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December 15, 2008

Attn: Scope Comments
Bureau of Oil & Gas Regulation
NYSDEC Division of Mineral Resources
625 Broadway, Third Floor
Albany, NY 12233-6500

Re: ***Comments on the New York State Department of Environmental Conservation's Draft Scope for the Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program***

Dear Sir or Madam:

The undersigned groups endorse and submit the attached comments prepared by Natural Resources Defense Council and its consultants, with substantial input from Earthjustice, Catskill Mountainkeeper, Riverkeeper, Inc., the Delaware Riverkeeper Network, the Sierra Club Atlantic Chapter, and the Open Space Institute, on the Draft Scope for the Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs.

Thank you for your consideration of these comments. We look forward to working with you as this process moves forward.

Sincerely,

Stephanie Lindloff, Senior Director
American Rivers

Sean Mahar, Director of Government Relations and Communications
Audubon New York

Scott Lauffer & Laura Seltz, Co-chairs
Gas Production Task Force
Binghamton Regional Sustainability Coalition

Thomas B. Wilinsky
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NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

December 15, 2008

Attn: Scope Comments
Bureau of Oil & Gas Regulation
NYSDEC Division of Mineral Resources
625 Broadway
Albany, New York 12233-6500

Re: Comments on Draft Scope of Work for
Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing
To Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs

Dear Sir or Madam:

The following comments were prepared by the Natural Resources Defense Council (NRDC) and its consultants, with substantial input from Earthjustice, Catskill Mountainkeeper, Riverkeeper, Inc., the Delaware Riverkeeper Network, Sierra Club, Atlantic Chapter, and The Open Space Institute, on the Draft Scope of Work for the Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program (Draft Scope of Work). These comments are intended to help the New York State Department of Environmental Conservation (NYS DEC or Department) revise the Draft Scope of Work to ensure that the Supplemental Generic Environmental Impact Statement (SGEIS) will (1) disclose and evaluate all of the potential environmental impacts from developing natural gas resources from the Marcellus Shale and other low permeability gas reservoirs using horizontal drilling and high-volume hydraulic fracturing; (2) comprehensively evaluate the regulations that currently govern such development (the Regulatory Program), and the Department's enforcement capacity and practices to determine whether they adequately protect the environment and public health and safety from this industrial-type activity; (3) thoroughly explore best management practices and potential mitigation measures, including regulatory revisions that will ensure safe and environmentally benign development; and (4) carefully analyze reasonable alternatives to full development and to the current Regulatory Program.

This letter is divided into two sections. The first section contains overarching concepts to be addressed in the Scope of Work and in the SGEIS in order for the document to serve the purposes outlined above and comply with the State Environmental Quality Review Act (SEQRA). The second section provides more detailed comments in each technical area of analysis that must be addressed in the SGEIS.

A. OVERARCHING COMMENTS

1. The Draft Scope of Work does not specify precisely which "other low permeability gas reservoirs in the state" beyond the Marcellus Shale are proposed to be analyzed in the SGEIS. Any such reservoirs must be identified by name and location so that the sufficiency of the proposed analyses in the SGEIS can be properly evaluated. Throughout the remainder of this document, we comment on the Draft Scope of Work as it applies exclusively to the Marcellus Shale formation because of our inability to evaluate whether different and/or additional analyses would be appropriate in the context of the proposed development of other low permeability gas reservoirs in the state.

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2. The Draft Scope of Work's description of the proposed action suggests that the action consists of a series of unrelated, discrete projects, each of which is restricted to the activities at one well pad. Instead, the proposed action must properly be described as being the overall statewide program to administer gas drilling in the Marcellus Shale. As currently written, the Draft Scope of Work's definition of the proposed action is an unjustifiably narrow formulation that will result in unlawful segmentation and a corresponding understatement of the potential significant adverse environmental impacts of the proposed action, i.e., the statewide permitting of horizontal wells using hydraulic fracturing in the Marcellus and similar formations in New York State.

3. In accordance with a proper formulation of the proposed action, the impact analysis needs to be performed on three levels: local, regional, and state-wide cumulative. The local level that should be analyzed is similar to what is currently contemplated; one well pad (as opposed to one well) and its localized effects. From this perspective, NYS DEC can determine local impacts and develop setbacks from sensitive receptors and resources, and other mitigation measures and best practices. However, analysis of local impacts associated with a one-well pad situation does not adequately disclose the regional or cumulative impacts which would result from the overall development of the Marcellus Shale.

   Second, NYS DEC must develop a generic reasonable worst case scenario of area-wide development of the Marcellus Shale as a particular gas-rich section is identified and intensely developed over a period of several years followed by re-fracturing for secondary and tertiary production over a period of several decades. This scenario reflects the type of development that occurred in Chautauqua County, where Chautauqua Energy has about 180 wells. Production started in the 1970's and is continuing to this day. However, development of these wells occurred in clusters of time with many drilled in the early 1980's. This pattern has also occurred in similar circumstances in other regions of the country, including the Barnett Shale Formation in Texas and Oklahoma, and is anticipated in Pennsylvania and other states with Marcellus Shale.

   After the generic regional scenario and its potential impacts are analyzed, the scenario needs to be evaluated for sensitive areas. For example, what would the regional effects be if the development were located in the New York City watershed, in the Catskills, in an urban area, in the Binghamton-Johnson City Aquifer, in an air quality non-attainment area, etc.? Certain activities would likely cause unacceptable impacts in some of these sensitive areas.

   The last analysis that needs to be performed is cumulative on a state-wide basis. Consistent with well-established "hard look" concept under SEQRA jurisprudence, the reasonable worst case development expected from the entire Marcellus Shale within New York State needs to be defined, and its potential impacts disclosed. The potential impacts to be evaluated include, *inter alia*:

   - How much methane and natural gas would be leaking from all wells and what would the effect be on greenhouse gas emissions;
   - How much water (surface and groundwater) will have to be withdrawn and used in the fracturing process;
   - What type and how many wastewater treatment facilities will be required to treat the fracturing fluid, its constituents, and produced water from the well after development;
   - Where will these facilities be located, (i.e. at the wellhead or elsewhere);
   - How much gas can be expected to be extracted and what type of gas transmission and treatment facilities would be needed; and
   - What type of new developments, new roads, and population patterns can be expected?

4. The SGEIS process should be used to consider whether there are certain areas (e.g., the New York City and other watersheds, lands under conservation easement purchased with public funds for the

purpose of natural resource protection, and other critical ecological areas) that must be placed permanently off-limits to drilling because the risks of harming the drinking water supply or other natural resources are too great. In addition, NYS DEC should consider whether there are geographic areas in which the maximum number of wells and/or maximum amount of water withdrawn should be capped.

5. Pipelines and gas treatment facilities are integral to development of the Marcellus Shale and must be disclosed, even if the Public Service Commission (PSC) and not NYS DEC has permitting authority. By not analyzing the ancillary facilities in the SGEIS, the Department would be segmenting the project and not taking into account the full potential impacts of development of the Marcellus Shale. A natural gas well by itself is not complete; it is meaningless without the facilities to transport the gas to where it is needed and where it can be treated for sale. To avoid segmentation, the combined impacts of all elements necessary for development of natural gas from the Marcellus Shale must be considered in the SGEIS.

   Further, the rationale that PSC, not NYS DEC has permitting authority is not valid. An agency normally analyzes all of the potential impacts of a proposed development including those over which it has no statutory or regulatory authority. For environmental impact statements evaluating proposed changes to roadways, for example, the New York State Department of Transportation (NYS DOT) regularly analyzes the impacts of bridges over waterways, even though the ultimate permitting authority rests with NYS DEC and the Corps of Engineers.

6. While the approach of relying on the 1992 Final Generic Environmental Impact Statement (FGEIS) to the extent possible may be valid, not all analyses in FGEIS remain valid. Before a conclusion can be made to rely on the prior analysis in the FGEIS, each technical area needs to be examined in detail to determine if the analysis is still valid after several decades. It is our position that a number of the analyses in the 1992 FGEIS are not sufficiently current and up-to-date to be relied upon, and instead these technical areas must be re-analyzed using today's standards and methods.

   As an example, ambient air quality regulations have changed since 1992, the number of and reasons for non-attainment areas have changed, and modeling techniques have improved. The FGEIS did not model potential short term noise impacts, but instead relied on some then current federal Environmental Protection Agency (EPA) noise parameters. Since that time, NYS DEC has developed its own noise impact criteria and methods of analysis. In addition, the effects on land use and community character were not rigorously analyzed in the FGEIS. As a result, the setbacks adopted by the Department were not based on analysis, but rather on "rules of thumb." Impacts on rare and endangered species and habitats were also insufficiently considered in the FGEIS. Neither greenhouse gas emissions nor Environmental Justice were analyzed in 1992. Each of these deficiencies must be addressed in the SGEIS.

   The Draft Scope of Work must be modified to specify which of the FGEIS analyses will be relied upon and which will be updated in the SGEIS to reflect today's methodologies and regulations.

   Similarly, any reliance on the conclusions from the FGEIS as to when NYS DEC will require an applicant for a well drilling permit to prepare an individual EIS must be revisited in the context of drilling in the Marcellus Shale and fresh determinations in this regard made.

7. The Draft Scope of Work does not identify the specific methodologies to be used in each of the analysis areas, which are discussed separately below. To simply state that a particular technical area will be examined does not constitute a scope of work. The Scope of Work needs to specify which particular technical areas will be analyzed and *how* they will be analyzed.

   Among other things, the study area needs to be defined functionally, depending on the type of impact analyzed. As an example, for surface water impacts of drilling, the hydrologic unit code 14 or 11 (i.e., sub-watershed) would define an appropriate geographic area of analysis. Likewise, the models

proposed to be used to evaluate potential impacts (e.g., for air quality and noise) must be specified and the key parameters selected.

Moreover, the methodologies need to be specified for each of the three levels of analysis discussed above; local, regional, and cumulative. The appropriate methodologies to be employed will vary depending on the level of analysis.

8. Certain critical impact categories are excluded from mention altogether in the Draft Scope of Work. For example, there is no indication that the SGEIS will analyze the potential for significant adverse traffic impacts from additional truck traffic that will necessarily be associated with the proposed action. Other important analyses excluded from the Draft Scope of Work include, but are not limited to, vibration, solid hazardous materials, and greenhouse gas emissions (which, as discussed below, cannot properly be delayed due to the pendency of a guidance document).

9. The Division of Mineral Resources should demonstrate that it has consulted with all other divisions of the NYS DEC with relevant technical expertise (e.g., the Divisions of Water; Air Resources; Fish, Wildlife and Marine Resources; Forest Protection; Lands and Forests; Solid and Hazardous Materials; Climate Change; and Environmental Justice) in preparing, conducting and reviewing the analyses in the SGEIS. In addition, where NYS DEC may not have the needed technical expertise, such as public health assessment, the Division of Mineral Resources should demonstrate that it has consulted other agencies, such as New York State Department of Health, for the appropriate methodologies to be used. After the analyses are completed, the divisions or agencies should review and approve the results and any proposed mitigation measures.

10. All regulatory and permitting requirements by NYS DEC and any other agency for the proposed action (including aspects ancillary to the gas drilling wells themselves) must be identified and the associated impacts considered in the SGEIS. In terms of the Regulatory Program, these would include identifying thresholds in each technical area where exceedances could lead to significant adverse impacts, and mitigation measures and best management practices are needed to prevent the potential for significant adverse impacts. Then, the SGEIS should state when certain best management practices must be implemented when a threshold has been exceeded.

11. The SGEIS must analyze additional alternatives beyond no development of Marcellus Shale natural gas. At least three additional alternatives need to be analyzed. First, the SGEIS must evaluate the alternative of a different permitting structure or approach. NYS DEC currently issues permits on a well-by-well basis whereby a company submits separate applications for wells even in close proximity to each other. A programmatic basis offers an alternative under which a permit application would be submitted for all wells that a company proposes to drill within a specific geographic unit, such as a watershed or an agricultural area. Impacts of the unit-wide drilling would be subject to a single, separate environmental analysis. Under the programmatic permitting process the wells need not be under construction at the same time to be considered one project. As an example, suppose a company has two rigs and has the technical and financial capacity to develop 20 wells in a 50 square mile watershed over a two year period. The company would be required to analyze a project consisting of all 20 wells rather than filling out individual environmental assessment forms for each of those wells as is the current practice, which is likely to understate the potential cumulative impacts of the overall development scenario contemplated by the applicant. In the event an applicant does not disclose future planned development or if additional development becomes possible in the future, the applicant would be required to analyze the impacts of all wells that it has drilled and proposes to drill in the geographic area. The SGEIS should analyze this alternative permitting approach.

    The second alternative that should be evaluated is the development of a regional or state-wide Natural Gas Development Plan, similar to the state-wide Energy Plan before additional well development is allowed. The Natural Gas Development Plan would establish the objectives of natural gas development in New York State and lay out goals for achieving the objectives. Then a permitting

approach would be developed to accommodate the goals and objectives of the Plan. This permitting approach would be subjected to an environmental impact analysis.

The third alternative that should be analyzed would be not developing natural gas in certain areas of particular ecological and/or human health importance (such as a watershed or primary aquifer, wetlands, floodplains and adjacent riparian areas, lands under conservation easement purchased with public funds for the purpose of natural resources protection, etc.) and/or capping development in these or other areas inappropriate for mass-scale natural gas development. This limited development alternative would be analyzed and compared to the base alternative of natural gas development throughout the Marcellus Shale Formation in New York State.

These three additional alternatives would provide the decision-makers with an appropriate context in which to select the gas development approach for New York State with the fewest unavoidable significant adverse impacts to the environmental and public health.

12. Because of these and the specific deficiencies in the Draft Scope or Work set forth below, we respectfully request that NYS DEC issue a revised Draft Scope of Work for public comment prior to commencing work on the SGEIS. To do otherwise would deprive the public of the opportunity to review and comment on, *inter alia*, the proper range of proposed analyses and the particular methodologies proposed to be employed for the SGEIS.

B. COMMENTS BY TECHNICAL AREAS

GENERAL

On the NYS DEC web site, pages 22, 43 and 44 of the FGEIS are missing, and page 5-10 of the DGEIS is missing. In addition, page 11 appears twice in the FGEIS.

PROJECT DESCRIPTION

The description of the proposed action is overly vague—it needs to describe exactly which formations will be subject to analysis in the SGEIS and subsequently to the Department's Regulatory Program and any regulatory revisions that may be proposed in the SGEIS. The SGEIS should explain how other low permeability formations being examined differ (in geographic extent, depth, geologic characteristics, etc.) from the Marcellus Shale formation, as well as what different exploration, drilling, completion, and stimulation techniques may be employed for gas development in the various formations. To provide an adequate delineation of the proposed action, the SGEIS needs to include mapping of the formations being examined. The description must also show the stratagraphic column above the formations. The description must include all existing wells, gas pipeline and treatment facilities. State-wide mapping of the resources on such an extensive program as this can only be done using a Geographic Information System (GIS). Traditional mapping is not sufficient. All regulatory and permitting requirements by NYS DEC and/or any other agency for the gas drilling program must be identified and impacts considered in the SGEIS.

In addition, as discussed above, the proposed action must be described as consisting of the overall permitting program for gas drilling in the Marcellus Shale and other low permeability reservoirs (and all related development), as opposed to a series of discrete, independent drilling projects.

SURFACE WATER

WITHDRAWAL

The very large volumes of water needed for the hydraulic fracturing proposed for the Marcellus Shale are described by NYS DEC as being a primary motivation for preparing a supplement to the 1992 FGEIS. Fracturing the Marcellus shale with a horizontal well can require 5,000,000 to 9,000,000 gallons, which is more than 100 times greater than 80,000 gallons currently used for vertical wells. The potential impacts associated with this water use are commensurately much greater, especially considered cumulatively, and