

The Marcellus Shale Amendments

A Proposal for Reforming the Pennsylvania Oil & Gas Act

Pennsylvania Environmental Council
Chesapeake Bay Foundation

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Introduction

In 2010 the Pennsylvania Environmental Council (PEC) released a report – *Developing the Marcellus Shale* – outlining policy recommendations for improving Pennsylvania’s oversight and management of unconventional shale gas development. PEC’s policy recommendations were based on the following principles to guide adoption and implementation:

- Adaptive Management
- Informed Decision Making
- Comprehensive Planning and Stakeholder Input
- Predictable Processes and Incentives for Co-benefits
- Use of Best Management Practices

Since the release of the report, the Pennsylvania Department of Environmental Protection (DEP) has made extraordinary efforts to advance meaningful changes to regulatory provisions governing shale gas extraction; most notably the adoption of stringent standards applicable to casing and cementing of wells, as well as wastewater disposal restrictions. However, as incidents continue to occur throughout the Commonwealth, it is clear that additional authority and changes are necessary – and the need is immediate.

PEC, in partnership with the Chesapeake Bay Foundation, is releasing this proposal for amending the Pennsylvania Oil & Gas Act. These recommendations were developed following discussions with the Pennsylvania Chapter of The Nature Conservancy, representatives of industry, community interests, legislators, and state regulatory agencies.

Proposed Oil & Gas Act Amendment Objectives

The proposed statutory amendments have two primary objectives to increase public confidence in the ability of Pennsylvania to "get it right" in regulating natural gas shale development, and in the industry to comply with environmental safeguards.

- Reform the permit process to facilitate greater stakeholder input and site analysis.
- Set clear and appropriate protection standards in light of the hydraulic fracturing process and the degree of infrastructure required for shale gas extraction.

To the first objective, PEC is proposing that the permitting process be expanded into a two-phase process that requires enhanced collection and review of site-specific data prior to authorization of well activities. In our view the current process – reliant on a very tight approval timeframe – is inappropriate given the nature and location of unconventional shale gas development wells.

This same reason leads to the second objective of setting more restrictive conditions in the Oil & Gas Act. Pennsylvania has already experienced several incidents which display the significant potential for adverse impacts to public and natural resources, whether from failures of technology, adequate control, or human error. Therefore it is necessary to set greater controls in the law itself, and require the deployment of best management practices for any variance to ensure sufficient protections are in place.

Special Notes

Regional Comprehensive Planning

An additional goal of our efforts is the promotion of regional comprehensive planning to preemptively avoid adverse impacts to sensitive public and natural resources, allow for the consolidation of well site related infrastructure, and reduce the potential for cumulative impacts. After careful deliberation, we believe that it may be necessary to develop the framework for regional planning outside the parameters of the Oil & Gas Act. The Addendum to this proposal includes a series of ideas for enhancing local planning and decision making, both for well sites as well as associated infrastructure. Additionally, we reference the voluntary planning method adopted for shale gas activities in Colorado.

Public Health

As with PEC's report from last year, the proposed amendments do not directly address concerns relating to public health. These issues continue to be of vital and immediate importance in the broader Marcellus Shale debate. However, we believe this issue is best addressed by qualified health experts through appropriate study. We urge the state to aggressively support this work.

Structure of the Proposal

The proposed amendments to the Oil & Gas Act are separated into three parts:

- Part One: Proposed changes to Section 103 (Definitions).
- Part Two: Proposed changes to Section 201 (Permitting Process)
- Part Three: Additional proposed changes to all Chapters of the Oil & Gas Act for environmental and public protection.

In addition, we have included an Addendum that identifies potential opportunities to enhance regional planning and participation beyond the framework of the Oil & Gas Act.

Unless otherwise noted, we recommend that all amendments – including the enhanced permitting framework in Part Two – become effective no more than 12 months after the date of statutory enactment.

Part One: Proposed Changes to Oil & Gas Act Definitions

Section 103 of the Oil & Gas Act should be amended pursuant to the following recommendations. These amendments are necessary for consistency and to implement other recommendations in this proposal. Suggested statutory language is noted in *italicized font*; otherwise the descriptions provided are guidance for new or amended language.

- Amend the definition of Alteration by removing exception (2). This exception is inconsistent with the overall definition and not appropriate in light of unconventional shale gas development.
- Add a new definition for Ancillary Facilities. At a minimum, this definition should include well site access roads, pipelines to and from the well site, and water (fresh, recycled, flowback or produced) impoundment or holding tanks used or located on the well site.
- Add a definition for Best Management Practices. Best Management Practices should be defined as standards established by DEP through technical guidance. These standards should identify industry practices and actions that can be utilized to better protect natural resources, communities, and human health. The technical guidance should be reviewed and updated (as appropriate) at least every three years.
- Add a definition for Body of Water. The definition should include streams, as well as natural or artificial lakes, ponds, reservoirs, swamps, marshes or wetlands.
- Amend the definition of Department to read: *The Department of Environmental Protection of the Commonwealth.*
- Add the following definition of Flood: *A general but temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers or other waters of this Commonwealth.*
- Add the following definition of Floodplain: *The Lands adjoining a river or stream that have been or may be expected to be inundated by flood waters in a 100-year frequency flood. Unless otherwise specified, the boundary of the Floodplain is as indicated on maps and flood insurance studies provided by the Federal Emergency Management Agency or equivalent Floodplain maps and studies. In an area where no such maps or studies have defined the boundary of the 100-year Floodplain, it is assumed, absent evidence to the contrary, that the Floodplain extends from the Stream to 100 feet from the top of the streambank.*
- Add the following definition of High Volume Hydraulic Fracturing: *Natural gas wells that use or are expected to use greater than 80,000 gallons or equivalent of hydraulic fracturing fluids, including water.*

- Add the following definition of Hydraulic Fracturing: *A well stimulation technique which consists of pumping water, chemicals and a propping agent, such as sand, or other fluids and materials down the wellbore under high pressure to create and maintain induced fractures in the hydrocarbon-bearing rock of the target geologic formation.*
- Add the following definition of Hydraulic Fracturing Fluid(s): *A mixture of water, chemicals and propping agents or other fluids and materials used in the hydraulic fracturing process.*
- Add the following definition of Post Construction Stormwater Management: *A site-specific plan identifying Best Management Practices to manage changes in stormwater runoff volume, rate and water quality after earth disturbance activities have ended and the project site is permanently stabilized.*
- Add the following definition of Secretary: *The Secretary of Environmental Protection of the Commonwealth.*
- Add the following definition of Stream: *A Watercourse.*
- Add the following definition of Surface: *The uppermost portion of the Earth's crust, including land and aquatic features.*
- Add the following definition of Surface Owner: *A person who holds legal or equitable title to the surface of a parcel of real property. This definition should be used consistently throughout the Act.*
- Add the following definition of Unconventional Well: *A Well that requires the utilization of High Volume Hydraulic Fracturing.*
- Add the following definition of Water Purveyor: *The owner or operator of a public water supply.*
- Add the following definition of Water Supply: *A supply of water for human consumption or use, or for agricultural, commercial, industrial or other legitimate beneficial use.*
- Add the following definition of Watercourse: *A channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.*
- Add the following definition of Well Site: *The area occupied by the equipment or facilities necessary for, or incidental to, the drilling, production, servicing, or plugging of a well.*

Part Two: Restructuring the Framework of the Oil and Gas Act Permitting Process

Unconventional shale gas extraction is a highly industrialized process; requiring a significant amount of equipment, infrastructure and ancillary activity, including the management of large volumes of hydraulic fracturing and waste fluids. This industrial scale process occurs out in the open, often in close proximity to people and sensitive natural resources.

The existing permit procedure established by Chapter Two of the Oil & Gas Act was not written in contemplation of unconventional shale gas development. It does not provide sufficient information gathering and analysis requirements about site suitability, existing conditions on the proposed site, or potential regional considerations. It also does not allow DEP sufficient time to properly review permit applications, nor allow local interests sufficient opportunity to contribute information to the review process.

To address these shortfalls the Oil & Gas Act should be amended to reform well permitting into a two stage process, consistent with the framework outlined below. Please reference Part One for definition reference; additional amendments to Section 103 may be required to fully effect this proposal.

1. Add a new section to the Oil and Gas Act (“Section 201A”) establishing a new permit process for Unconventional Wells.
 - a. The existing Section 201 (amended with conforming language) would remain in place and continue to govern the permit process for natural gas wells developed without High Volume Hydraulic Fracturing.
2. Section 201A would require a two-phase permit process for Unconventional Wells.
 - a. The “Phase I Permit Application Process” will provide approval of the location of a proposed Well Site. The Phase I application process can be waived if the proposed Well Site is included in an area-wide comprehensive plan approved by DEP (*see*, 7. below)
 - b. The “Phase II Permit Application Process”, described in greater detail below, will be used to provide authorization to develop a well at an approved location.
3. The “Phase I Permit Application Process” will include a site assessment requiring the following elements:
 - a. Preparation of a “Notice of Intent” to submit a Phase I application which shall be submitted by certified mail, return receipt requested, to the county; the local municipality; all Surface Owners within 2,500 feet of the proposed Well Site, and any facilities or improvements ancillary to the development or servicing of the Well Site, including equipment, buildings, tanks, impoundments, and non-public access roads; and any Water Purveyor drawing source water from a surface water or ground water unit within the above-described area. DEP shall notify the Pennsylvania Fish & Boat Commission, Pennsylvania Game Commission, and the appropriate County Conservation District of the “Notice of Intent”.
 - i. The notice of intent shall include a copy of the Phase I Permit Application Form and/or checklist of the information required to complete the application form (*see* 3.b. below) and offer the opportunity to any recipient who may have information relevant to the completion of the form (*e.g.* current or prior site uses, pre-existing

site conditions, or other limiting factors) to provide such information to the applicant within 20 days of receipt of the notice.

- ii. In the event the applicant receives potentially relevant information from a recipient of the Notice of Intent, or any other source, it shall incorporate such information into the Phase I application unless the applicant can demonstrate that it is not credible.
- iii. If the information received indicates the need for follow up investigation by the applicant, the applicant shall undertake such follow-up investigations as may be reasonably necessary.

b. Phase I Application Form should include:

- i. Identification of applicant and proposed Well Site.
- ii. Identification and contact information for all parties receiving the Notice of Intent
- iii. Categorization of the proposed Well Site as a “high population density area” (see, *e.g.* Section 603. b. of the Colorado Oil and Gas Code; <http://cogcc.state.co.us/>), forest land, wildlife habitat, public recreation land, agricultural land, or industrial land, or other.
- iv. Specification of requisite site assessment information based on Site Assessment Checklist (see 3.c.)
- v. An alternative analysis for Well siting which demonstrates that options to avoid or minimize surface disturbance, forest fragmentation and other impacts on natural resources where identified and evaluated and, in cases where such options are not selected, to explain why other well locations are proposed. The analysis should include the extent to which pre-existing permanent infrastructure may be used in lieu of construction of additional infrastructure. This requirement can be waived if the operator performs or participates in a county or regional comprehensive plan.

c. Site Assessment Checklist developed by DEP, in a Technical Guidance document. The checklist should include, without limitation:

- i. The identification, on a scaled drawing, of all existing improvements or uses within 2,500 feet of the proposed Well Site and any Ancillary Facilities.
- ii. Topographic surface contour information.
- iii. Information available from existing data bases, county records, local municipality records and/or Surface Owners concerning prior surface and subsurface uses or other potentially limiting conditions within the proposed Well Site.
- iv. Identification of designated post-well development surface use(s).

- v. Information concerning the location, protection status/designated use and baseline water quality of Streams, Watercourses, Bodies of Water, and private or public water supply sources within 2,500 feet of the Well Site.
- vi. Pennsylvania Natural Diversity Index (PNDI), County Natural Heritage Inventories, and other ecological baseline information including, but not limited to high conservation value forest areas.
- vii. The location of pre-existing, permanent infrastructure (*e.g.* gathering lines, compressor stations, metering and processing facilities) within 2,500 feet of the proposed Well Site.
- viii. Tentative locations of the well pad and ancillary facilities and improvements.
- ix. A tentative description of the facilities and improvements to be constructed as part of the well development.
- x. A description of applicant-proposed best management practices.

4. Phase I Application Review and Approval Process

- a. Submittal to DEP with prescribed application fee.
- b. Determination of administrative completeness by DEP.
- c. Publication of application in Pennsylvania Bulletin and notice of 30 day comment period.
- d. Applicant submits notice of comment period by certified mail, return receipt requested, to the recipients of Notice of Intent (this notice is waived if the applicant obtains and submits to DEP written acknowledgements from all recipients of the Notice of Intent that they have participated in the preparation of, or reviewed the Phase I Application, and have no further comment).
- e. In certain specified circumstances, DEP may request additional information from the applicant if necessary to evaluate the application or comments received concerning the application.
- f. DEP is obligated to take action on Phase I Applications within 90 days of the close of the public comment period or 45 days after the applicant has fully complied with any request by DEP for additional information, whichever is later.
- g. DEP's approval may include site-specific determinations, including variances from or additions to setback distances established in Section 205 of the Act; as well as requiring implementation of best management practices.
- h. Through regulation, DEP may establish standards for withholding permit approval.

5. Phase I Approvals

- a. Effective for 3 years.
- b. Transferable to another qualified applicant with notice and pre-approval of DEP.

6. Phase II Well Development Permit

- a. Modeled after current permit process as modified to account for the Phase I process.

7. Evaluate Alternatives for an Area-wide Comprehensive Plan Process

- a. See Section 216 of the Colorado Oil and Gas Code (<http://cogcc.state.co.us/>)

Part Three: Other Proposed Amendments to the Oil & Gas Act

Please note that the following recommendations are interlinked with the amendments in Part One and Part Two of this proposal.

1. Add a statement in Section 201 that Well Operators have an affirmative obligation to avoid or minimize impacts to natural resources and public health.
2. To ensure sufficient statutory authority, add a provision to Section 201 that DEP shall have the authority pursuant to the Clean Streams Law (P.L. 1987, No. 394) to regulate water withdrawal for use with any Unconventional Well and to protect the ecological health of water resources.
3. To better protect Surface structures and private water supplies, amend Section 205(a) to:
 - Increase the Well Site setback standard to 500 feet for Unconventional Wells.
 - Require implementation of Best Management Practices as a condition of any waiver to the setback standard.

Note: Please also see 8, below, for additional recommendations to protect private water supplies.

4. To better protect water resources, amend Section 205(b) as follows:
 - Remove reliance on USGS Topographic Maps for water resource identification. Instead, apply setback standards to any Watercourse, Body of Water, or Wetland.
 - Increase the setback standard to 300 feet for Unconventional Wells.
 - For designated High Quality or Exceptional Value Waters, increase the setback standard to 500 feet.
 - Require implementation of Best Management Practices as a condition of any waiver to the setback standards.
 - If a Well Site is located within a Floodplain, prohibit the use of impoundment pits for recycled, produced or flowback waters resulting from, or for use with, an Unconventional Well.

- Provide DEP with additional authority to establish further protective measures for the storage of hazardous chemicals or materials on the Well Site that is within a Floodplain or 500 feet of a Watercourse, Body of Water, or Wetland.

5. To better protect sensitive public and natural resources, amend Section 205(c) as follows:

- Add the following as listed resources:
 - Sources used for public drinking water supplies
 - Whether the proposed Well Site location is within a Floodplain
 - Wild and Wilderness Trout Streams
 - High Quality or Exceptional Value Waters
 - Exceptional Value Wetlands
- Expressly allow DEP to condition or deny a permit application based upon potential impacts to the resources listed in Section 205(c).
- Require DEP to consult with County Conservation Districts regarding potential impacts to any resources listed in Section 205(c).
- Require DEP to consult with the Pennsylvania Fish & Boat Commission when there are potential impacts to Wild and Wilderness Trout Streams, High Quality or Exceptional Value Waters, or Exceptional Value Wetlands.

6. To better address stormwater impacts associated with Well Sites and Ancillary Facilities, amend Section 206 as follows:

- In Section 206(b): Require that, upon temporary or permanent cessation of all earth moving activities at a Well Site, stabilization must occur in a manner consistent with Title 25, Chapter 105 of the Pennsylvania Code.
- In Section 206(c): Require the completion of a Post-Construction Stormwater Management Plan within nine months of completion of a Well.
- Expand Section 206(d) to include reclamation or remediation of a Well Site.

7. To better address concerns relating to Well Site impoundment pits, amend Section 208 as follows:

- Require DEP to perform a sufficiency analysis on proposed containment systems for the storage of recycled, produced or flowback waters on the Well Site.
- For any surface impoundments used to temporarily store recycled, flowback or produced water, require the use of a dual liner system with leak detection monitoring systems. Require DEP to inspect any such impoundments on, at a minimum, a monthly basis.

8. For additional protections for private water supplies, amend Section 208 as follows:

- Mandate pre-drilling private water supply baseline surveys within 2,500 feet from the Well Site.
- Amend Section 208(a) to require that restored or replaced water supplies meet applicable water quality standards consistent with the Federal and State Safe Drinking Water Acts.
- Amend Section 208(c) and (d) to expand the presumption of liability to 2,500 feet from the Well Site, for a period of 12 months.

9. To enhance public disclosure and better identify potential impacts to Surface Owners and the environment, amend Well reporting requirements in the Oil & Gas Act to include the following:

- Pump rate, pressure and total volume used for Hydraulic Fracturing.
 - List of all hazardous chemicals used for Hydraulic Fracturing.
 - Identification of all water sources used for Hydraulic Fracturing, consistent with the DEP-approved water management plan (if applicable).
 - Depth of potable aquifers encountered during Drilling.
 - Whether methane was encountered at other than target formation during Drilling.
 - Radioactive or other industry standard logs, if appropriate.
 - Other information as required by DEP
- Well Stimulation and Completion Reports shall be posted on DEP's website.

10. To address deficiencies in the current bonding process, amend Section 215 as follows:

- Raise Well bonding amounts for Unconventional Wells.
- Prohibit blanket bonds for Unconventional Wells.
- Allow the Environmental Quality Board, by regulation, to establish a voluntary Trust Fund Program as an alternative financial assurance mechanism.
 - Consideration should be given to adapting the Trust Fund mechanism from DEP's existing alternative trust fund program in the coal mining program.

11. To address concerns relating to sufficiency of Well Site inspections and enforcement, amend the Oil & Gas Act as follows:

- Enhance inspections of Well Sites.
 - Expressly require DEP to inspect each Well Site as frequently as necessary to determine compliance with the law.
 - Require DEP to inspect each Well Site upon completion of erosion and sedimentation control measures, but prior to commencement of Drilling activity.
 - Require Well operators to provide notice to DEP, at least 24 hours in advance, before commencing the following activities at the Well Site:
 - Cementing of casing strings
 - Pressure testing of production casing strings
 - Well stimulation, including Hydraulic Fracturing
 - Plugging or abandoning of a Well
- Require DEP to post all Well Site inspection reports online. Reports shall include:
 - Nature and description of violations, if any.
 - Operator's written response to violations, if available.
 - Status of violation.
 - Any remedial steps taken by the Well operator or DEP to address the violation.

12. Provide DEP with express authority to perform studies and prepare public reports on cumulative impacts to environmental resources and public health.

Addendum: Suggestions for Regional Planning and Participation

Local governments and counties are at the front line of unconventional shale gas development, and experience the most direct and consequential impacts. It is imperative that these interests be given greater support for planning and response, as well as more immediate involvement in the overall decision making process.

In developing our recommendations for amending the Oil & Gas Act, we have not had sufficient time to meet with these entities to truly understand their needs, or to craft precise policy or program recommendations to help address those needs. We urge the Governor's Marcellus Shale Commission and the General Assembly to make all efforts to better support local governments and counties as they continue to experience escalating shale gas development. At a minimum, that support should include the following:

1. Consideration of regionally-based comprehensive planning for well site and natural gas infrastructure development. This includes pipelines, compressor and metering stations, road building or repair, and water management systems (whether fresh water, or wastewater recycling or disposal).
2. Consideration of how counties can incentivize or even require, to the greatest extent practicable, consolidation of natural gas infrastructure development to reduce impacts to public or natural resources.
3. As part of reformation of the Oil & Gas Act permitting process outlined in Part Two of this proposal, provide counties with the right to appeal well permitting decisions of DEP to the Environmental Hearing Board.
4. Establish and fund a new statewide program to build the capacity of counties in areas involved in natural gas development that would allow those counties to: develop planning tools and information necessary to provide meaningful review of individual oil and gas permits; establish natural gas infrastructure development plans; and create a local natural gas development host inspector program. More specifically:
 - Planning: provide funding for the development and implementation of county zoning and comprehensive planning, including the further development of county natural resource plans and inventories, to allow counties to put together the information needed to evaluate oil and gas permits and infrastructure.
 - Permit Review: provide funding to allow the county to actively review and provide comments on individual well site permits and infrastructure development plans to DEP.
 - Host County Inspector: provide funding for host county natural gas development inspectors, certified and trained by DEP, to inspect gas well sites and gas infrastructure at any stage of its development for compliance with applicable state regulations. As with host inspectors under Act 101 of 1988 (Section 1102), these certified inspectors may have access to property and review records required by DEP to provide independent oversight of gas development operations.