PennFUTURE
Every environmental victory grows the economy.

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VIA FEDEX
Delaware River Basin Commission
P.O. Box 7360
25 State Police Drive
West Trenton, NJ 08628

Re: Proposed Natural Gas Development Regulations

Dear Sir or Madam:

Citizens for Pennsylvania's Future ("PennFuture") offers these comments to proposed Natural Gas Development Regulations (the "Regulations"), which would establish "standards, requirements, conditions and restrictions to prevent, reduce or mitigate depletion and degradation of surface and groundwater resources and to promote sound practices of watershed management including control of runoff and erosion" in the Delaware River Basin (the "Basin").[1] The Regulations were made available to the public on or about December 9, 2010, and the Delaware River Basin Commission (the "Commission") is accepting comments on the Regulations through April 15, 2011.

PennFuture is a statewide, public interest, membership organization with offices in Harrisburg, Pittsburgh, Philadelphia, and Wilkes-Barre. PennFuture's purposes include advocating and litigating state-wide on behalf of the environment and public health, water quality issues, and issues arising out of gas drilling activities. PennFuture's membership includes residents of Pennsylvania who use the rivers and streams in the Basinfor fishing, boating, and other forms of recreation, as well as Pennsylvanians who rely on the rivers and streams in the Basin as sources of drinking and household water.

PennFuture generally supports the Regulations and believes that they will, to a significant extent, provide increased protection to environmental resources (and especially water resources) in that part of Pennsylvania that is within the Basin. However, PennFuture is concerned that the Regulations do not always require the most effective environmental protections, as they should; those concerns are discussed below.

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1 Regulations, § 7.1(a).

Global Issues

Reliance on Host States' Standards Governing Well Construction. Incidents of groundwater contamination that have occurred in Pennsylvania, both historically and in connection with the development of the Marcellus Shale, are often the result of poor well construction practices, including most notably inadequate well casing and cementing.[2] However, the Commission includes no standards for well construction in the Regulations. Instead, the Regulations require compliance with the applicable well construction standards in the host state.[3] Although the applicable well construction standards currently in effect in New York and Pennsylvania[4] may adequately protect water resources, their effectiveness has not yet been proven: in Pennsylvania, new well construction standards were adopted just two months ago. Moreover, even if the current standards should prove completely effective, there is no guarantee that they will continue in effect – in either state, the legislature could relax well construction standards. The Commission should not allow the protection of environmental resources under its jurisdiction to be subject to shifting political winds, but rather should include in the Regulations its own stringent well construction standards.

Well Production Data Should be Available to the Public. In Pennsylvania, regulations currently require well operators to report the types and amounts of waste they dispose of, and the facilities to which they ship their wastes, to the Pennsylvania Department of Environmental Protection ("DEP") on an "Annual Well & Waste Production Report."[5] By providing DEP with a completed Annual Well & Waste Production Report, a well operator satisfies its obligation to file a residual waste report pursuant to regulations applicable to generators of industrial waste.[6] However, DEP,as required by Pennsylvania's Oil and Gas Act,[7] keeps Annual Well & Waste Production Reports confidential for five years after they are submitted.[8] As a practical matter, this precludes any member of the public from being able to ascertain that the wastes generated by a particular well are being properly disposed. By way of contrast, other generators of industrial

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2 By way of one example that has gained considerable notoriety, the contamination of domestic wells in Dimock, Pennsylvania by methane has been attributed to a gas well operator's failure to case and cement nearby its nearby gas wells properly. *See In re: Cabot Oil and Gas Corporation, Dimock and Springhill Townships, Susquehanna County* (Consent Order and Agreement, Nov. 4, 2009), *available at* http://s3.amazonaws.com/propublica/assets/natural_gas/final_cabot_co-a.pdf.

3 Regulations, §§ 7.1(i) and 7.5(a)(1).

4 We understand that the only parts of the Basin that are known to have commercially-recoverable natural gas resources are in New York and Pennsylvania.

5 PENNSYLVANIA DEPT. OF ENVTL. PROT., ANNUAL WELL AND WASTE PRODUCTION REPORT FORM, FORM 5500-FM-OG0049 (rev. 1/2008).

6 PENNSYLVANIA DEPT. OF ENVTL.PROT., BUREAU OF OIL AND GAS MANAGEMENT, OIL AND GAS OPERATORS MANUAL, (2001), at 4-89 (hereinafter, "OPERATORS MANUAL").

7 58 P.S. § 601.212(a). The Oil and Gas Act is codified at 58 P.S. § 601.101, *et seq.*

8 OPERATORS MANUAL, *supra* note 6, at 4-89.

wastes in Pennsylvania provide DEP with "Residual Waste Reports" that are not kept confidential, absent some showing of need for confidentiality.[9]

Recent news reports from the Pittsburgh area illustrate the problems that can occur when information regarding wastewater disposal is kept confidential. State prosecutors have recently recommended that the owner of a company that hauled wastewater from gas wells, and the company itself, be charged with numerous counts of illegally dumping wastewater, including drilling wastewater. The illegal dumping is alleged to have occurred between 2003 and 2009, but came to light only as a result of discrepancies that turned up during an audit of the waste disposal records of one of the company's customers.[10] The publication of well production records allows interested citizens to catch discrepancies that regulators might miss, and can thus help reduce or eliminate such illegal waste disposal practices.

Ideally, the Commission and the public should be able to track the generation, treatment, and disposal of drilling wastewater on a "cradle to grave" basis. PennFuture urges the Commission to require gas well operators to record and report the types and amounts of wastes that they generate on a well-by-well basis, and also to record and report the type and amount of wastes they recycle or send to each treatment or disposal facility. Further, PennFuture urges the Commission to publish that information online, so the public can easily verify that that the significant amount of wastes that will be generated by gas drilling operations in the Basin are being properly recycled, treated, or disposed.

Failure to Address Cumulative Impacts of Gas Development Activities. Section 3.6 of the Delaware River Basin Compact (the "Compact") authorizes the Commission to conduct research on the planning and use of the Basin's water resources so as to ensure that any policies and plans it adopts will adequately protect those resources. Before adopting final Natural Gas Development Regulations, the Commission should invoke this authority to conduct a comprehensive assessment of the potential cumulative impacts on gas development activities in the Delaware Basin, either on its own or in partnership with New York.[11]

Approximately five thousand square miles of the Basin sits atop the Marcellus Shale formation in Pennsylvania and New York. Even if a significant portion of this acreage should be placed off-limits to drilling, gas development operations are likely to bring thousands of gas wells to the Basin, while generating millions of gallons of toxic wastewater. At a minimum, the

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9 25 Pa. Code § 287.5(a); *see also* 25 Pa. Code §§ 287.51-55 (setting forth the requirements for Residual Waste Reports).

10 Jonathan D. Silver, *State Charges Local Company for Dumping Wastewater and Sludge,* PITTSBURGH POST GAZETTE, March 18, 2011, *available at* http://www.post-gazette.com/pg/11077/1132812-454.stm.

11 New York's Department of Environmental Conservation ("DEC") is currently preparing a Supplemental Generic Environmental Impact Statement concerning the use of combined use of hydraulic fracturing, and horizontal drilling technologies. An initial draft was noticed for public comment in 2009; a second draft is due to be released on or about June 1, 2011. *See* Governor David A. Paterson, *Executive Order No. 41: Requiring Further Review* (December 14, 2010), *available at* http://www.dec.ny.gov/energy/46288.html#41. Section 3.9 of the Compact provides a mechanism whereby the Commission may employ state agencies like the DEC for purposes related to protecting the water resources of the Basin.

development will drastically alter the Basin's landscape and communities; in a worst-case scenario, it could contaminate the drinking water of millions of people. The Commission's decision to require major sponsors of gas projects to submit Natural Gas Development Plans ("NGDPs") is a welcome first step towards a cumulative impacts analysis; unfortunately it is no more than that – a first step. Although the Regulations require an NGDP sponsor must provide a variety of maps, programs, and plans, they do not require the Commission to use those data to conduct a cumulative impacts analysis of the sponsor's development activities. Indeed, the Regulations fail to establish any meaningful standards or criteria for NGDP approval at all. Effectively, sponsors of gas well projects would have to provide most of the puzzle pieces needed for a cumulative impacts analysis, but the Commission would be able to approve an NGDP without putting those pieces together. Furthermore, even if meaningful standards for NGDP approval were established, the evaluation of one NGDP after another, each confined to a particular geographical area, is no substitute for a comprehensive, Basin-wide analysis performed by the Commission itself.

Pennsylvania's Oil and Gas Act contains no mechanism for assessing the cumulative impacts of natural gas development projects, and currently Pennsylvania DEP staffers spend an average of less than thirty-five minutes reviewing each well permit application.[12] As a result, wells and pipelines proliferate near Exceptional Value ("EV") and High Quality ("HQ) streams in the Susquehanna and Ohio river basins with little, if any, consideration of environmental impact.[13] The high rate of violations by gas operators[14] – and the recent disclosure that political appointees must approval all notices of violation issued to gas operators in Pennsylvania – gives us great reason to fear the consequences of this development. We urge the Commission to adopt a more far-sighted approach. The Commission should, preferably in conjunction with New York's efforts, undertake a Basin-wide cumulative impacts assessment so as to ensure that conditions in individual NGDPs and gas development projects are adequate to protect the Basin's water resources. The Commission should also provide for an assessment of cumulative impacts of NGDPs, and condition approval of NGDPs on a determination that those impacts will not adversely affect Basin water resources

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12 *See* Michael Rubinkam, USA TODAY, *Pennsylvania is Approving Gas Drilling Permits with Scant Review* (April 13, 2011), *available at* http://www.usatoday.com/money/industries/energy/2011-04-13-pa-gas-drilling-permits.htm.

13 Last month, attorneys for Damascus Citizens for Sustainability deposed DEP permitting officials concerning an exploratory well permit issued near Hollister Creek, a high-quality stream in the Delaware River Basin. *Damascus Citizens for Sustainability, et al. v. DEP*, EHB Docket No. 2010-102-M; docket available at http://ehb.courtapps.com/public/document_shower_pub.php?csNameID=4110. Among those deposed was a DEP geologist who has performed substantive technical analysis on well permit applications. Asked whether he understood what protections high-quality streams are supposed to receive under Pennsylvania's Clean Streams Law, the geologist said he did not. *See* Rubinkam, *Pennsylvania is Approving Gas Drilling Permits with Scant Review, supra* note 12.

14 *See* PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF OIL AND GAS, *Inspections -Violations-Enforcements, available at* http://www.dep.state.pa.us/dep/deputate/minres/oilgas/OGInspections Violations/OGInspviol.htm.

Comments on Section 7.3

Section 7.3(a)'s Enumeration of Natural Gas Development Projects. The Commission has proposed to review four types of gas development projects: (1) withdrawals and uses of Basin water, (2) NGDPs, (3) well pads, and (4) gas well wastewater treatment and discharge facilities. There is no question that all four types of projects could have significant impacts on the water resources of the Basin, and we commend the Commission for asserting jurisdiction over all of them. The Commission should also assert jurisdiction over a fifth type of gas development project that is also likely to have a profound effect on the water resources of the Basin if unchecked: natural gas pipeline projects and the surface uses affiliated with them, primarily compressor and metering stations, and pig launching and receiving stations.

Pipeline projects are poorly regulated under the Commission's current Rules of Practice and Procedure ("RPP"), and threaten the Basin's water resources in two ways. First, construction activities for pipeline installation will disturb massive amounts of earth and could result in the widespread erosion of soils and sedimentation of streams. Second, the hydrostatic testing of pipelines and the operation of compressor stations will generate wastewater which must be either recycled or discharged and must in either case be carefully managed. It is therefore imperative that the Commission assert jurisdiction over all pipeline projects in the Basin, require approval for all pipeline projects that will cross streams and wetlands, and promulgate standards for erosion and sedimentation control and the disposal of hydrostatic wastewater.

Impacts of Pipeline Installation. The development of the Basin's natural gas resources will likely entail the installation of thousands of miles of permanent gathering and transmission pipelines to carry natural gas, as well as thousands of miles of temporary pipelines to carry water to and from well pads for hydraulic fracturing. Trenches must be dug and backfilled; temporary and permanent roads must be built and existing roads widened; streams and wetlands must either be drilled under or crossed, and dams and encroachments built on streams; trees and shrubs must be permanently removed from pipeline rights of way. Thousands of acres of earth will be disturbed,[15] and with this disturbance comes the potential for massive erosion is enormous, both during and after construction.

In Pennsylvania, the review process for erosion and sedimentation control permits for oil and gas construction activities is deeply inadequate. Currently, DEP allows the use of a general permit, known as ESCGP-1, to permit most pipeline installation and other oil and gas construction activities. Where a licensed Pennsylvania engineer has certified an applicant's erosion and sedimentation control plan and post-construction stormwater management plan, DEP performs no independent review of the plan, and must approve the application in fourteen days, if it is administratively complete. County Conservation Districts, which in Pennsylvania are typically delegated authority to review erosion and sedimentation control permits for other types

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[15] PennFuture's review of several ESCGP-1 permits shows that the installation of every one mile of gathering pipeline typically entails the disturbance of least nine acres of earth.

of construction activities, have no power to review ESCGP-1 applications.[16] Applicants for ESCGP-1 permits have no obligation to disclose when sediment-laden stormwater discharges have the potential to enter siltation-impaired streams, even though the occurrence of such discharges requires that a pipeline installer obtain an NPDES permit. Pipeline construction projects in Pennsylvania undergo only a cursory review and are irregularly inspected; as a result, EVand HQ streams in Pennsylvania are absorbing significant amounts of sediment, while streams already impaired for siltation risk further deterioration.

Impacts of Hydrostatic Testing of Pipelines. Before being placed in operation, natural gas pipelines must undergo testing to ensure that they are free of cracks and will not leak or rupture. In general, operators test pipelines a "hydrostatic" process whereby thousands of gallons of water are pumped through a pipeline at pressures equal to the pressures at which of the gas that the pipeline will carry. After testing is complete, the wastewater must be discharged under a National Pollutant Discharge Elimination System ("NPDES") permit issued by an appropriate permitting authority or recycled.[17] Wastewater from hydrostatic testing that is performed on a gas pipeline previously in use may contain impurities such as natural gas liquids and sulphur and require filtration or aeration prior to discharge. Wastewater from hydrostatic testing performed on a new pipeline may contain material from the pipe itself.

The hydrostatic testing that will accompany large-scale gas drilling in the Basin on a will contaminate millions of gallons of water.[18] The potential for unlawful discharges of such volumes of contaminated water is too great for the Commission to ignore. Such discharges are widely rumored in Pennsylvania, and at least one has recently been confirmed: in January 2011, DEP fined a pipeline operator $34,000.00 for, among other violations, discharging too much hydrostatic wastewater too fast, so that the discharge carved a 150-foot erosion channel, and discharging water that had been allowed to co-mingle with an "unknown industrial waste" and had unlawful amounts of chlorine.[19]

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[16] Conservation Districts enjoyed the authority to review ESCGP-1 applications until March 18, 2009, when the DEP "un-delegated" that authority. *See* Dana Aunkst, et al., DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF WATER MANAGEMENT, *Transfer of Responsibility for Reviews and Permitting Associated with Chapters 102 and 105 to Regional Office Oil and Gas Management Program* (March 18, 2009), *available at* http://www.pennfuture.org/UserFiles10/DEP_letter_20090318.pdf.

[17] In Pennsylvania, hydrostatic testing is typically permitted through DEP General Permit PAG-10, "Pennsylvania NPDES General Permit for Discharges from Hydrostatic Testing of Tanks and Pipelines (HTTP)" where the discharge will not contain toxics or be to a Exceptional Value or High Quality stream. *See* http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-77927/3800-PM-SFR0173a%20 Instructions%20NOI.pdf.

[18] To fill 30 miles of 16-inch pipeline requires 40,000 barrels of water barrels (or 1,680,000 gallons). To fill 30 miles of 36-inch pipeline requires approximately 200,000 barrels (about 8,400,000 gallons). *See* John F. Kiefner and Willard A. Maxey, *The Benefits and Limitations of Hydrostatic Testing,* in *Pipeline Rules of Thumb Handbook,* at 146 (7th ed., 2009), *available at* http://www.kiefner.com/downloads/apihydro.pdf. The diameter of gathering lines used to transport gas from Marcellus Shale well sites typically ranges between 6 and 30 inches.

[19] Pennsylvania DEP Press Release, *Chief Oil and Gas Subsidiary Pays $34,000 Fine, Surrenders Permit after Discharging Industrial Waste Illegally in Lycoming County, available at* http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=15849&typeid=1.

Regulation of Pipeline Under the Commission's RPP. Under the Commission's RPP, natural gas transmission lines and appurtenances are deemed not to have a substantial effect on the Basin's water unless they cross or pass under reservoirs or recreation project areas, or involve "significant disturbance of ground cover affecting water resources."[20] Consequently, such projects are exempted from Commission review. The Commission's Regulations fail to close this gap. Under the Regulations, an applicant for an NGDP must provide a "circulation plan" with maps and descriptions of rights of way that will be used for pipeline access. The map must show those rights of way that will be used for pipelines among well development areas, well pads, compressor stations, and "other ancillary equipment," and must show and describe easements within the geographic boundaries of the plan and, where they are connected to such facilities, facilities outside of those boundaries, as well. The only substantive restriction concerning the location of pipeline easements is that "linear infrastructure must be co-located whenever feasible."[21] Thus, co-location (whatever that is deemed to mean) is encouraged but not required.

To ensure that water resources in the Basin are adequately protected from the threats posed by natural gas pipeline projects, the Commission must do far more to scrutinize pipeline development activities. We specifically recommend that Commission do the following:

- Include as reviewable projects under Section 7.3 of the proposed regulation all pipeline projects associated with natural gas development activities;
- Require that NGDPs applications indicate where a proposed pipeline would cross wetlands, streams and Commission Special Protection Waters areas;
- Require, as a condition of approval for any pipeline project or compressor station project, that the project is necessary to serve existing wells, wells that have been identified in a NGDP, or wells that have been identified in a docket;
- Require sponsors of pipeline projects that cross Special Protection Water areas to submit and obtain approval of Non-Point Source Pollution Control Plans;
- Condition approval of any pipeline project that crosses a wetland or stream but not a Special Protection Water area on independent Commission review and approval of the sponsor's state erosion and sedimentation control permit application;
- Prescribe and require compliance with standards concerning the material, construction, and location of any pipelines that would carry wastewater from a well pad;[22] and
- Require that any project sponsor that proposes to conduct hydrostatic pipeline testing submit and obtain approval of a Wastewater Treatment and Disposal Plan, such as is required under Section 7.5(h)(v), and an Invasive Species Control Plan.

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20 RPP, section 2.3.5(a)(12). Gathering and midstream lines are not explicitly addressed in the RPP; presumably, they would qualify as "appurtenances" of transmission lines.

21 Regulations, § 7.5(c)(3)(iv).

22 Such pipelines are contemplated by Section 5(h)(1)(iv)(B) of the Regulations.

Section 7.3(e). Duration of an Approval. The draft regulations provide that the terms of water withdrawals and uses, NGDPs, and well pads may have terms of up to ten years. This is too long. The development of gas resources in the Basin is in its infancy; widespread development may bring unforeseen impacts that prove certain conditions (or the lack thereof) attached to certain NGDPs, well pads, and water withdrawals to be inadequate to protect water resources. At this first stage of gas development in the Basin, no approval for a well pad, water withdrawal or NGDP should have a term longer than three years. A three-year approval term for gas development projects would be consistent with Section 2.3.10 of the RPP, which limits the term of projects not related to gas development to three years unless a project sponsor has expended substantial funds. The same rule should apply to gas development projects, absent the substantial-funds qualifier. There is no reasonable basis for a rule that would allow a gas development plan resulting in damage to Basin water resources to remain in place just because the sponsor has spent large sums of money on the damage.

In short, we recommend that all approvals have a term of no more than three years, and that approval extensions be conditioned upon the operator's having no outstanding violations of Commission rules or conditions, and upon a determination by the Commission that the terms of the approval remain adequate to identify impacts and protect water resources in the Basin.

Section 7.3(h). Modification or Suspension of Docket, Protected Area Permit or ABR. To ensure conformity with section 7.3(n), and eliminate any ambiguity as to the scope of the Commission's authority, the Commission should revise Section 7.3(h) to authorize the Executive Director not only to modify or suspend, but also to revoke approvals and approval conditions where revocation is necessary to protect the water resources of the Basin.

Section 7.3(i). Public Notice Procedure . We support the public notice procedures set forth in Section 7.3(i), except as they concern variances. The procedures should require project sponsors to give public notice whenever they seek variances from the Commission's siting and setback provisions in Sections 7.5(b)(3) and (b)(4). Currently, Section 7.5(b)(9) provides that variances may be sought and that the Executive Director may deny or approve a variance or "recommend a public hearing and decision by the Commission." Unless the public receives notice of any variance, and it will have no ability to bring concerns to the Executive Director's attention, and the Director will be unable to make an informed decision as to whether to approve a permit, deny a permit, or hold a public hearing.

Section 7.3(k). Financial Assurance Requirements. We support the Commission's financial assurance requirements. The bonding requirements for oil and gas wells in the Pennsylvania Oil and Gas Act are woefully inadequate. Although it has been estimated that plugging one Marcellus Shale well could cost as much as $100,000.00,[23] the Oil and Gas Act

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[23] PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, *2009 Citizens Advisory Council/Conservation and Natural Resources Advisory Council Joint Informational Session Panel Discussion Summary, available at* http://files.dep.state.pa.us/PublicParticipation/Citizens%20Advisory%20Council/CACPortalFiles/Meetings/2010_03/2009%20Regional%20Business%20Trip%20Report.pdf.

requires only a $2,500 bond per well or a blanket $25,000 bond for all of a company's wells. The Commission's proposed financial assurance amounts are adequate. However, we are concerned that the Commission has not made an independent inspection a precondition for the release of a sponsor's financial assurance. The Commission should do so, rather than relying on inspections by host states. A financial assurance instrument will not prove adequate no matter how great its amount, if it is prematurely released.

Section 7.3(l). Project Review Fees. The fees proposed by the Commission should prove sufficient to enable the Commission to perform all necessary reviews, inspections, and remediation activities. We recommend that the Commission include in the Regulations a separate provision to delineate how the fees that the Commission collects will be spent. Because protection of the water resources of the Basin depends most heavily on the thorough review of permit applications and robust enforcement of rule and approval conditions, we recommend that Commission adopt a rule that prioritizes spending on these activities, and makes spending on remediation and general administrative activities secondary.

Comments on Section 7.4

Section 7.4(a)-(b). Water Sources for Uses Related to Natural Gas Well Development. For the reasons that the Commission has articulated in Section 7.4(b), we agree that water uses associated with natural gas development are substantially unlike the uses contemplated by the RPP, and that the thresholds in Article 3 of the RPP will not adequately protect the Basin's water resources. Thus, we commend the Commission for requiring sponsors of natural gas development projects to obtain approval for all sources of water.

We also support the Commission's decision to allow the use of discharge from abandoned mines ("AMD") and recovered flowback and production water; indeed, we believe that the Commission could do more to promote the recycling and beneficial use of such wastewater, so as to reduce the need for new water withdrawals. We would encourage the Commission to devise incentives for the use of such water, including a fee credit when a company uses AMD and assures that the use will not result in pollution.

Sections 7.4(c) and (e).Conditions on Use of Water Sources and New Water Sources. We commend the Commission for requiring approval of each source of water to be used for natural gas development activities in the Basin. Development of the Basin's gas resources will require the use of many hundreds of millions of gallons of water for hydraulic fracturing, wastewater treatment, and the hydrostatic testing of pipelines, and much of that water will be permanently removed from the hydrologic cycle. Consequently, unless the Commission evaluates each new withdrawal and use, taking into effect the cumulative effects of all existing and proposed uses, it risks widespread degradation of the Basin's water resources.

The Commission has proposed a scheme whereby some new water sources must be approved by docket, while others will be eligible for approval by rule ("ABR"). ABR-eligible

new sources include sources previously approved by the Commission, flowback and production water from hydraulic fracturing operations, and new water sources located within the physical boundaries of an approved NGDP. While we do not generally object to the Commission's ABR procedure, we do take issue with the ABR eligibility of new sources within the physical boundaries of an approved NGDP.[24] Under Section 7.5(d), NGDPs are required to contain (i) a Lease Area Map, (ii) a Landscape Map, (iii) a Constraints Analysis Map, and (iv) a Circulation Plan. However, none of these documents is required to contain any information about water withdrawal sites. Consequently, the approval of an NGDP by the Commission will not necessarily ensure that any new water withdrawal later proposed for the NGDP will have been undergone a thorough docket review process, which should include at least technical review by the Commission, publication of a draft docket, and a public meeting.[25] The ABR requirements in Section 7.4(e) do not constitute an effective substitute for this review process, because they do not contemplate an independent technical review by the Commission or provide for public participation. Consequently, the Commission should either eliminate ABR eligibility or condition eligibility on a withdrawal's having been included in the NGDP. For any proposed new withdrawal that was not included in the approved NGDP, or that is not in substantial conformity with the description in the NGDP, the Commission should require approval by docket.

Section 7.4(d).Approval by Rule of Previously Approved Sources to Supply Water for Natural Gas Development.[26] We commend the Commission for conditioning approvals-by-rule concerning previously approved water sources on satisfaction of the eleven criteria in section 7.4(d)(1). In two respects those criteria should be strengthened, however.

Currently, subsection 7.4(d)(1)(vii) requires that any bulk water sale agreement between the sponsor of an approved project and a new gas development project contain certain conditions. The Commission is correct to require these conditions, for they will help ensure diversions of water from previously approved uses will not compromise those uses. The Commission should clarify that any applicants seeking an ABR concerning a previously-approved source must provide to the Commission a complete copy of its water sale agreement or agreements. A project sponsor should not be permitted merely to certify that the conditions in subsection 7.4(d)(1)(vii) are present, since other provisions in an agreement could limit the conditions' effectiveness. This approach would be consistent with Section 7.5(h)(2)(v), which requires that the sponsor of a gas well pad project provide to the Commission a copy of its contracts with the wastewater treatment facilities.

Second, the Commission should require the submission of an Invasive Species Control Plan not only when it determines such a plan to be necessary in particular cases, but for each

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[24] The proposed rules provide for ABR approval for new water sources located within the physical boundaries of an approved NGDP at both Section 7.4(c)(3) and Section 7.4(e)(1). This comment applies to both sections.

[25] By contrast, the other sources eligible for ABR under Section 7.3(c)(3) – the previously approved sources addressed in Section 7.4(d), recovered flowback, and production water – will all have either received a docket review or be derived from a source that has.

[26] The fragment "must be used" at the end of section 7.4(d) should be deleted.

water use for natural gas development activities. Once introduced, invasive species often wreak havoc on native biota and ecosystems, and can be nearly impossible to eradicate. The trucks used to carry water for natural gas development move frequently among watersheds and regions, and thus pose great risks for the spread of invasive species in the absence of proper controls. The recent fish kill in Dunkard Creek along the West Virginia-Pennsylvania border is illustrative. In 2009, a bloom of the invasive alga *Pyrmenesium parvum* (better known as "golden algae") killed all of the mussels and nearly all of the fish and salamanders in a thirty-eight mile stretch of the stream.[27] While the brackish conditions that enabled the algae to grow were apparently due to discharges from a mining operation (not from discharges of gas well wastewater), it is hypothesized that the algae were carried to Pennsylvania from Texas in a truck, hose, or pipeline used for water withdrawal or support in gas development activities. More recently, testimony before the Commission warned that gas development in the Basin has the potential to spread zebra mussels, an aggressively invasive species already that is present in the Susquehanna River Basin and that is known to crowd out ecologically important native mussel populations.[28]

Rather than reserving the authority to require an Invasive Species Control Plan, the Commission should establish a set of best practices for the prevention of invasive species introduction, and should require every applicant who wishes to use a water source for natural gas development to propose a plan in accordance with those practices.

Section 7.4(g).Use of Recovered Flowback and Production Water. Because the recycling of recovered flowback and production water will reduce the need for new fresh water withdrawals (and reduce the number of truck trips necessary to fracture a well), the Commission is correct to allow such use. Indeed, as noted below, we believe that the Commission could do more to encourage the use of recycled gas well wastewater. The Commission should clarify in this section and in Sections 7.5(h)(iv) and (v), that any processes used to treat gas well wastewater on the well pad must be identified in a sponsor's Wastewater Treatment and Disposal Plan and may not be conducted without applicable state approvals. Currently, recycling gas well wastewater on the well pad usually involves the chemical precipitation of scale-forming elements such as strontium, barium and calcium; companies have also begun to experiment with mobile evaporation/distillation units. In either case, the recycling of gas well wastewater will result in a sludge or solid waste that must, like drilling fluids and drill cuttings, be properly transported offsite and disposed of or recycled. Operators should be required to explain their plans for the solid waste that they generate as well as the liquid waste streams that they create.

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[27] *See* UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *Update on Dunkard Creek* (November 23, 2009), *available at* http://www.energyindepth.org/wp-content/uploads/2009/12/EPA_dunkard_creek.pdf.

[28] *See* Robert M. Anderson and Danielle A. Kreeger, *Potential for Impairment of Freshwater Mussel Popluation in DRBC Special Protection Waters as a Consequence of Natural Gas Exploratory Well Development*, at 9 (November 23, 2010), *available at* http://www.state.nj.us/drbc/Anderson-Kreeger.pdf.

Comments on Section 7.5

Section 7.5(b)(3)(iii)'s Prohibition Against Siting Gas Wells in Flood Hazard Areas. We commend the Commission for recognizing the pollution hazards that can arise from siting gas wells in flood hazard areas and taking the needed step to eliminate those hazards by prohibiting gas well in flood hazard areas. Specifically, those pollution hazards arise out of the common practices of storing hazardous chemicals on site at well pads and siting impoundments containing contaminated drilling wastewater near well pads, so that those chemicals and wastewater could enter streams during flood events, and from the possibility that the pressure control equipment at a well head could be damaged or destroyed by flood waters and debris, thus leading to a blow out or explosion. Well operators will not be unduly burdened by this regulation because they should be able to use horizontal drilling techniques to access gas under flood hazard areas from wells sited outside those areas.

It is worth noting that the Pennsylvania Oil and Gas Act and Pennsylvania's regulations governing oil and gas wells[29] do not prohibit siting wells or the facilities associated with them in flood hazard areas (except insofar as those areas may be coincident with the 100' stream buffer zone imposed by the Oil and Gas Act's section 205(b)),[30] and that municipalities in Pennsylvania have as a rule not adopted ordinances to limit gas drilling activities in flood hazard areas as the Oil and Gas Act[31] and Pennsylvania's Floodplain Management Act[32] empower them to do.Consequently, section 7.5(b)(3)(iii)'s siting restriction will effectively be the only regulation in force in Pennsylvania that addresses the pollution hazards that arise from locating gas wells in flood hazard areas.

Section 7.5(b)(4)'s Setbacks from Water Sources. We also commend the Commission for recognizing and filling another gap left by Pennsylvania's Oil and Gas Act and Chapter 78, specifically, the lack of any buffer zone restricting gas wells in areas close to streams, reservoirs, and wells used as public water supplies. The setbacks required by section 7.5(b)(4) will provide protection for drinking water supplies from pollution resulting from surface spills at gas well sites or releases that could occur as a result of equipment failure or the failure of casing or cementing. To provide protection to public water supply wells in Pennsylvania, section 7.5(b)(4)(viii) of the Regulations should be modified to require at least a 500' setback for natural gas well pad sites from wells that supply public drinking water.

Section 7.5(b)(9) Variances. We commend the Commission for prohibiting variances from the prohibition against siting natural gas well pads in flood hazard areas, and urge the Commission to amend section 7.5(b)(9)(i) to extend that preclusion to steep slopes (slopes "with

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29 Those regulations are codified at 25 Pa. Code chapter 78 ("Chapter 78").

30 58 P.S. § 601.205(b).

31 *See* 58 P.S. §601.602 (stating that local ordinances adopted pursuant to the Floodplain Management Act are not preempted by the Oil and Gas Act).

32 The Floodplain Management Act is codified at 32 P.S. §§ 679.101 – 679.601.

a pre-alteration grade of 20% or greater").[33] Well pads that are located on steep slopes require substantially more earth disturbance to construct, and are more difficult and expensive to reclaim and restore after production ends. Well operators can use horizontal drilling techniques to access gas from underneath steep slope areas, so mineral rights owners will not suffer hardship from such a prohibition.

The Regulations do not explicitly require that an applicant seeking a variance from a restriction on well pad siting demonstrate that any remediation or mitigation measures that it proposes to implement will avoid or minimize the environmental hazards that the restriction is designed to protect against. Accordingly, we recommend that the Commission amend section 7.5(b)(9)(iv) to clarify that the grant of a variance from the setbacks in sections 7.5(b)(3) and 7.5(b)(4) is contingent upon the applicant's demonstration that its proposed mitigation measures will avoid the anticipated adverse environmental impacts from the variance when possible and minimize them when avoidance is impossible, and also to clarify that mitigation measures in addition to those listed in section 7.5(b)(9)(ii)(B) may be used when appropriate.

Section 7.5(b)(9) provides that the Commission "may … recommend a public hearing and decision by the Commission" on an application for a variance from the siting restrictions in section 7.5(b)(3) and the setbacks established by section 7.5(b)(4). As noted above, we recommend that section 7.5(b)(9) require the Commission to hold a public hearing for each application for a variance from the siting restrictions and setback requirements that appear to be designed to protect the Basin's water resources,[34] and require an applicant who seeks such a variance to publish notice of its application (including a description of the nature of the variance requested) in at least one local newspaper of general circulation every week for four consecutive weeks prior to the hearing,[35] so that the public has the opportunity to comment on the application, and its potential impacts on the Basin's water resources, in a meaningful fashion.

Section 7.5(c) NGDPs. We recommend that section 7.5 should specify that NGDPs are "Projects" within the meaning of Article 1.1(g) of the Delaware River Basin Compact, and,

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33 *See* Regulations, § 7.5(b)(3)(ii).

34 Those restrictions and requirements include sections: 7.5(b)(3)(ii) (steep slopes); 7.5(b)(3)(iii) (critical habitats of endangered and threatened species); 7.5(b)(4)(i) (water bodies); 7.5(b)(4)(ii) (wetlands); 7.5(b)(4)(vi) (surface water supply intakes); 7.5(b)(4)(vii) (reservoirs); 7.5(b)(4)(viii) (public water supply wells), and 7.5(b)(4)(ix) (domestic supply wells). We do not understand how the Commission has a jurisdictional basis for imposing the setbacks from homes, public buildings, and public highways imposed by section 7.5(b)(4)(iii) – (v), and are concerned that the Commission may not have jurisdiction over critical habitats of endangered and threatened species where such habitats are not streams, wetlands, or bodies of water within the Basin.

35 *See* Regulations, § 7.3(i) (requiring project sponsors to publish notice containing "a description of the project, its purpose, and the address, electronic mail address, and phone number of both the project sponsor and the [Commission]" at least 10 days before submitting the application for the project "in at least once [sic] in a newspaper of general circulation serving the area in which the project is located"); *cf.* 52 P.S. §1396.4e(i) (authorizing DEP to issue variances from the 100-foot stream buffer zone in Pennsylvania's Surface Mining Conservation and Reclamation Act, after the operator gives public notice of its application for a variance "in two (2) newspapers of general circulation in the area once a week for two (2) successive weeks," and requiring DEP to conduct a public hearing if any objections to the variance are filed within twenty days of publication).

accordingly, that NGDPs can be approved only if they are consistent with the Commission's Comprehensive Plan.

We also recommend that section 7.5(c)(1)'s be modified so that separate NGDPs are required in situations where a well operator has geographically disparate leaseholds within the Basin that will be developed and operated independently. It makes little sense to require include them both in the same NGDP. Instead, the operator should be required to submit a separate NGDP for each such separate leasehold.

In Pennsylvania, the Oil and Gas Act contemplates that resources within 1000' of a well might be adversely impacted by drilling; thus, the Act requires well operators to provide a map locating the proposed well and identifying the surface landowners, lessors, and "water purveyors whose water supplies are within 1000 feet of the proposed well location."[36] High-volume hydraulic fracturing increases the possibility that resources that are relatively distant from gas drilling may be adversely impacted by the drilling. Accordingly, section 7.5(c)(3)'s requirements that applicants identify and map property owners and certain natural resources within one-half mile of proposed gas wells will provide the Commission with a means to help protect all resources that reasonably could be threatened by gas drilling.

Requiring well operators to prepare Landscape Maps for areas where the applicant proposes to construct well pads or conduct earth disturbance activities associated with well pad construction, and those areas with water resources that could reasonably be predicted to be adversely impacted by such activities will help the Commission and well operators avoid and mitigate adverse impacts. However, we are concerned that a number of the features that the Regulations would require well operators to include on the Landscape Maps required by section 7.5(c)(3)(ii) will provide little or no benefit in terms of water resource protection, and, moreover may exceed the Commission's jurisdiction. For example, we do not understand how Landscape Mapsincluding leased areas that are located more than one-half mile from well pads and earth disturbance activities associated with well pad construction could reasonably be used to help protect the Basin's water resources from the reasonably likely impacts of natural gas drilling.

We also fail to understand how the use of roads and highways by well operators has a sufficient nexus to the "conservation, utilization, development, management and control of the water and related resources in the [Basin]"[37] to give the Commission jurisdiction over the operators' plans to use highways and roads. Regulation of operators' use of highways and roads belongs with state and local officials, where it has always resided, and should not be usurped by the Commission. Similarly, we do not understand what use the Commission intends to make of the lists of mineral rights owners within one-half mile of a well operator's leasehold as section 7.5(c)(3)(ii)(B) would require, or how that information will help protect the Basin's water resources. Accordingly, we recommend that the Commission re-evaluate the information it will require well operators to include on the Landscape Maps that they will prepare, with a focus on that information which the Commission can use to protect the Basin's water resources.

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36 58 P.S. § 601.201(b).

37 *See* Delaware River Basin Compact, Art.I, § 1.3(e).

Section 7.5(d) Well Pad Dockets. Section 7.5(d) should specify that well pad dockets are projects within the meaning of Article 1.1(g) of the Delaware River Basin Compact, and that dockets can be approved only if they are consistent with the Comprehensive Plan.

Section 7.5(h) Requirements for Well Pads

Recycling and Reuse. Gas well operators in other parts of Pennsylvania are recycling and reusing significant percentage of the wastewater they generate, thus helping to minimize the environmental impacts of drilling. Accordingly, the Commission is correct to require "the reuse and recycling of flowback and production waters to the greatest extent possible"[38] at gas wells within the Basin. To further encourage recycling and reuse of drilling wastewater, the Regulations should clarify that recycled drilling water is exempt from the water supply charge imposed by section 7.5(h)(1)(iii)(E). The Regulations should also require gas well operators to record and report the volume of drilling wastewater they recycle and reuse along with the volume of drilling wastewater that leaves well pads for treatment or disposal.[39]

In other parts of Pennsylvania and in West Virginia, well operators are experimenting with using AMD to stimulate gas wells. Using AMD to stimulate wells has two environmental benefits: it reduces demands for fresh water from other sources, and it reduces the amount of polluted water that enters streams. Accordingly, to encourage gas well operators to use AMD to stimulate wells, we also recommend that AMD from mines within the Basin also be exempted from section 7.5(h)(1)(iii)(E)'s water supply charge.

Reporting Releases. Because there is at least some probability that any release of pollutants into the environment has the potential to pollute water resources, we recommend that section 7.5(h)(1)(vi)(A) require gas well operators to report any and all releases of pollutants that occur at well sites and the mitigation and remediation measures they have taken, rather than leave operators to determine whether such releases have "the potential to reach groundwater or surface water or may cause an adverse impact to water resources" before reporting them.

We do not understand how an operator can be charged with knowing when a "threatened release" has occurred if that "threatened release" has not resulted in an actual release, and therefore recommend that operators not be required to report releases that are merely "threatened."

Inspecting Wells Before They Are Stimulated. As noted above, when natural gas wells have adversely affected groundwater in Pennsylvania, poor well construction is often the cause. Section 7.5(h)(2) should require that the Commission inspect each high-volume, hydraulically-fractured well after it has been constructed, but before it is stimulated, to ensure that the well is properly constructed. DEP makes an effort to do this at wells in Pennsylvania, but given budget cuts and staffing limitations may not be able to continue doing so. Accordingly, inspection by

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38 Regulations, § 7.5(h)(1)(iii)(F).

39 *See* Regulations, § 7.5(h)(iv)(B).

the Commission would help ensure that gas wells in the Basin are properly constructed to avoid groundwater contamination.

Clarifying section 7.5(h)(2)(ii)(A). We believe that the language in section 7.5(h)(2)(ii)(A) is confusing as written. The phrase "if located in the Delaware River Basin" at the end of that paragraph's first sentence should be moved so that it follows "wastewater treatment and disposal facilities," which it appears intended to modify. Further, the word "accept" in the second sentence of this paragraph should be replaced with the phrase "treat or dispose in accordance with applicable laws and regulations."

Requiring a Control and Disposal Plan for Drill Cuttings. We recommend that gas well operators be required to develop and submit a control and disposal plan to demonstrate how they will control and dispose of all wastes generated on site, including drill cuttings, as part of the wastewater treatment and disposal plan required by section 7.5(h)(2)(v). We note that section 7.5(h)(2)(iii) does not address the temporary storage of contaminated drill cuttings on site, and recommend that section 7.5(h)(2)(iii) require that contaminated drill cuttings be temporarily stored in tanks or lined impoundments to prevent the contamination of soil and groundwater and runoff of contaminated water. However, drill cuttings that are not contaminated by drilling fluids pose little threat of harm to water resources and may be disposed of in pits on site, as currently authorized in Pennsylvania by Chapter 78.[40] Accordingly, section 7.5(h)(2)(iii) may be changed to permit the temporary storage and disposal of uncontaminated drill cuttings on site in accordance with the host state's laws and regulations.

Comments on Section 7.6

Section 7.6(a)-(b).Approval Requirements and Treatability Study for Gas Well Wastewater Treatment and Disposal Facilities. We applaud the Commission's decision to require approval for all facilities in the Basin proposing to treat gas well wastewater, and to require treatability studies for those facilities. In Pennsylvania, DEP has authorized several publicly owned treatment works ("POTWs") to accept gas well wastewater without amending their NPDES permits, and without ensuring that the POTWs would be able to treat all parameters of concern. In the Monongahela River Basin, the result has been elevated levels of trihalomethanes, a carcinogen that forms when bromides in gas well wastewater combine with chlorine.[41] Although the EPA recently directed DEP to amend the permits of these POTWs, and

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[40] *See* 25 Pa. Code §78.61(a).

[41] *See* Paul Handke, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WATER STANDARDS AND FACILITY REGULATION, *Trihalomethane Speciation and the Relationship to Elevated Total Dissolved Solid Concentrations Affecting Drinking Water Quality at Systems Utilizing the Monogahela River as a Primary Source During the 3rd and 4th Quarters of 2008* (2009), *available at* http://files.dep.state.pa.us/Water/Wastewater%20Management/WastewaterPortalFiles/MarcellusShaleWastewaterPartnership/dbp_mon_report__dbp_correlation.pdf.

the DEP has begun to do so,[42] the treatment capability of many remains uncertain. Most new centralized waste treatment facilities ("CWTs") built to treat gas well wastewater are recycling, rather than discharging; but invariably discharges in some quantity will be necessary, and across the Basin discharges will likely be in the millions of gallons over the course of years. For this reason, it is crucial that the Commission ensure that any POTW or CWT that proposes to discharge in the Basin use a technology that will treat all contaminants of concern in the wastewater it receives – including all of the parameters noted in Section 7.6(c), as well as bromides.

The regulations in Section 7.6 should be clarified in two ways. First, the Commission should clarify what it means by the term "wastewater treatment and disposal facilities." The term is defined in Section 7.2 as "any facility storing, intercepting, transporting, treating or discharging wastewater." This definition would appear to encompass any facility that recycles wastewater on a well pad, but Section 7.6 should be explicit on this account. We do not believe it is necessary for the Commission to regulate well pad recycling operations in the same manner as POTWs and CWTs, provided that recycling operations are disclosed in an operator's wastewater treatment and disposal plan.

Second, the Commission should clarify when the treatability study required by Section 7.6(b) is necessary. As drafted, the regulation is ambiguous as to whether a treatability study is required for each new well drilled or for each wastewater treatment facility. Presumably, the Commission means the latter; in any case, the ambiguity should be clarified. Moreover, because the character of gas well wastewater varies, depending on the formation from which it was produced and the project sponsor that produced it, future innovations may result in wastewater with categorically different characteristics, the Commission should institute a policy to monitor the character of the gas well wastewater that treatment facilities are accepting, and to ensure that treatability studies are updated on a regular basis.

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[42] On March 7, 2011, Shawn M. Garvin, Regional Administrator for EPA Region III, sent a letter to Acting DEP Secretary Michael Krancer encouraging the DEP to re-open NPDES permits for POTWs and CWTs currently accepting gas well wastewater. DEP has complied in at least one case by publishing for comment an amended NPDES permit for the Williamsport Sanitary Authority, which accepts gas well wastewater pre-treated by Eureka Resources, LLC. *See* 41 Pa.B. 1790 (April 2, 2011).

Thank you for your consideration of these comments.

Very truly yours,

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Senior Attorney

/s/

Mark Szybist
Staff Attorney