North Carolina General Assembly
House of Representatives
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Election Law & Campaign Finance Reform
Energy & Energy Efficiency, Vice Chair
Environment & Natural Resources, Vice Chair
Judiciary I
Marine Resources & Aquaculture
Public Utilities

Environmental Review Commission, Co-Chair
Energy Policy Council

Dear Chairman Shimkus:

Thank you for the opportunity to testify on February 15, 2013, before the Subcommittee on Environment and the Economy on "The Role of States in Protecting the Environment Under Current Law". I hope I was able to make the case that states like ours need at least minimum federal protections to protect the health of our people and our natural resources. Our regulatory structure continues to be weakened, and took a big hit during the last biennium when we enacted legislation prohibiting any regulations stronger than federal regulations. Below are my answers to Representative Schakowsky's specific questions on fracking.

1) How would you describe the likelihood of passing a law like Colorado's requiring groundwater monitoring before and after drilling and well completion?

North Carolina's Mining and Energy Commission (MEC) is a young institution, created in late 2012 (NC Session Law 2012-143) for the purpose of developing a comprehensive regulatory program to oversee potential oil and gas development in the state. North Carolina has no history of large-scale oil and gas development. This places a heavy burden on the newly formed MEC, which must build a modern program for managing the development of oil and gas resources in North Carolina from the ground up.
The MEC has not yet proposed any rules for adoption. Thus, it is somewhat difficult to characterize or predict the Commission's tendencies on substantive policy matters. There is also some concern that the makeup of the MEC is very heavily industry dominated. This having been said, committees of the MEC are currently considering draft rules to regulate several different aspects of modern oil and gas development. Among these is a draft rule for chemical disclosure, currently before the Commission's Environmental Standards Committee. As currently drafted, this rule draws heavily from hydraulic fracturing chemical disclosure rules in Texas and Colorado and also incorporates model regulatory language developed by Environmental Defense Fund. The Chair of the Environmental Standards Committee has stated his intent to take up the issue of baseline groundwater testing in the coming weeks. In preparation for that discussion, the Chair has directed specific attention to and provided committee members with information pertaining to the groundwater testing requirements recently adopted in Colorado.

I have concerns that baseline and post-testing of water supply wells is far from sufficient to provide assurance that contamination has not occurred. Unless extensive monitoring wells are installed to allow sampling at vertical intervals close to and along the vertical portion of a well as well as frequently along the horizontals, it is only too likely that groundwater contamination could be extensive before it is actually detected in a post-drilling or –fracking sample from a drinking water well. In presentations to the Environmental Standards Committee of the Mining and Energy Commission, the cost of baseline testing for all of the wells within a 5,000 foot radius of a gas extraction well head was emphasized (this is a highly populated area, with over 5 times the population density of Bradford County PA, with its intensive gas development), with other calculations appearing to suggest that costs could be reduced for operators by only requiring a fraction of the wells within that radius be tested, a discouraging indication of the regulatory priorities in play. Rules such as Colorado's may be an improvement on the lack of any baseline and post drilling water well testing requirements by other states, but for a state like ours, that has protected its groundwater for a best use of drinking water, and for which private wells are the daily water source for nearly 3 million residents, they are not adequate to prevent a legacy of contamination that may not show up for years after closure of a gas well site.

Further, the success of a baseline testing program depends greatly on the extent of chemical disclosure, so that unique and characteristic compounds for any operator can be detected. It is a very sobering indication for the rulemaking process and its potential to provide any protection or accountability that several recommendations made by stakeholders (including industry, consumer, landowner, local govt, health, enviro representatives) to improve the level of information to be provided to the regulatory agency, even before drilling and fracking, were discarded by the NC DENR Deputy Director as "too burdensome" for industry. The consequences of such a filtering of conscientious stakeholder input, including an industry perspective, is that the agency will not have adequate information for groundwater monitoring during drilling and completion, and emergency responders/health providers have a potentially long delay before obtaining critical information.

In summary, it is difficult to predict the final form rules will take as they make their way through rulemaking process, but the MEC seems to be looking to recent policy advances in other states and Colorado has caught the attention of influential MEC members.

2) Could regulators in North Carolina adopt such a requirement without the Legislature passing a law?

As enacted, NC Session Law 2012-143 directs the MEC to adopt rules to require the collection of baseline water quality data and pre-drilling groundwater testing. The law also assigns presumptive liability to oil and gas well operators for any groundwater contamination occurring with 5,000 feet of a wellhead. While the law does not specifically require post-completion groundwater testing, the MEC is required to adopt rules for the "protection of the quality of the water, air, soil, or any other environmental resource against injury or damage or impairment." Further, the MEC is given some discretionary authority to adopt rules regarding "any other matter the Commission deems necessary for implementation of a modern regulatory program for the management of oil and gas exploration and development in the State." Taken together, the provisions of NC Session Law 2012-143 seem to provide the MEC with a legal foundation for adopting a pre-drilling/post-completion groundwater testing rule, similar to the Colorado rule, without requiring additional legislative action.

That said, I am skeptical that the Mining and Energy Commission would propose or end up adopting a baseline and post drilling monitoring program without diluting the requirements to minimize the "regulatory burden" for operators/vendors.

Were the MEC to adopt such a baseline and post testing rule, in our state where private well use is intensive, it would be quite inadequate to detect contamination before a plume became too widespread for capture of the plume and remediation to be feasible. In the areas where fracturing would occur in NC, groundwater flows somewhat unpredictably in bedrock fractures, leaving water supply well users even more vulnerable to contamination with no prior indications of a problem.

3) Is North Carolina's current regulatory system equipped to handle development of the state's shale gas resources? What are the most significant weaknesses in the state's exiting safeguards?

North Carolina's regulatory system is not currently equipped to adequately regulate large-scale oil and gas development in the state. As noted, North Carolina has no history of large-scale oil and gas development and therefore has no regulatory program for administering such activities. While directing the MEC to begin developing rules for a modern oil and gas regulatory program, NC Session Law 2012-143 also enacted a legislatively imposed moratorium on the issuance of permits for unconventional oil and gas development. This moratorium can only be lifted by legislative action. This moratorium was implemented to ensure that rules for the protection of public health, communities and the environment are adopted and implemented before drilling or hydraulic fracturing are authorized.

As it is not yet possible to comment on the weaknesses of regulatory program that does not yet exist, I would offer the following as potential threats that could undermine efforts to establish an adequate state regulatory program in North Carolina:

1) NC Session Law 2012-143 requires that the MEC adopt rules for a comprehensive oil and gas regulatory program by October 2014. This is an ambitious goal given the sheer volume of work that must be completed. The arbitrary timeline has also been widely criticized as encouraging the MEC to "cut corners" and rush the rulemaking. Even so, there is some doubt that the MEC will be able to meet the October 2014 deadline.

Adding to this threat, a proposal currently before the NC General Assembly which has passed the Senate, seeks to sunset the current moratorium on the issuance of permits for unconventional oil and gas development on March 1, 2015. The proposed legislation also appears to functionally pre-approve any MEC generated regulations. Even if the MEC does meet its October 2014 deadline for rulemaking, the complexities of North Carolina's Administrative Procedures Act enacted in 2011 which I mentioned in my testimony, could prevent rules from going into effect prior to the sunset of the moratorium. This creates the potential for unconventional oil and gas development permits to be issued before a comprehensive regulatory program is in place.

2) The geology in the region where North Carolina's potential shale gas resources are located is known to be highly fractured and crosscut by vertical diabase dykes. Groundwater collects in these fractures and in the eroded margins adjacent to diabase formations. Insufficient scientific knowledge of the geology and movement of groundwater within this complex system limits the ability of regulators to design and implement regulations for oil and gas well construction and operation to most effectively protect ground water resources and ensure the integrity of oil and gas well. NC Legislators seem almost ideologically opposed to questioning the complexities of extraction operations in such a setting. The state legislature has, so far, declined to make the personnel and funding investments needed to develop a more comprehensive understanding of this region's unique hydrogeological characteristics. As I also mentioned in my testimony, the Legislature has slashed our Department of Environment and Natural Resources budget by 40% off of 2005-2006 levels.

3) In a review of existing NC regulations related to oil and gas program for North Carolina, the STRONGER (State Review of Oil and Natural Gas Environmental Regulations) process produced over 60 recommendations for regulatory development, ranging from stormwater management, to handling of naturally occurring radiation resulting from drilling and extraction, to management of various oil and gas wastes, to regulating water withdrawals. While many of these recommendations were captured in the rules to be developed under authority of NC Session Law 2012-143, not all of them were incorporated, and there are shortcomings of the STRONGER process itself (see attached critique by Clean Water for NC) in not stipulating minimum requirements, merely recommending best practices. There is discussion of a "comprehensive permit" for such operations, with all of the shortcuts likely to result from multi-divisional responsibility for inspections and lack of expertise with shared responsibilities. The regulatory agency has been significantly downsized in the last two years, with little prospect of staffing increases sufficient to support an oil and gas program, particularly during any lag time before any state revenues would be generated by production.

4) A key failure of regulatory accountability in NC's program is the very inadequate level of bonding for operators/vendors to be able hold them accountable for performance during operations, liability for environmental or property damage, as well as final closure and testing. Currently, the only bond required for an operator is $5,000 plus a dollar per linear foot, supposedly sufficient to buy enough cement to pour down the vertical segment of an extraction well. Consistent with the Commission's and new agency leadership's motivation to reduce "regulatory burdens" it may prove difficult to raise the bonding requirement to a level commensurate with the risks involved.

In sum, as I mentioned in my testimony, North Carolina is ill-equipped to handle development of the state's shale gas resources at the current time for the above reasons.

Please let me know if you have any additional questions.

Best regards

Pricey Harrison

cc: Representative Paul Tonko
Representative Jan Schakowsky

MEMORANDUM

TO: Clean Water For NC, Evan Kane of DWQ Aquifer Protection
FROM: Tabitha Vigliotti, Duke Stanback 2011 Intern, Hope Taylor, Exec. Director
DATE: August 5, 2011
RE: STRONGER Fracking Audit

CWFNC's general assessment of STRONGER's Hydraulic Fracturing Guidelines?

In general, the STRONGER Hydraulic Fracturing Guidelines provide appropriate parameters for hydraulic fracturing regulations, however they are lacking critical specifications to assess the value of such regulations and fall short of protecting residents and the environment in some areas.

STRONGER's Hydraulic Fracturing Guidelines are a suite of parameters to consider while making the regulatory framework for overseeing hydraulic fracturing in a state, but do not provide the specifics necessary to create regulations in North Carolina. They offer no prescriptive solutions to gaps in protections and fail to address any regionally specific issues.

Generalized strength and weaknesses in the Hydraulic Fracturing Guidelines and associated references to the 2005 Guidelines:

Strength:

- The Guidelines set forth an appropriately comprehensive list of parameters for consideration of a hydraulic fracturing regulatory program.

Weaknesses:

- The Guidelines are nonspecific. They leave words like "adequate" undefined and this ambiguity can lead to insufficient and/or inappropriate protections;
- The Guidelines leave too much "flexibility" to the states. With no bottom-line standards, The Guidelines allow states to hide insufficient protections under the guise of their discretion. This could be partially ameliorated though the inclusion of examples of states implementing improvements to inadequate regulations;
- The guidelines do not assess the extent or effectiveness of enforcement of the regulatory program;
- STRONGER's Workgroup dismissed several relevant public comments on their Hydraulic Fracturing Guidelines.

Specific strengths and weaknesses in the Hydraulic Fracturing Guidelines and associated references to the 2005 Guidelines (Following the structure of the Hydraulic Fracturing Guidelines)

X.2. General

- The Guidelines' first consideration is of potential risks associated with the depth of the reservoir to be fractured and its proximity to water. This signifies the importance of protecting drinking water.

X.2.1 Standards

- The Guidelines recommend that protections vary within a state based on local conditions. This is a strong suggestion in theory, but if the state does not have the capacity to investigate differences and enforce disparate standards, this recommendation may lead to lacking protections;
- "Waivers" or "variances" are mentioned as a means to provide "flexibility" in meeting requirements. However, extensive use of waivers or variances functionally weakens regulatory authority and, therefore, a state's ability to protect residents and the environment.
- The Guidelines set forth a strong waste management hierarchy (2005 Guidelines, section 5.3).

X.2.2 Reporting

- The Guidelines intentionally do not require sufficient field staffing in the following phrase "reporting should be sufficient to allow for the presence of field staff." STRONGER's response to a public comment shows the lack of a specific requirement was intentional: A "commenter recommended that states have the flexibility to determine which hydraulic fracturing operations should require notice rather than all operations. The Workgroup's intent was to provide states with flexibility. The language in the revised guidelines states that the notification should be sufficient to allow for field staff to monitor activities."
- The inclusion of a recommendation to exclude confidential chemicals from reporting after recommending that chemicals should be reported to the state and medical providers, leaves ambiguity for disclosure guidelines and contradicts the general intent of the guideline;
- The guideline that agencies keep records for only three years unless in active use is an insufficient time to hold records. Mitigation may be required after the three-year interval and loss of records would lead to potentially increased expenses and inadequate information about quantities and chemicals injected, thus impairing ability to remediate;
- The Guidelines (section 4.2.2.3) recommend states should get input from advisory groups, but this falls short of saying states should incorporate or give weight to that information.

X.2.3 Staffing and Training

- Strong consideration of different categories of personnel needs, but no mention of the consequences of insufficient staffing or the priority of staffing needs if a state is operating with a limited budget;
- The Guideline's have useful specifications of proper education for Technical Support (2005 Guidelines, section 4.3.1.2);
- The Guidelines mention funding needs must be sufficient to meet environmental goals. The mention of funding for environmental goals as the first consideration reveals the importance of funding to meet these goals. However, without a clear definition of "sufficient,", the guideline has little effect;

- The Guidelines recommend states address funding though a variety of sources beyond general appropriations. However, there is no discussion of challenges inherent in different funding options. If a state relies entirely on a fee-dependent system, limited enforcement or lax permitting of the industry that effectively pays for enforcement officers may result, as observed for FDA programs.

X.2.4 Public Information

- The Guidelines wisely recommend public information, especially where fracking has not occurred and high volumes of water will be used, but there is no recommendation of an adequate effort for public disclosure and education;
- The Guidelines recommend that industry associations disseminate public education materials; this may lead to biased information or selective distribution.

X.3 Water and Waste Management

- It is encouraging that the first consideration of this section is the evaluation of the availability of water;
- The Guidelines promote the recycling of wastewater without mention of potential for increased toxicity levels in recycled water and the need for increased precautions for use and handling of recycled water;
- States should be required to refuse to issue or reissue permits if the applicant is out of compliance or has shown a "history of past violations demonstrates the applicant's unwillingness or inability to comply with permit requirements," rather than simply have the "authority" to do so as the guidelines suggest;
- The Guidelines make no mention of compliance and enforcement of wastewater releases or contaminant standards;
- Rather than states setting Naturally Occurring Radioactive Material (NORM) action levels (section 7, 2005 Guidelines) to protect human health and the environment during handling, transport and waste management, action levels must be set to fully implement federal OSHA and EPA worker and environmental standards. This seems to follow with requirements for training and certification for workers in 7.3.4.;
- Entities with amounts of NORM exceeding action levels MUST (not "should") be required to be permitted;
- States must have stronger and more specific regulation than "performance standards" for removal, decontamination and remediation to protect human health and the environment, and MUST have standards for storage of radioactive materials;
- Transfer of NORM contaminated land and equipment must require specific agency notification and approval and oversight of transfer plan to prevent off site contamination and exposures, in addition to "notification of appropriate parties";
- State regulation must include standards and procedure for release of materials and equipment only after agency inspection to assure that radiation is below action levels;
- The Guidelines suggest states encourage adequate infrastructure development, but do not address what is considered adequate and make no mention of infrastructure as an additional cost to a state or local entity. More detailed guidance for the

"encouragement" of infrastructure, and responsibilities for funding it, should be included.

Public Comments not incorporated by STRONGER's Workgroup into the Hydraulic Fracturing Guidelines, but which CWFNC strongly recommends to NC DENR for consideration:

- "Agencies should review direction and extent of a fracture due to the proximity of ground water;"
- "Identification of potential conduits for fluid migration be conducted by independent certified geologist and include all potential opportunities for migration, not only man-made ones;"
- "State require the performance of ground water analysis and inventory prior to any drilling activities in order to develop baseline data;"
- "States should have guidelines in place to govern and perhaps restrict fracking when circumstances provide that management and monitoring cannot assure the prevention of contamination;"
- "require a state to develop regulations regarding the placement of gas wells in relation to domestic water wells and the monitoring of groundwater contamination;"
- "use of closed-loop systems;"
- "state require that quantitative aquifer characterization be performed to evaluate water supply levels, and that a maximum permitted depletion be establishes to maintain existing beneficial use, prior to and potential drawdown for drilling and hydraulic fracturing."