



United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
200 Chestnut Street
Philadelphia, PA 19106

IN REPLY REFER TO:

December 31, 2009

N76(4531)

Mr. Jack Dahl, Director
Bureau of Oil and Gas Regulation
Division of Mineral Resources
New York State Department of Environmental Conservation
625 Broadway – Third Floor
Albany, NY 12233-6500

Re: Comments on the Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program

Dear Mr. Dahl:

Thank you for the opportunity to provide input on the Draft Supplemental Generic Environmental Impact Statement (SGEIS) on the Oil, Gas, and Solution Mining Regulatory Program. Our comments focus on two areas: 1) They discuss the potential environmental impacts associated with the newer methodologies practiced by the industry today, particularly horizontal drilling and the larger amounts of water used in high volume hydraulic fracturing, in excess of quantities described in the previous Generic Environmental Impact Statement, and 2) they examine the implications of development that may occur in new, environmentally sensitive areas, including Federally designated units of the National Park System and related areas. We have concerns associated with this activity and the potential harm it could cause to the resources and values for which National Park Service (NPS) units and related areas were established.

Please note that there are National Park System units and other NPS related areas located in the Marcellus Shale in the State of New York. The Marcellus Shale lies directly below the Upper Delaware Scenic and Recreational River; five National Natural Landmarks (NNLs), Deer Lick Nature Sanctuary, Moss Lake Bog, Fall Brook Gorge, McLean Bogs, and Bear Swamp; two National Heritage Areas, Erie Canalway National Historic Corridor and Hudson River Valley National Heritage Area; and, one National Trail, North Country National Scenic Trail.

Additionally, there are NPS units and related areas near the boundary of the shale play. Those areas include, Eleanor Roosevelt National Historic Site, Fort Stanwix National Monument, Home of Franklin D. Roosevelt National Historic Site, Martin Van Buren National Historic Site, Saratoga National Historic Park, Theodore Roosevelt Inaugural National Historic Site,

Vanderbilt Mansion National Historic Site, Women's Rights National Historic Park, and two additional NNLs - Fossil Coral Reef and Round Lake (please see attached maps for location of all NPS areas in the State of New York). As you can see, the NPS has many different areas under our administrative care, each with its own specific legislation or regulations protecting the resources and values for which they were established. The following comments address the concerns of these NPS units and related areas.

GENERAL COMMENTS

Request for Site-Specific State Environmental Quality Review Act (SEQRA) Determinations on Projects within 2,000 feet of NPS units and Related Areas

We request that a site-specific SEQRA determination be made in cases in or near those NPS units and related areas mentioned above, in the same way the draft SGEIS proposes to retain the site-specific determination for well siting in New York State Parks and Agricultural Districts as described in Section 1.4.1. National Park Service units and related areas are nationally recognized for their outstanding scenic, natural and cultural resources. Many of these sites are appreciated by the public in great part due to viewsheds of natural or historic significance, and for other qualities such as of quiet and peace. The NPS is concerned that resources and values such as these could be disturbed by improper siting of drilling operations. We therefore recommend that drilling within 2,000 feet of NPS units or related area trigger a site-specific SEQRA evaluation. In addition, we ask that applicants seeking to develop wells within the 2,000 feet be required to demonstrate that no feasible alternative exists.

Siting surface facilities beyond 2,000 feet from NPS boundaries is not only feasible, but preferable for the protection of resources and values of national significance. In the State of New York, NPS units and related areas combine to represent a small fraction of a single percentage point within the areal extent of the Marcellus Shale. Individually, the areas are small or linear, lending themselves to gas development via horizontal wellbores using a surface location a suitable distance of at least 2,000 feet outside of the NPS area. Avoiding a footprint on NPS areas should have little or no affect on mineral owners and gas companies, since the mineral resources can be developed with the very same procedures and technologies being used to drill and produce other Marcellus Shale wells.

In instances where drilling is proposed within boundaries of NPS units due to privately owned mineral rights within the park, the NPS will work together with the State to ensure NPS oil and gas regulations found in 36 CFR Part 9B are appropriately applied.

Request for Cumulative Impacts Assessments

Cumulative Review of Surface Disturbance Impacts

In earlier scoping comments provided to NYSDEC in December 2008, the NPS requested a cumulative impact assessment on the potential surface disturbance associated with the development of the shale play, assuming full build out and worst case scenarios. The draft SGEIS assessment did not include a cumulative assessment however. Such a cumulative

assessment is needed for the State to fully understand the potential impacts of drilling in the Marcellus Shale. A cumulative assessment should include the areas disturbed by the construction of well pads, service roads, staging areas, and pipelines. In our communication of December 2008, we asked that NYSDEC work in cooperation with the Delaware River Basin Commission (DRBC) to assess the potential rate of development for the Marcellus shale and the potential cumulative impacts, to both surface and groundwater, of water withdrawal associated with this development in the Delaware River Basin. The Susquehanna River Basin Commission (SRBC) developed estimates of projected water use by working with energy companies in that river basin by estimating the build out potential in the watershed. We request NYSDEC do the same with the DRBC and the Delaware River watershed.

Cumulative Review of Use and Management of Hydraulic Fracturing Fluids

The use and management of large volumes of hydraulic fracturing fluids are relatively new activities for the natural gas drilling industry, particularly on the scale envisioned for the Marcellus Shale. When one considers the expansive area of the gas play and the significant population density within the play, it is important to assess the cumulative impact of the use of hydraulic fracturing fluids and the associated recovery of flowback fluids. Quantities and constituents should be tracked from production to disposal, including information on the treatment process for these types of fluids and wastewater.

In the Marcellus Shale play, onsite or centralized impoundment of these fluids appears to be under consideration and may be the preferred management option (i.e. storage of flowback fluids in open storage ponds or centralized reservoirs). It is important to include in a cumulative assessment the fact that these open storage facilities will likely vent volatile chemicals contained in the flowback fluids to the atmosphere over both short term and long term periods. While individual chemical components may be low on a percent-by-weight basis in the flowback fluids, considerable loss and concentration of the more volatile additives, or their breakdown products, into the atmosphere is likely considering multiple storage reservoirs may occur in the course of development of a particular area. While the draft SGEIS includes some discussion and analysis of Volatile Organic Compounds (VOCs) from a Hazardous Air Pollutants (HAPs) perspective, there was no indication that the potential chemicals reported in flowback fluids were known or suspected Endocrine Disrupting Compounds (EDCs). It is also important to note that in the discussion of HAPs, the assessment indicated that HAPs may exceed current standards if multiple sites are brought together in a single pool, but no mitigation measures or actions were given. We suggest the State develop No Observable Effect levels (NOEL) for HAPs to determine if such pooling would cause unsafe levels of exposure.

Furthermore, there was no mention in the draft SGEIS if the respiratory pathway had been evaluated in laboratory testing of flowback fluid vapors on humans or biota, or if synergistic effects are possible given the large number of chemical compounds anticipated. For example, studies on chemicals used in frack fluids in Colorado indicate 43% may be EDCs or have EDC potential. Endocrine Disrupting Compounds (EDCs) have been shown to have effects at extremely low concentrations particularly on developing fetuses that may be exposed through the mother's inhalation of EDCs. The effects of EDCs were largely unknown until recently and this understanding is largely subsequent to the development of HAP regulations based on conventional dose-response analysis. Because development in the Marcellus Shale utilizes

hydraulic fracturing that can involve the release of new chemicals used in large quantities where open impoundment storage is proposed, and the development is not spatially limited to a conventional gas field, but will take place at multiple locations throughout an entire region, this exposure pathway should be addressed more fully in the SGEIS. Unlike historic conventional gas reservoir exploitation, where gas reservoirs are spatially limited, the entire population will effectively reside within the gas field development area. Because the chemical loading to the atmosphere will be cumulative, any EDC compounds in flowback fluids should be identified, NOELs should be determined, cumulative effects of EDC emissions explored, and the respiratory pathway for these chemicals evaluated more fully.

Cumulative Review of Truck Traffic on Transportation Infrastructure and Contamination Scenarios

The draft SGEIS underestimates the potential effects of truck traffic on existing transportation infrastructure, as well as the potential contamination effects on waterways if an accident by a truck carrying fracking or flowback fluids were to occur. It is justifiable to include such an accident scenario in the draft SGEIS along with discussion and review of mitigation measures that can be taken if such a scenario were to occur. Based on historic data, there is relatively low risk of fluid loss to water resources in the actual hydraulic fracturing process or during site operations (when well-established Best Management Practices (BMPs) are used), therefore spill accidents occurring during transportation seem to pose the highest risk to potable aquifers and surface water resources. It would seem appropriate for the SGEIS to develop this scenario further to identify how this threat may be managed more effectively.

Also, exposure of local populations to increased traffic hazards was not fully developed in the draft SGEIS. There was little, if any, discussion of the increased traffic related to actual commuting by shifts (3/day) of gas field workers during drilling operations or workers related to other operational aspects of a well pad. In addition, there was no discussion on the burden placed on rural roads that were not designed for these traffic levels and the limited road maintenance that may occur during winter conditions. The draft SGEIS should also include the fact that heavy equipment associated with drilling will have to share the roadways with slower moving farm equipment that historically use the rural roadways. Additionally, impacts to wildlife (e.g. increased disturbance, accidents) and additional fragmentation of the habitat by road construction to the well sites should also be more fully explored.

Cumulative Reporting of Chemical Additives

The reporting of chemical additives by weight percent, when the largely chemically inert solid fraction of the sand proppant is included in the mass, is misleading and tends to minimize the chemical concentrations of mobile and reactive fractions dissolved in the liquid phase that would serve to mix with or contaminate an environmental media. Similarly, the vapor pressure of a particular contaminant in a flowback fluid would be a function of its concentration in the receiving impoundment and partial pressure in the fluid phase and have little to do with its concentration based on any solids (weight of proppant) present in the flowback water. Thus, the concentration of any soluble additive expressed as a weight percent, ppm or mg/L of the fluid fraction (grams solute/vol solvent), alone is a more meaningful expression from the standpoint of

contamination threat to a waterbody or to the atmosphere. It is also noted that the density of sand is approximately 2.65 gm/cc, thereby including this solid in the percent by weight characterization of additives dissolved in the frack water (1 gm/cc) further reduces the apparent relative concentrations of these chemical additives. They would be more accurately expressed as grams solute/volume or grams of solvent. Therefore, chemical additives as a percent-by-weight of the liquid and potentially reactive portion of a fracking solution would appear to range from 2 to 5% or more of the total dissolved solids (reactive) fraction when the suspended solids or sand proppant (inert) fraction is not included. It is also likely that subsequent transport of flowback water for disposal includes very little proppant as this would be expected to settle out in any impoundment prior to transport to a disposal facility.

All chemicals intended for use in production wells should be identified and approved prior to well development. It is not in the interest of the public or the environment to be potentially subjected to unknown contaminants. Specific quantities of products used should be provided to the State and used to evaluate potential for contamination. Site specific contamination routes, chemical interactions, and biological effects should be understood *a priori*.

And finally, we support the use of 'green' chemical alternatives whenever possible and requests the NYSDEC to develop an incentive system whereby the use of alternative 'green' components is preferred and rewarded.

Issues related to the Development of Natural Gas Resources In or Near the National Trail System

The North Country National Scenic Trail (NST) is a Congressionally-authorized 4,600-mile hiking trail administered by the NPS with headquarters in Madison, Wisconsin. The Marcellus Shale formation underlies the North Country NST from central New York into Pennsylvania to the Ohio state line.

The North Country NST traverses the State of New York from its eastern terminus at Crown Point and passes through six other northern states, terminating at the Missouri River in North Dakota. Through much of New York, the North Country NST follows the Finger Lakes Trail, which volunteers have been building and maintaining for 40 years in cooperation with the NYSDEC and other state land-managing agencies.

The NPS is concerned about potential impacts from the drilling activities to the Finger Lakes/North Country Trail. NPS recognizes that the NYSDEC is the manager of these lands and the minerals that underlie them. While the NYSDEC has responsibilities managing mineral resources and permitting their development, it also has responsibilities for providing and protecting recreational resources. Hiking and walking for recreation is an increasingly valuable activity for helping to improve and maintain public health and the Finger Lakes Trail/North Country NST provides significant opportunities for hiking and other recreational activities. It is important to protect the trail from avoidable adverse impacts of developments of this kind.

Close communication with the NPS office in Madison, Wisconsin, and with the Finger Lakes Trail Conference (FLTC) volunteers and staff is the best way to assure protection of the trail. It

is important to have trained contracting officer representatives monitoring the actual development work as it is never sufficient to simply rely on lease or contract conditions to protect resources. In addition, we suggest the following considerations for proposed activities in the trail corridor.

Notify the FLTC and NPS North Country NST offices in advance of leasing actions and/or construction of drilling facilities – The FLTC and NPS can provide advice on minimizing resource damage, advocate for sensitive design and construction, provide local contacts for trail advocates, and post information on websites about temporary trail closure or limitations.

Avoid using the trail corridor for access to the construction sites – Using the trail for access:

- Widens the corridor and provides access for undesirable and illegal uses such as Off-Road Vehicles (ORVs), habitat destruction, and property damage.
- Destroys the trail's scenery, contact with nature and wildlife, and sense of solitude.
- Limits or closes access to sections of the trail temporarily or permanently.

Restore the trail corridor to its original appearance after any construction impacts or work with the NPS and FLTC to relocate the trail to a less affected area – This will help minimize:

- Impact of the construction on the trail.
- The likelihood of ORV damage to the trail.
- Adverse publicity from trail damage.

Maintain adequate security on the access route and site to prevent unauthorized use by ORVs – ORVs do tremendous damage to hiking trails. Unauthorized access to the trail often begins via legitimate access roads that have not been adequately secured. A simple locked gate at the road junction is often sufficient to prevent or discourage access. The North Country NST is by law closed to motorized uses.

Access road crossings of the trail should be perpendicular – This minimizes the likelihood of ORV trespass on the trail and reduces the visual impact of the crossing.

Provide a visual and sound screen between the trail and construction site whenever possible – This reduces the impact of the project on trail users and the likelihood of a complaint by trail users.

Request for Extension of Comment Period

Finally, the NPS would like to reiterate our November 2009 request for an extension of the comment period for an additional 30 days to provide for as much public review and comment as possible.

SPECIFIC COMMENTS

Section II Description of Proposed Action

2.4.7.1 Delaware River Basin – This section states that the DRBC “. . . has identified its areas of concern with respect to natural gas drilling as reduction of flow in streams or aquifers, discharge or release of pollutants into ground water or surface water, and treatment and disposal of hydraulic fracturing fluid. DRBC staff will review drill site characteristics, fracturing fluid composition and disposal strategy prior to recommending approval of shale gas development projects in the Delaware River Basin.” This statement implies that the DRBC will have a role in determining if a shale gas project in the river basin will be approved by the State of New York. This section however does not explain that a site-specific review by the State will be required for any shale gas proposal in the Delaware River Basin. We urge the State to require a site-specific SEQRA review for operations located in the Delaware and Susquehanna River Basins.

Section 2.4.10 Freshwater Wetlands – The NPS requests the NYSDEC to assign Class I status for all wetlands in NPS units and related areas. They should be considered wetlands of “unusual local importance,” including those less than five hectares.

Section 2.4.11 Visual Resources - The draft SGEIS proposes to address visual impacts on a case-by-case basis, which the NPS supports. However, it’s not clear how this case-by-case scenario applies when the majority of proposed projects will not trigger any site-specific determinations. It is important to protect historic and natural viewsheds from visual intrusions associated with drilling activities.

Section III Proposed SEQRA Review Process

3.1 Use of a Generic Environmental Impact Statement, Future SEQRA Compliance – This section states that further analysis of wells “. . . closer than 2,000 feet to a municipal water supply well would also require further site-specific review . . .” The SGEIS fails to specify whether this requirement refers to the surface location of the well or the underground, horizontal portion of the well. It is important to note that the Marcellus Shale formation is closer to the surface in New York and therefore may be closer to subsurface water supplies. We suggest the State carefully consider this fact in the SGEIS analysis.

Section 3.2.2.3 Distances - The requirements for distances should include the resources listed in section 2.4.11. In addition, wells that are within 2,640 feet of horizontal boreholes, if any, should also be sampled for baseline inventory of contaminants.

Section 3.2.3 Projects Requiring Site-Specific SEQRA Determinations - This section omits the commitment to a site-specific determination for drilling on State Park Lands, let alone adding to that commitment for other park lands, refuges, and other sites of recreational or cultural interest. The commitment is reiterated elsewhere, but lacking here.

Section IV Geology

The NPS understands the NYSDEC has determined the potential of hydraulic fracturing process associated with horizontal well bores to result in contamination of a shallow potable aquifer as low. However, notwithstanding that the Marcellus Shale area in the State of New York appears to be seismically inactive and has very few "mapped" faults of significance, the nature of the proposed development of multi-well pads means that horizontal wells will be of considerable length and oriented in all directions. This increases the likelihood that a fault plane (mappable at the surface, unknown and covered by soil, or unknown due to that fact it does not extend completely to the surface) will be intercepted by a borehole and one of the fracking stages will straddle the fault plane. Whether frack fluids during such a hydraulic fracturing process would then migrate well beyond the target shale along the fault plane would depend upon several factors, which are mostly unknown at this point. Given the shallower occurrence of Marcellus Shale development in New York, there may be greater potential for aquifer impacts than what has been observed so far in Pennsylvania or Texas, where the exploitation of gas shales has occurred at deeper levels. Conventional seismic reflection techniques are used sparingly if at all in resource plays, so there will be little opportunity for operators to identify where faults occur prior to drilling and may only become apparent in the actual fracking process.

Section V Natural Gas Development and High Volume Hydraulic Fracturing

Section 5.1.3 – This section describes the benefits of larger well pad spacing that is made possible by installing multiple, horizontal producing wells at one location. A minimum standard, without variances, should be established in order to reduce land fragmentation which can inhibit movement of species.

Section 5.11.1.1 – This section states the ICF analysis does not indicate a risk of impacts to aquifers from well production. This determination seems to be based on a standard geologic condition, whereas shale depths, planes, and surrounding bedrock are non-standard across the region.

Section 5.11.3 – This section describes flowback water characteristics "... based on a limited number of analyses from out-of-state operations." It does not seem prudent to develop a general plan without locally substantiated analyses.

It is important to note that water shipped out of basin is a loss to the hydrologic budget and should be avoided whenever possible. If water is shipped out of basin for treatment, standard operating procedures to treat the water for unwanted species prior to shipment should be established.

Section VI Potential Environmental Impacts

Table 6.1 – Comparison of additives used or proposed for use in NY, parameters detected in analytical results of flowback from the Marcellus operations in PA and WV, and parameters regulated via primary and secondary drinking water standards, SPDES or TOGS111 p. 6-30 - BTEX compounds often occur in conjunction with one another. It is

unusual to see Benzene, Toluene, and Ethyl benzene listed as both used as a frack fluid additive and as found in flowback water, whereas Xylene is only listed as found in the flowback water. It is likely that Xylene is, or should be, listed as a component of an additive, which may not be a discrete additive, but instead part of a mixture of other hydrocarbon compounds used as additives.

Section 6.5.1.8 – This section states that common practices for water handling have not been developed. Conservative minimum standards need to be established and improved as new information is made available. Water quality should be carefully quantified, monitored, and reviewed to improve State approved water handling procedures.

Adjacent water supply wells should be sampled prior to gas production drilling. The suite of products that will be sampled should be reviewed for all introduced chemicals and updated as new chemicals are presented by developers and approved by regulators. Wells should also be sampled upon any future fracking events and the individuals responsible for paying sample costs should be identified, along with how this information is reported to the well owner and regulatory agency.

Section 6.5.2.4 - In reference to single centralized impoundment calculations, this analysis suggests “the major source threshold for individual HAPs (10 tons/yr) and combined HAPs (25 tons/year) could be exceeded.” It is critical to understand the synergistic effects of these HAPs and other chemical additives and the loading of new chemicals to the environment that may occur as a result of their evaporation and impoundment. With natural gas development taking place on such a regional scale, flowback water and the compounds they contain should be screened for their EDC or EDC mimicking potential. The efficiency of entry to the human body or biota by EDC via the inhalation pathway should be more fully evaluated given the off gassing from impoundments over extended periods of time and across such a large area from multiple locations. It is important to note that it has been established that there are likely effects on various receptors when EDCs are present at concentrations in the parts per trillion range in environmental media.

Section 6.6.10, p. 6-124 – We commend the State on the discussion on the relative significance of CO₂ and CH₄ emissions, their emission rates and potency relative to Greenhouse Gas (GHG) contribution associated with all phases of the gas development. The NPS would like to suggest adding a discussion on the residence time of the various GHG molecules in the atmosphere, including the speed by which they may be attenuated naturally so that their effects are minimized. Because CO₂ is readily consumed by plants conducting photosynthesis and through dissolution in the ocean, it should be determined if the residence time of CH₄ molecules in the atmosphere have, on average, a shorter, equal or longer residence time than CO₂. This could determine that control of fugitive CH₄ emissions and further minimization of flaring be emphasized as development and regulation move forward. In other words does the 23X global warming potential (GWP) factor of CH₃ change any when the residence time of the molecule is taken into consideration? By including the relative atmospheric residence time of GHG molecules, the GWP discussion is more complete and would allow for the identification of the most cost effective control technology to limit the emissions of those GHG molecules which have the greatest overall impact on the atmosphere.

Section VII Mitigation Measures

7.1.3.2 Drilling Fluids – This section discusses the use of excavated reserve pits for the temporary storage of drilling fluids. We urge the State to require the use of containerized (enclosed tank) mud systems when wells are drilled within 2,000 feet of a watercourse, or water storage facility (drinking water, irrigation water, etc.) or for wells drilled within the designated Delaware or Susquehanna River Basins in an effort to better protect these water resources. The use of such containerized mud systems is becoming a standard operating procedure of the oil and gas industry in sensitive environments. The use of containerized systems minimizes waste generation, often reduces the drilling site footprint, and always lowers the risk of soil and groundwater contamination. The cost of containerized systems is often wholly offset by savings in mud material costs and faster drilling times that result from improved management of the mud system. We also suggest that NYSDEC require, where possible, the reuse of drilling fluids in subsequent operations to reduce the amount of fluid needing disposal.

Section 7.8.2 Regulation of NORM in NYS - Since Naturally Occurring Radioactive Materials (NORM) is highly variable between sites, water, solids, and scale buildup on equipment should be sampled at each borehole to establish these levels. Concentrations should be periodically assessed on site, not only when discharged to the environment.

Section 7.10 Mitigating Noise Impacts - Noise is a disturbance to the ecological environment, in addition to being a disturbance to humans. Therefore, these ecological impacts should be taken into consideration. Vegetation buffers should be used to reduce noise and retain the aesthetics of the natural scene.

Section VIII Permit Process and Regulation Coordination

8.1 Interagency Coordination – This section should include reference to the NPS in instances where drilling may occur in or near the boundary of a unit of the National Park System or other related areas, such as National Trails or National Landmarks. In situations where NPS oil and gas regulations found in 36 CFR Part 9B apply, the State of New York and the NPS should work together to avoid unnecessary duplication of information required under regulations.

As mentioned above in Issues Related to National Trails, the NPS recommends that the NYSDEC maintains a close working relationship with the NPS and FLTC as any development of the Marcellus Shale natural gas resources moves forward.

CONCLUSION

The National Park Service is concerned with the potential impacts to NPS managed lands and other NPS related areas from development of the Marcellus Shale natural gas resource. We believe that the environmental and socioeconomic effects associated with the relatively new practice of hydraulic fracturing and large scale, industrial development anticipated for the Marcellus Shale region are not yet fully understood. Consequently, the findings of the draft SGEIS may not adequately anticipate the severity of impacts. We urge the State to err on the

side of caution and require site-specific SEQRA determinations to adequately analyze potential impacts from Marcellus Shale operations that may affect units of the National Park System or other NPS related areas.

We also recommend that the State of New York engage the NPS early in the permitting process when operations which may affect areas of the National Park System are under consideration for development. This cooperative working relationship will reduce the potential for adverse impacts to sensitive resources while still allowing for development of the Marcellus Shale natural gas resource. If you have questions about these comments, please contact David Reynolds, Chief, Natural Resources, Northeast Region at david_w_reynolds@nps.gov.

Thank you again for the opportunity to comment.

Sincerely,

/s/Rick Harris

SIGNED ORIGINAL ON FILE

Rick Harris
Associate Regional Director
Natural Resources and Science
Northeast Region

Attachment

- Northeast Regional Map of NPS units and Marcellus Shale formation (PDF)
- Northeast Region New York National Natural Landmarks (PDF)
- Northeast Region National Natural Landmarks (Photograph)

cc: William E. Douglass, Executive Director, Upper Delaware Council
Carol Collier, Executive Director, Delaware River Basin Commission