

Pennsylvania House of Representatives

**ENVIRONMENTAL RESOURCES & ENERGY COMMITTEE
PUBLIC HEARING**

**Mitigation of Environmental Risk Associated With
Marcellus Shale Development**

House Bill No. 2213

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**Testimony Of
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Chairman George, Chairman Hutchinson, members of the Committee, good afternoon. The Susquehanna River Basin Commission appreciates the opportunity to provide comments here today and we commend your leadership for addressing this very important issue.

For those of you that may not be familiar with the Susquehanna River Basin Commission, we created in 1971 as a federal-interstate compact commission by the passage of concurrent legislation in the General Assemblies of the three basin states, Pennsylvania, New York and Maryland, and by the United States Congress, all of which were signed into law by the respective governors and the President to create the Susquehanna River Basin Compact.

Under the terms of the Compact, the Commission is vested with very broad authority in the areas of water resources planning, management, conservation, development, utilization and allocation. Because that authority emanates from the Compact, all actions of the Commissions constitute a joint exercise of the sovereign powers of our member states over the water resources of the basin. Our four commissioners are appointed, one each by the governors of our member states, and one by the President (ex officio), and they represent their respective jurisdictions as they take actions that affect the basin as a whole.

In that sense the Commission is somewhat unique; we carry out these authorities not within any one political jurisdiction, but rather with the jurisdictional area of the Susquehanna River Basin. Our jurisdictional boundaries are thus watershed-based, rather than political. While the basin is shared by the three states, most of the basin, nearly 75 percent, is located in the Commonwealth of Pennsylvania. Approximately half of the entire land area of the Commonwealth lies within the basin.

In the Chairman's letter of invitation to speak here today, we were asked to comment on mitigating environmental risks associated with drilling in the Marcellus Shale in general, and the provisions of House Bill No. 2213 in particular.

With respect to House Bill No. 2213, first let me commend the Chairman, the co-sponsors and this Committee for your interest in proposing or considering improvements to the Oil and Gas Act of 1984. At the time that legislation was crafted, the activity we are experiencing today in the Marcellus Shale play was not contemplated. It is therefore appropriate to re-examine this statute and make whatever adjustments are warranted to make it meet contemporary conditions.

Take the issue of bonding, for example. The current amounts set in statute are a reflection of what was deemed appropriate over 25 years ago. If the policy behind bonding is to avoid having the public assume the risk of replacing a water supply, restoring a pad site or plugging a well, then the amount of such bonds should reflect those costs.

With regard to the proposed amendment to require disclosure of chemicals used in hydrofracture treatment, let me just offer that the public's right to know and its expectations for transparency have never been greater, and it is appropriate to reveal the constituent chemicals used in those operations. We have seen misinformation and misconceptions surrounding this issue, so we applaud the effort to establish a clear disclosure policy in law. I will only note that the provision is limited to the Marcellus, but could arguably be extended to any hydrofracture operation, regardless of the target formation involved.

Let me also speak to the suggested modifications to the rebuttable presumption provisions of Section 208. Of note is your desire to extend the presumption to diminution of water supplies. This is a very noble thought,

but it can also be problematic in several respects. First, and unrelated to natural gas, whenever you have multiple sources pulling from the same aquifer, you often see diminution, but it does not affect the ability of someone to continue to use their source of supply for the purpose intended. In other words, you can have a de minimus, but inconsequential loss that does not affect someone's use and enjoyment of their own source. Read literally, the language could apply in that situation. Secondly, the amount of pre-drilling testing needed to establish a baseline would be significant. You have wet years, dry years, and regular seasonal changes in the water table that all have to be factored into establishing that baseline. We would suggest that you give those issues some consideration in your deliberations.

With respect to your request for comments on mitigating environmental risks associated with drilling in the Marcellus Shale formation in general, let me speak to the Commission's role and steps we have taken to minimize environmental impacts related to water use by this industry.

First, and as we have noted in prior testimony before this Committee, our business is water resources management, not mineral resources development. We don't regulate drilling or the production or transmission of natural gas. Nor do we regulate the treatment, disposal and re-use of flowback and production fluids, including brines. What we regulate is the withdrawal and consumptive use of water associated with natural gas development activity.

Our management objective is to have this industry avail itself of the water resources of the basin in the development of this important mineral resource, but to do it in way that minimizes impact to the basin's water resources.

It was Santayana who said "Those who cannot remember the past are condemned to repeat it." In the past, we have seen mineral exploitation occur at the expense of society; where the environmental risk was not mitigated, but instead transferred to the public. We don't want to repeat that history and perpetuate that legacy – and we don't need to. We need to be smart and use the lessons we have learned.

One of the things we realized almost immediately when the Marcellus industry came to town was that our traditional regulatory scheme was not a good fit for this type of activity. Rather than a typical industrial facility located at a specific site withdrawing water at a specific quantity on a

regular basis, we quickly realized that this industry in a sense was much more nomadic—it needed to take varying amounts of water from many different sources to support drilling operations at multiple locations, and at different times over a different duration.

In short, what we realized is that we needed to modify our approach, not to our substantive water resource protections standards, but to how we administratively manage the impacts of this type of water use. Within the first six months, we undertook rulemaking changes resulting in several modifications to our program, and continued to refine them with two additional rulemaking actions, all within the last 18 months.

Given our concern for the potential for environmental impact, we effectively eliminated our standard regulatory thresholds applicable to all other types of water use (i.e., 100,000 gallons per day for withdrawals and 20,000 gallons per day for consumptive use). If you drill into the Marcellus or Utica shale formations, you need a consumptive use approval from us, and all sources of water used for the operation require advanced Commission approval, regardless of the quantity. For this industry it starts with gallon one.

We also created a new Approval by Rule (ABR) process that enables us to issue consumptive use approvals on a drilling pad basis, rather than an individual well basis, and which imposes monitoring, metering, reporting and mitigation requirements for that specific location. It gives us an efficient administrative mechanism for tracking water sources and water use on the pad site, regardless of the number of wells permitted to be developed at that location by our member states.

On the issue of water quality, we require projects to certify compliance with all applicable state and federal laws for the treatment and disposal of flowback or produced fluids, including brines. We see this as perhaps the most significant issue related to natural gas development activity. More so than water quantity, water quality will be the tail that wags the dog.

Although we have made specific rule changes related to this industry, I should point out that we have not modified any of our current standards or requirements associated with the review and approval of water withdrawals. The natural gas industry continues to be subject to the same standards that all withdrawals across the basin are subject to, and we believe are

appropriate to protect our water resources as we simultaneously allow for their utilization to support this important industry.

With regard to the evaluation of withdrawals, we look to whether a proposed taking should be subject to a protective passby flow condition, which restricts the ability to take water during low flow conditions (essentially cutting off the withdrawal when flow conditions reach a certain threshold). We undertake that evaluation using criteria that is applicable to all surface water withdrawals, not just those requested by the natural gas industry. This protocol enables us to evaluate the impact of the withdrawal and involves looking both upstream and downstream to assess cumulative impact, taking into account all other withdrawals and discharges and their impact on the resource, particularly during low flow periods.

To date, the Commission has issued 110 surface water withdrawal approvals to the natural gas industry, with most of them involving a passby condition to protect stream flow. We have not seen the industry turn to groundwater resources yet, but we can anticipate that happening in some of the glaciated regions of our basin, given that base flows in those regions are not well equipped to sustain depletion during low flow conditions. I should point out that the Commission has a very good aquifer testing protocol that is applicable to all groundwater withdrawals, and which can result in passby conditions to protect the resource.

We have also approved the use of 20 public water supply systems as a source for water, and have an additional 11 systems currently under review. The industry has turned to these systems to supply approximately 45% of the water used for natural gas development. For the industry, it's a matter of economics—where can it find water closest to the drilling pad site to minimize transportation costs.

Thus far, the Commission has issued a total of 500 ABR pad site approvals and there are some preliminary findings that are beginning to emerge from the data reported to us on post-hydrofracture reports:

- Of the total amount of water brought onto the drilling pad site, approximately 87% is being used for drilling and hydrofracture treatment.
- Total water withdrawn and used for hydrofracture operations over the past 18 months totals 262.2 million gallons (M/gal).

- On an annualized basis, this represents 480,000 gallons per day.
- Of that total, 55% (144.7 M/gal) is from surface water sources and 45% (117.5 M/gal) is from public water supply systems.
- The average total volume used in each operation is 2.7 M/gal, of which 2.2 M/gal is fresh water and 0.5 M/gal is recycled flowback.
- The average recovery of fluids injected is 13.5%.
- Of the amount recovered, approximately 60% (17.8 M/gal) was reused and 40% (11.6 M/gal) disposed of for treatment.
- The disposal quantity (11.6 M/gal) represents approximately 4% of the total amount withdrawn for hydrofracture operations.

This represents our current information on the water use profile for this industry to date and we would be happy to supply the Committee with additional information as it becomes available, perhaps on an annual basis.

I also wanted to note for the record that the Commission is now in the process of deploying a remote water quality monitoring network that will continuously measure and report water quality conditions of smaller rivers and streams located in northern tier Pennsylvania and southern tier New York watersheds where Marcellus activity is underway. This real-time monitoring system is being designed to allow access to the data collected to other resources agencies and the general public through our website. Phase 1 of the project, to be completed this year, will involve the deployment of 30 stations across this area of the basin, and we anticipate further expansion in the near future.

We stand ready to continue to provide value-added service to the Commonwealth as it moves forward with natural gas production issues associated with the Marcellus Shale.

Thank you.

I would be happy to respond to any questions or comments from the Committee.