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Re: Public Comment – Stone Energy Dockets

To the Delaware River Basin Commission:

These are the public comments of the Widener Environmental and Natural Resources Law Clinic with regard to the applications of Stone Energy Corporation D-2009-13-1 (surface water withdrawal) and D-2009-18-1 (exploration and development project at Matoushek 1 Well).

I. Summary

We believe that the proposed applications should be denied for numerous reasons. First, approval of the applications will have detrimental effects on the quality and quantity of waters within and outside the Delaware River Basin (“DRB”). Second, additionally, there are other severe environmental impacts regarding endangered species, human health concerns, and spill risks that should be considered. Finally, granting these permits will be inconsistent with purpose of the DRBC.

According to a December 2009 report by Hazen and Sawyer, Environmental Engineers and Scientists, natural gas development in the watershed brings an increased level of risk to water supply; risk of degrading source water quality, risk to long-term watershed health and the risk of exposing watershed residents and downstream users to chronic low levels of toxic chemicals.¹ In addition to the

¹ New York DEP, *Impact Assessment of Natural Gas Production in the New York City Water Supply Watershed: Final Impact Assessment Report*, 29-35, December 22, 2009.

surface risk to the watershed, extensive hydraulic fracturing of horizontal wells will present subsurface contamination risks via naturally occurring faults and fractures, and potential alteration of deep groundwater flow regimes.²

II. The Permits Should Not Be Issued Because The Proposed Activity Will Result in Diminishment of Water Quality in the DRB

a. The Permits are Not In The Public Interest

The Proposed permits should be denied because of the adverse effects on quality of water in the DRB. It has been shown that when natural gas well stimulation activities are carried out, a portion of the water, chemicals and other solids remain in the formation.³

According to the definition of Safeguarding Public Interest Section 3.10.2(B) of the DRBC Water Code (18 CFR Pt. 410) (2009) Safeguarding Public Interest shall be considered during an application. Review and consideration of any public or private project involving the importation or exportation of water shall be conducted pursuant to this policy and shall include assessments of the water resource and economic impacts of the project and of all alternatives to any water exportation or wastewater importation project.

Additionally, under Steam Quality Objectives, Section 3.10.3(A)(2)(a)(5) regarding Anti-degradation to Special Protection Waters of the DRBC Water Code (18 CFR Pt. 410) (2009) , the DRBC is required to consider the "Public Interest." This is:

a determination of all the positive and negative social, economic and water resource impacts associated with a project affecting a Significant Resource Water. A project that is in the public interest is

² Id.

³ Id.

one that, at a minimum, provides housing, employment, and/or public facilities needed to accommodate the adopted future population, land use, and other goals of a community and region without causing deleterious impacts on the local and regional environment and economy. In general, such a project would be one that conforms to a locally-adopted growth management plan which is undergoing active implementation by local officials, is supported by the larger community as a whole, and is compatible with national, state and regional objectives as well. For a project not fully meeting the above criteria, the Commission will weigh the positive and negative impacts to determine public interest.

The DRBC should deny the applications because, although they may provide some positive economic impacts in the way of local employment, the proposed applications are outweighed by negative impacts to the region. The code states that at a minimum, a project in the public interest should provide housing, employment, public facilities needed to accommodate the adopted future population, land use, and other goals of a community and region without causing deleterious impacts on the local and regional environment and economy. The present applications would not provide such other benefits.

Allowing water withdrawal at a rate of 21 Million Gallons/30 days, to be used at a well pad site located within the drainage area of the Special Protection Waters (SPW), would be irresponsible and cause dangerous long-lasting consequences for the Delaware River Basin (DRB) in general. It is possible and probable that waste water contaminates will continue through the drainage area and contaminate residential drinking water wells and the Delaware River Basin in general through migration of natural gas and fracturing solutions and other

wastewaters produced but not recoverable through hydraulic stimulation.⁴ “The difficulty of remediating diffuse contamination and other risks once allowed into the environment, and the potentially catastrophic consequences of damage to critical water supply infrastructure, make clear that a conservative approach towards natural gas drilling in the watershed and in the vicinity of infrastructure is warranted.”⁵ The “rapid and widespread industrialization of the watershed resulting from natural gas drilling would upset the balance between watershed protection and economic vitality that” the signatory states and federal regulators, and its upstate partners have established over the past 15 years.⁶ Therefore the applications submitted to the DRBC should be denied.

b. Eight Reasons why Disposal and Treatment of Wastewater from the proposed drilling operation is inconsistent with the DRBC Regulations.

We believe that the proposed treatment and disposal of wastewater from the drilling operations are inconsistent with DRBC regulations for eighth different reasons.

First, under Steam Quality Objectives, Section 3.10.3(A)(2) regarding Anti-degradation to Special Protection Waters of the DRBC Water Code (18 CFR Pt. 410) (2009), the DRBC is to maintain the quality of Special Protection Waters and ensure that there is no measurable change in existing water quality except towards natural conditions in waters considered by the Commission to have exceptionally

⁴ This is evident from the catastrophe happening in Dimock, PA. See PA DEP, *DEP Reaches Agreement with Cabot to Prevent Gas Migration, Restore Water Supplies in Dimock Township: Agreement Requires DEP Approval for Well Casing, Cementing* (Nov. 4, 2009), <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2418&typeid=1>; PA DEP, *DEP Approves Monitoring, Protective Casing Plans for VanderGrift Gas Well*, <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=1844&typeid=1>; PA DEP, *DEP Investigating Natural Gas Well Leak in Lycoming County*, <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2304&typeid=1>.

⁵ Final Impact Assessment Report, *supra* note 1 at ES-3.

⁶ *Id.*

high scenic, recreational, ecological, and or water supply values, where existing quality is better than the established stream quality objectives, unless it can be affirmatively demonstrated to the Commission that such change is justifiable as a result of necessary economic or social development or to improve significantly another body of water.

Nothing in the application for water withdrawal or the continued development of the well pad site demonstrates that there will be an economic or social justification to approve such activities that will have a detrimental impact on the region. Although the application states that the flow-back water from well stimulation activities is to be exported to an approved treatment facility located outside of the Delaware River Basin, the applicant has not shown if or how the water can be processed to allow it to be accepted at any treatment facility. Considering the past history of this well site and this applicant regarding unauthorized drilling without prior approval of the DRBC, more detailed information that would be included in the operating procedures should be provided before the approval of any permit. A substantial portion of the wastewater will not flow back to the well pad site for recovery, but will continue to migrate through man-made and naturally occurring fractures far from the well pad site location or drilling leaseholds.⁷

Allowing the water withdrawal from the DRB and then shifting the burden of wastewater dumping to another area is enabling a potentially negative environmental effect on areas outside the DRB. Additionally, there is a potential for negative effects within the DRB including possible wastewater migration through man-made and naturally occurring underground fractures at the well pad site to other areas of the DRB. The DRBC is tasked with protecting the DRB

⁷ Id. at 19-20.

water quality but it should not turn a blind eye to a potential issue because the applicant states that it will not seek wastewater dumping within the DRB or that it will recover and contain flow back fluids.

Second, under Steam Quality Objectives, Section 3.10.3(A)(1) regarding Anti-degradation to Interstate Waters of the DRBC Water Code (18 CFR Pt. 410) (2009), the DRBC is to maintain the quality of Interstate Waters and ensure that there is no measurable change in existing water quality except towards natural conditions in waters considered by the Commission to have exceptionally high scenic, recreational, ecological, and or water supply values, where existing quality is better than the established stream quality objectives, unless it can be affirmatively demonstrated to the Commission that such change is justifiable as a result of necessary economic or social development or to improve significantly another body of water.

The Applicant has not affirmatively demonstrated to the Commission that the application for water withdrawal from the DRB or the continued development of the well pad site within the drainage area of the DRB, will contribute to an economic or social justification to approve such activities. The activities would contribute to a detrimental impact on the region. Therefore approval of the applications would not be in compliance with the DRBC Water Code.

Third, under Steam Quality Objectives, Section 3.10.3(A)(1) regarding Anti-degradation to Interstate Waters of the DRB Water Code (18 CFR Pt. 410) (2009), the DRBC “will require the highest degree of waste treatment determined to be practicable. No change will be considered which would be injurious to any designated present or future use.” The applicant has failed to show how the waste water treatment or recovery will be conducted to prevent such injury to the DRB or areas outside the DRB. Since it has not been shown how or where the waste water

treatment will occur, approval of the applications would not be in compliance with the DRBC Water Code and should be denied.

Fourth, under Steam Quality Objectives, Section 3.10.3(A)(2)(b) regarding Anti-degradation of Waters and No Measurable Change to Existing Water Quality of the DRBC Water Code (18 CFR Pt. 410) (2009), the stream quality objectives are to ensure that there is no measurable change to existing water quality in the Outstanding Basin waters or the Significant Resource waters of the DRB. The well pad site location is within such areas. Operation of the well pad site could cause significant reductions in the quality of existing waters due to fracturing fluid used in the production process for gas extraction and gas migration from the well site to other areas of the DRB, including streams and rivers and other tributaries. This migration would reduce the quality of the waters by adding effluents and other toxic chemicals into the DRB Rivers and streams. Approval of this application would be in direct violation of the DRBC Water Code and should therefore be denied.

Fifth, under Steam Quality Objectives, Section 3.10.3(B) regarding Limits to discharges into the DRBC of the DRB Water Code (18 CFR Pt. 410) (2009), the waters of the basin shall not contain substances attributable to municipal, industrial, or other discharges in concentrations or amounts sufficient to preclude the specified waters uses to be protected. Within this meaning – the waters shall be substantially free from unsightly or malodorous nuisances due to floating solids, sludge deposits, debris, oil, scum, substances in concentrations or combinations which are toxic or harmful to human, animal, plant, or aquatic life, or that produce color, taste, odor of the water, or taint fish or shellfish flesh. The fracturing fluids that will be used in the processes at this site will contribute to such nuisances

through water runoff and underground migration in the DRB.⁸ The fracturing fluids contain substances in concentrations and combinations which are toxic and harmful to human, animal, plant, aquatic life, and produce color, taste, odor of the water, and taint fish or shellfish flesh.⁹ To allow such a concentration and combination of toxic and harmful chemicals into the DRB via underground migration or other sources would be in direct violation of the DRBC Water Code and therefore the application should be denied.

Sixth, under Effluent Quality Requirements, Section 3.10.4(C) regarding Public Safety of the DRBC Water Code (18 CFR Pt. 410) (2009), effluents shall not create a menace to public health or safety at the point of discharge. The point of discharge includes wastewaters that cannot be retrieved from the well site but will continue to migrate in underground formations that could impact the drainage recovery region of the DRB. To allow the applications would create a menace to public health and safety and would be a violation of the DRBC Water Code and should therefore the applications should be denied.

Seventh, under Interstate Streams – NonTidal Zones 1A and 1B of the DRBC Water Code (18 CFR Pt. 410) (2009), states the zones includes the East and West Branches of the Delaware River at Hancock, New York, R.M. (River Mile) 330.7, to the Route 652 Bridge at Narrowsburg, New York, R.M. 289.9. and the Delaware River extending from the Route 652 bridge at Narrowsburg, New York, R.M. 289.9, to the U.S. Routes 6 and 209 bridge at Port Jervis, New York, R.M. 254.75. Water uses to be protected regarding quality of the waters shall be maintained in a safe and satisfactory condition for the following uses:

⁸ Id.

⁹ EPA, *Evaluation of Impacts to Underground Sources June 2004 of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs: Chapter 4: Hydraulic Fracturing Fluids*, 9-10, (June 2004), http://www.epa.gov/safewater/uic/pdfs/cbmstudy_attach_uic_ch04_hyd_frac_fluids.pdf.

- public water supplies after reasonable treatment,
- industrial water supplies after reasonable treatment,
- agricultural water supplies;
- maintenance and propagation of resident game fish and other aquatic life,
- maintenance and propagation of trout,
- spawning and nursery habitat for anadromous fish and wildlife;
- recreation[al use of water ways].

Approval of the applications would allow gas, fracturing fluids and other wastewater migrations to enter the waters located in Zone 1A and 1B and would substantially affect the safe and satisfactory conditions of the above uses. Since the quality of the waters will not be protected by approving the applications the Code demands that they should be denied.

Eighth and finally, under Control and Abatement, Section 1.10.3(B) of the DRBC Water Quality Regulations (18 CFR Pt. 410) (2009), the regulation states that where applicable, state standards requiring higher quality water than the standards of the DRBC, the state standards will be controlling. Also, under Interstate Cooperation, Additional Requirements, Section 2.20 of the DRBC Water Quality Regulations (18 CFR Pt. 410) (2009), any of the signatory parties may impose standards, including water quality criteria and effluent quality requirements, with respect to waste discharges within its jurisdiction more stringent than those provided by the Comprehensive Plan and the DRBC Regulations. It is clear that the Pennsylvania Clean Streams Act provides such requirements that are more stringent than those provided by the comprehensive plan and the DRBC regulations. Approval of this application and work conducted pursuant to the application would be in direct violation of the Pennsylvania Act because of fracturing fluid and wastewater migration through underground waters

to at the well pad site to surrounding areas in the state of Pennsylvania. Since the Pennsylvania Cleans Streams Act would be violated if this application is approved and the DRBC Regulations require the Commission to follow more stringent standard the application should be denied.

According to the Pennsylvania Clean Streams Act, 35 P.S. 691.3, the discharge of industrial waste or any substance into the waters of this Commonwealth, which causes or contributes to pollution as herein defined or creates a danger of such pollution is hereby declared not to be a reasonable or natural use of such waters, to be against public policy and to be a public nuisance.

Under 35 P.S. § 691.1, the definition of “Industrial waste” shall be construed to mean any liquid, gaseous, radioactive, solid or other substance, not sewage, resulting from any manufacturing or industry, or from any establishment, as herein defined, and mine drainage, refuse, silt, coal mine solids, rock, debris, dirt and clay from coal mines, coal collieries, breakers or other coal processing operations. “Industrial waste” shall include all such substances whether or not generally characterized as waste.

Also under 35 P.S. §691.1 the definition of “Pollution” shall be construed to mean contamination of any waters of the Commonwealth such as will create or is likely to create a nuisance or to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, municipal, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life, including but not limited to such contamination by alteration of the physical, chemical or biological properties of such waters, or change in temperature, taste, color or odor thereof, or the discharge of any liquid, gaseous, radioactive, solid or other substances into such waters.

Lastly under 35 P.S. §691.1 the definition of “Waters of the Commonwealth” shall be construed to include any and all rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth.

It is clear from definitional use and construction of the act that the activity proposed under the applications would violate the Pennsylvania Clean Streams Act. Because the DRBC code requires the Commission to follow more stringent standards created by the signatory parties of the compact, the DRBC must deny both applications. The discharge of fracturing fluids and other waste waters is industrial waste under the Pennsylvania code and the inability to recover 100% from the well will cause the waters of the Commonwealth to be in danger of such polluted through underground waters, which the Pennsylvania legislature has declared not to be a reasonable or natural use of such waters and to be against public policy and a public nuisance.

III. The Permits Should Not Be Issued Because The Proposed Activity Will Result in Diminishment of Water Quantity in the DRB

a. Three Reasons why Water Withdrawal for the proposed drilling operation is inconsistent with the DRBC Regulations.

Under Conservation, Reduced Water Use, Section 2.1.1 of the DRBC Water Code (18 CFR Pt. 410) (2009), the commission is tasked with undertaking a long-range continuing program to:

- i. Reduce water use throughout the basin to reduce the likelihood of severe low stream flows that can adversely affect fish and wildlife resources and recreational enjoyment.

- ii. Assist in the maintenance of good water quality by provisions of minimum dilution flows and repulsion of salinity.
- iii. Defer the need for construction of new storage reservoirs and other water supply structures.

Under Importations and Exportations of Water, Section 2.30 of the DRBC Water Code (18 CFR Pt. 410) (2009), exportation of water is water taken from within the DRB and transferred or conveyed to an area outside the drainage area of the Delaware River and its tributaries, including the Delaware Bay, and not returned to the DRB.

Under The Policy of Protection and Preservation, Section 2.30.2 of the DRBC Water Code (18 CFR Pt. 410) (2009), the waters of the DRB are limited in quantity and the Basin is frequently subject to drought warnings and drought declarations due to limited water supply storage and stream flow during dry periods. It shall be the policy of the DRBC to discourage the exportation of water from the DRB.

The application for water withdraws at a rate of 21 Million Gallons/30 days would be in direct conflict with the DRBC code as this would put an additional strain on an already strained and vital resource that is needed for use by citizens in the DRB. Additionally, the creation of wastewater into the DRB through the well pad site operations, would significantly reduce the assimilative capacity of the receiving stream. The ability of the DRB streams to accept wastewater discharges should be reserved for users within the Basin. Allowing such waste waters to remain in the DRB through un-reclaimable underground wastewater would be a violation of the DRBC Water Code. Therefore the application for water withdrawal should be denied.

IV. Approval of the Applications will cause negative Environmental impacts in the Delaware River Basin.

There are three additional reasons why the applications for water withdrawal and well pad site operation should be denied. Approval of the applications will cause a negative environmental impact to (1) Endangered, Threatened and Recovering Species, (2) Human Health, (3) Soil and Water quality due to accidental spills.

A. Danger to Endangered, Threatened, and Recovering Species within the DRB

The Endangered Species Act (ESA) directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat.¹⁰ The Act applies to management of Federal lands as well as other Federal actions that may affect listed species, such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions. We believe this would include a federal compact among the United States and the cosignatory states.¹¹

As such, section 7(a)(1) of the ESA charges Federal Agencies to aid in the conservation of listed species, and section 7 (a)(2) requires the agencies to ensure that their activities are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitats. An evaluation under Section 7 is required before approval of any action that could threaten such species. Therefore the applications should be denied at this time by the DRBC until evidence is shown of a Section 7 evaluation.

¹⁰ 16 U. S. § 1531 (1973).

¹¹ *Id.*, § 1532(7).

Section 7(a)(4) requires Federal agencies to confer with the Services on any agency action that is likely to jeopardize the continued existence of any species proposed for listing or result in the adverse modification of critical habitat proposed to be designated. A conference may involve informal discussions between the Services, the action agency, and the applicant. Following informal conference, the Services issue a conference report containing recommendations for reducing adverse effects. These recommendations are discretionary, because an agency is not prohibited from jeopardizing the continued existence of a proposed species or from adversely modifying proposed critical habitat. However, as soon as a listing action is finalized, the prohibition against jeopardy or adverse modification applies, regardless of the stage of the action.

There are a number of animal, insect and plant species within the DRB that are on the endangered and threatened species list. Also, Bald eagles are presently in recovery in Pennsylvania, New York, and New Jersey and have been located within the DRB.¹² Since there is already a listing of endangered and threatened species in the area of the proposed well pad site and the DRB in general, the applications should be denied.

B. Human health and Safety Concerns

According to the Pittsburgh Geological Society, a very real and concerning safety issue is the migration of natural gas and fracturing fluids or wastewaters through bedrock and soil.¹³ Natural and fracturing induced fissures can allow natural gas and flow back wastewaters to reach outside the “contained” area of the well pad and drilling site. The gas can migrate into water wells and existing structures. This is a common issue that is found in western Pennsylvania that has

¹² DRBC, *Return of the Eagle: Bald Eagle (Haliaeetus leucocephalus)*, <http://www.state.nj.us/drbc/edweb/baldeagle.htm>.

¹³ The Pittsburgh Geological Society, *Natural Gas Migration Problems in Western Pennsylvania*, 1, <http://www.pittsburghgeologicalsociety.org/naturalgas.pdf>.

proved difficult to identify and resolve and has resulted in water well contamination, combustion of drinking water and explosion of surface structures.

C. Increased Risk of Spills at site and during transportation

Approval of this application for well pad site development and exploration will significantly increase the volume of truck traffic compared to current conditions. It has been estimated that a typical gas well could require 900 to 1,300 truck trips per year according to the Final Impact Assessment Report, approximately two-thirds of which are for water and wastewater hauling.¹⁴ On a yearly basis, this could mean a total number of trips in the range of 24,000 and 600,000, depending on the number wells drilled in a given year.¹⁵ The need to transport to and from the well pad site such large amounts of water, fracturing fluids and wastewaters, increases the potential for accidental spills and is of grave concern and could potentially have a devastating effect on the DRB in general.

Additionally, there has already been spills of fracturing fluids at wells sites across Pennsylvania and the more wells allowed will increase the potentially dangerous threat.¹⁶ The Commission must deny the applications or risk violation of several regulations of the DRBC.

V. The Permits should not be issued until Regulations Clarifying the Status of a Test Well under the DRBC.

The DRBC should follow the applicant's contention that this is a Test Well to explore stimulation of possible gas extraction to determine feasibility. If the DRBC grants a permit to Stone Energy or any other applicant regarding test well

¹⁴ Final Impact Assessment Report, *supra* note 1 at 33.

¹⁵ *Id.*

¹⁶ See *DEP Orders Cabot Oil and Gas to Cease all Gas Well Fracking in Susquehanna County*, <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2375&typeid=1>; ProPublica, *Pennsylvania's Gas Wells Booming—But So Are Spills*, <http://www.propublica.org/feature/pas-gas-wells-booming-but-so-are-spills-127>.

exploration, the permit should mandate that the applicant must cap the well when test has completed. If further exploration beyond testing is desired, the applicant must get a new permit approval of the DRBC to uncap the well and continue more in-depth exploration that would be in excess of the current application to include any horizontal drilling.

VI. The Permits Should Not Be Issued Because they are Inconsistent with the Purpose of DRBC

a. Uses to be protected

According to Water Uses to be Protected under Section 3.10.2(B) of the DRB Water Code (18 CFR Pt. 410) (2009), water uses to be protected under the DRBC code states that the quality of Basin waters, except intermittent streams, shall be maintained in a safe and satisfactory condition for the following uses:

- i. Agricultural, industrial, and public water supplies after reasonable treatment, except where natural salinity precludes such uses;
- ii. Wildlife, fish and other aquatic life;
- iii. Recreation;
- iv. Navigation;
- v. Controlled and regulated waste assimilation to the extent that such use is compatible with other uses;
- vi. Such other uses as may be provided by the Comprehensive Plan.

Allowing the proposed applications would violate this section of the code. Gas well drilling and exploration is not a use that can be maintained safely and satisfactorily and remain in accord with the DRBC Regulations. The Permits would allow activity that is destructive to the water resources of the DRB and contrary to the above stated uses and purpose of the DRBC.

For all these reasons, we urge you to deny the permits requested.

Respectfully submitted,

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