



CITY OF PHILADELPHIA

WATER DEPARTMENT
ARAMARK Tower
1101 Market Street
Philadelphia, PA 19107-2994
March 3, 2011

HOWARD M. NEUKRUG, P.E.
Water Commissioner

Commission Secretary
Delaware River Basin Commission
P.O. Box 7360
West Trenton, NJ 08628

Re: Comments on DRBC Natural Gas Development Regulations

Dear Commission Secretary:

One of the Philadelphia Water Department's (PWD) core missions is the provision of safe, high quality drinking water to our nearly two million customers in the Philadelphia region. Philadelphia's drinking water sources are the Delaware and Schuylkill Rivers, and our pledge to our customers extends to the stewardship of our region's water resources. To this end, PWD has embraced a watershed protection approach that tracks and evaluates events and practices that may cause immediate or long term impacts on water quality. It is with an eye towards potential long term repercussions that PWD is closely following the discussions surrounding natural gas drilling.

We believe that the current regulatory framework, if enforced, is adequate to protect our water supply from *immediate* threats. Support from DRBC through its new regulatory framework is needed, however, to help monitor and protect us from *long term* impacts. In light of this goal, DRBC's new regulations should be framed around complementing and strengthening state regulations. One such example already in the draft regulations is the requirement to store wastewater from hydraulic fracturing in closed tanks prior to treatment or transportation of the wastewater. This requirement helps supplement state regulations in Pennsylvania and helps protect Philadelphia's drinking water supply from the potential cumulative impacts of repeated spills and leaks from storing wastewater in open air pits. The following recommendations reflect other improvements to DRBC's regulations that would address key concerns for drinking water suppliers. Also included are recommendations that supplement changes to the draft regulations and that are critical to understanding and

minimizing the potential impacts of natural gas development in the basin. Lastly, we request clarifications of the draft regulations to better understand their full impact.

RECOMMENDATIONS FOR DRBC'S DRAFT NATURAL GAS DEVELOPMENT REGULATIONS

1. Increase Groundwater and Surface Water Monitoring Requirements

A. Increase the Number of Samples Required

Prior to alteration of a well pad site, DRBC's regulations require one sample at a representative number of groundwater wells within 1,000 ft. For surface water, the regulations require one sample up gradient and one sample down gradient of the planned well pad site. Additionally, the draft DRBC regulations require annual monitoring at the same locations following well construction until the well is plugged. This sampling helps to supplement Pennsylvania regulations, which do not stipulate monitoring of this type. Yet the number of samples requested is not sufficient. Much more data is needed to effectively evaluate baseline conditions and to detect and track changes following drilling and hydraulic fracturing of a well. For groundwater, PWD recommends two samples prior to site alteration and one sample every three months thereafter. For surface water, PWD recommends sampling every two weeks beginning at least six months prior to site alteration. Sampling should occur on a fixed schedule and continue throughout the land clearing, drilling, hydraulic fracturing, and production phases of each well.

B. Specify the Parameters to be Analyzed

All samples – regardless of whether they are groundwater or surface water samples – should be analyzed for the parameters regulated under the Safe Drinking Water Act. Additionally, detection limits should be set to those established by EPA under the Safe Drinking Water Act.

C. Install Continuous Monitoring Probes at Priority Surface Water Locations

Natural gas companies operating in the Delaware River Basin should be required to fund continuous monitoring probes at priority locations selected by DRBC in collaboration with the Monitoring Advisory Committee. Parameters to be sampled for include, at a minimum, conductivity, pH and temperature. This continuous monitoring is critical for evaluating long-term data trends and detecting potential cumulative changes due to natural gas drilling in the basin. Monitoring units at these locations should be connected to the Delaware Valley Early Warning System, which is a secure notification and monitoring system designed to support downstream users and emergency responders in case of spills, accidents and other emergencies. This system already has much of the infrastructure necessary to accommodate multiple monitoring units. Additional monitoring locations could easily be incorporated.

2. Do Not Allow Discharges of Treated Natural Gas Wastewater Upstream of Philadelphia's Intakes on the Schuylkill and Delaware Rivers

The impacts of discharging treated wastewater from hydraulic fracturing on surface water and drinking water quality are unknown. Other states with similar shale formations use alternate methods of wastewater disposal, so data to evaluate the impact of discharging wastewater to surface waters are limited. Pre-treatment regulations in Pennsylvania established to address total dissolved solids do not directly deal with other parameters of concern found in natural gas wastewater, such as radionuclides. The ancillary effects of pre-treatment on these parameters, and ultimately on the quality of surface waters, have not been studied sufficiently. Additionally, no water quality criteria exist for many of the constituents found in natural gas wastewater, including certain metals. As a result, regulators are not able to develop permits that effectively protect water resources. Until more data and information are available, all discharges of treated natural gas wastewater upstream of the Philadelphia drinking water supply should be prohibited.

3. Require Full Reforestation of Lands Cleared to Accommodate Drilling

Forests provide irreplaceable protection of drinking water supplies. Yet current regulations in Pennsylvania, while requiring site stabilization and vegetative restoration, do not require reclamation of a well pad site that was once forested back to its original state. PWD requests that DRBC's regulations be modified to supplement state law by requiring full restoration and reforestation of all lands that are impacted by gas drilling and related activities, including access roads, when drilling is complete. This is especially critical for the long-term viability of multi-use state owned forest lands where much of this drilling will occur.

4. Expand Land Application Prohibitions

Page 59 of DRBC's draft regulations states that "wastewater, recovered flowback and or production water and brines from natural gas well pads may not be applied to any road or other surface within the Delaware River Basin." This prohibition should be expanded to include treated wastewater and solids produced from the treatment of brines from natural gas well pads.

OTHER RECOMMENDATIONS FOR ADDRESSING THE POTENTIAL IMPACTS OF NATURAL GAS DRILLING ON PHILADELPHIA'S DRINKING WATER SUPPLY

PWD recommends the following actions, in addition to the above changes to the draft regulations, that will help minimize the potential impacts of natural gas development in the basin. PWD encourages a commitment to these activities by DRBC and other regulating agencies before drilling occurs in the basin.

1. Encourage Participation in the Delaware Valley Early Warning System

PWD requests that all entities dealing with hydraulic fracturing fluids or wastewater in the Delaware Basin – including haulers and treatment facilities – be encouraged to join the Delaware Valley Early Warning System to support advanced notification of downstream surface water users of spills and accidents.

2. Support a Study that Evaluates the Long-Term Implications of Natural Gas Drilling on Drinking Water Supplies

A study of the long-term implications of natural gas drilling for Philadelphia's drinking water supply is needed. At a minimum, this study should include an evaluation of the cumulative

impact on surface waters of improperly cased wells and on-site spills and accidents involving toxic substances. Additionally, the study should evaluate transportation pathways in the Delaware River Basin of hydraulic fracturing fluids and wastewater and determine the risk of spills and accidents in proximity to drinking water supplies. The study should also evaluate the potential impacts of disposing recovered wastewater from hydraulic fracturing upstream of PWD's intakes, should this activity be allowed.

3. Participate in a Marcellus Shale Task Force

A task force committed to protecting Philadelphia's drinking water supply is needed. This task force should represent a diversity of stakeholders including, at a minimum, members of the gas industry, state agencies, DRBC, the environmental community and PWD. This task force would help direct the cumulative study described above, make recommendations for future regulatory changes, and help improve coordination among regulators and regulated entities for the benefit of drinking water supply protection.

4. Commit to Future Regulatory Changes as Needed

DRBC should consider the recommendations from the cumulative impact study and Task Force and update its regulations accordingly. Permitting should cease if any contamination of drinking water supplies due to natural gas drilling or hydraulic fracturing is detected.

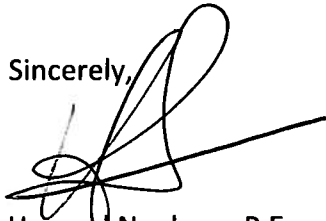
REQUESTED CLARIFICATIONS OF DRBC'S DRAFT REGULATIONS

PWD requests several clarifications of the draft regulations in order to improve our understanding of their full impact.

1. PWD has conducted an extensive analysis of both Pennsylvania's and DRBC's regulations for natural gas development. As a result of this analysis, we have identified significant overlap between the two sets of regulations in the areas of planning, permitting, reporting and bonding. In some cases, only minor differences exist within these areas of overlap. PWD recommends that guidance be developed to streamline both sets of regulations. This will help minimize confusion – and possible non-compliance – within the gas industry.
2. More explanation of DRBC's proposed Approval by Rule is needed. A chart demonstrating when an Approval by Rule is applicable would be helpful. An explanation of how, specifically, the Approval by Rule process works and its implications for public notification is also requested.
3. More information about DRBC's planned methods of inspections and enforcement at all stages of natural gas development is needed.

We look forward to continuing our longstanding partnership with the DRBC as we address the many challenges to water quality in the Delaware River Basin. Thank you for the opportunity to comment on the Draft Natural Gas Drilling regulations. Please do not hesitate to contact me with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Howard Neukrug', with a long horizontal line extending to the right.

Howard Neukrug, P.E.
Commissioner