



## United States Department of the Interior

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IN REPLY REFER TO:

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April 12, 2010

Pamela Bush, Commission Secretary  
Delaware River Basin Commission  
25 State Police Drive  
P.O. Box 7360  
West Trenton, NJ 08628-0360

Subject: Public Comment – Stone Energy Dockets  
**Draft Dockets D-2009-018-1 and D-2009-013-1**

Dear Ms. Bush:

The National Park Service (NPS) appreciates the opportunity to review and comment on two projects sponsored by Stone Energy Corporation (Stone) proposed within the Delaware River Basin. Both projects would be located in Wayne County, Pennsylvania and in an area that the Delaware River Basin Commission (DRBC or Commission) has classified as Special Protection Waters. The following comments are intended to provide the NPS perspective on the importance of Special Protection Waters and our technical expertise on how the two proposed projects may impact the resources that we have been entrusted to conserve within our NPS areas.

As you know, the drainage area of Special Protection Waters (SPW) in the Delaware River Basin encompasses 6,780 square miles. It also contains the Upper, Middle and Lower Delaware River National Wild and Scenic River Segments and many significant high-quality tributaries. These national designations were bestowed in order to safeguard the “outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, ...that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations...to protect the water quality...and to fulfill other vital national conservation purposes.” The NPS is privileged to manage these resources of national significance and has considered the two draft dockets accordingly.

### **Draft Docket D-2009-018-1**

**Stone Energy Corporation, Matoushek 1 Well Site Shale Gas Exploration and Development Project, Clinton Township, Wayne County, Pennsylvania**

Overall, draft Docket D-2009-018-1 is comprehensive and appropriate in setting standards for further development of the Matoushek Well. We do have some additional recommendations included below.

## **A. DESCRIPTION**

### **5. Physical Features**

#### **g. Wastewater Containment, Sampling, Transport, Treatment and Disposal**

##### **i. Non-Domestic Wastewater**

We are pleased to see the DRBC requiring Stone to use steel tanks for non-domestic wastewater storage. An important issue with wastewater storage is the safe storage, handling, transport, and proper disposal of the hydraulic fracturing flowback fluids, produced water, and brines. Keeping these materials out of the environment and preventing contamination of ground or surface waters, soils, or air, should be a primary concern. Requiring the use of steel tanks (in place of open pits) will help to minimize the possibility of leaks or spills of these fluids during storage and transfer.

However, there will be a need to define a timeframe for “temporary” storage on-site of non-domestic wastewaters in steel containers, as their prolonged presence at these well sites may increase the likelihood of accidents resulting in contamination of water resources within the Basin.

##### **iii. Sampling and Record Keeping**

The requirement for testing of a representative sample of the non-domestic wastewater, providing a thorough chemical analysis for all the constituents listed in this section of the Draft Docket is commendable. It is very important to have an accurate evaluation of the wastewaters generated from this development to help ensure adequate handling, treatment and disposal. Proper sampling and record keeping are vital to the accomplishment of this objective.

## **B. FINDINGS**

### **SPECIAL PROTECTION WATERS**

We are encouraged to see that the DRBC will require Stone to have an approved site-specific Non-Point Source Pollution Control Plan (NPSPCP) in place prior to any additional site construction activities, well stimulation, or water staging at this well site. The approved site-specific NPSPCP will help to ensure that proper measures are in place to control stormwater both during and after construction on the site, providing better protection for the high quality water resources of the Basin.

### **WELL STIMULATION**

The Draft Docket states that the hydraulic fracturing will be conducted through the 5-1/2" production casing, which is appropriate provided the weight and grade of casing (information that is not provided in the Draft Docket) is sufficient to handle treatment pressures. However,

there is an open (i.e., uncemented) annulus between the production and surface casing. We recommend that the DRBC impose the following requirements:

1. During the hydraulic fracturing treatment, the 5-1/2" x 9-5/8" annulus pressure be monitored and reported.
2. If at any time during the job, there are indications that the integrity of the 5-1/2" casing is compromised, the stimulation should be aborted until such time as the mechanical integrity is restored.
3. Throughout the life of the well, Stone should actively monitor tubing/casing pressure (we assume the well will be completed with a tubing/packer for production) and production casing/surface casing annulus pressure as a means of demonstrating mechanical integrity (i.e. isolation of fresh water zones from the production stream) of the well.

### **M1 WELL SITE OPERATION PLAN**

We are also pleased to see that the Well Site Operation Plan (OP) includes the requirement (II.m.) that the Draft Docket holder implement, to the satisfaction of the Commission, a continuous program to encourage water conservation in all types of use, including the reuse and recycling of flow-back waters to the greatest extent possible. This could help to lessen the need for new water withdrawals for these purposes and could also reduce the volume of non-domestic wastewater needing to be transported for disposal.

### **Pre-Alteration Groundwater Quality Survey Plan**

The requirement that the applicant will develop, and have approved, a Pre-Alteration Groundwater Quality Survey Plan is appropriate. This plan would require the sampling of a representative number of wells up to 2,000 feet from the gas well and the analysis of these samples by a Pennsylvania Department of Environmental Protection (PADEP)-certified lab for a comprehensive number of parameters, characterizing this groundwater quality prior to hydraulic fracturing. It is critical that we have good baseline data on groundwater quality and are aware of any impairment that is associated with this development.

### **Draft Docket D-2009-013-1**

**Stone Energy Corporation, Surface Water Withdrawal for Natural Gas Exploration and Development Projects, West Branch Lackawaxen River Withdrawal Site, Mount Pleasant Township, Wayne County Pennsylvania**

## **B. FINDINGS**

### **On-site Findings**

#### ***Special Protection Waters***

We are pleased to see that the Commission will require Stone to have an approved site-specific Non-Point Source Pollution Control Plan (NPSPCP) in place prior to any site construction activities or water withdrawals at this site. The approved site-specific NPSPCP will help to ensure that proper measures are in place to control stormwater both during and post-construction at this site, which is located in the drainage area of SPW.

### ***Withdrawal Site and Operations***

It may not be appropriate to site and construct this facility, with the associated fencing, storage tanks, pumps, fuels, road, and staging area within the floodplain.

#### ***Pass-by Flow***

If a Minimum Pass-by Flow of 5.9 cfs at the Stone West Branch Lackawaxen River gage is sought, then the criteria should state that the pump will be turned off whenever the instantaneous flow in the creek at the withdrawal site, minus the withdrawal, are equal to or less than 5.9 cfs, rather than requiring the 24-hour average flow as the criteria. We also recommend that a real-time flow gage be installed at the withdrawal site rather than utilizing the gage downstream to infer flow at the withdrawal site. This indirect estimate could mask flow conditions near the withdrawal location.

While increasing the Minimum Pass-by Flow to 25% of Average Daily Flow for this stream, or 5.9 cfs, is an improvement over the requirement from the previous Draft Docket, it is still not proven if this flow is adequate to support the needs of aquatic life in this stream, which is a High Quality (HQ) Cold Water Fishery (CWF) as classified by the PADEP. No scientific studies have been done to support this Minimum Pass-by Flow requirement on this particular stream and small HQ-CWF streams like the West Branch Lackawaxen River are more likely to be detrimentally impacted by significant water withdrawals. Proposing to withdraw up to 0.7 million gallons per day on a small tributary, which represents only an 11.45 square mile drainage area, needs further review. It will be important to consider alternative choices for water sources in that particular area that may be larger and located closer to the well site where the water will be utilized.

### **The Need for Cumulative Impacts Analysis of Natural Gas Development in the Basin**

As the primary steward of the Delaware River Basin's water resources, the DRBC provides comprehensive watershed management with regard to surface and groundwater quality and quantity issues and seeks to ensure proper environmental controls are provided to safeguard the Basin's water resources.

Fifty percent (6,780 of 13,539 square miles) of the Basin's land area drains to waters classified as SPW. The Commission's SPW program is designed to prevent degradation in streams and rivers considered to have exceptionally high scenic, recreational, ecological, and/or water supply values through stricter control of wastewater discharges, non-point pollution control, and reporting requirements.

In a May 2009 Determination, the Commission concluded that all natural gas extraction projects in shale formations within the drainage area of SPW must obtain approval of the DRBC because such projects "...may individually or cumulatively affect the water quality of Special Protection Waters by altering their physical, biological, chemical or hydrological characteristics." This Determination is very important to the overall functioning of the Basin when one considers that nearly 72% (4,874 of 6,780 square miles) of the land area draining to SPW lies over the Marcellus Shale. It is reasonable to anticipate that much of the proposed development in the shale may be concentrated in the least disturbed, mostly forested, and environmentally sensitive portions of the watershed.

Fortunately, the Delaware River system has remained resilient, maintaining outstanding biodiversity and exceptional water quality. This resiliency is due to these relatively intact, functioning ecosystems and landscapes found in its headwaters as mentioned above. The NPS is concerned about future demands on water resources in the Basin. It is estimated that over ten thousand natural gas wells in the Basin could require 40 billion or more gallons of water for hydrofracturing and associated drilling uses. This represents a tremendous additional burden on the high quality water resources of the Delaware Basin, both in terms of water withdrawals and assimilation of any waste loads associated with natural gas development activities. As such, the NPS has determined there is a need for an analysis of the cumulative impacts associated with additional water withdrawals from the Delaware system, especially in light of out-of-basin transfers of this water. Furthermore, we believe there is a need for a complete programmatic environmental review of the full range of natural gas extraction activities that will affect the Basin.

Thank you for the opportunity to review Draft Docket D-2009-018-1 proposed in Clinton Township, Wayne County, Pennsylvania and Draft Docket D-2009-013-1 proposed in Mount Pleasant Township, Wayne County, Pennsylvania. We appreciate your consideration of the issues and comments provided in this letter.

Sincerely,

A handwritten signature in black ink that reads "RALPH, Acting ARD for". The signature is written in a cursive, somewhat stylized font.

Richard L. Harris

Associate Regional Director, Natural Resources

Science and Conservation and Recreation Assistance

Northeast Region, National Park Service