



United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
United States Custom House
200 Chestnut Street
Philadelphia, PA 19106

APR 15 2011

IN REPLY REFER TO:

N30(4531/NER-NR)

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

Dear Ms. Bush:

The National Park Service (NPS) supports the efforts of the Delaware River Basin Commission (DRBC) to develop regulations to protect the water resources of the Delaware River Basin during construction and operation of natural gas development projects. The NPS recognizes that the protection of the water resources of the Basin is critical to the ecological integrity of the headwaters of the Basin and the region as a whole. We also understand the important role that energy development plays in the economic vitality of the area and national energy policy. With these thoughts in mind, we respectfully submit the enclosed comments on the draft Natural Gas Extraction Regulations, Article 7 of Part III of Basin Regulations.

As you know, the drainage area of Special Protection Waters (SPW) in the Delaware River Basin encompasses 6,780 square miles and represents half of the entire Delaware River Watershed. It also contains NPS units including the Upper Delaware Scenic and Recreational River, the Delaware Water Gap National Recreation Area, the Middle Delaware National Scenic River, and the Lower Delaware River National Wild and Scenic River and many significant high-quality tributaries, such as the Musconetcong National Wild and Scenic River. These national designations were bestowed to safeguard the "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or similar values...and to fulfill other vital national conservation purposes." It is also important to acknowledge that in addition to these NPS management areas, a number of NPS special status areas (e.g., National Historic Landmarks, National Trails, National Natural Landmarks and other areas) also exist in or near the Delaware River Basin. These diverse areas, each with their own legislation or regulations protecting the resources and values for which they were established, make up the NPS managed areas and interests in the Basin.

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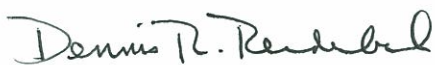
In summary, our comments address a wide range of issues, including best management practices for the siting, construction and operation of natural gas wells. It remains our contention that optimal siting of wells is based on time, place, and manner. Our comments highlight the unique opportunity the DRBC has to provide for the best protection of resources of the Basin by reviewing the siting of all wells, regardless if they are exploratory or producing wells. Location of wells outside the boundaries of NPS managed areas, unless no practicable alternative exists, is also of concern to the NPS. In addition, the comments provide NPS reclamation standards and examples to help limit any potential long term effects from natural gas well pad activities. These comments also discuss the use of recovered flowback and production waters and management of wastewater activities. Finally, the NPS commends the DRBC for proposing to include Natural Gas Development Plans (NGDP) as an effective tool for addressing potential large scale changes in land use and the cumulative impacts associated with such changes.

As stated earlier, the NPS understands and supports natural gas development as a critical component of the local and regional economies and an important part of our national energy strategy. We believe that this development can be done in a way that both provides for the extraction of the natural gas resource as well as provide the necessary protections of the natural and cultural values for which our NPS managed areas were established.

We appreciate the opportunity to review and comment on the draft DRBC Natural Gas Development Regulations. We look forward to the continued cooperation with the DRBC, host state agencies, other Federal agencies and all other stakeholders in the Delaware River Basin. If you have any questions regarding these comments, please contact Richard L. Harris, Associate Regional Director for Natural Resources, Science, Conservation and Recreation Assistance, National Park Service, Northeast Region. He can be reached by telephone at (215) 597-1788 or rick_harris@nps.gov.

Thank you again for your consideration in this important matter.

Sincerely,



Dennis R. Reidenbach
Regional Director, Northeast Region

Enclosure

Comments on draft Natural Gas Development Regulations, as Proposed by the DRBC on December 9, 2010

cc:

Brigadier General Peter A. DeLuca
Division Engineer, North Atlantic Division

Comments on draft Natural Gas Development Regulations

as Proposed by the DRBC on December 9, 2010

Submitted by the National Park Service

April 14, 2011

General Comments

Exploratory Wells and Low-Volume Fracturing Wells

The language of Section 7.5(e) Approval by Rule effectively allows an operator to establish access roads and well pads by identifying a project as an “exploratory well” or “low volume hydraulically fractured well” and allows for the site selection of such wells to be at the sole discretion of the host state. This could result in unacceptable resource degradation, because proper siting of a well pad, regardless if it is an “exploratory well,” “low volume hydraulically fractured well” or “high volume hydraulically fractured well,” is critical in limiting impacts to sensitive water, air and biotic resources. The expert witness report prepared by Mr. Patrick O’Dell, NPS petroleum engineer, and filed by the Delaware River Basin Commission (DRBC) in 2010 as testimony for its administrative adjudicatory hearing on exploratory wells explains this issue in detail. The National Park Service (NPS) position on this topic comes from the O’Dell expert witness report: “Environmental protection from the adverse impacts of an activity hinges on best management practices that consider time, place, and manner. Distance between an activity and the resource at risk is fundamental to that resource’s protection. Eliminating the “place” consideration is perhaps the most serious handicap that could be put upon an environmental protection regulatory scheme.” Therefore, the NPS suggests the removal of language pertaining to an “exploratory well” or “low volume hydraulically fractured well” and treating such activities within the scope of the broader definition in Section 7.2 for a “natural gas development project.” This would allow for DRBC review on all activities associated “natural gas development project,” which would include the critical component of site selection of any such activities.

Downhole Well Construction to Prevent Unwanted Migration of Fluids along the Wellbore

Downhole well construction requirements are not addressed in Section 7.5. Such requirements are deferred to host state standards in Section 7.1(i). The NPS is concerned that unwanted and undetected fluid migration, such as natural gas, along the wellbore could adversely affect zones of usable quality water. We believe the best way to prevent such impacts is to construct wells in such a manner that all zones capable of fluid flow are isolated by means of well casing and cement within the casing/openhole annulus.

As identified above, the DRBC indicates it will defer to Host State Regulation of Natural Gas and Exploratory Well Construction in Section 7.1(i). The NPS acknowledges this issue is difficult to manage due to the complexity of the subject matter and the state jurisdictional issues and the potential for overlap or redundancy in rules and regulations among regulatory entities. However, recent research has indicated that the issue of stray gas migration into potable aquifers from deeper, non-target gas bearing zones above the producing zone may be a larger, long term issue and provide a greater threat to potable aquifers than hydraulic fracturing. As an example, it has been indicated that stray gas has been identified as a possible cause of increases in methane levels in potable aquifers in the Mamm Creek Field in Colorado. Areas of DRBC jurisdiction in northeast Pennsylvania (PA) and New York (NY) may have the greatest risk for this issue. Furthermore, management of stray gas may be more appropriate only for particular subareas of each of these states. We therefore understand that state regulators may be hesitant to address this issue through a well design rule applied statewide. These proposed DRBC regulations provide the opportunity for a general downhole well construction standard that would otherwise not be available across the Basin.

To illustrate the current differing regulatory approaches, Appendix 10 of the NY Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program (SGEIS) Proposed Supplementary Permit Conditions for High-Volume Hydraulic Fracturing appears to address this issue from non-targeted/noncommercial gas bearing zones. Paragraph 27 under Drilling, Stimulation and Flowback requires that intermediate casing be fully cemented to surface and if a cemented string of intermediate casing is not run, that production casing must be fully cemented to surface (i.e. annular space is thereby always filled with cement for completed producing wells). In contrast, current proposed PA regulations do not specify a particular means of controlling stray gas migration up the annular space other than indicating it should not be allowed to occur. Until PA and NY finalize regulations that address stray gas migration and possibly standardize some well design methodology or management approach that is shown to be protective of water resources to the satisfaction of the DRBC, the DRBC should not defer completely to host state regulations on this important water resource threat. Furthermore, through attention and recognition given this issue by the DRBC, it is likely that state regulatory agencies will be further motivated to work with industry to arrive at the best management solution that is fully protective and acceptable to all in efforts to avoid potential inefficiencies associated with overlapping regulatory responsibilities.

Based on the above comments, the NPS recommends that the DRBC acknowledges its awareness of this important issue and its potential effects on water resources by including the following:

Consider adding to section 7.1 (e) (4) (iii) the inclusion of “stray gas management (i.e. avoiding the cross-strata migration of gas from non-targeted formations via the annular space along any open borehole intervals)” for consideration in approval of the Natural Gas Development Plan

(NGDP) and add the definition of “stray gas” and “non-target gas producing formations” to 7.2 Definitions. This should provide the DRBC with the opportunity to weigh in on the operator’s proposed well design should any state’s approved final well design regulations appear to be inadequate in addressing the stray gas issue and its potential effects on Delaware River Basin groundwater resources over the long term.

The NPS also recommends that DRBC develop a general standard for Section 7.5 such as “During well construction, all horizons capable of flow must be isolated by means of well casings and cement casing/openhole annuli so as to prevent the movement of fluids within the wellbore.” The NPS is hopeful that that states of PA and NY will promulgate casing and cementing requirements in their own regulatory undertakings that will meet such a standard. Again, in lieu of such current state standards, and in recognition of the risk posed by stray gas migration and its potential impact on potable aquifers, DRBC should use the opportunity to address this well design issue in their NGDP approval process and not defer completely to the state on this subject.

Reclamation

Our review found only one reclamation standard in the proposed regulations and it is provided in the context of releasing an operator from financial assurance. The standards of Section 7.3(k)(17)(ii) read as follows: “Successful restoration of well sites and access roads may only be considered complete after observations over two growing seasons indicate no significant impact on hydrologic resources and there are no outstanding compliance issues.” The goal of “no significant impact on hydrologic resources” is a low standard given the overall purpose of the regulation. The NPS believes it is not DRBC’s intent to allow for lingering impacts on water resources from plugged and restored well sites so long as those impacts do not rise to an undefined level of significance. We believe impacts should not be allowed regardless of the level of significance.

To help address this issue, the NPS recommends that in Section 7.1 (a) Purpose, the DRBC changes “construction and operation of” to “...construction, operation, *and reclamation of...*” to clarify that DRBC’s permit process includes reclamation. We further recommend that DRBC develop clear reclamation standards. The regulatory review and approval process for reclamation could consist of reviewing state permit actions for plugging and restoration and requiring additional conditions of approval as necessary to meet DRBC standards.

For an example of factors DRBC may consider regarding reclamation, the NPS regulations governing the exercise of non-federal oil and gas rights in parks at 36 CFR Part 9, Subpart B, §9.39 state: “Reclamation...is unacceptable unless it provides for the safe movement of native wildlife, the reestablishment of native vegetative communities, the normal flow of surface and reasonable flow of subsurface waters, and the return of the area to a condition which does not

jeopardize visitor safety or public use of the unit.” The regulations also provide the minimum steps that must be taken to achieve the reclamation standard as described below.

“[e]ach operator must take steps to restore natural conditions and processes. These steps shall include but are not limited to:

- (i) Removing all above ground structures, equipment and roads used for operations, except that such structures, equipment and roads may remain where they are to be used for continuing operations which are the subject of another approved plan of operations or of a plan which has been submitted for approval, or unless otherwise authorized by the Regional Director consistent with the unit purpose and management objectives;
- (ii) Removing all other man-made debris resulting from operations;
- (iii) Removing or neutralizing any contaminating substances;
- (iv) Plugging and capping all nonproductive wells and filling dump holes, ditches, reserve pits and other excavations;
- (v) Grading to reasonably conform the contour of the area of operations to a contour similar to that which existed prior to the initiation of operations, where such grading will not jeopardize reclamation;
- (vi) Replacing the natural topsoil necessary for vegetative restoration; and
- (vii) Reestablishing native vegetative communities.”

Specific Comments

Section 7.1 Purpose, Authority, Scope and Relationship to other Requirements and Rules

7.1(a) Purpose

The NPS recommends adding the following language to the first sentence, “...construction, operation, *and reclamation of...*” to clarify that DRBC’s permit process includes reclamation.

7.1(e) Planning Framework

(4)(iii)

NPS recommends that the DRBC highlight the stray gas management issue in its well approval process so that operators will recognize that well designs should ensure stray gas will be properly managed and controlled.

The NPS recommends DRBC includes “stray gas management (i.e. avoiding the cross-strata migration of gas from non-targeted formations via the annular space along any open borehole intervals)” for consideration in approval of a NGDP.

7.1(i) Host State Regulation of Natural Gas and Exploratory Well Construction and Operation

As stated earlier, because Section 7.5 does not address downhole well construction requirements, Section 7.1(i) implicitly defers to state requirements for downhole well construction standards. The NPS concern is that unwanted and undetected fluid migration, such as natural gas, along the wellbore could adversely affect zones of usable quality water. The NPS believes the best way to prevent such impacts is to construct wells such that all zones capable of fluid flow are isolated by means of well casing and cement within the casing/openhole annulus.

Please see above General Comments on Downhole Well Construction to Prevent Unwanted Migration of Fluids along the Wellbore for further reasoning on the importance of including management of stray gas migration in DRBC regulations.

7.2 Definitions

The NPS recommends adding the definitions of “stray gas” and “non-target gas producing formations.” Please see above General Comments on Downhole Well Construction to Prevent Unwanted Migration of Fluids along the Wellbore.

The NPS recommends revising the definition of “centralized wastewater storage facility” to include only water-tight tankage. The NPS does not believe impoundments are a prudent option for containment of wastewater. The NPS recommends water-tight tankage as the only option for wastewater storage either on site or in a centralized location.

The NPS suggests the removal of all language pertaining to an “exploratory well” or “low volume hydraulically fractured well” and treating such activities within the scope of the broader definition for a “natural gas development project.”

Section 7.3 Administration

7.3 (c) Approval by Rule for Natural Gas Development Projects

(i) Public Notification

It is unclear on which types of projects public notification is required. The Terms “natural gas project” is used in this section, however, “Natural Gas Development Project” is used and defined in 7.3 (a), which includes, water withdrawals, NGDP, well pads, and

wastewater treatment. So it is unclear if “natural gas project” is equivalent to “natural gas development project” or limited to only activities related to the well pad. The NPS supports public notification on all actions as defined by “natural gas development project” and also recommends that DRBC requires certification that property owners 2000 feet from proposed activity have been notified, equivalent to host state, municipalities, county planning agencies and adjacent property owners.

7.3 (k) Financial Assurance Requirements

(8) It is necessary for DRBC to provide reasoning for establishment of \$125,000 per well for bonding requirements. Is this amount reasonable in comparison to other states? This question is important, especially considering that draft regulations allow for a 25% reduction in financial assurance if a project sponsor receives approval for a NGDP pursuant to 7.5(c). Financial assurance is a key tool if or when an accident or emergency occurs. Appropriate funds should be required.

(15) Is it reasonable to allow for a 75% reduction in financial assurance during the lifetime of well pad activities? As noted above, financial assurance is a key tool in dealing with accidents and emergencies. It is important to note that after initial hydraulic fracturing of a well is complete, it is plausible that the well could be re-fractured in the future to prolong productivity of the well. Would future hydraulic fracturing still be included in initial financial assurance? If so, a 75% reduction in funds does not seem reasonable.

(17) Release from Financial Assurance.

The goal of “no significant impact on hydrologic resources” seems to be a low standard given the overall purpose of the regulation. The NPS believes it is not DRBC’s intent to allow for lingering impacts on water resources from plugged and restored well sites so long as those impacts do not rise to an undefined level of significance. Impacts should not be allowed regardless of the level of significance. Please above comments in General Comments on Reclamation.

7.3(l) Project Review Fees

(9) Additional wells added to approved well pads

The NPS recommends that “notification requirements” be inclusive of property owners within 2000 feet, and not just host state, municipalities, county planning agencies and adjacent property owners.

7.3(m) Reporting Violations

(1) It is important that project sponsors not only notify DRBC in circumstances that may cause “significant harm to water resources,” but that they also follow host state and any applicable Federal emergency response notification requirements. NPS recommends including a statement to this effect to underscore the reliance among DRBC, state agencies and Federal agencies that all parties are fully notified in emergency situations so as to prevent any damage to the resources of the Basin.

7.3(n) Enforcement.

(1) Suspension of Activities and Correction of Water Resources Impacts.

(i) Authority.

The NPS does not support the requirement that the Commission Chair must approve the Executive Director suspending activities in the event of violations. This additional requirement could result in undue oversight by a host state agency as well as undue delay in stopping the activity, particularly in the case of an emergency.

Section 7.4 Water Sources for Uses Related to Natural Gas Well Development.

7.4(a) Types of water sources.

(4) Imported Water.

In general, the NPS does not support inter-Basin transfers of water. Therefore, the NPS does not support the use of imported water for any use related to Natural Gas Well Development.

(5) Mine drainage water (MDW)

The NPS does not support allowing MDW, or any waters, from outside the basin to be imported into the basin for any purpose. The NPS does not support the use of untreated MDW in general. However, the use of treated MDW from in-basin sources should be considered to minimize water withdrawals from in-basin sources. Mine drainage water from in-basin sources should be treated to the extent that can be demonstrated to the DRBC satisfaction that no degradation will occur to the water resources of the Basin.

(6) Recovered flowback and production water.

The NPS does not support the importation or use of recovered flowback or production water from outside of the Delaware Basin. However, the NPS would support the use of recovered flowback and production water from in-basin sources for in-basin natural gas well development if it can be demonstrated to the satisfaction of the DRBC that no degradation will occur to the water resources of the Basin.

7.4(d) ABR of previously approved sources to supply water for natural gas development

(1) Approved withdrawals

(x) Invasive species control plan.

The NPS supports a mandatory invasive species control plan for all natural gas development projects. Such a plan should include terrestrial and aquatic invasive plants and animals and should not be subject to exclusion by the Commission. Some waters in the Basin are known to have invasive species which could result in serious ecological and economic consequences if introduced elsewhere. The project sponsor can determine the means for management or treatment, with approval by DRBC, to render these organisms harmless prior to transportation of water to other watersheds.

(xi) Pass-by flow requirement.

Adequate minimum pass-by flows are necessary to maintain aquatic life needs. Minimum critical flows for all keystone species should be determined. The NPS understands that some of this information may not currently be available and encourages the DRBC, state regulatory agencies, and project sponsors to develop this information prior to prescribing minimum pass-by flows for specific withdrawal locations. Until such information is developed, the NPS recommends that the DRBC adopt guidelines for pass-by flows developed by the Susquehanna River Basin Commission (SRBC) and supported by the Pennsylvania Fish and Boat Commission (PFBC). This guidance can be found in, *"Guidelines for Using and Determining Passby Flows and Conservation Releases for Surface-Water and Ground-Water Withdrawal Approvals,"* November 8, 2002, Policy No. 2003-01. It is important to note that almost all of the Delaware River tributaries most likely to be impacted by shale development are classified as High Quality (HQ) Cold Water Fisheries (CWF) or Exceptional Value (EV) streams and require higher levels of protection as prescribed in the SRBC guidance.

7.4(e) New water sources for uses related to natural gas development

(3) Additional submittals and conditions applicable to new surface water withdrawals approved by ABR, docket, or protected area permit

(i) Invasive species management plan

Invasive species control plans should be mandatory and not subject to exclusion by the Commission. Please see above comments to 7.4(d)(1)(x).

(ii) pass-by flow requirement

Adequate minimum pass-by flows are necessary to maintain aquatic life needs. Minimum critical flows for all keystone species should be determined. The NPS understands that some of this information may not currently be available and encourages the DRBC, state regulatory agencies, and project sponsors to develop this information prior to prescribing minimum pass-by flows for specific withdrawal locations. Until such information is developed, the NPS recommends that the DRBC adopt guidelines for pass-by flows developed by the Susquehanna River Basin Commission (SRBC) and supported by the Pennsylvania Fish and Boat Commission (PFBC). This guidance can be found in, "*Guidelines for Using and Determining Passby Flows and Conservation Releases for Surface-Water and Ground-Water Withdrawal Approvals*," November 8, 2002, Policy No. 2003-01. It is important to note that almost all of the Delaware River tributaries most likely to be impacted by shale development are classified as High Quality (HQ) Cold Water Fisheries (CWF) or Exceptional Value (EV) streams and require higher levels of protection as prescribed in the SRBC guidance.

7.4(f) Importation of water for uses related to natural gas development

In general, the NPS does not support inter-Basin transfers of water. Please also see below comments to 7.6(g) Wastewater Imports, with reference to the sections of the Water Code where it states importation of water into the Basin is generally discouraged.

7.4(g) Use of recovered flowback and production water

(2) Conditions of Use.

The use of recovered flowback and production water at sites other than original well pad site should be weighed against transport and the potential for spills during transport.

(3) Storage of recovered flowback and production water.

The NPS supports the requirement that storage of all recovered flowback and production water at the well pad must be in water-tight tanks, in accordance with Section 7.5(h)(2)(iv)(A) and should only be on a temporary basis.

Please note, the NPS does not support the use of impoundments as a potential option for storage as allowed by the current definition of “centralized storage facility” in 7.5(h)(2)(iv)(B). The NPS supports the use of water-tight storage tanks only either on-site or at a centralized location for the storage of recovered flowback or production water. Transport of this water to a centralized storage facility should be weighed against the risk of potential spill during transport.

7.5 Well-Pads for Natural Gas Activities

Scope. The NPS suggests the title of the section be changed to better represent the content of the section, which includes more than just the Well-Pads. The NPS suggests “Natural Gas Development Activities” in place of “Well-Pads for Natural Gas Activities” as the title and within the section where appropriate.

In addition, the NPS recommends that DRBC develop a general standard for Section 7.5 such as “During well construction, all horizons capable of flow must be isolated by means of well casings and cement casing/openhole annuli so as to prevent the movement of fluids within the wellbore.” Please see above NPS General Comments on Downhole Well Construction to Prevent Unwanted Migration of Fluids along the Wellbore.

7.5 (b)(3) Siting Restrictions

Need for Qualified Prohibition on Well Sites and Associated Facilities in Units of the National Park System

The NPS recommends the DRBC strengthen its draft regulation by including a provision for a qualified prohibition on well sites and associated facilities (i.e., pads, roads, compressor sites, retention ponds, transmission lines, etc.) in units of the National Park System within DRBC’s jurisdiction. The qualified prohibition would be that “... the siting of wells and associated facilities within units of the National Park System is prohibited unless a project sponsor can demonstrate that no other practicable alternative exists for exercise of gas drilling rights held by the applicant.”

The NPS recognizes that well sites within the river corridor would be subject to the higher level of regulatory processes of docket review and comprehensive planning. However, without a qualified prohibition on gas development sites within units of the National Park System, the end

result of these processes is much more likely to result in unnecessary well sites within the Upper Delaware River corridor.

The NPS recommends DRBC add the following language in §7.5(b)(3):

"Siting Restrictions. A natural gas well and associated facilities (pads, roads, compressor sites, retention ponds, transmission lines, etc.) may not be sited:

(xxx) within the external boundary of areas managed by the National Park Service unless an operator can demonstrate to the Commission that no other practicable alternative exists for exercise of gas drilling rights held by the applicant; "

The qualified prohibition is supportable for several reasons:

1. The nationally significant resources of the Upper Delaware Scenic and Recreational River and other park units;
2. The best way to help assure protection of the Basin's water resources from the impacts of natural gas development is by placing as much distance as is practicable between the activity and the resource at risk;
3. The proven methods used to develop shale formations (horizontal wellbores up to 1 mile being common) provide operators with a reasonable means of developing natural gas resources beneath units of the National Park System without creating direct impacts within the unit; and
4. The qualified prohibition addresses the regulatory takings issues that may have arisen around the inclusion of a strict prohibition in proposed regulations.

Federal legislation established units of the NPS as part of the National Wild & Scenic River Management program in 1978 in recognition of the scenic and recreational values and uses and exceptionally high water quality of these reaches. The Special Protection Waters (SPW) program, established in 1992 and modified in 1994, 2005 and 2008, created an anti-degradation management regime to implement the objectives established by the Upper Delaware Scenic and Recreational River Management Plan (Conference 1986) and the General Management Plan for the Delaware Water Gap National Recreation Area/ Middle Delaware Scenic and Recreational River (DWGNRA 1987). These objectives have the primary goal of preserving and protecting the exceptionally high quality of these waters. For more than three decades, the water resources of the upper and middle Delaware River have been accorded special status and protections by agencies of federal and state government.

The effects on, and risks, to surface water and groundwater from well site construction, drilling, well completion, hydraulic fracture stimulation, installation of gas handling facilities, gathering lines, compressors and waste handling areas, and long-term production and maintenance of wells

are directly proportional to the activities' proximity to the water resources. The proximity of natural gas development activity is key to water resource protection and is acknowledged by the many federal and state oil and gas regulatory agencies that include minimum setbacks in their policies and regulations. Site selection for all natural gas extraction activities is a crucial component of mitigating risks and effects on water resources.

Further, horizontal well design technologies commonly being used to develop the natural gas resources of the shale formations, including the Marcellus shale, will readily allow industry to site surface operations outside NPS areas while still providing for commercial development of the gas resources beneath them, where the right to recover such resources may be in private hands. For example, using a lower range length of 3000 feet for the horizontal section of Marcellus wells provides the ability to avoid placing well sites across a 6000 feet gap. This is because wells can be drilled from opposite directions. Using a higher range of 5000 feet horizontal sections increases the gap to nearly two miles. Therefore, it is conceivable that all technically recoverable gas beneath units of the National Park System could be extracted by wells with surface locations outside the park unit boundaries.

The NPS acknowledges that there will be some added cost to industry and to a lesser degree perhaps to private land owners. In exchange, there would be a true reduction in the industrialization of the river corridor, including the Upper Delaware portion, and an increase in environmental benefits to the benefit of those same landowners within the corridor. This environmental benefit would be extended to the downstream citizens of the City of Philadelphia, as well as all citizens of PA and NY and the remainder of the region.

Accordingly, the NPS recommends the establishment of a qualified prohibition on locating sites within units of the National Park System. We believe this is environmentally, technically, and economically supportable and has a reasonable place in DRBC's regulatory framework.

7.5(b)(4) Setbacks.

The NPS recognizes that identification of a general setback distance is a difficult exercise. Environmental conditions may provide natural or human-made barriers that would justify a reduced setback. In contrast, site conditions such as steep slopes or annually high precipitation can enhance pathways between the activity and resource and thus justify greater setbacks. Regulatory establishment of a "good offset" that considers both the activities and the average environmental conditions provides a beginning point for proper site location considerations. Additionally, having a regulatory process for adjusting site-specific setbacks, either lower or higher, based on project and environmental conditions is the key to successful use of setbacks.

The setbacks listed in Section 7.5(b)(4) provide a reasonable starting point with one exception. The NPS supports an additional setback of 2000 feet from NPS management areas.

Furthermore, Section 7.5(b)(9) provides a process including burdens of evidence for operators to obtain approval of a reduced setback. The NPS recommends that the DRBC afford itself the same process and burdens of evidence to require a greater setback when one may be warranted. For example, the DRBC could add a provision following 7.5(b)(4) that states: "The Executive Director may determine that site specific actions and environmental conditions warrant an increased setback, and will provide written justification and direction for setbacks greater than those listed in 7.5(b)(4) to the project sponsor."

7.5 (b) Administration

(9) Variances

(i) The NPS would support this section with the inclusion of the aforementioned NPS comments to 7.5(b)(3) Siting Restrictions and 7.5(b)(4) setbacks.

(iii) The NPS recommends including the notification of property owners within 2000 feet of the initial proposed site and the proposed alternative site.

7.5 (c) Natural Gas Development Plans

The NPS supports requiring the development of NGDP for all project sponsors. This will enable the project sponsor, and the DRBC, to identify foreseeable natural gas development in a defined geographic area, facilitate analysis of potential water resource impacts and identify measures to minimize these impacts.

(3)(iii) Constraints Analysis Map

The NPS supports this requirement, with the addition of:

(A) All restricted areas including the qualified prohibition from NPS management units

(B) All setbacks including 2000 feet from NPS management areas

7.5(e) Approval by ABR

(4) The NPS supports the requirement a project sponsor must be located outside management areas of the NPS, including Upper Delaware Scenic and Recreational River (UPDE), the Delaware Water Gap National Recreation Area (DEWA) and other areas in which the NPS or other federal agencies have a management interest. In addition, and as stated above, the NPS supports a qualified prohibition for all proposed

natural gas activities and not just those seeking ABR for a well pad site.

(6) It must meet the applicable siting and design criteria in Section 7.5(b)(4) with the addition of being sited outside a 2000 feet setback of NPS managed areas.

(7) As stated earlier, current draft language could potentially allow an operator to establish access roads and well pads by identifying a project an “exploratory well” or “low volume hydraulically fractured well” and leave well pad site selection to the sole discretion of the host state. Please see General Comments on Exploratory Wells and Low-Volume Fracturing Wells above.

7.5(h) Well Pad Requirements

As stated earlier, the NPS suggests the removal of all language pertaining to an “exploratory well” or “low volume hydraulically fractured well” and treating such activities within the scope of the broader definition for a “natural gas development project.”

(2)Additional Requirements for all Well Pads involving High Volume Hydraulically Fractured Wells

(i)(A) and (B)

Pre- and post-alteration water chemistry sampling should include identification of chemicals introduced for hydraulic fracturing purposes and sampling for those constituents and their derivatives.

(ii) Hydraulic Fracturing

(G)

The NPS supports the storage of flowback and production waters in water tight tanks on the well pad site on a temporary basis or the transport of such waters to an approved treatment and discharge facility. As noted earlier, the transport of flowback and production waters should be weighed against the risk of potential spills during transport.

Furthermore, Section 7.5(h)(2)(ii)(G) goes on to include the transfer of recovered flowback and production water to a “centralized wastewater storage facility.” Please see below comments to 7.5(h)(2)(iv), notably subsection (B), where the NPS does not agree with the definition of “centralized wastewater storage facility,” which currently includes open impoundment as an option as defined in 7.2 Definitions.

(H)

As noted above, the NPS does not concur with the current definition of “centralized wastewater storage facility.”

(iii) Drilling Fluids and Drill Cuttings from Horizontal Wellbores in the target formation

Drilling fluids and cuttings should be captured and containerized to avoid washout or contamination from these products during the allowable 45 day on site storage.

(iv) Wastewater Storage.

(B)

The NPS supports the use of a centralized wastewater storage facility only if the facility uses storage tanks for containment and not open impoundments. The NPS does not support the use of open impoundments either at the well pad site or at a centralized location. Please also see NPS comments in 7.2 Definitions regarding “centralized wastewater storage facility” and 7.5(h)(2)(ii)(G) and 7.5(h)(2)(ii)(H).

7.6 Wastewater Generated by Natural Gas Development

7.6(g) Wastewater Imports

This section is unclear and appears contradictory. It is not clear what “wastewater” this section refers. In Section 7.2, “wastewater” is defined as “liquids to which pollutant(s) have been introduced and are proposed to be discharged to the ground, groundwater, or surface water, transported to storage or wastewater treatment facilities, beneficially reused or discharges to ground, groundwater or surface water after treatment. Wastewater includes both domestic and non-domestic wastewater.” In other instances in the proposed regulations, “wastewater” is used as a general term referring to natural gas wastewater such as recovered flowback and production water.

This section states, and the NPS concurs, that “Basin waters have limited assimilative capacity and limited capacity to accept conservative substances without significant impacts. It is the policy of the DRBC to discourage the importation of wastewater into the Basin that would significantly reduce the assimilative capacity...(Section 2.30.2 of Water Code).” By strict definition, the proposed regulations are referring to all types of wastewater as defined by 7.2. However, “non-domestic natural gas wastewater” is specifically identified at the end of the section as being allowed by approval by the DRBC. The NPS encourages the DRBC to explain the reasoning for allowing the

importation non-domestic natural gas wastewater even though the DRBC itself has identified the potential harm of such importation of wastewater to the Basin in Section 2.30.2 of its Water Code.

In addition, based on Section 2.30.2 of the Water Code, it is also unclear as to why these proposed regulations include the importation of water, including MDW and recovered flowback and production water, in Section 7.4(a)(4)-7.4(a)(6) if it is the policy of the Commission "...to discourage the importation of wastewater into the Basin..." In general and as stated before, the NPS does not support inter-Basin transfers of water, including wastewater as defined by 7.2 as well as MDW, recovered flowback, or production water.