is not, in the Department’s judgment, sufficiently addressed by the GEIS, the SGEIS, inherent mitigation factors and well pad setbacks.” NYSDEC should specify conditions under which a proposed location or operation would be likely to raise a concern that would require specific secondary containment requirements. They should be spelled out in regulations adopted by NYSDEC so there are adequate guarantees that NYSDEC will have that authority.

Page 7-32. The dSGEIS states that the “Department may require the applicant to identify in application materials the anticipated maximum number, type, and volume of liquid fracturing additive containers to be simultaneously present onsite.” This should always be required.

Page 7-34. According to the dSGEIS, the “volume of flowback water that would require handling and containment on the site is variable and difficult to predict, and data regarding its likely composition are incomplete. Therefore, the Department proposes a requirement that flowback water handled at the well pad be directed to and contained in steel tanks.” Given this acknowledgement that the likely composition of flowback water will be unknown and other indications that the quality of flowback water may vary with time, the dSGEIS should require a sampling and testing regimen that would more clearly identify the constituents of flowback water in order to evaluate the effectiveness of disposal plans.

Page 7-38. The dSGEIS states that “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.” Copies of the results should also be submitted to NYSDEC.

Page 7-38, et seq. The dSGEIS will require that sampling and analysis of water well sampling will last occur one year after the last gas well is hydraulically fractured. This is inadequate in two regards. First, the sampling and analysis of groundwater is proposed only from existing drinking water wells within 1,000 feet (or, under certain circumstances, 2,000 feet) of the well pad. This procedure is inadequate to protect groundwater, which is the resource that should be considered in the dSGEIS, not just drinking water wells. We suggest that monitoring wells be installed in close proximity around well pads in order to track possible groundwater contamination before it reaches any drinking water wells. Second, groundwater flows in some areas may be slow enough that contaminated groundwater may not reach water wells 2,000 feet away within the one year testing period. We suggest that water well testing take place annually for three years after the last well is hydraulically fractured.

Page 7-50. The dSGEIS states that generators, haulers, and receivers of flowback water will be required to maintain Drilling and Production Waste Tracking Forms. Copies of these forms should be required to be submitted to NYSDEC so that NYSDEC staff can monitor flowback water movement and disposal.

Page 7-51. The dSGEIS states that the “Department’s regulations require submission and approval for a fluid disposal plan [p]rior to the issuance of a well drilling permit for any operation in which the probability exists that brine, salt water or other polluting fluids will be produced or obtained during

drilling operations in sufficient quantities to be deleterious to the surrounding environment.” However, page 7-34 of the dSGEIS states that the “volume of flowback water that would require handling and containment on the site is variable and difficult to predict, and data regarding its likely composition are incomplete.” It is not appropriate to approve a fluid disposal plan when the volume and composition of the waste is unknown. This leaves open the potential that an intended treatment plan may prove to be infeasible once the volume and composition are known, and creates uncertainty that options will be available to assure that the flowback water will be properly treated.

Pages 7-57 and 7-58. The dSGEIS states that flowback water and production brine “may only be accepted by POTWs with approved pretreatment or mini-pretreatment programs, as noted above, and an approved headworks analysis for this wastewater source as described below and as required by the POTW’s State Pollutant Discharge Elimination System (SPDES) permit” and that that “Flowback water and produced brine must be fully characterized prior to acceptance by a POTW for treatment.” However, page 7-34 of the dSGEIS states that the “volume of flowback water that would require handling and containment on the site is variable and difficult to predict, and data regarding its likely composition are incomplete.” It is not possible to prepare and approve a headworks analysis when the volume and composition of the wastewater will not be known. Therefore, it will not be possible to definitively identify a POTW (Publicly Owned Treatment Works) that can accept flowback water until after it is generated.

Page 7-64. The dSGEIS proposes enhanced procedures and requirements “specifically applicable to the New York City Watershed.” The dSGEIS, however, does not identify an adequate justification for treating the New York City Watershed different than other municipal water supplies. Therefore, any proposed enhancements should apply equally to watersheds of all municipal water supplies.

Page 7-64. The dSGEIS develops proposed setbacks based on other kinds of activities covered by regulations, such as “fertilizer and/or pesticide mixing and/or clean up areas.” This analogy is inappropriate with respect to scale. Mixing of fertilizers and pesticides is typically a small-scale operation carried out by an individual farmer in or near a farm building. A gas well pad covers several acres, contains numerous vehicles and equipment items as well as dozens of workers. The workers mix millions of gallons of fracking fluid and inject it into gas wells under high pressure. Such analogies fail to account for the sheer physical scale of the new gas well technology, where the activity at each well pad is at least one to two orders of magnitude greater than the activities identified that are covered by current regulations, and where well pads may be present at a density of one or more per square mile.

Page 7-66. The dSGEIS states that the “EAF addendum for high-volume hydraulic fracturing will require evidence of diligent efforts by the well operator to determine the existence of public or private water wells and domestic-supply springs within half a mile (2,640 feet) of any proposed drilling location.” Evidence of diligent efforts should require contacting municipal and county officials for information.

Page 7-74. The dSGEIS refers to work being done that will recommend a four-tier system for non-native animal and plant species. It then goes on to say that the Department has the authority “to prohibit and actively eliminate invasive species at project sites regulated by the State.” The SGEIS should clarify that the Department will prohibit introduction of invasive species at well drilling sites and will require well drillers to actively eliminate any that are established.

Page 7-77. The dSGEIS states that the required “invasive species mitigation plan must be available to the Department upon request and available on-site for a Department inspector’s review at any time that related activities are occurring.” These plans should be provided to and approved by NYSDEC and should further be made available to the public.

Page 7-79. To address impacts on wildlife, the dSGEIS states that impoundments “should be constructed to be unattractive to wildlife. The inside slopes that could come into contact with fluctuating flowback water levels should be kept clear of vegetation. The impoundment must be fenced and to prevent access

by larger species of wildlife. [sic] In addition, installation of netting should be considered as an additional measure to prevent wildlife from using the impoundment.” This statement should be clarified to require all of these actions as mitigation measures. More importantly, as discussed below (see p. 7-98) open impoundments should not be permitted. All impoundments should be enclosed, covered structures.

Page 7-89. The dSGEIS describes that physical barriers to public access at least 500 feet from the well pad could prevent negative exposure to pollutants. The SGEIS should specifically require such a physical barrier of at least 500 feet to limit exposure. This also appears to be a rather simplistic response to an impact of major concern to impacted communities and individuals. Significant air quality impacts may occur on both a localized and regional basis. A more thorough and comprehensive analysis of these impacts and additional mitigation measures are required.

Page 7-95. The dSGEIS states that the “Department anticipates that, by the time the final SGEIS is published, additional data and analyses will be made public by the Marcellus Shale Committee and the Appalachian Shale Water Conservation and Management Committee.” The dSGEIS should not have been issued without this information. The public should have an opportunity to review and comment on this information before it is incorporated into the SGEIS.

Page 7-95. While constructing and operating the site in accordance with a Greenhouse Gas Emissions Impacts Mitigation Plan is a required mitigation, nowhere does it state in the dSGEIS the levels of emissions that are acceptable, nor does it require the DEC to review the plan or its adequacy. To make such mitigation effective, the SGEIS should set a threshold for total eCO₂ emissions per well using a production life of 30 years, and the Greenhouse Gas Emissions Impacts Mitigation Plan should be required to detail how each BMP described in the plan shall reduce emissions so that the well project or well pad meets the established emissions threshold. As mentioned previously, it is essential that a cumulative life-cycle analysis of Greenhouse Gas Emissions resulting from Marcellus Shale development be conducted and included in the SGEIS.

Page 7-98. The dSGEIS states that “Many of the above practices address impacts that would be most effectively mitigated by use of covered tanks instead of open surface impoundments for centralized flowback water facilities.” In order to mitigate the identified impacts NYSDEC should require the use of covered tanks rather than allowing surface impoundments.

Page 7-102. The dSGEIS states that data “shows significant variability in NORM content. ...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.” The SGEIS should establish a mechanism to suspend the permitting of new gas drilling operations once a certain number of wells have been sampled in order to give NYSDEC time to undertake the proposed analysis and to develop appropriate mitigation measures to protect the public health and environment.

Page 7-103. Various pad siting restrictions are suggested in the dSGEIS to minimize adverse aesthetic impacts associated with hydraulic fracturing. The suggested restrictions include avoiding ridgelines and preserving natural vegetation (terrain, trees and waterways) when clearing and grading. Other suggested restrictions seek to minimize lighting impacts by avoiding “uplights” and other lighting that casts light onto neighboring properties. The SGEIS should require these suggested restrictions.

Page 7-104. The dSGEIS outlines reclamation procedures framed by the United States Bureau of Land Management (BLM) in *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. These BLM procedures include the revegetation of sites with native plant materials as well as recontouring the well site and access roads. The SGEIS should require the BLM procedures for all well sites.

Page 7-105. The dSGEIS indicates that the hydraulic fracturing permit process will require the operator to develop a visual impact mitigation plan that “considers, to the extent practicable, local land use policy documents.” The SGEIS should codify the required components that should be included in a visual impact mitigation plan, require compliance with local land use policy documents to the maximum extent possible, include the direct involvement of local government, and require approval of the mitigation plan by NYSDEC prior to the issuance of permits.

Page 7-105. The dSGEIS states, “Since visual impacts are most effectively addressed at the siting and design phase, it is important that the pad be properly located and planned.” We agree that visual impacts, in addition to many other impacts, are best addressed at the site plan level. We further believe that local government should be involved in the site planning stage of the process.

Page 7-106. In addition to the operator requirement for developing a visual impact mitigation plan, the dSGEIS indicates that “The Department may require use of the Visual EAF Addendum and add further, site-specific visual mitigation requirements to individual permits if necessary to alleviate impacts to the visual resources.” The SGEIS should require the use of Visual EAF Addendums for each permit application to more effectively mitigate for visual impacts.

Page 7-109. According to the dSGEIS the hydraulic fracturing permit process will require the operator to develop a noise impact mitigation plan “that incorporates specific practices and, to the extent practicable, local land use policy documents.” The SGEIS should outline the specific required components to include in noise impact mitigation plans, including setback requirements from residences and other sensitive land uses such as churches, schools, hospitals and clinics, for roads and well pads, maximum dBA levels and restricted hours of operation for particular drilling activities. These plans should be required to be submitted to and approved by NYSDEC prior to the commencement of drilling operations. The SGEIS should further require the involvement of local government in the mitigation planning process.

Page 7-109. To alleviate adverse road use impacts, the dSGEIS requires operators to “attempt to obtain a road use agreement with the municipality or document the reasons for not obtaining one.” If such agreements cannot be reached, a trucking plan is to be developed. Road use agreements would include route selection for maximum efficiency and safety, coordination with emergency management and highway departments, road upgrades for water transport routes and other aspects. The SGEIS should require the development of road use agreements with municipalities, not just an “attempt.” This must include agreements with all municipalities, including counties, whose local roads will be utilized by vehicles servicing or transporting fluids or materials to or from a well site.

Page 7-110. The dSGEIS proposes that a municipality will only be notified of the first well permit application in its jurisdiction and that, thereafter, a municipality is responsible for referencing the online permit database to learn of other permit applications. This is an inadequate notification method, especially considering the limited staff and resources available to many rural municipalities. The NYSDEC should formalize a process for notifying municipalities, including counties, whenever a permit application is received for drilling within their jurisdictions. The purpose of this notification would be to alert local and county governments, and regional planning organizations, of potential activities in their area so they can begin to address to the extent they deem necessary any matters related to local authority, including local road use. In addition NYSDEC should incorporate a process to receive comments on individual permit applications from municipal officials and allow at least 60 days for submission of such comments.

Page 7-111. The dSGEIS indicates that “the EAF Addendum submitted with each well permit application will require the applicant to attest to having reviewed any existing comprehensive, open space and/or agricultural plan or similar policy document(s).” Also, on page 6-146, the dSGEIS states that “any limitation on (drilling) 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.” The SGEIS should require that NYSDEC consult with municipalities and counties that have

established plans to determine the extent to which the proposed gas drilling activity is consistent with or inconsistent with the established plans and to identify potential mitigation measures to bring the proposed activities into line with these established plans.

Page 7-111. The SGEIS should analyze the cumulative impacts beyond the 10 square mile estimate described in the dSGEIS. NYSDEC should instead estimate the amount of well activity likely across the state based on both industry and scientific calculations and then analyze the cumulative impact of those wells across the New York State landscape. This analysis should further include a determination of what full build-out of wells would look like and what community costs, mitigations and benefits would be associated with it.

Once again, we appreciate the opportunity to comment on the dSGEIS. The comments we have provided complement those submitted by the Tompkins County Legislature, Health Department, Environmental Management Council, Water Resources Council, and many other members of our community. We believe that the major omissions identified and many technical issues raised with the dSGEIS require, at a minimum, a continuation of this process with opportunity for comment on additions to the SGEIS that are needed to comply with the SEQRA process. We also believe that the many requirements that would be necessary to mitigate the impacts of horizontal drilling and hydraulic fracturing in the Marcellus Shale warrant the development of clear regulations incorporating those mitigation measures.

Sincerely,



Edward C. Marx, AICP
Commissioner of Planning and Public Works

cc: Governor David A. Paterson
NYS Senate President Malcolm Smith
NYS Senator George Winner
NYS Senator James Seward
NYS Senator Michael Nozzolio
NYS Assembly Speaker Sheldon Silver
NYS Assemblywoman Barbara Lifton
Chair of Senate Committee on Environmental Conservation Antoine Thompson
Chair of Assembly Committee on Environmental Conservation Robert Sweeney
Chair of Assembly Committee on Energy Kevin Cahill
Attorney General Andrew Cuomo
U.S. Senator Charles Schumer
U.S. Senator Kirsten Gillibrand
U.S. Representative Maurice Hinchey
U.S. Representative Michael Arcuri
NYSDEC Commissioner Peter Grannis
New York State Association of Counties

Electronic copies to:
Tompkins County Legislature
Tompkins County Health Department
Tompkins County Environmental Management Council (EMC)
Tompkins County Water Resources Council (WRC)
Tompkins County Council of Governments (TCCOG)
Tompkins County Soil and Water Conservation District (TCSWCD)