



Commission Secretary, DRBC
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April 13, 2011

Re: Comments on Proposed Addition of New Article 7 to the WQR

Ladies and Gentlemen:

We are writing to you on behalf of the Environmental Defense Fund (EDF) with our comments on the Delaware River Basin Commission's ("Commission") proposal to amend its Water Quality Regulations ("WQR"), Water Code and Comprehensive Plan by adding a new Article 7 to the WQR providing for the conservation and development of water resources of the Delaware River Basin ("Basin") during the implementation of natural gas development projects. EDF is an environmental advocacy organization with over 700,000 members nationwide. Included in these members are more than 140,000 individuals that reside in the four states that comprise the Basin. Since our founding in 1967, EDF has linked science, economics and law to create innovative, equitable and cost-effective solutions to society's most urgent and difficult environmental problems.

EDF commends the Commission for its efforts to update the regulatory framework to ensure the continued protection of the water resources of the Basin during the construction and operation of natural gas development projects. As the Commission has noted, such development projects may have a substantial effect on the water resources of the Basin and appropriate standards, requirements, conditions and restrictions are essential to prevent, reduce or mitigate the depletion or degradation of surface and groundwater. It is our hope that the submission of these comments will assist the Commission in adopting regulations that are best tailored to these objectives.

Although we continue to support the Commission in its proposed amendments, there are seven key areas in which greater regulation is needed in order to ensure the adequate protection of the Basin's water resources:

- (1) **Well Construction Standards** – To avoid unacceptable risks to public health and water resources, we strongly encourage the Commission to adopt our proposed well construction standards.
- (2) **Emergency Response** – We urge the Commission to require that operators' Natural Gas Development Plans ("NGDP") include detailed spill and emergency response plans and that these plans be evaluated by the Commission as part of its approval process. In

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addition to these plans it is essential that first responders receive proper training and that well operators have access to specially trained emergency response teams that are able to respond to spills and well emergencies in a timely fashion.

- (3) **Disclosure of Hydraulic Fracturing Fluid Composition** – The Commission should adopt a more robust disclosure policy that will allow the public to access vital information about the health risks associated with fracturing fluid. Our proposed policy would accomplish this without undermining the legitimate protection of intellectual property rights.
- (4) **Fracturing Fluid Toxicity** – To properly assess the potential impact of fracturing chemicals on surface and ground water, as well as human health, the Commission must do more to characterize the dangers inherent in fracturing fluid.
- (5) **Wastewater Management** – The proposed approval procedure for the discharge of treated wastewaters into the Basin fails to adequately protect the environment and public health. As a result, we urge the Commission to require a full evaluation and assessment of toxicity for all chemical elements found in wastewaters. In turn, the results of these evaluations should be disclosed to wastewater treatment facility operators.
- (6) **Financial Assurance and Penalties** – Financial assurance in the amount of \$125,000 per well may not be sufficient given the potential costs of pollution remediation and site restoration. Instead, we suggest that Commission consider that a per-well security of at least \$250,000 adequately balances the potential costs of pollution remediation with the interest in encouraging the development of natural gas resources. Furthermore, we urge the adoption of a system of automatic penalties for any unintended discharge.
- (7) **Land Use Policies** – We urge the Commission to establish a Basin-wide gas well development plan for appropriate land use that will allow for effective coordination between the Commission, counties and local zoning boards in an effort to minimize the impact of well pad and infrastructure development. Without the involvement of the Commission, local units of government will be left to take a piecemeal approach to gas well siting and development which will likely result in inefficient and harmful development of infrastructure and increased disruption of local communities, natural aesthetics, and ecological systems and resources within the Basin.

WELL CONSTRUCTION STANDARDS

Properly constructed and operated oil and gas wells are critical to protecting water supplies and public safety. If a well is not properly cased and cemented, natural gas or hydraulic fracturing chemicals may potentially migrate into drinking water supplies as well as accumulate in, or adjacent to, structures such as residences or water wells.. Under certain conditions, stray gas has the potential to cause a fire or explosion. These situations present a serious threat to public

health and safety and jeopardize water quality.¹ For these reasons, proper well construction regulations are essential for the protection and preservation of the Basin and the water it supplies to millions of Americans.

Although we generally understand and respect the Commission's interest in preserving and utilizing the functions, powers and duties of existing state offices and agencies, the Commission itself must act when existing state regulations are deficient and fail to adequately protect public safety and the water resources of the Basin. While we continue to support state efforts to strengthen oil and gas well construction, testing, monitoring, and reporting standards, we find that New York and Pennsylvania's current well construction and cementing requirements fall short of prudent industry practice and create unacceptable risks to public safety and ground water quality.

Under the Delaware River Basin Compact, the Commission's Rules of Practice and Procedure, and the Commission's Comprehensive Plan, the Commission has a legal duty to enact regulatory controls that ensures that pollution originating in the four signatory states does not injuriously affect the waters of the Basin. Because current well casing and cementing standards promulgated by those states are deficient and fail to provide adequate protection against the release of toxic hydraulic fracturing fluids, the Commission has not met this existing legal obligation. Consequently, we urge the Commission to fill this regulatory gap by adopting stringent well construction and cementing standards that will assure the long-term protection of the Basin's surface and groundwater resources.

For guidance, we ask that the Commission consider the attached comments ("Attachment A"), that EDF submitted in response to the Pennsylvania Department of Environmental Protection's proposed amendments to 25 Pa. Code Chapter 78.² Unfortunately, since Pennsylvania's DEC failed to fully implement these important recommendations, the burden now falls upon the Commission to ensure that well construction and cementing standards adequately protect the water resources of the Basin.

EMERGENCY RESPONSE

While we are pleased that Section 7.5 of the draft regulations addresses the need for operators to report the release or threatened release of fracturing contaminants to the Commission and appropriate agencies, we urge the Commission to require that operators' Natural Gas Development Plans (NGDP) include detailed spill and emergency response plans and that these

¹ DEP'T OF ENVTL. PROT., ENVTL. CONTROL BD., NOTICE OF FINAL RULEMAKING, 25 PA. CODE, CH. 78 OIL AND GAS WELL CEMENTING AND CASING (Oct. 12, 2010), *available at* http://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2010/October_12_2010/Casing%20and%20Cementing/Final_OG_Order_9_20_2010.pdf.

² DEP'T OF ENVTL. PROT., ENVTL. CONTROL BD., PROPOSED AMENDMENTS TO 25 PA. CODE, CH. 78 OIL AND GAS WELLS (Oct. 12, 2010), *available at* http://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2010/October_12_2010/Casing%20and%20Cementing/Final_Annex_A_9_27_20101.pdf.

plans be evaluated by the Commission as part of its approval process. Detailed emergency response plans that adequately coordinate and train private, local, and state response teams are essential to protect community safety, public health and water quality. Without such plans in place, first responders, especially those in rural or small communities, will be ill-prepared for spills or catastrophic events relating to shale gas production. These events are not uncommon. In the first half of 2010 alone there were at least 47 incidents at natural gas operations in Pennsylvania that required an emergency response by the state's Department of Environmental Protection.³

Although not suggested as an exhaustive list, the emergency response procedures that Sen. Casey proposed in the Faster Action Team Energy Response (FASTER) Act are an excellent basis for strengthening the Commission's draft regulations relating to emergency response. The Commission's adoption of similar requirements would ensure that well operators have an employee knowledgeable in responding to emergency situations present at the well as necessary during the exploration, drilling and production phases. The presence of a person knowledgeable in emergency planning and response is essential to the early detection of emergency situations as well as the timely initiation and coordination of the emergency response.

As part of this response, we urge the Commission to require well operators to have access to emergency response teams that can be on scene no later than three hours after being requested. Response teams must be comprised of individuals who are familiar with the well operations and equipment and its members must participate in well emergency training at least annually. Well operators would decide whether they would meet this requirement through the use of multi-employer composite response teams, commercial response teams provided through contract, or state-sponsored response teams. On an annual basis the Commission should require operators to provide the Commission with a report containing detailed information on the response team assigned to each of the operator's wells and that affirmatively states that the operator is in compliance with the Commission's emergency response requirements.

Recognizing the fact that accidental releases and gas well emergencies are dynamic and highly time sensitive events, we urge the Commission to include regulations that require well operators to contact local first responders shortly after the commencement of an emergency situation and contact OSHA, DRBC, the appropriate state environmental agency, and the National Response Center as soon as is practicable following the commencement of any such emergency or accidental release. We fear that, in the absence of timely notification and involvement of first responders and appropriate agencies, emergency situations may quickly escalate out of control, and the size and severity of spills and accidental releases may increase dramatically. Because many well sites are likely to be located in remote areas that are outside the normal range of cell phone or radio coverage, we urge the Commission to require that well operators provide communications technology within a reasonable distance of the well that will enable well operators to comply with the notification requirements discussed above.

Notification requirements, however, will be of limited benefit if the Commission does not also adopt regulations that require well operators to provide appropriate training to first responders.

³ Steve Mocarsky, *Casey Seeks Input on Shale Gas Bill*, THE TIMES LEADER, Oct. 28, 2010, available at http://www.timesleader.com/news/hottopics/shale/Casey_seeks_input_on_shale_bill_07-26-2010.html

For example, if first responders are not briefed in the location of well pads within their response district they may have difficulty simply locating the site of a well emergency given the remoteness of many prospective well pads. Additionally, gas well emergencies or spills may present new and unique challenges that local first responders may not be equipped or prepared to handle. For these reasons we recommend that the Commission require well operators to provide annual training to local first responders on well hazards and proper emergency response techniques. Such training and information sharing will allow local fire departments and other first responders to incorporate well pads into their organization's pre-plans and will significantly improve emergency preparedness and response effectiveness.

DISCLOSURE OF HYDRAULIC FRACTURING FLUID COMPOSITION

Researchers and regulators cannot begin the work of characterizing and setting standards for injection fluid and flowback water chemicals without a complete picture of the composition of hydraulic fracturing fluids being used in the field. Moreover, the public has a right to know about potential health risks associated with the possible introduction of hydraulic fracturing fluids into drinking water supplies. The mandatory public disclosure of the chemical constituents of hydraulic fracturing fluids must therefore be seen as a precondition for permitting the development of unconventional natural gas in the Basin. This can be accomplished without undermining legitimate protection of intellectual property.

We were encouraged to read that the Commission's proposed regulations would require well operators to disclose to the Commission a list of the individual chemicals with Chemical Abstract Services (CAS) registry numbers and Material Safety Data Sheets (MSDS) as well as amounts used for hydraulic fracturing. To help the Commission improve upon its proposed disclosure policy we have included as an attachment to these comments a copy of House Bill 3328 currently pending in the Texas Legislature. We believe it provides the necessary elements of a disclosure policy that can provide researchers, regulators and the public the information that is needed to move forward while maintaining the confidentiality of proprietary business information ("Attachment B"). This policy builds upon disclosure policies that are being successfully implemented in other jurisdictions.

In brief, this policy would require:

- (1) that service companies and operators be required to disclose to the Commission the identity, by Chemical Abstract Service registry number, and concentrations of all hydraulic fracturing fluid constituents expected to be used and actually used at particular sites;
- (2) that this information be released to the public, except to the extent that release would constitute disclosure of a trade secret;
- (3) that information entitled to trade secret protection nevertheless be provided on a confidential basis to the Commission and to qualified medical personnel who need the information for medical diagnoses and treatments.

FRACTURING FLUID TOXICITY

Unfortunately, disclosure is only half of the issue. Many chemicals that may be found in recovered flowback water are already known or suspected carcinogens, in addition, many more chemicals have not undergone toxicity testing to properly evaluate risks to human health or the environment. Disclosures are of limited use when the health and environmental impacts of many of the disclosed chemicals are scarcely understood or entirely unknown. Because the EPA and state departments of health have not developed drinking water standards for most of these chemicals, there is the real risk that recovered flowback water will be recycled at approved treatment facilities, then released into ground or surface waters despite having high levels of chemicals with as-of-yet unknown health or environmental impacts. As a result, we recommend that the Commission require operators to include in their DRBC Post Hydraulic Fracturing Reports individualized toxicity studies for each chemical used for hydraulic fracturing. If no EPA or peer reviewed toxicity study exists for a particular substance, then the operator should be required to disclose the fact that the substance is uncharacterized and the health and environmental impacts remain unknown.

We have attached as part of today's comments a spreadsheet titled, "EDF Review of Toxicity of Compounds Found in Frac and Flowback Fluids" ("Attachment C"). The spreadsheet presents the known health effects and other characteristics for each substance commonly found in fracwater and return flows as they have been reported in a number of lists and databases (i.e., the TEDX database maintained by the Endocrine Disruption Exchange and 30 other lists and databases monitored by EDF). A large number of chemicals are known or suspected carcinogens. Fifteen are well-established neurotoxicants, and 42 are known or suspected developmental or reproductive toxicants. Most chemicals on this list have not undergone comprehensive toxicity testing to evaluate risks to human health or the environment.

The toxicity status of these chemicals needs to be better characterized by the EPA, state departments of health, or the Commission to allow for proper assessment of the potential impact of the use of these chemicals on surface and ground water, as well as effective storage, treatment and disposal methods. If the EPA or state departments of health have not made a specific finding for a specific chemical regarding its toxicity, it should not be assumed to be without adverse risk to public health. Indeed, absent a Maximum Contaminant Level (MCL), Maximum Contaminant Level Goal (MCLG), or state standard, the concentration determined not to result in adverse effects on public health in surface or groundwaters with total dissolved solids (TDS) below 10,000 ppm should be assumed to be zero.

If the Commission wishes to encourage development of Marcellus shale natural gas while safeguarding the Basin, a drinking water source for over 15 million people, it, along with the EPA and state departments of health, must embark on a comprehensive program of characterizing and setting standards for injection fluid and flowback water chemicals and naturally radioactivity elements.

Finally, the Commission should include in its proposed regulations incentives for well operators to shift away from the use of the most toxic compounds and to replace them with low-toxicity substitutes that minimize health and environmental threats. Given that so little data is available

on the concentrations of compounds found in hydraulic fracturing fluids or on effects from the interaction of these compounds with each other and with naturally occurring species, the sensible course of action is to encourage less toxic alternatives until we fully understand the impacts of these fluids. Industrial operators should also be required to provide the Commission and state departments of environmental protection with any information that they have about the health and environmental toxicity status of the chemicals they intend to use in hydraulic fracturing. Absence of data should not be equated with a demonstration of no harm.

WASTEWATER MANAGEMENT

We commend the Commission for having the foresight to recommend treatability studies, however, given that little or nothing is known about the health and environmental impacts of many of the chemicals contained in hydraulic fracturing fluids, flowback water, and in turn wastewater, the Commission's proposed approval procedure for the discharge of treated wastewaters into the Basin fails to adequately protect the environment and public health. As proposed, project sponsors must submit a treatability study demonstrating that the combined effluent will comply with the wastewater discharge and disposal permit requirements of the state in which the wastewater treatment facility is located. Furthermore, the sponsors must demonstrate that the proposed discharge will not result in Basin waters being rejected for public water supply and that the discharge will meet the EPA's Primary & Secondary Standards for a number of parameters, including Total Dissolved Solids, Lead, Cyanide-Total, Mercury, radium-226, and radium-228.

Unfortunately, as noted above, the EPA and state departments of health have failed to establish safe health and environmental parameters for many of the chemicals likely to be contained in these wastewaters. Even where health and environmental parameters have been established, appropriate testing is often not performed and enforcement has been alarmingly lax.⁴ Treated wastewaters that meet or are thought to meet the Commission's proposed standards may thus be released into the Basin still laden with chemicals and radioactive elements with unknown or harmful health effects. These chemicals and radioactive elements could eventually find their way into the drinking water of over 15 million people with unknown, and potentially severe, public health impacts.

For these reasons we advise the Commission, to the maximum extent practicable, to encourage the disposal of wastewater into deep geologic formations. If the Commission does permit the release of wastewaters within the Basin, we recommend that appropriate steps be taken to ensure proper treatment of the wastewater to prevent harm to human and ecological receptors. Included in these necessary steps is the full disclosure to the wastewater treatment facility operator of the chemical and radioactive elements contained in any wastewater offered for treatment. Full disclosure to the wastewater treatment operator, irrespective of any claim to trade secret or proprietary interest, is essential if treatment facilities are to properly evaluate whether the facility can safely treat the wastewater.

⁴ See Ian Urbina, Regulation Lax as Gas Wells' Tainted Water Hit Rivers, N.Y. TIMES, Feb. 27, 2011, at A1 available at http://www.nytimes.com/2011/02/27/us/27gas.html?_r=4&hp.

A robust evaluation of each individual chemical and radioactive element that is or could be present in the discharge fluid must be performed prior to the issuance of surface discharge permits. Such evaluation must include a toxicity assessment for each chemical component to demonstrate that the residual contamination level will not pose a significant risk to human health or the environment. Additionally, this evaluation must consider potential cumulative impacts by grouping potential risks for each individual chemical by hazard endpoint (e.g., cancer, reproductive harm, developmental harm, neurotoxicity, etc.). Proven conservative methodologies should be used to accomplish these tasks, to guarantee that vulnerable populations, be they human or ecological, will be adequately protected.

FINANCIAL ASSURANCE AND PENALTIES

Although we fully support requiring well operators to post a bond or provide other means of financial assurance prior to commencing operations, the Commission's proposed financial assurance requirement of \$125,000 per natural gas well may easily prove insufficient should an operator fail to fulfill its duty to close the natural gas well, remove associated equipment and structures, restore land disturbances caused by the natural well project and mitigate or remediate the release of any hazardous substances, pollutants or contaminants.

Given the unique and serious economic and environmental risks posed by hydraulic fracturing operations, we suggest that the Commission seriously consider raising its financial assurance requirements. For example, New York currently requires securities of up to \$250,000 per well.⁵ This figure reflects the high costs related to the closing of wells and restoration of the drilling area. Multi-well sites may be particularly expensive to close and restore, therefore, in addition to increased financial assurance requirements, we urge the Commission to consider requiring additional assurance when the potential remediation costs associated with the contamination of the environment may exceed the standard security amount. Finally, the Commission should consider requiring that the liability bond or insurance on any well would be held for one hundred years after the well has been plugged or permanently abandoned. These amounts and durations are prudent and more in line with the true risks and potential costs of cleaning and restoring well sites, therefore, we urge the Commission to consider adopting these more stringent financial assurance requirements. If well operators are required to post larger bonds now, taxpayers may avoid having to pay large cleanup and restoration costs decades into the future.

Even with increased financial assurance requirements in place, situations may arise where posted bonds are insufficient to cover the costs to restore abandoned well sites or remediate released chemicals or other pollutants within the Basin. Similarly, the potential size and scope of natural gas well development and production may place certain financial assurance instruments beyond reach because conclusively linking a particular release or environmental impact to a specific well site and well operator may prove impossible. Rather than require taxpayers to bridge this potential funding gap, the Commission might consider the creation of a common restoration and

⁵ N.Y. Comp. Codes R. & Regs. tit. 6, § 551.6 (2010).

remediation fund, financed through fees⁶, penalties⁷, and other automatic production-based obligations levied on gas well operators within the Basin. In conjunction with financial assurances, such a restoration and remediation fund could help ensure that well sites are fully restored and all unnecessary infrastructure and equipment is completely removed once production has effectively terminated. This requirement would also more appropriately place the responsibility for future remediation and pollution cleanup costs on gas well operators, thereby reducing the likelihood that taxpayers will bear any such expense in the decades to come.

Finally, to encourage diligence and due care in the transportation, use and disposal of hydraulic fracturing fluids, the Commission should adopt automatic civil monetary penalty provisions for the unintended, negligent, or willful discharge of such substances and require that any unauthorized discharge, no matter how small, must be reported immediately to the Commission. Without stringent mandatory reporting requirements and automatic civil penalties operators may shortcut prudent industry practices and safety procedures in an effort to improve profit margins. To prevent such shortcutting, the Commission should impose stiff penalties for the discharge of hydraulic fracturing chemicals with no requirement that such discharge be found to cause damage to the affected resources. These penalties will help induce compliance because the savings offered by cutting corners will no longer offset the increased cost of injurious discharges. Conversely, if the cost of discharge mitigation and cleanup is less than the cost of compliance, operators will be inclined to view the discharge of hydraulic fracturing chemicals simply as a “cost of doing business” and loose adherence to spill and accidental release controls will be encouraged.

To avoid this result, the Commission should adopt civil monetary penalty provisions for the unauthorized discharge of hydraulic fracturing fluids. These civil penalty provisions could be modeled upon the provisions of the Clean Water Act that assess per barrel penalties against those who discharge oil in violation of the Act, irrespective of whether the discharge has any demonstrable effects.⁸ Given the toxicity and harmful health and environmental impacts of many of the constituents of these fluids discussed earlier in these comments, we encourage the Commission to adopt an automatic civil penalty in the amount of \$1,000 per gallon of fluid discharged, with a mandatory minimum fine of \$1,000 for the release of any quantity of fracturing fluid. If the discharge is the result of gross negligence or willful misconduct, the Commission should increase the civil penalty assessed against the responsible party to \$1,000 per quart. Moreover, a discharge resulting from gross negligence or willful misconduct should result in the immediate suspension of the well operator’s Approval By Rule.⁹ Finally, to encourage reporting of even de minimis amounts of fracturing fluid, the Commission should adopt a penalty provision stating that any independently discovered release that was not

⁶ The Commission could use the proposed fee schedule in § 7.3(l), or amend it as necessary to provide an adequate restoration and remediation fund. See Article 7: Natural Gas Development, 76 Fed. Reg. 295 (proposed Dec. 9, 2010) (to be codified at 18 C.F.R. pt. 410).

⁷ Delaware River Basin Compact, Pub. L. No. 87-328, § 14.17, 75 Stat. 688 (1961).

⁸ See 33 U.S.C. § 1321(b)(7) (2006).

⁹ The authority for the suspension of the ABR would come from § 7.3(n) of the Commission’s proposed amendment to Article 7. The termination of the suspension would be governed by the same section. See Article 7: Natural Gas Development, 76 Fed. Reg. 295 (proposed Dec. 9, 2010) (to be codified at 18 C.F.R. pt. 410).

previously reported to the Commission by the operator will be assumed to involve either 100 gallons, or the actually discovered release amount, whichever is greater.

LAND USE POLICIES

EDF is pleased that the Commission acknowledges that the siting and operation of natural gas wells within the Basin may have a substantial impact on the water resources of the Basin and that these resources are critically important to the supply of clean water for over 15 million people. These resources are threatened, however, by the infrastructure impact of shale gas fracturing operations within the Basin. For example, increased truck traffic can damage local roads, increase noise and air pollution, and result in the spill of diesel or other harmful fluids. The construction of access roads and well sites can destroy habitats, fragment landscapes, increase rainwater runoff, and accelerate erosion. In addition to these environmental impacts, the construction of physical infrastructure such as storage tanks, wellheads, and pipelines can negatively impact the character and beauty of local communities. To adequately address these concerns, the Commission cannot simply defer to local and state governments in the hope that they will regulate these activities appropriately. Rather, the Commission must affirmatively act to limit the impact of well infrastructure upon the Basin and its communities.

Unfortunately, the Commission's proposed regulation would defer to host states on key issues such as minimal setback requirements. While we understand that such deference was well intentioned, the fact remains that, as of yet, host states have failed to establish comprehensive siting and setback restrictions for gas wells that will adequately protect public health and safety and the water resources of the Basin. As a result, the Commission should undertake to independently evaluate and propose minimum well pad setback distances from occupied homes, public buildings, public roads, public water supply wells, and domestic water supply wells.

Although we urge the Commission to act on all of our recommendations, minimal well pad setbacks from public water supply wells and domestic water supply wells are of particular importance and deserve the Commission's immediate attention. As previously discussed, improper well construction and well management practices may lead to the unintended release or migration of hydraulic fracturing fluids. Under certain conditions leaks might also occur through natural faults and fractures within the geologic formation. Without minimal setback requirements, these fluids may migrate into domestic and public water supply wells.


In addition to the immediate health risks posed to those who rely on domestic and public water supply wells, there is the more widespread risk that, once used, the contaminated water enters treatment facilities through municipal sewers it eventually will be released into watersheds, including the Delaware River Basin. As addressed earlier, this risk is particularly urgent because most treatment facilities do not currently test for many of the chemicals commonly contained in hydraulic fracturing fluids, and, even if they were to, the EPA and state departments of health have not established safe health and environmental parameters for many of the chemicals likely to be contained in water contaminated by fracturing fluids. As a result, treated water may be released into the Basin still laded with chemicals with unknown health effects, and these chemicals could in turn make their way into the drinking supply of over 15 million people. For

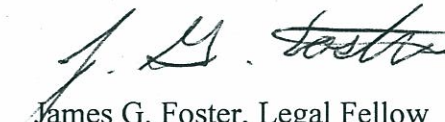
these reasons, we strongly encourage the Commission to perform a serious and critical evaluation of all setback requirements and propose minimal standards that will adequately protect the water quality of the Basin despite local and state requirements that are otherwise insufficient.

Even if the Commission were to adopt all of these recommendations, the fact remains that, no matter how effective the regulatory system for controlling discharges of pollution is, the development of shale gas infrastructure can substantively alter and disrupt local communities, natural aesthetics, and ecological systems and resources within the Basin. In addition to the potential environmental impacts, such an expansion in infrastructure may fragment a landscape and interfere with other private or public uses of land. Community members that value scenic river views, undisturbed tree lines, and the tranquility of forested areas may lose those benefits if even a few landowners in the community were to sign leases permitting the development of natural gas wells.

Although such land use issues are typically addressed through zoning powers exercised by local bodies of government, that model may prove cumbersome and ineffective in the context of shale gas development because the siting of well pads is typically a determination made as a result of the location of the resource rather than the suitability of the site within the greater community. Furthermore, local zoning boards may be ill-prepared and ill-suited to address the siting of wells in a manner that is consistent with the Commission's stated objective of protecting the high value landscapes of forests and water resources within the Basin. Given these practical considerations, we urge the Commission to adopt a Basin-wide approach to identify areas that are both presumptively appropriate and presumptively inappropriate for shale gas development. A collaborative development approach will allow the Commission to work more effectively with state and local governments, business groups and civil organizations to ensure that local zoning regulations are consistent with the Commission's objectives and will encourage the development of well infrastructure in ways that limit the negative impacts on the Basin and its communities.

Yours very truly,


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