

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

DEP believes clarifying the activities authorized by an oil or gas permit and the data provided will assist the regulated community and affected landowners.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Clarify that the well permit authorizes the preparation and construction of the well site and the access road, in addition to the operation of the well, and require the permit applicant to indicate on its plat the location of the well, well site and access roads.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 201 of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

No apparent fiscal impact.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

DEP believes civil and criminal penalties should be sufficient to ensure compliance with the Oil and Gas Act and other applicable environmental statutes.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

- Consistent with other environmental statutes, DEP should be able to assess civil penalties, rather than the Environmental Hearing Board
- Civil penalties should be increased from \$25,000 to \$50,000 and the daily penalty increased from \$1,000/day to \$2,000/day.
- Criminal penalties are currently \$300 fine and/or 90 day imprisonment for summary offense, and \$5,000 fine and/or 1 year imprisonment for misdemeanors. Penalties should be reviewed to ensure they are consistent with penalties for violations of similar statutes.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Sections 505 and 506 of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

Under the Oil and Gas Act, any increased revenue from fines and penalties shall be utilized to administer the Oil and Gas program.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Ron Ramsey, The Nature Conservancy, PA Chapter
Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The scale and extent of Marcellus shale development creates the potential for serious impacts on many of the State's largest and most ecologically valuable forest areas, habitats for vulnerable wildlife species and sensitive watersheds. Recent analysis by The Nature Conservancy, Audubon Pennsylvania and Western Pennsylvania Conservancy demonstrates that integrating conservation features into the planning and development of unconventional shale gas well fields and infrastructure could significantly reduce habitat fragmentation, surface disturbance and associated impacts. Pennsylvania's current permit process under the Oil and Gas Act manages shale gas extraction on a well pad-by-well pad basis and does not provide for comprehensive and integrated regional planning for natural gas development.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

By January of 2012, DEP will develop—with involvement and input from key stakeholders and the public—(1) required content for a regional unconventional shale gas development planning module and (2) a process to ensure its use by industry and integration with the permit review process under the Oil and Gas Act, including potential measures and incentives designed to encourage the joint development of plans by multiple companies. In the regional unconventional shale gas development plan, industry will identify foreseeable shale gas development in a defined geographic area, analyze potential natural resource and other environmental impacts and identify measures to avoid or minimize adverse impacts to these resources and to public health and safety. At a minimum, a plan will include maps of the following: leaseholds, landscape and environmental attributes (including hydrology, geology, sensitive ecological features, high conservation value forest areas, priority habitats, etc.), county and local planning/zoning data, existing natural gas wells and infrastructure, siting constraints, and proposed locations of new well pads and infrastructure. The plan also will identify proposed actions designed to reduce disturbance and avoid or minimize impacts to environmental attributes and features (e.g., co-location and centralization of infrastructure, use of specialized BMPs, well pad spacing and density adjustments, etc.). In addition, the plan will describe efforts to coordinate siting decisions with local and county governments and regional planning agencies.

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LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Yes. Legislation will be required, potentially as amendments to the Oil and Gas Act, or a new stand-alone statute.

POTENTIAL FISCAL IMPACT:

Cost estimates will depend on the scope and nature of the planning process, but additional resources likely will be required for agency review and approval of plans.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Marcellus Public Health, Safety & Environmental Protection Workgroup

SUBMITTED BY COMMISSION MEMBER(s):

Matthew J. Ehrhart, Chesapeake Bay Foundation; Anthony S. Bartolomeo, Pennsylvania Environmental Council; Ronald L. Ramsey, The Nature Conservancy

*NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than **May 31, 2011.***

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Counties are on the front line of dealing with the environmental impacts of Marcellus Shale development from the large road and bridge rebuilding efforts, developing well pads and pipelines, protecting local natural resources and in planning for future traditional development in a sustainable way.

To date they have been left on their own to deal with these issues and without state support, especially with significant budget cuts over the last five years to land use planning and community development programs.

Counties have the responsibility and opportunity to be effective partners in the development of Marcellus Shale to avoid and minimize harm to their citizens and natural resources, but cannot do it alone.

Without strong local partners, the public is losing confidence in the ability of far-away state government to deal with these issues and in the long run this lack of public confidence will be the single largest obstacle to the development of Marcellus Shale in an environmentally sustainable manner.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

To regain public confidence and help counties become effective partners in the development of Marcellus Shale, a new statewide program should be established to build the capacity of counties in the Marcellus Shale region 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

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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 counties 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Yes. This program would have to be legislatively authorized.

POTENTIAL FISCAL IMPACT:

Financial resources would be needed to support the county planning, permit review and host county inspector grants.

Draft Legislative Language
County Natural Gas Environmental Protection Partnership Program

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Section _____. County Natural Gas Environmental Protection Partnership Program.

- a. **Establishment.** The departments of Community and Economic Development and Environmental Protection, shall establish the County Natural Gas Environmental Protection Partnership Program to build capacity within counties to plan for development, avoid and minimize environmental impacts and ensure protection of citizens and local natural resources in areas of Marcellus Shale and other deep natural gas shale development. The program shall have three elements: planning, permit and infrastructure reviews and a host county inspector program.
- b. **Planning.** Counties shall be eligible to receive grants covering up to 90 percent of the cost to support the development and implementation of county zoning and comprehensive plans, including the development and implementation of natural resource plans and inventors.
- c. **Permit and Infrastructure Reviews.**
 1. Counties shall be provided with notice and opportunity to review permit applications for individual well pads and for related infrastructure, including pipeline proposals, from the Department of Environmental Protection and the Public Utility Commission. Comments must be submitted to the department within fifteen days of notice from the agency. The department must respond to any comments received from counties in writing prior to issuing its permit.
 2. Counties shall be eligible to receive grants covering up to 90 percent of the cost of reviewing permits for well pads and related infrastructure.
 3. Counties shall have standing to appeal permit decisions made by the Department of Environmental Protection or the Public Utility Commission to the Environmental Hearing Board or relevant court.
- d. **Host County Inspector.**
 1. **Establishment.** The Department of Environmental Protection shall establish a training and certification program for counties requesting host county inspectors for Marcellus Shale and deep natural gas wells and related infrastructure. Grants covering up to 90 percent of the cost of training and employing up to six host county inspectors shall be made available to counties.
 2. **Information Sharing.** Certified host county inspection shall receive copies of each department inspection report, prompt notification of all enforcement or emergency actions and copies of all environmental monitoring data collected by the department or the natural gas facility operator. All information provided to the inspector shall be made available to the public for review upon request.

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3. Right of Access. Certified host county inspectors are authorized to enter property, inspect those records required by the department, take samples and conduct inspections in accordance with department regulations as applicable to department inspectors.
4. Notification By Certified Inspector. Whenever any certified host inspector presents information to the department which gives the inspector reason to believe a natural gas facility is in violation of state environmental laws, the department shall promptly conduct an inspection of the facility. The host inspector shall be given the opportunity to accompany the department inspector on the inspection. If the department determines no inspection is necessary, the department shall notify the host inspector in writing.
5. Temporary Enforcement Actions. A certified municipal inspector may order the operator of a natural gas facility to cease any operation or activity at the facility which constitutes an immediate threat to public health and safety and which represents a violation of state environmental laws, the regulations promulgated under those laws, any order issued under those laws or the terms or conditions of a permit issued under those laws. The order shall expire within two hours unless the inspector notifies the department and the governing body of the host county. The department may, after conducting an inspection, supersede the inspector's order by issuing an order of its own which vacates or modifies the terms of the inspector's order. If the department does not supersede the order, the order shall expire after 24 hours unless otherwise extended, continued or modified by a court.
6. Decertification. The department may decertify a host county inspector pursuant to regulations adopted by the Environmental Quality Board and with the agreement of the host county.

Definition.

Natural Gas Facility: A well pad, access road, water impoundment, water pipeline, a road or bridge reconstructed or in the process of being reconstructed related to well pad development, a gathering, intermediate or other collection pipeline needed to transport natural gas to market, a compressor station or natural gas dewatering facility or other facility related to the development and transportation of natural gas from Marcellus Shale or other deep natural gas formations.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Ron Ramsey, The Nature Conservancy, PA Chapter
Anthony Bartolomeo, Pennsylvania Environmental Council
Matthew Ehrhart, Chesapeake Bay Foundation**

Western PA Conservancy
SUMMARY OF CHALLENGE OR OPPORTUNITY:

Ensure that State, county and local governments have added capacity and resources to address the broad and diverse range of impacts, responsibilities, and opportunities associated with unconventional shale gas development in Pennsylvania, including increased support for community efforts to protect and restore land, air and water resources.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Support timely enactment of a fair and meaningful fee or tax on unconventional shale gas extraction that invests a significant portion of its revenue in "Growing Greener" community-based projects, helps local and county governments address impacts from unconventional shale gas development, and supports efforts by conservation districts, DEP and other State agencies to strengthen and improve management of natural gas production activities.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Yes. Legislation is required to create a new fee/tax on unconventional shale gas production.

POTENTIAL FISCAL IMPACT:

Amount of revenue generated would depend on the specific form and content of the authorizing statute.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil and Gas Act directs DEP to consider the potential impact of a well on public resources (including publicly owned parks, forests, gamelands and wildlife areas; national or state scenic rivers; national natural landmarks; habitats of flora, fauna and other rare or endangered critical communities; and listed historical or archeological sites). Enhancing the ability of DEP to condition a permit on a case by case basis will further this goal.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Authorize the Environmental Quality Board to develop, by regulation, criteria for conditioning a well permit based on its potential impact to public resources.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 205 of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

No apparent fiscal impact.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Environmental/ Public Health
SUBMITTED BY COMMISSION MEMBER(s): Nicholas S. Haden

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

To demonstrate the industries intent to develop the Marcellus play in a manner which is consistent with a mutually beneficial public/private partnership, it should work with the Pennsylvania legislators and regulators to quickly address the exemptions or inadequacies created in the Oil and Gas Act and Regulations and the Solid Waste Act with respect to the inspection of the drilling processes, the handling of waste waters and the disposal of solid wastes on the well site. Those Acts and regulations, when created, never anticipated the pervasive drilling which will occur during the development of the Marcellus. Similarly, the public concern over drilling procedures and misinformation regarding pollution of drinking and surface waters, the volumes of on site waste water being handled and the volumes of on site solid waste disposal, will at some point be reviewed and will become public information. The industry needs to be in the position of being able to demonstrate that these issues were recognized and addressed at the industry's request, rather than that the industry was forced to abandon out dated methods which were environmentally inadequate given the methods to be used in developing the Marcellus. The opportunity presented in taking this action is to gain the public trust

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Form a special committee to work with a task force formed by the Secretary of DEP's office and key legislators to develop the statutory and regulatory amendment framework which should be recommended for adoption in order to address these on site environmental issues and to adopt publicly adopt positions which will demonstrate the industries intent at the outset is to protect the environment of the Commonwealth in developing the Marcellus.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

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To adopt the same permitting procedures, construction and operational standards imposed on off site operators of impoundments holding residual waste water and disposal sites. This would require amendments to the Oil and Gas Act provisions as well as the Solid Waste Act.

POTENTIAL FISCAL IMPACT:

The impact which results from having the public support the rapid development of the opportunity presented by the Marcellus.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony Bartolomeo, Pennsylvania Environmental Council

Cynthia Carrow, Western Pennsylvania Conservancy

Matthew Ehrhart, Chesapeake Bay Foundation

Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act.

Recommendation 1: Amendment of Pennsylvania Oil & Gas Act Definitions (Section 103)

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

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*

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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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, et seq.)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

MARCELLUS SHALE ADVISORY COMMISSION

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WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation
Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 2: Restructuring the Permit Process. A more detailed description of this recommendation can be found here:

www.pecpa.org/sites/pecpa.org/files/downloads/The_Marcellus_Shale_Amendments.pdf

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

The existing permit procedure 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.

The following proposal would only apply to new permits; it would not affect already-approved permits, or permit applications submitted to DEP prior to finalization of new regulation.

1. Amend the Oil and Gas Act ("Section 201A") to establish a new permit process for Unconventional Wells (new definition). 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 (new definition).
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 (new definition).
 - b. The "Phase II Permit Application Process" will be used to provide authorization to develop a well at an approved location.

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3. The "Phase I Permit Application Process" will include a site assessment requiring the following elements:
- a. A "Notice of Intent" to the county; the local municipality; all Surface Owners within 2,500 feet of the proposed Well Site (new definition) and Ancillary Facilities (new definition); and any Water Purveyor (new definition) drawing source water from a surface water or ground water unit within the above-described area. DEP shall notify the Fish & Boat Commission, Game Commission, and appropriate County Conservation District.
 - i. The notice of intent shall include an Application Form (see below) and offer any recipient who may have relevant information (*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. This information should be investigated and reported in the final Phase I permit application unless the applicant can demonstrate that it is not credible.
 - ii. The Phase I Application Form should include:
 - Identification of applicant and proposed Well Site.
 - Identification and contact information for all parties receiving the Notice of Intent. Specification of requisite site assessment information based on Site Assessment Checklist (*see below*)
 - An alternative analysis for Well siting which demonstrates that options to avoid or minimize surface disturbance, forest fragmentation and other impacts on natural resources were identified and evaluated and, in cases where such options are not selected, to explain why other well locations are proposed.
 - Site Assessment Checklist developed by DEP, in a Technical Guidance document. The checklist should include, without limitation:
 - 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.
 - Topographic surface contour information.
 - 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.
 - 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.
 - Pennsylvania Natural Diversity Index, County Natural Heritage Inventories, and other ecological baseline information including, but not limited to high conservation value forest areas.

- 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.
 - Tentative locations of the proposed well pad and ancillary facilities and improvements.
- iii. Notice of the Phase I application should be published in the Pennsylvania Bulletin with a 30 day comment period.
- iv. 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.
- v. 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. Through regulation, DEP may establish standards for withholding permit approval.

4. Phase I Approvals shall be effective for 3 years and transferable to another qualified applicant with notice and pre-approval of DEP.

5. Phase II Well Development Permit: modeled after current permit process as modified to account for the Phase I process.

6. Evaluate Alternatives for an Area-wide Comprehensive Plan Process (for example, see Section 216 of the Colorado Oil and Gas Code).

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation
Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 3: DEP Water Management Planning Authority

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

We believe the Oil & Gas Act needs a provision in Section 201 expressly stating that DEP has 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.

This proposed amendment would still require an oil and gas operator to obtain legal permission from the riparian rights owner for the water source, but would ensure that DEP has sufficient authority for current Water Management Planning requirements.

We wish to stress that this proposed amendment in no way is meant to duplicate or affect the authority already provided to the Susquehanna or Delaware River Basin Commissions. Rather, this proposed amendment would provide DEP proper authority to perform similar water management planning in areas of the Commonwealth not subject to existing River Basin Commission jurisdiction.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony Bartolomeo, Pennsylvania Environmental Council

Matthew Ehrhart, Chesapeake Bay Foundation

Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 4: Amend Protection Standards in Section 205 of the Oil & Gas Act

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

1. To better protect Surface structures and private water supplies, amend Section 205(a) to:

- Increase the Well Site (new definition) setback standard to 500 feet for Unconventional Wells (new definition).
- Require implementation of Best Management Practices (new definition) as a condition of any waiver to the setback standard.

2. 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 (new definition), Body of Water (new definition), 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 (new definition), 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.

3. 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation
Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 5: Amend Section 206 to require greater stormwater protections in well site restoration.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

To better address stormwater impacts associated with Well Sites (new definition) and Ancillary Facilities (new definition), amend Section 206 of the Oil & Gas Act 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 (new definition) within nine months of completion of a Well.
- Expand Section 206(d) to include *reclamation or remediation* of a Well Site.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation
Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 6: Amend Section 208 of the Oil and Gas Act to better manage Well Site management of industrial and treated waters.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

To better address concerns relating to management of industrial or treated water at Well Sites (new definition), amend Section 208 as follows:

- Require DEP to perform a sufficiency analysis on any proposed containment systems or surface impoundment pits 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Anthony Bartolomeo, Pennsylvania Environmental Council Cynthia Carrow, Western Pennsylvania Conservancy Matthew Ehrhart, Chesapeake Bay Foundation Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 7: Amend Section 208 of the Oil & Gas Act to enhance protection of private water supplies.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

To better assess and address impacts to private water supplies, amend Section 208 as follows:

- Mandate pre-drilling private water supply baseline surveys within 2,500 feet from the Well Site (new definition).
- 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony Bartolomeo, Pennsylvania Environmental Council

Cynthia Carrow, Western Pennsylvania Conservancy

Matthew Ehrhart, Chesapeake Bay Foundation

Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. We are proposing a series of connected recommendations to amend the Oil & Gas Act. Unless otherwise stated, we propose that all amendments be made effective 12 months after enactment.

Recommendation 8: Enhancing monitoring and enforcement of well site activities and compliance; including public disclosure.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

1. 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:

- Operator Well Stimulation and Completion Records must be filed with DEP to include (but not limited to) the following sets of information:
 - Pump rate, pressure and total volume used for Hydraulic Fracturing (new definition).
 - 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 and be accessible to the public.

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

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- Require enhanced 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.101, *et seq.*)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

**Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation
Ronald Ramsey, The Nature Conservancy, Pennsylvania Chapter**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Section 215(a) of the Oil and Gas Act specifies that the owner or operator of an oil or gas well shall file with DEP a bond in the amount of \$2,500 per well or, in the alternative, a "blanket bond" in the amount of \$25,000 for all wells in Pennsylvania which are enumerated in the bond form. The bond is "...payable to the Commonwealth and conditioned that the operator shall faithfully perform all of the drilling, water supply replacement, restoration and plugging requirements of the Oil and Gas Act." The currently specified bonding amounts are obsolete and inadequate to enable the Commonwealth to perform the requisite corrective actions in the event of a default by the owner or operator of a well. The inadequacy is particularly acute in the case of unconventional shale gas wells developed by hydraulic fracturing. In addition, the statutorily specified activities covered by the bond do not contemplate the development of unconventional natural gas wells by means of high volume hydraulic fracturing.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

PEC believes that it is important to offer a financial assurance mechanism that is more adaptive than the traditional bond mechanism prescribed in Section 215 of the Oil and Gas Act as well as increase the dollar amount of financial assurance available to the Commonwealth if a well owner/operator defaults on its regulatory obligations to operate, maintain and decommission wells and ancillary facilities; reclaim the site; and perform post reclamation activities, if any. The alternative financial assurance mechanism established by DEP in the surface mining program is a conceptual model which can be adapted to the oil and gas program.

The surface mining program alternative financial assurance mechanism is based on the establishment of a trust fund. A surface mine permittee wishing to avail itself of the alternative financial assurance program has the option of establishing a stand alone trust with a third-party trustee or participate in a Master Trust established by the Clean Streams Foundation. The trust is funded in accordance with tailored specifications set forth in a consent order and agreement between DEP and the permittee or other responsible party. The program is described on the DEP web site at the following link:

http://www.dep.state.pa.us/dep/deputate/minres/districts/Trust_Funds/TrustFundHome.htm

DEP has accumulated a considerable amount of experience with the application of an innovative alternative financial assurance mechanism in the surface mining program. Building

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upon that experience, PEC believes that a trust-based alternative to traditional bonding can be adapted from the surface mining program.

A trust-based mechanism should be more adaptable than bonds over the life cycle of a shale gas well development and take advantage of economies of scale for the major developers of unconventional shale gas production units. The prospect of having trust assets returned to the well developer should also create the incentive to perform the requisite decommissioning and reclamation activities promptly and more completely so as to reduce the potential for post reclamation activities.

While the surface mining trust alternative serves as a conceptual model, the nature of the covered activities in that context is sufficiently different from the covered activities in the unconventional natural gas context to require significant modifications. Consequently, PEC recommends that a stakeholders group be convened to tailor the structure of a trust-based alternative for the unconventional shale gas development.

The list of questions to be considered in the establishment of a trust structure should include:

- What required activities, in addition to the activities currently specified in section 215, should be covered (e.g., operation and maintenance of post construction erosion and sedimentation controls; operation, maintenance of other BMPs, required routine monitoring; decommissioning of all ancillary infrastructure related to the well and reclamation of all infrastructure sites; post reclamation requirements, including monitoring).
- Utilization of a centralized master trust (similar to the Clean Streams Foundation master trust established for the coal mining program)
- The qualifications for acceptable commercial trustees
- Transfers of ownership/responsibility over the life cycle of the well
- Principles for determining the trust corpus
- Formula for funding
- Criteria for draw down or reduction in fund by developer
- Establishment of criteria for setting administrative fees

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize):

(1) Amendment of section 215 of the Pennsylvania Oil & Gas Act (58 PA.STAT.ANN. §601.215) to expressly authorize the creation of an alternative financial assurance mechanism based on the establishment of a trust. (2) Promulgation of a regulation by the Environmental Quality Board, as currently authorized by section 215(a), to establish bond amounts which are sufficient to cover the cost of activities required to comply the Oil and Gas Act and the regulations promulgated thereunder. The regulations should establish bond amounts by classification of well (e.g. conventional natural gas wells, unconventional natural gas wells, oil wells).

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POTENTIAL FISCAL IMPACT: There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

MARCELLUS SHALE ADVISORY COMMISSION

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WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony S. Bartolomeo, Pennsylvania Environmental Council

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Pennsylvania has a large number of private drinking water wells and private septic systems. One of the concerns associated with Marcellus Shale gas drilling is the possible contact with and contamination of drinking water supplies. While the Department of Environmental Protection (DEP) can monitor and make the Marcellus permitting process more robust, the availability of data is critical to effective permitting. Since there is no requirement to register private wells and / or septic systems, new gas well permitting will not be as effective as desired.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Existing water wells and septic systems should be registered with the DEP within one year of enactment of amendments to the Safe Drinking Water Act to require such registration. To ensure new wells are using the best available technology, DEP should develop and promulgate new well construction standards within 18 months of enactment.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the Pennsylvania Safe Drinking Water Act (35 P.S. §721 et seq.) and potentially the Water Resources Planning Act (27 Pa.C.S. §3101, et seq.)

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than **May 31, 2011**.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Current law establishes the criteria under which DEP may deny a permit.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DEP recommends enhanced legislative authority to deny a permit in a more timely manner than current law when an operator has failed to comply with the Oil and Gas Act or other applicable environmental statute and is not correcting the violation to the satisfaction of the department. DEP will develop specific language to accomplish this goal.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 201 (e) of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

No apparent fiscal impact.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Many property owners and municipal government officials would benefit from enhanced notification of drilling activity in their local communities.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Expand Pre-Drilling Notification Distances from 1,000 feet to within 2,500 feet of the proposed well for all landowners. Include notification requirements to host municipalities or adjacent municipalities within 2,500 feet.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 201(B) of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

Potential increased cost for permit applicants to provide notice to affected property owners and the municipalities. DEP notes that many operators currently exceed the notification requirements and therefore may experience negligible fiscal impact.

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MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

While current law authorizes DEP to revoke a permit, the Department believes modifying the current administrative process will provide additional flexibility to revoke a permit and better enhance the Department's ability to ensure compliance with applicable environmental statutes.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DEP recommends enhanced legislative authority to suspend permits in a more timely manner than current law and revoke the permit when an operator has failed to comply with the Oil and Gas Act or other applicable environmental statute and is not correcting the violation to the satisfaction of the department. DEP will develop specific language to accomplish this goal.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 503 of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

No apparent fiscal impact.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Ron Ramsey, The Nature Conservancy, PA Chapter
Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Preliminary analysis by The Nature Conservancy suggests that the construction of new pipelines (gathering and transport) to serve unconventional shale gas development in PA has the potential to cause extensive negative impacts to forest and other natural habitats across the State. Improving access to and ensuring the use of ecological data in the planning, siting and construction of pipeline projects is essential for the protection of important natural resources. Shared pipeline capacity by multiple companies and co-locating pipeline projects with existing infrastructure and ROWs represent opportunities to reduce surface disturbance and associated habitat loss/fragmentation. Several factors discourage sharing of pipeline capacity and limit opportunities to integrate comprehensive ecological data into the siting of these systems at a regional or landscape scale. These obstacles include confidentiality concerns and other business practices, lack of clarity regarding oversight responsibilities and jurisdictional authorities, restrictions on use of existing road and utility ROWs, diverse interests involved in pipeline development, etc.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

By August of 2011, convene a stakeholder group to identify and recommend a set of legislative/regulatory changes designed to (1) effect the sharing of pipeline capacity and reduce surface disturbance and associated environmental impacts; (2) achieve the coordination and consistency of infrastructure planning and siting decisions by State, county and local governments; and (3) provide sufficient authority and resources for appropriate government agencies to ensure that ecological and natural resource data are used in the review and siting of proposed pipelines, in order to avoid or minimize impacts to these resources. The stakeholder group should include the PUC, DEP, DCNR, PA Game Commission, PA Fish and Boat Commission, and representatives of local, county and regional planning offices, industry and environmental/conservation interests.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Not at this time. It is anticipated that the stakeholder process will result in recommendations for legislative/regulatory changes.

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POTENTIAL FISCAL IMPACT:

Minimal amount of funding likely would be required for administrative support to the stakeholder group. Potential cost estimates for the final recommendations will depend on scope and nature of proposed changes.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Ron Ramsey, The Nature Conservancy, PA Chapter Anthony Bartolomeo, Pennsylvania Environmental Council Matthew Ehrhart, Chesapeake Bay Foundation

SUMMARY OF CHALLENGE OR OPPORTUNITY:

DEP permit applications for activities which might disturb habitat require a search of the PA Natural Diversity Inventory (PNDI). Natural gas projects account for a growing share of all PNDI searches. Increasing demands on PNDI raise concerns about program capacity, system design limitations, need for up-to-date inventory data and inclusion of additional categories of ecological data (e.g., high conservation value forests), and limitations of the review process for planning purposes.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

By August of 2011, convene a multi-agency task force (DEP, DCNR, PA Fish and Boat Commission, and PA Game Commission) and charge its members with jointly developing—with input from key stakeholders and the public—a set of recommendations for strengthening and improving the effectiveness of the PNDI review process in protecting wildlife, plant resources and habitat. The agencies should consider, but not be limited to, the following options: increasing staff capacity and program resources, enhancing data quality and presentation, identifying appropriate opportunities to improve and manage access to data, upgrading computer systems, providing additional technical and planning assistance, etc.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Not at this time. It is possible that recommendations of the task force would include suggestions for legislative/regulatory changes.

POTENTIAL FISCAL IMPACT:

Minimal amount of funding likely would be required for administrative support to the task force. Potential cost estimates for the final recommendations of the task force will depend on scope and nature of proposed changes.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil and Gas requires any contamination of a water source impaired by an oil or gas operator to be repaired or replaced, regardless of when the contamination occurs. The Act further imposes a rebuttable presumption of an operator's liability if the contamination occurs within 1,000 feet and 6 months of well completion or alteration.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Extend an operator's presumed liability from 1,000 feet to 2,500 feet and from six months after completion or alteration of a well to 12 months. Apply the presumed liability to well stimulation.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 208(C) & (D) of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

Potential increased cost for permit applicants to do pre-drilling water surveys. DEP notes that many operators currently test water sources beyond the current statutory requirements and therefore may experience negligible fiscal impact.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

29

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should be collecting and evaluating clinical data provided by health care providers.

Similar to evaluating and assessing environmental data, it is increasingly likely that health care providers will be testing patients for chemicals/radiation that they believe are associated with Marcellus shale drilling operations. DOH must be in a position to evaluate such data and render a public health determination about the quality and interpretation of such testing, in concert with relevant clinical data about the patient.

DOH anticipates being engaged in these activities in the very near future using existing resources. These activities will occur in collaboration with other partners, including the federal Agency for Toxic Substances and Disease Registry and the Pennsylvania Department of Environmental Protection, and other state and federal agencies. The evaluation and assessment of such data is critical for the development of appropriate recommendations to guide outside health care providers and their patients and to protect the public health in the event the public is exposed to levels of contaminants that exceed existing health standards or guidelines.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (if yes, please summarize)

Not required as PADOH currently has needed authority.

POTENTIAL FISCAL IMPACT:

Additional resources will be needed to address this recommendation. Currently, most health assessments done by PADOH utilize federal resources and are agreed upon with federal partners. Including assessments related to Marcellus Shale would require additional federal funds or a reprioritization of other sites and projects.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should be routinely evaluating and assessing environmental data collected regarding Marcellus shale-related activities.

The data may come from the Pennsylvania Department of Environmental Protection (DEP), US Environmental Protection Agency, US Geological Survey, water works or treatment facilities, industry and academic partners. The data may involve air sampling, water testing (public and private), solid waste testing, fish and other food testing and possibly other types of sampling. The data must be properly evaluated based on levels and likely exposure pathways.

DOH already assesses some environmental data, but this happens only intermittently at the request of another agency and is very episodic. A more systematic approach is needed. The evaluation and assessment of environmental data is critical for the development of appropriate recommendations to protect the public health in the event the public is exposed to levels of contaminants that exceed existing health standards or guidelines.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Not required. PADOH already has the authority to review such data.

POTENTIAL FISCAL IMPACT:

Existing programs to review environmental data are largely federally funded, with state resources devoted to some of the existing personnel. To effectively review the large amounts of environmental data related to Marcellus Shale for public health considerations will require additional funds and personnel or utilize outside partners or contracts.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should either create or oversee the creation of a population-based health registry with the purpose of characterizing and following over time individuals who live in close proximity to a drilling site (e.g., within a one-mile radius) or are occupationally exposed.

Individuals would have to agree to enrollment in the study and would be interviewed to obtain background and demographic information, information on health status and information related to potential air, water and soil exposures. Actual air, drinking water and soil testing data would be collected, along with appropriate bio-monitoring tests for contaminants (e.g., urine, blood) to determine actual exposures in the body. Control individuals/locations would also be needed to compare the findings. Longitudinal mortality and morbidity data would be assessed.

DOH is not currently engaged in this activity. The benefit of this program is that it would provide sound scientific information about how the patterns of morbidity/mortality in the Commonwealth are directly being impacted by Marcellus Shale drilling. The challenge is that this program will exceed current DOH capacity and require support using outside contracts. These activities will occur in collaboration with other partners, including DEP, the federal Agency for Toxic Substances and Disease Registry, and other state and federal agencies. The creation of such a registry will be critical for the development of appropriate recommendation to protect the public health in the event the public is exposed to levels of contaminants that exceed existing health standards or guidelines.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

PADOH already has the authority to do such studies.

POTENTIAL FISCAL IMPACT:

A project of this nature is costly and would require significant additional resources to accomplish. In addition, the project would need to continue for a number of years. Such intensive projects are best done through external partners, especially academic institutions, as has been the approach taken with other long term longitudinal studies.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

32

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should establish a system to provide for a timely and thorough investigation of and response to concerns/complaints raised by citizens, health care providers or public officials.

DOH's Bureau of Epidemiology currently receives inquiries and complaints from citizens, health care providers, public officials and communities concerned that their health (or the health of their patients or constituents) has been adversely impacted by environmental exposures. These concerns usually relate to a perceived excess of cancer, or unusual patterns or excessive incidence of non-cancer health problems. In such circumstances, DOH evaluates these concerns using available public health data, assessing available environmental data or recommending that environmental or clinical sampling be done. In order to review the anticipated influx of concerns/complaints and respond to them in timely fashion, DOH must build adequate capacity.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No. PADOH already has the authority to conduct such investigations and regulatory changes are not needed.

POTENTIAL FISCAL IMPACT:

PADOH already has a program in place that can respond to such concerns/complaints. This program is largely funded from federal sources with limited state resources for personnel. To address complaints/concerns in timely fashion and conduct field investigations, it is anticipated that additional financial and personnel resources would be needed.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Most health care providers have minimal experience with environmentally-mediated diseases. This is more likely to be true in the rural areas where most Marcellus Shale drilling occurs, since most practitioners are primary care providers.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

The Department should be educating providers on the presentation and assessment of human illness that may be caused by material in drilling constituents (both the acute and chronic effects).

Education would include signs and symptoms, radiologic and laboratory assessment (how and when to collect samples), how to interpret results and where reliable testing can be obtained. The education could be done through on-line educational material, webinars and face-to-face continuing medical education training.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson
Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than **May 31, 2011**.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should be educating the public on the constituents used in the drilling process and whether or not they have the potential to cause human illness.

In order to meet and in many cases allay the concerns of citizens attributing various health conditions to drilling in the Marcellus shale, DOH should offer educational material on its website. This information will present the science behind the various chemicals used in the drilling process and how they can or cannot adversely impact human health. If the individual still has concerns, the person will be encouraged to contact his/her health care provider.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Not necessary.

POTENTIAL FISCAL IMPACT:

PADOH has the ability to develop fact sheets and other material for the public. But to properly and professionally disseminate such material does require resources, and PADOH would most likely partner with outside organizations to best accomplish this activity.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): Pat Henderson

Offered on behalf of Department of Health

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Health (DOH) has witnessed growing concerns about contamination of water and air from drilling operations and waste disposal related to the Marcellus Shale. These concerns have raised questions about adverse health consequences associated with drilling activities. To ensure that public health concerns are being properly and systematically addressed, DOH requests that the Governor's Marcellus Shale Advisory Commission considers the following recommendation:

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DOH should be educating providers on the presentation and assessment of human illness that may be caused by material in drilling constituents (both the acute and chronic effects).

Most health care providers have minimal experience with environmentally-mediated diseases. This is more likely to be true in the rural areas where most Marcellus Shale drilling occurs, since most practitioners are primary care providers. Education would include signs and symptoms, radiologic and laboratory assessment (how and when to collect samples); how to interpret results and where reliable testing can be obtained. The education could be done through on-line educational material, webinars and face-to-face continuing medical education training.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Not necessary.

POTENTIAL FISCAL IMPACT:

PADOH can presently produce fact sheets and other training material for health care providers. But resources would be needed to conduct webinars and face-to-face training opportunities and would best be done in collaboration with outside partners like the PA Medical Society or academic institutions.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Ron Ramsey, The Nature Conservancy, PA Chapter
Anthony Bartolomeo, Pennsylvania Environmental Council
Cynthia Carrow, Western Pennsylvania Conservancy
Matthew Ehrhart, Chesapeake Bay Foundation

SUMMARY OF CHALLENGE OR OPPORTUNITY:

There is a clear need for new scientific research into questions and issues relating to unconventional shale gas development in Pennsylvania. Likewise, there also is a need for timely and objective interpretation and unbiased analysis of such research by qualified academic professionals.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

By October of 2011, establish an independent and multi-disciplinary Marcellus Science Advisory Panel, comprised of leading researchers in fields related to unconventional shale gas extraction and the full range of impacts associated with unconventional shale gas development in Pennsylvania. The panel will be given the responsibility to review and evaluate current research findings on unconventional shale gas, determine their applicability/relevance to Pennsylvania, and develop recommendations based on such research—including changes in policy, new or revised best management practices, deployment of new technologies, etc. In addition, the panel will be tasked with creating a comprehensive research agenda that identifies and prioritizes research needs relating to unconventional shale gas development in PA and working with State agencies and PA colleges and universities to ensure that priority research projects are undertaken and completed.

Examples of potential research topics include the following: adequacy of current industry management standards and practices; protocols for baseline and ongoing monitoring; cumulative impact assessments—including impact of stationary, mobile source and fugitive air emissions; opportunities to employ “greener” hydraulic fracturing technologies; protection of drinking water and surface waters from migration of shallow methane gas; potential effect on surface water quality of erosion and post-construction runoff from unconventional shale gas sites; protection of drinking water sources from contamination by chemicals used hydraulic fracturing, etc.

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LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Legislation may be advisable, in order to confer appropriate authority and establish measures/processes to establish independent status of the panel.

POTENTIAL FISCAL IMPACT:

Modest amount of funding likely would be required for administrative support to the panel.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Ron Ramsey, The Nature Conservancy, PA Chapter

Anthony Bartolomeo, Pennsylvania Environmental Council

Cynthia Carrow, Western Pennsylvania Conservancy

Matthew Ehrhart, Chesapeake Bay Foundation

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil & Gas Act as currently written does not provide the Department of Environmental Protection (DEP) with sufficient authority to properly manage unconventional shale gas development. Including additional geologic data in the application package will allow for a more thorough and comprehensive review of proposed well permits.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Require permit applicants for unconventional shale gas wells to provide DEP with information that describes their efforts to identify and evaluate potential flow zones, including assessment of shallow and deep hazards. Such information could include shallow and deep seismic data and/or interpretation and analysis of other data sources that can be used to locate potential features or characteristics of concern—such as abnormal pressures, fractures, faults, lineaments, etc. In evaluating this information, DEP should consult with DCNR's Bureau of Topographic and Geologic Survey and review its data on deep aquifers and other geologic features of relevance to the permit application.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Yes. This change is likely to require an amendment to the Pennsylvania Oil & Gas Act.

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs associated with reviewing this information.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection Workgroup

SUBMITTED BY COMMISSION MEMBER(s):

Matthew J. Ehrhart, Chesapeake Bay Foundation; Cynthia Carrow, Western Pennsylvania Conservancy; Ronald L. Ramsey, The Nature Conservancy; Anthony S. Bartolomeo, Pennsylvania Environmental Council

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Ensure that natural gas extraction activities are required to meet the same standards as construction activities based on scientific data indicating that erosion and sediment issues from well site activities are equivalent to the concerns raised from construction activities.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

According to a recent study, gas well sites have the potential to produce sediment loads comparable to traditional construction sites. *See. Demonstrating the Impacts of Oil and Gas Exploration on Water Quality and How to Minimize These Impacts Through Targeted Monitoring Activities and Local Ordinances*, US EPA ID No. CP-83207101-1. As such, oil and gas well permits should be required to meet the same standards and requirements of traditional construction activities.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Ensure permitting requirements meet standards for Chapter 102 that must be followed other development activities.

POTENTIAL FISCAL IMPACT:

There may be increased agency administrative costs to develop, implement and enforce regulations to effect the statutory amendments

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection Workgroup and Infrastructure Workgroup

SUBMITTED BY COMMISSION MEMBER(s):

Matthew J. Ehrhart, Chesapeake Bay Foundation; Cynthia Carrow, Western Pennsylvania Conservancy; Ronald L. Ramsey, The Nature Conservancy; Anthony S. Bartolomeo, Pennsylvania Environmental Council

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Ensure proper wastewater management and alleviate concerns for the public and wastewater treatment plants.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

The transportation of wastewater for the purpose of treatment or recycling should be properly manifested. Manifests should include total amounts of waste being transported, a listing of chemicals and/or compounds or, in the case of water from a shared flowback impoundment) a potential list of chemicals and/or compounds found in the wastewater. Source and delivery points, proper container labeling, and submission of reports to the Department of Environmental Protection should all be implemented.

Vehicles transporting wastewater should be required to placard the vehicle to indicate that wastewater is being transported.

Recently, the Department of Environmental Protection undertook an initiative requesting that unconventional natural gas drilling companies refrain from taking wastewater to treatments plants on a voluntary basis. This recommendation should become a legally enforceable requirement.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Changes to the Solid Waste Management Act and its corresponding regulations, as well as Chapter 95 regulations regarding wastewater treatment requirements would be needed.

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MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

There is a public interest in providing for comprehensive tracking of wastewater associated with drilling activities, as well as DEP more accurately determining wastewater recycling rates.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Require well operators to track and provide a manifest of wastewater at high-volume wells (ie 80,000 gallons or more of water used)

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend the Oil and Gas Act and/or 25 PA Code

POTENTIAL FISCAL IMPACT:

DEP will work to minimize any associated costs by integrating requirements within current reporting requirements, where possible.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The authority of DEP to permit entities to “adopt” orphaned or abandoned wells was struck down by the Environmental Hearing Board in *Foundation Coal v. Barclay*. DEP believes this is an impediment to addressing the safety and environmental challenges posed by orphaned or abandoned wells.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Authorize DEP to develop a well operation permit so that entities can “adopt” orphaned or abandoned wells.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

No apparent fiscal impact.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

It is critical that well operators set aside sufficient financial resources to ensure that a well is properly plugged after its useful life to ensure protection of both public safety and the environment. Current bond amounts, of \$2,500 per well or \$25,000 for a blanket bond, are insufficient.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Increase bonding amounts as outlined in Senate Bill 602, P.N. 803 (White, MJ). Provides for bond amounts in two tiers based on total wellbore length (up to and including 6,000 feet; greater than 6,000 feet), and authorizes blanket bonds based on the number of wells per operator. Maximum blanket bond is \$250,000.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend the Oil and Gas Act. The Environmental Quality Board has the authority to raise well bonding rates by regulation, but a statutory adjustment is a quicker approach.

POTENTIAL FISCAL IMPACT:

Operators would be required to post additional bonds, which DEP believes is essential to ensuring the proper plugging of a well after its useful life.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(S): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than **May 31, 2011**.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Ensuring a timely response to a well control emergency by competent and qualified emergency responders is critical to protecting public health, safety and the environment.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

- Authorize DEP to enter into contracts with well control specialists
- Hold well control specialists free from damages which may arise from emergency response actions
- Permit DEP to recover costs from well operators should DEP be compelled to deploy the services of the contracted well control emergency responder

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

While DEP would incur up-front costs related to entering into a contract, the Department will seek cost recovery from those operators required to employ the contractor's services.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DEP Secretary Michael Krancer

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Oil and Gas establishes minimum distance setbacks from private water wells, as well as other location restrictions which can be waived in writing by the owner.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Increase the minimum setback distance from a private water well from 200 feet to 500 feet and establish a minimum setback distance from a public water supply (water well, surface water intake or reservoir) to 1,000 feet unless waived in writing by the owner or operator. Prohibit the location of well sites in floodplains.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amend Section 205 of the Oil and Gas Act.

POTENTIAL FISCAL IMPACT:

DEP notes that many operators currently utilize distance setbacks beyond the current statutory requirements and therefore may experience negligible fiscal impact.

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MARCELLUS SHALE ADVISORY COMMISSION

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WORK GROUP: Public Health, Safety, and Environmental Protection

**SUBMITTED BY COMMISSION MEMBER(s):
Cynthia Carrow, Western Pennsylvania Conservancy**

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The existing regulations protecting bodies of water and wetlands are believed to be inadequate given the potential impacts from the scale of and potential accidents due to Marcellus development. Marcellus shale gas extraction generally involves more surface disturbance per pad and supporting facilities than conventional gas sites, and in some cases includes new roads, pipelines and compressor stations. Marcellus extraction also utilizes a variety of hazardous materials. Some of these materials, plus other potentially toxic natural elements present in the shale layer, are present in the flow-back fluids that come to the surface resulting from fracking, or can be released at the surface when accidents occur.

Increased setbacks from bodies of water and wetlands are needed but also must be modified on a site by site basis to analyze slopes, soils, hydrology, vegetation, and other factors. In addition, it is important for DEP to consult with the PA Fish and Boat Commission and the County Conservation Districts when there are potential impacts to ecologically important waters.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

1. To better protect water resources, amend Section 205 of the Oil and Gas Act as follows:
 - Increase the setback standard to 300 feet for unconventional wells
 - Increase the setback standard to 500 feet for designated High Quality or Exceptional Value Waters
 - Extend the setback standard to include all 100 year FEMA floodplains
 - The requirement that in addition to the initial step taken to develop the setback, further analysis is undertaken on a site by site basis of slopes, soils, hydrology, vegetation, impervious surfaces, natural forests and other factors to determine if modification of the setback is needed based on site specific factors (see Guidelines for Administering Oil and Gas Activity on State Forest Lands, V. 2011-1, Feb. 3, 2011 ---Pennsylvania Department of Conservation and Natural Resources-Bureau of Forestry)

2. To better protect surface structures and private water supplies, amend Section 205 of the Oil and Gas Act as follows:
 - Increase the well site setback standard to 500 feet for unconventional wells

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MLB

3. To better protect sensitive public and natural resources, amend Section 205 as follows:

Add the following as listed resources:

- Sources used for public drinking water supplies
 - 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.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment to the PA Oil and Gas Act

POTENTIAL FISCAL IMPACT:

There will be increased agency administrative costs to develop implement and enforce regulations to effect the statutory amendments.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety, & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): Jeffrey Kupfer

Note: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Ceasing surface discharge is an important first step towards protecting surface water and minimizing fresh water consumption. Effective water management that can safely handle the increased volumes of water used in Marcellus shale gas development will help ensure long term protection of water resources in Pennsylvania.

RECOMMENDATION (Including benefit, challenges to implementation and timing):

DEP should continue to evaluate options to reduce the environmental impacts and the footprint of Marcellus Shale gas development activities, particularly in the areas of surface water protection and reduction of fresh water consumption.

DEP should consider the following:

- Recycling flow back and produced water wherever possible can help reduce the need for fresh water consumption and surface disposal. Barriers such as permitting, right of way, funding and planning for developing this infrastructure should be identified and streamlined.
- Incentivizing the re-use of non-freshwater sources where technically feasible, such as the use of acid mine drainage will help to protect fresh water. In addition to questions of suitability for fracturing, potential liability and infrastructure barriers limit the ability for operators to use these water sources.
- Facilitation of additional disposal well options will help sustain long-term Marcellus shale gas development. The PA Geological Survey and DEP should begin an expedited effort with EPA Region III to identify potential receiving formations and also investigate options to accelerate the permitting process on possible disposal well locations. This will help the state to increase its ability to safely handle increased volumes of wastewater associated with shale gas development.
- Enabling the use of shared infrastructure where feasible.
- Enabling the construction and use of water pipelines where feasible to reduce trucking.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety, & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): Jeffrey Kupfer

Note: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Designing proper wells and control systems is the best form of prevention. The American Petroleum Institute (API) has developed extensive subsurface casing, cementing, and wellbore integrity recommended practices. API has recently completed hydraulic fracturing-specific operations, water and waste management guidance documents [API HF-1, HF-2, and HF-3], the Marcellus Coalition has developed "best practices"; and more broadly, industry has implemented "Good Neighbor Practices" in several regions. There are also drilling closure and area-impacted reclamation standards that are applicable. The DEP should place a priority on the consideration of these and subsequent industry endorsed best practices for integration into existing PA regulatory and operator guidance, and in any updates to the well design and control systems regulations issued last year.

RECOMMENDATION (Including benefit, challenges to implementation and timing):

DEP should continue to examine a range of well design and control standards including API and other surface and subsurface recommended practices, and consider incorporating these standards into regulatory and operator guidance.

Additional items to consider include:

- Cement all casing strings to surface to provide multiple protective barriers to aquifers.
- Pressure-test each casing to ensure integrity of casing design and cement.
- Perform a combination of pressure tests and electric logging to verify the mechanical integrity of the casing and cement over the life of the well.
- Enhanced safety procedures for wet gas testing, flowback, and production.
- Ensure integrity of well control systems at all times, with a particular focus during completion operations (e.g., isolation tool or tree saver).

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety, & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): Jeffrey Kupfer

Note: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Safety should not be an area of competition. Industry has a history of working together to promote safety; the Permian Basin and the Gulf of Mexico both have robust industry-driven safety programs that have established common, basin-wide minimum safety training programs and competency expectations of contractors. Other areas of collaboration include industry forums to share and improve job safety analyses (JSAs), safety observation practices, root cause analyses (RCAs) and the like. The Governor and DEP should encourage such programs wherever possible.

RECOMMENDATION (Including benefit, challenges to implementation and timing):

Industry should collaborate to enhance the safety of employees, contractors and communities through industry-driven safety programs.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

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WORK GROUP: Public Health, Safety, & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): Jeffrey Kupfer

Note: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

It is critical that DEP continue to have sufficient resources to satisfy increased demands on its ability to process and approve permits as well as inspect and enforce existing regulations. If DEP needs additional resources to meet the growing activity, they should identify those needs and propose mechanisms to fund them. DEP inspection and enforcement resources and effectiveness will be critical to public acceptance of increased Marcellus Shale development.

Local agencies and authorities have a major role to play in supporting DEP's regulatory development. However, if local authorities 'go it alone', it is likely to create a web of competing standards with weak enforcement. Instead of a duplicative and overlapping system, it is important that DEP prioritize local and county engagement in their regulatory process.

The STRONGER Board, together with PA DEP and significant stakeholder input, conducted a Hydraulic Fracturing State Review in September 2010. The review contained an extensive program assessment based upon the organization's guidelines, and a number of specific consensus recommendations. This report clearly demonstrates that PA has done a good job in providing a robust regulatory regime for managing risks associated with exploration and production of shale gas resources. We believe PA DEP has already made significant progress in addressing STRONGER's recommendations. This progress should be clearly communicated to the public, with an emphasis on communicating the environmental and safety impacts of these regulatory improvements. We should also consider ways to support additional STRONGER engagement in PA, as it provides an important third party validation of PA's regulatory efforts.

RECOMMENDATION (Including benefit, challenges to implementation and timing):

DEP should continue to strengthen operations, especially in the areas of permitting and inspections.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

Handwritten signature

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety, & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): Jeffrey Kupfer

Note: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

RECOMMENDATION (Including benefit, challenges to implementation and timing):

Review and Update PA's Oil and Gas Act as Needed.

Priority areas of PA's 1984 Oil and Gas Act that should be reviewed include:

- **Bonding requirements:** Current PA operator bonding requirements for deep horizontal wellbores in the event of a well or site becoming "orphaned" prior to final remediation or plugging and abandonment [without a financially responsible operator] need to be reviewed in the context of current and future well development rates. Options may include alternative financial mechanisms; graduated requirements based on the number of active/ inactive wells, production, or other risk and responsibility factors.
- **Setback distances:** As Marcellus formation drilling and development progresses in PA, citizens are increasingly concerned about potential impacts to water resources, air quality, and sensitive ecosystems. Consideration should be given to whether and how to establish or increase risk-based setback distances [in part provided in OGA Sec. 205].
- **Revision of nine month reclamation period:** While well intentioned, the short time period could create a set of potential unintended consequences that may increase, rather than decrease, the impacts of gas production in the Commonwealth. A longer time period could actually provide environmental benefits. For instance, a twelve month seasonal cycle could facilitate increased water recycling due to longer use of existing impoundments for nearby drilling activities (and also reduce truck traffic). A longer time period could also be accompanied by hydro-seeding, which would accelerate re-vegetation and prevent erosion.
- **Technical Advisory Board (TAB):** With all of the policy issues associated with the Marcellus, additional stakeholder engagement and structures besides the TAB should be considered.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Invasive Plants

Marcellus shale activities have the potential to introduce invasive exotic plant species by temporarily or permanently disturbing sites and providing a pathway for invasive species.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Invasive Plant Species introductions should be avoided and managed using the following techniques:

- Known infestations of invasive species should be avoided by construction equipment. If infestations are not avoided, then equipment should be thoroughly cleaned after contamination.
- Soil disturbance should be minimized to decrease introduction. Consider co-location within previously disturbed areas and/or alternative construction methods to minimize new surface disturbances.
- Sites should be vegetated as soon as possible after construction to provide appropriate vegetation cover to avoid the introduction of invasive plant species to the site. Sites should be vegetated using native, non-invasive plant species.
- Disturbed areas should be surveyed annually at the appropriate time of year to detect early infestations.
- Control of post-disturbance infestations of invasive plant species should be performed as soon as they are detected.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Best Management Practices should be developed and followed to minimize the introduction of invasive species.

POTENTIAL FISCAL IMPACT:

Many operators are required to minimize introductions of invasive species or to control any introduced infestations. Many public and private landowners may benefit from decreased invasive species introductions. Management and control of invasive species is time consuming and quite difficult

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successfully remove. Therefore, post-disturbance invasive species control is expensive to treat year after year. This cost could impact public and private landowners as well as gas companies.



MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Best Management Practices

Extensive earth disturbance activities and permanent infrastructure are involved in the construction and operation of Marcellus Shale natural gas wells, which will alter the character of Pennsylvania's landscape. These changes must be carefully managed through construction and operation Best Management Practices to not severely impact other forest resources and uses.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Construction and Operation best management practices are recommended as follow:

1. The size and disturbance areas for well pads, water storage sites, roads and pipeline should be minimized as much as possible.
2. Topsoil from the site should be stockpiled to maximize reclamation potential for the site and sites should be revegetated with native seed to minimize erosion
3. In remote forested areas, rocks, stumps and slash should be pushed to the edge of the opening and used for wildlife enhancement.
4. Construction activities should be avoided during adverse seasons and weather conditions for public safety and reduce road impacts
5. Closed loop drilling systems should be used rather than on-site slush pits to minimize well pad sizes and spill safety concerns
6. Minimize freshwater consumption by recycling 100% of flow-back and production fluids
7. When necessary, utilize surface water withdrawals rather than groundwater wells for sources of water to support completion activities in order to effectively monitor potential impacts
8. For environmental protection against spills and impacts to wildlife, utilize 'tank-in-tank' systems with secondary containment for storage of flow-back water rather than lined, open impoundments.
9. To reduce trucking impacts and potential spills during the transportation of flow-back water, utilize high-density polyethylene (HDPE) piping with metering with auto shut-off capabilities.
10. Utilize an above ground marking system to indicate the presence of below ground gas, water, electric and flow-back pipelines.

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11. Mitigate natural gas compressor station noise through engineered noise abatement strategies to reduce impacts on public health, residences, recreation and wildlife.
12. Recommend natural gas compressor station noises not exceed 10% above ambient noise at areas defined as sensitive to the public and wildlife.
13. Comply with defined county ordinances, for example as defined by Lycoming County, at the permitted compressor station site boundary.
14. Natural gas construction and operation activities may conflict with recreation or public activities during holidays, in remote areas, or during high visitor-use periods. If the gas activity is occurring in these areas, timing restrictions should be implemented for heavy hauling (i.e. rig moves, water trucking) or seismic activity during specific potential high-conflict dates such as:
 - a. Holidays: Memorial Day, Fourth-of-July, and Labor Day
 - b. Hunting and Fishing Seasons: trout, deer, bear, turkey
 - c. Special town, Park, Forest and Game land activities or events (races, park special events)
15. Interim and final reclamation should be performed for several gas-related activities such as:
 - o Well-pads
 - o Staging areas
 - o Impoundments
 - o Right-of-Ways
 - o Retired roads

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Best Management Practices for construction and operations should be developed and followed to minimize impacts to ecological, recreational, aesthetic and water resources.

POTENTIAL FISCAL IMPACT:

Potential increased cost for natural gas operators to implement specific best management practices. Failure to adopt BMPs may lead to expensive remedies that may have been avoidable. DCNR notes that many operators currently implement many of these BMPs on State Forest lands and therefore may experience negligible fiscal impact.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Leasing of Other State lands

There is potential, Commonwealth-wide, for Marcellus shale development on state lands other than those owned by DCNR and the Game and Fish and Boat Commissions. Due to the successful history of DCNR oil and gas management and lease administration, the DCNR might be the logical candidate for Commonwealth-wide program management guidance. DCNR is currently at staff capacity in the management of its internal oil and gas program and does not have the capacity to offer support or guidance to other, less experienced parties but would be willing to accept some limited responsibility with additional resources.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Establish DCNR as the advisory expert on Marcellus Shale development best management practices for other Commonwealth agencies and entities and provide additional funds and staff to help DCNR take on this additional work.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No.

POTENTIAL FISCAL IMPACT:

Additional DCNR advisory capacity could be accomplished through expanded staff and resources funded through the Oil and Gas Lease fund. Additional research and long-term studies could be funded with Marcellus shale royalty income.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

52

WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Site Selection

Marcellus shale activities have the potential to impact multiple resources. The impact to these resources should be avoided, buffered or mitigated.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Minimize potential adverse impacts to ecological, recreational, or aesthetic resources by:

- Avoiding significant resources all together
- Appropriately buffering the resources
- Minimizing impacts by incorporating techniques such as timing restrictions in order to avoid critical periods that could greatly exacerbate resource disturbance, disrupt important recreation events, or seriously damage existing infrastructure

Resources to Avoid, Buffer or Minimize:

- Public Buildings
- Bodies of Water such as streams, lakes, wetlands, seeps, springs and vernal pools
- Public Parks such as picnic areas, scenic vistas , and trails
- Endangered, Threatened, and Rare plants, animals or habitats
- Cultural and historic areas

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Best Management Practices should be developed and followed to minimize impacts to ecological, recreational, aesthetic and water resources.

POTENTIAL FISCAL IMPACT:

Many operators currently utilize distance setbacks beyond the current statutory requirements and therefore may experience negligible fiscal impact. Public and private landowners may benefit from

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protection of resources as they may provide aesthetic and monetary benefits if protected or maintained.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Monitoring

As the pace of development increases and industry practices evolve, Marcellus shale development has the potential to affect numerous environmental and social values of north central Pennsylvania landscapes. Monitoring Marcellus shale development provides the opportunity to first understand both positive and negative effects and then to adapt management practices to lessen overall impacts and leverage benefits.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Monitor Marcellus shale development activities to document potential positive and negative effects. Monitoring should address construction, operations, and restoration practices; and include:

1. Lease compliance such as: environmental concerns, safety, water quality, and invasive species introduction
2. Plants and plant communities
3. Wildlife and habitats
4. Water and soil resources
5. Air quality
6. Infrastructure such as roads, trails, and bridges
7. Social considerations such as recreation, tourism, wild character of the forest, and nearby community concerns
8. Research where applicable

Coordinate efforts to minimize duplication.

Develop a centralized clearinghouse to communicate the results.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

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Best Management Practices for comprehensive monitoring should be developed and followed.

POTENTIAL FISCAL IMPACT:

Some monitoring activities can be accomplished through existing staff and resources funded through the Oil and Gas Lease fund. Additional research and long-term studies could be funded with Marcellus shale royalty income.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Communications and Outreach

Marcellus Shale development and associated activity can both conflict with and compliment other environmental, social and economic values. Given the complex nature of Marcellus development, myriad stakeholders and varying interests, effective communications among all parties involved is essential to maximizing benefits and opportunities and minimizing impacts and conflicts.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

- Promote, encourage and establish regular communications among communities, agencies, organizations, operators, industry groups and other stakeholders.
- Develop and implement workable and effective Best Management Practices (BMPs) for Marcellus activities. Established and recognized BMPs help raise standards for operations and provide a systematic framework for reducing impacts and mitigating conflicts. BMPs provide a foundation for continuous improvement in Marcellus operations.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

NA

POTENTIAL FISCAL IMPACT:

Clear and proactive communications promotes mutual understanding among all parties involved and helps avert costly remedies to preventable problems.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

54-A

WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(S): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

State Forest Leasing Moratorium

Executive Order 2010-05 imposed a leasing moratorium on lands owned and managed by the Department of Conservation and Natural Resources (DCNR). Currently, approximately 675,000 acres of State Forest Land are available for Marcellus shale development (385,000 acres through Commonwealth-issued leases and 290,000 acres of lands with severed rights).

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DCNR recommends that future leasing on State Forest lands be limited to areas with no or very limited surface disturbance.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Executive Order 2010-05

POTENTIAL FISCAL IMPACT:

Allowing strategic, non-development leasing could result in significant revenues to the Commonwealth.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Socio-economics

There are a number of Marcellus Shale development-related social and economic issues identified by DCNR that would benefit from further definition and monitoring. These include impacts to recreation, local economies, state park and forest vendors, inholders, leasees, emergency responders, department staffing, tourism, and small businesses.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Form a natural gas advisory committee to further study these social and economic issues as they impact the Commonwealth directly would allow affected departments, communities, businesses, emergency responders and other service providers to assess the impacts to their operations and recommend adjustments and management changes.

- Form a Natural Gas Advisory Committee within the Department of Conservation and Natural Resources (DCNR) to enhance communications among stakeholders regarding natural gas development on state forests and parks.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No legislation is directly affected by this recommendation.

POTENTIAL FISCAL IMPACT:

A recent state parks study by Penn State University (2010) documented that each \$1 investment in state parks results in \$9 in benefits directly to surrounding local economies. Impacts to state parks and forests, as well as other Commonwealth investments (trails, nature centers, Conservation Landscape Initiative small-business investments, etc) from Marcellus Shale investment will have significant financial impacts – positive as well as negative - on private businesses, local communities, recreational providers, and many others. These relationships are not well understood or well documented. A

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committee convened to continue this assessment could help the Commonwealth and affected stakeholders make the best management decisions that result in cost savings and make the best allocation of new and current financial resources.

MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection.

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Development Planning

Marcellus shale activities have the potential to impact resources and change the character of the existing landscape (i.e. converting forests and farms or changing the rural character).

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Planning and coordination should occur early in the process with landowners, agencies, and consultants to minimize surface disturbance and impacts to important resources. The following should be addressed:

- -Activities should be reviewed on a landscape-level (tract, township or county levels) and include all disturbance activities, such as: pads, pipelines, compressors, roads, and water storage
- -Water sources, storage, handling and disposal plans should be developed
- -Erosion and Sedimentation plans for all facilities should be developed—especially on steep slopes and during adverse weather conditions

Promote shared infrastructure where possible. The benefits are that it minimizes land conversion, fragmentation, and invasive species introduction.

- -Pipelines should follow existing road networks or rights-of-way corridors. ROW uses such as gas, water and electric should also be combined where possible.
- -Well pads, impoundments and compressor stations could be placed along existing roads, in existing openings, or on abandoned mine lands

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Best Management Practices should be developed and followed to minimize impacts to lands and ecological, recreational, aesthetic and water resources.

POTENTIAL FISCAL IMPACT:

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Many operators currently combine uses and infrastructure; therefore they may experience negligible fiscal impact. Landowners and companies may benefit from decreased total impact to lands, in turn requiring less site preparation and reclamation costs.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Spill Safety

Marcellus shale activities have the potential to impact resources through spills, leaks or catastrophic events and can impact the land and water resources within the vicinity of the gas activity. Best management practices should be implemented to minimize spill and contamination events.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Establish BMP's to decrease the likeliness of an off-site spill or groundwater impact such as:

- Measures should be put in place to protect groundwater from spills, leaks and contamination events
- Closed loop systems are strongly recommended in lieu of open air reserve pits for all drill fluids and cuttings to decrease the opportunity for spills and leaks
- Use double-wall tanks for the storage of flowback, fuel and chemicals
- Secondary containment measures should be used where the flowback fluid is contained.
 - In ecologically sensitive areas or sites in proximity to a wetland, stream, vernal pool, Threatened and Endangered species habitat, or within headwater streams.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No legislation or regulation would be needed. However, best management practices should be developed and followed to minimize impacts to ecological and water resources.

POTENTIAL FISCAL IMPACT:

Many operators currently use spill prevention measures; therefore they may experience negligible fiscal impact or minimal increases to meet the higher safety standards. However, landowners and

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companies may benefit from decreased spill impacts to lands and water, in turn requiring less site clean-up and reclamation costs.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Public Health, Safety & Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): DCNR Acting Secretary Richard Allan

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Environmental and Community Stewardship Award

Marcellus shale development has the potential to affect numerous environmental and social values of north central Pennsylvania. In this early period of development, some companies have demonstrated an understanding of the need to protect and enhance critical environmental and social values. Some have adopted environmental and safety practices above and beyond current regulations while others have participated in philanthropic activities. Recognizing companies for extraordinary work could help to improve overall industry performance.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Establish a system to recognize companies for excellence in Environmental and Community Stewardship for operators on State lands.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No legislation or regulation would be needed. However, a process and lead agency or organization would need to be identified.

POTENTIAL FISCAL IMPACT:

This recommendation would have little fiscal implications

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MARCELLUS SHALE ADVISORY COMMISSION

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WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony S. Bartolomeo, Pennsylvania Environmental Council.

The following recommendations are presented with the assistance of Marla Gold, MD, Dean, Drexel School of Public Health.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The overall impact of Marcellus Shale Drilling on public health in PA is not fully known. Ideally, a long term, prospective epidemiologic study should be funded and begun. However, there are explorations in a shorter period of time that can be performed. This includes more rapid assessments as well as setting up an infrastructure of study that would detect health issues and allow for modifications if need be in drilling procedures/processes.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Suggested Short-Term/Immediate Projects Related to Public Health

Health in the general community

- Conduct questionnaire-based baseline health survey of representative sample from affected and comparison communities.
- Develop system of collecting and analyzing anecdotal reports/qualitative data of adverse events, as these may contain important clues and can engage community right away.
- Conduct feasibility study of instituting health surveillance system that draws on emergency room admission data, reports of adverse events by local physicians, etc.
- Develop plan for air and water quality monitoring network with sufficient temporal and spatial coverage.

Occupational health

- Conduct inventory of workplace hazards in the emerging shale gas industry

Suggested Long-Term Goals and Public Health Studies in Affected and Comparison Communities

Health in general community

- Routinely conduct health surveys coupled with collection of biological samples (akin to NHANES) and environmental samples from residents (water, soil and air).

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- Use key informants in medical community (emergency rooms/hospitals, physicians, community clinics) to monitor health trends and recruit patients for case-control studies.
- Monitor trends in air quality and contamination of drinking water in the vicinity of industrial facilities of interest (wells, dehydrators, etc.) and relate this to industrial activities or other determinants, with the aim of developing comprehensive community exposure models.
- Create annually updated geographical repository that includes any data or study related to: maps of affected communities, locations of wells and associated infrastructure, ecological health indicators such as cancer, birth defect and birth registries.

Occupational health

- Assemble occupational cohort of persons employed in natural gas extraction, coupled with development of study-specific job-exposure matrix supported by workplace personal exposure measurements.

Example of Phase I Screening of Potential Marcellus Shale Risk

- Given identities and quantities/concentrations of additives and contaminants in treated and produced water from shale activities, identify relevant human health levels of concern via air, water exposure.
- If concentrations are available at point of exposure (tap water concentrations, indoor air concentrations) assess short term and long term potential risk levels.
- Provide expert judgment as to environmental half-lives of materials (in a semi-quantitative fashion) in treated or produced water.
- Provide expert report as to sample collection and analytical techniques that could be used to measure relevant materials in environmental samples.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

None

POTENTIAL FISCAL IMPACT:

There will be administrative and research costs associated with the proposed data collection and studies. One potential source of revenue for these costs is the Pennsylvania Department of Health's Commonwealth Universal Research Enhancement (CURE) Program.

MARCELLUS SHALE ADVISORY COMMISSION

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WORK GROUP: Public Health, Safety, and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s):

Anthony S. Bartolomeo, Pennsylvania Environmental Council.

The following recommendation is presented with the assistance of Bernard Goldstein, MD, Interim Director, Center for Healthy Environments and Communities, University of Pittsburgh.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Coordinating of State Resources Involved in Preventing and Responding to Health and Environmental Threats

Many state agencies are involved in protecting workers and the public and in responding to threats related to Marcellus Shale activities. Gaps in coverage as well as unbalanced oversight functions are likely to occur.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

A coordinating council of state agencies involved in preventing and responding to Marcellus Shale activities needs to be established. It should be chaired by the Secretary of the Department of Environmental Protection and report to the Governor. Its goals should include development of clear pathways for oversight and response. Public health should be a major responsibility of this Council.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

None

POTENTIAL FISCAL IMPACT:

There will increased agency administrative costs to develop and implement the proposed recommendation.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~AS~~ 6/1
revised

WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): David M. Sanko (PSATS)

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Accompanying the increase in the number of Marcellus Shale gas wells has been a commensurate increase in the reports of water well contamination. Townships across the state are rightfully wary about the prospect of their residents losing access to their long-term source of potable groundwater for two major reasons: (1) the resultant costly expenditure of public funds to build the necessary water supply infrastructure, including installing pipes, drilling replacement wells, and/or developing water treatment plants, especially in sparsely-populated areas where the enormous costs of such projects would put an undue financial burden on the small customer base; and (2) the negative impact the loss of potable water can cause to the area's economic development potential, especially given the recent news that major industries are looking to move to Pa. for its water resources and plentiful natural gas resources.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

In light of the increased incidence of water well contamination likely resulting from Marcellus Shale gas drilling, we suggest the need is increasing for expanding the setback between gas wells and water wells from 200 feet to 500 feet.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Legislation will be needed to modify Pa.'s Oil and Gas Act at 601.205 as follows:

Well location restrictions. - (a) Wells may not be drilled within 500 [200] feet measured horizontally from any existing building or existing water well without the written consent of the owner thereof ...

POTENTIAL FISCAL IMPACT:

While this change will likely have some minimal impact on the natural gas drilling industry, it could more importantly help prevent the future loss of local groundwater supplies.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~X~~ refer 62

WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): David M. Sanko (PSATS)

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Townships are interested in assuring that the permit holder remains responsible for financing the necessary long-term operation and maintenance of any required erosion and sediment control or stormwater management best management practices needed by oil and gas activities for as long as is needed after drilling operations have been completed.

Townships should not be left responsible for using public finances to underwrite the cost of the long-term operation and maintenance of required BMPs which are properly the responsibility of the entity engaging in regulated oil and gas activities.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

We suggest that the Department's Chapter 102 regulations be revised as follows:

1. Require that a post-construction storm water management fund (along the lines of the surface coal mining bonding requirement) be established for oil and gas operations. Funding should be allocated now to address current and future soil erosion and stormwater maintenance concerns.
2. Require that the Department approve the transfer of responsibility of any post-construction storm water management plans for oil and gas operations.
3. Require that the final permit holder (or its assigns, etc.) be responsible for the long-term operation and maintenance of any required erosion and sediment or stormwater management BMPs if the entity to whom the permittee transferred such responsibility goes out of business.

The benefit of these changes will be that local communities will not have to use scarce public finances to underwrite what is clearly a private-sector responsibility

Although this change will clearly increase the natural gas extraction industry's cost of operations, its adoption will also provide certainty to the public regarding the industry's commitment to its environmental protection obligations.

These changes should be made immediately in order to assure the maximum protection for municipalities.

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LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Changes would be needed to the Department's Erosion and Sediment Control regulations at 25 Pa. Code Chapter 102.8.

POTENTIAL FISCAL IMPACT:

Making these changes will assure that the permittee, and not the resident's of the municipality, will be responsible for assuring the implementation of the required long-term operation and maintenance of any required erosion and sediment or stormwater management BMPs.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~3A~~ review
public hearing
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WORK GROUP: Local Impact & Emergency Response

SUBMITTED BY COMMISSION MEMBER(s): Terry Bossert

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY: Local citizen concerns include potential impacts to ground water and the proximity of Marcellus operations to homes and businesses. In addition, both citizens and local government desire to be informed regarding Marcellus activity in the area. These concerns represent the most tangible of potential local impacts.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

A suite of changes to the Oil & Gas Act (OGA) would help to address these local concerns. The OGA currently has a presumption that contamination of water well within 1000 feet of a gas well was caused by that gas well, unless overcome by specific defenses including pre-drilling sampling of the water well. This presumption should be expanded to 2500 feet. In addition the setback from and occupied building, such as a home or business or public building should be expanded from the current 200 feet to 500 feet. Likewise the setback from water wells should be expanded to 500 feet. Lastly, notice of the permit application should be given to all municipalities and landowners within that 2500 foot radius. These distances should be measured from the surface location of the well bore, not from any location of a lateral. There is no scientific justification for any setbacks from laterals. Expansion of the presumption and pre-drilling testing will present some challenges as well. It will be important to consider how to distinguish between impacts from a gas well and natural fluctuations in ground water quality due to seasonal variations in ground water levels or other natural conditions. This will be particularly difficult for water wells that are not properly cased or are completed into shallow zones subject to surface influences. For these reasons also, the presumption should apply only to contamination and not to diminution in supply. The current presumption only applies to contamination. Seasonal and climatic conditions are too varied to support any presumption regarding the quantity of water normally produced by a given private water well, especially given the lack of any baseline data.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Amendment of the OGA will be required. SB 601 addresses most of these points and should be considered as a possible vehicle.

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POTENTIAL FISCAL IMPACT: None on the Commonwealth. There will be a small incremental increase for industry for additional testing. However, there will be some unknown amount of transactional costs for industry and DEP if there is a marked increase in presumed cases of water well contamination.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~Refer~~ 69

WORK GROUP: Local Impact & Emergency Response <i>Public Health</i>
SUBMITTED BY COMMISSION MEMBER(s): Terry Bossert

*NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than **May 31, 2011.***

SUMMARY OF CHALLENGE OR OPPORTUNITY: Local concerns include the fear that Marcellus wells will become abandoned and the cost of plugging those wells will fall on the Commonwealth and that there will be insufficient funds to carry out plugging. The current bonding requirement of \$2500.00 per well is generally accepted to be inadequate for a Marcellus well. Marcellus operators are generally better capitalized than many traditional operators in the Pennsylvania oil and gas field and the risk of abandonment is less. Nonetheless additional bonding would help to ease local fears.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):
Increase bonding for Marcellus wells. The bonding per well should be increased as should the blanket bonding amount, perhaps grouped by the number of wells. The use of a blanket bond should NOT be abandoned as some have suggested. There is no statistical or actuarial basis to do so and arguable less risk of wells being abandoned than in the past.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)
Yes. Arguable could be done by the EQB but could be accomplished more rapidly by an amendment to the OGA. SB 602 would accomplish what is needed.

POTENTIAL FISCAL IMPACT: None for the Commonwealth. Operators will experience some additional incremental cost for bonding.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~42~~ 65
revised

WORK GROUP: Local Impact and Emergency Response Environmental
SUBMITTED BY COMMISSION MEMBER(s): Jeff Wheeland
BK

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Establish a baseline assessment of water quality conditions in major waterways.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Immediately fund a comprehensive assessment of the water quality at strategic locations along our major streams/creeks in watersheds with drilling activity upstream. Such an assessment must be performed in a collaborative manner involving USGS to ensure scientific integrity; local community water systems; and others with a significant stake in source water protection. Local colleges and universities may provide manpower to perform the water quality assessment.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

PA DEP should take a leadership role in this effort, through the regional offices in areas impacted by drilling. This leadership should be in both a technical advisory and in a funding role.

POTENTIAL FISCAL IMPACT:

Lack of a baseline assessment leaves public water suppliers vulnerable to contamination that may result in long-term, enormous financial and public health impacts to our communities. Performance of an ongoing baseline assessment of potential contaminants of interest allows us to detect problems at the earliest time so that mitigation measures can be swift and proactive. In the absence of a baseline assessment, any future contamination that occurs may be difficult to attribute to specific upstream activity and would thus leave our communities holding the bill when no responsible party can be identified.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

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WORK GROUP: Local Impact and Emergency Response
SUBMITTED BY COMMISSION MEMBER(s): Jeff Wheeland
KH

EMERGENCY

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Drilling in floodplains should be prohibited.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Prohibit drilling in the regulatory floodplain.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

No. Do not pass legislation that limits a municipality or County's ability to prohibit drilling in the regulatory floodplain.

POTENTIAL FISCAL IMPACT: None

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

~~41~~ Member
Gawicki 67

WORK GROUP: Local Impact and Emergency Response

SUBMITTED BY COMMISSION MEMBER(s): Jeff Wheeland

BK

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Concern about the location of fracking recycling operations that generate NORM and the safe handling and disposal of the same.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Significant amounts of naturally-occurring radioactive material (NORM) is produced as a byproduct of the frackwater recycling operation. The location of these facilities near to residential neighborhoods demands an added measure of safety. PADEP has determined that frackwater can no longer be treated in conventional WWTPs and discharged directly to receiving water bodies. Thus, recycling operations may increase in number.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

DEP should be extremely vigilant in ensuring that solid waste generated through the frackwater treatment process be disposed of properly, due to the radioactive material included in that solid waste.

POTENTIAL FISCAL IMPACT:

If not handled appropriately, waste containing NORM could have long-term adverse impacts on public health.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

*Heath
Environ*

WORK GROUP: Local Impact & Emergency Response

SUBMITTED BY COMMISSION MEMBER(s): Terry Bossert

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NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY: Concerns regarding the treatment and disposal of flow back and produced water from Marcellus operations have lead to increased emphasis on recycling of these fluids. Most operators have significantly increased the amount of recycling. However, in order to realize the full potential for recycling, it is necessary to be able to store flow back and produced water. Efforts to establish centralized storage areas have encountered long permitting delays and generally have not proven to be the answer. Storage of this water on the pad from which it originates or the pad on which it is about to be used is allowed and is accomplished with efficiency using the OG-71 process. However, there is often a lack of space on these pads due to ongoing operations. One solution is to construct larger pads but that route results in additional earthmoving activity that could be avoided. Attempts to use the OG-71 process on other permitted pads as staging areas have been rejected by DEP. Permitting these pads as residual waste storage areas is unnecessary since the locations have already been permitted by DEP and the OG-71 process results in containment and other protections being in place. Moreover, given the availability of equipment and crews the location on which the water is to be used may change. If the water is stored on a pad where it is planned to be used and plans change, will that then be illegal storage?

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DEP should allow the OG-71 process to be used for the temporary storage of flow back and produced water on permitted pads other than the pad from which the fluid was derived or on which it is first scheduled to be used.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

It would appear that this could be accomplished by an interpretation by DEP and would not require any regulatory change.

POTENTIAL FISCAL IMPACT: None

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #1: Optimizing geological data for drilling the best possible wells today

Recommendation #2: A more complete and systematic archiving of well records by DEP and DCNR

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

All three geological considerations (drilling best wells, maximizing recovery by optimum well placement, and protecting groundwater) require detailed records. Present records fall mainly in three classes of data: well logs (DCNR records through PAIRIS), completion reports (DEP records) and production data (DEP records). There is, however, still room for more detail in each class of data. Most importantly, DCNR archives logs from only a fraction of the wells drilled in PA largely because the records are not all submitted to the State. A complete archive of Marcellus logs is critical to the future success of Marcellus wells. This requires the necessary budget to properly staff the archive offices.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Acting on this recommendation requires the appropriate budget.

POTENTIAL FISCAL IMPACT:

A more complete the record set will contribute to better decisions of well placement which in turn affects economic potential of each well.



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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #1: Optimizing geological data for drilling the best possible wells today

Recommendation #4: Enhanced production data (DEP records)

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

The long-term health of the Marcellus gas field depends on constructing appropriate well decline curves early in the history of the field. When enacting legislation concerning submission and release of production data, several details were overlooked. Most important among these are choke size, production during the 30 day period that the well is on line (PIP – practical initial production) and subsequent monthly production for the first year the well is on line.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

This recommendation may be implemented by a change in DEP regulation.

POTENTIAL FISCAL IMPACT:

Capital investment and booking reserves depend on accurate decline curves.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #3: Protecting groundwater for all time

Recommendation #2: Systematic mapping of the base of fresh water

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Once the definition of fresh water is clear to all the stakeholders, then its subsurface location should be mapped in as detailed manner as possible in a collaboration between PA-DEP and operators. Long before the start of Marcellus production it was customary to include the depth of freshwater in the completion reports. Recently, completion reports fail to include this vital data. Base of fresh water can only be mapped if this practice is restored.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Enforcement of a DEP regulation

POTENTIAL FISCAL IMPACT:

The long-term economic success of Pennsylvania requires that quality of groundwater and rivers continues to improve during the lifetime of the Marcellus gas fields.

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MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #1: Optimizing geological data for drilling the best possible wells today

Recommendation #5: Completion reports (DEP records)

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Long-term development of the Marcellus will depend on knowing the exact location of earlier wells. Therefore, completion reports should include the following information. A.) The casing program including detailed description of the casing string and details of the cement job. B.) The exact location of each well including proper geosteering records; location of perforations (X,Y,Z); and details concerning perforation clusters. C.) Simulation record including stage length and position; acid volume; water volume for each stage; proppant; and composition of hydraulic fracture fluid. This data base will lead to the most effective use of drill pads.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

This recommendation may be implemented by a change in DEP regulation.

POTENTIAL FISCAL IMPACT:

This recommendation assures maximization of drainage in the future and with that further economic gain.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #3: Protecting groundwater for all time

Recommendation #1: Define fresh water

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Fresh water, both at the surface and in the subsurface, is a legacy that today's gas producers must leave for future generations of Pennsylvanians. The definition of fresh water is vague in terms of components such as salt content and total dissolved solids. It is important to define the quality and characteristics of ground water that must be protected by the gas industry.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

The definition of fresh water should be the outcome of a blue ribbon panel much like the Marcellus Shale Advisory Commission.

POTENTIAL FISCAL IMPACT:

The long-term economic success of Pennsylvania requires that quality of groundwater and rivers continues to improve during the lifetime of the Marcellus gas fields.

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #3: Protecting groundwater for all time

Recommendation #3: Systematic procedures for finding abandoned and plugged gas wells

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

There are modern industry standards for abandoning wells with designs that should remain effective for a long time. Because plugging can't be guaranteed to last forever, thought should be given to making it easy for future generations to find these wells, if need be, long after they have been abandoned.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

DEP convenes a blue ribbon panel to make recommendations for best practice.

POTENTIAL FISCAL IMPACT:

The long-term economic success of Pennsylvania requires that quality of groundwater and rivers continues to improve during the lifetime of the Marcellus gas fields.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #1: Optimizing geological data for drilling the best possible wells today

Recommendation #3: Enforcement of data submission for DCNR records through PAIRIS

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Initiate meaningful enforcement of the rule that logs for each and every well are turned over to the state in a timely manner. At very least the logs should include cement bond logs and any of the standard lithology logs (i.e., gamma ray, neutron porosity, density) as they become available. There is no standard suite of logs so it is not realistic to expect a complete log suit for every hole. It is anticipated that at least one well per pad is likely to have been logged with the standard lithology logs. The casing, cement, and cement-bond log are all important components of a successful casing program to protect groundwater.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Enforcement is required to assure a complete set of well records. It is unclear whether this recommendation may be implemented with a simple regulation change or whether legislation is required.

POTENTIAL FISCAL IMPACT:

A more complete the record set will contribute to better decisions of well placement which in turn affects economic potential of each well.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Economic and Workforce Development
SUBMITTED BY COMMISSION MEMBER(s): Terry Engelder

SUMMARY OF CHALLENGE OR OPPORTUNITY: *MAXIMIZING ECONOMIC BENEFIT FROM GAS RECOVERY WHILE MINIMIZING SURFACE DISRUPTION*

Goal #1: Optimizing geological data for drilling the best possible wells today

Recommendation #1: Allow complete mapping of subsurface structures by seismic surveys

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

Appalachian tectonics (folding and faulting) disrupted the Marcellus, a rock layer that was once continuous throughout the Appalachian Plateau (i.e., the fairway). Successful wells require foreknowledge of the location of these faults and folds. One of the most critical tools for assuring proper well placement and steering are 3-D seismic surveys. Wide aperture surveys sample beneath properties where ingress was blocked by the owner. These samples should be incorporated in seismic surveys for complete data coverage because sound waves travel under those properties anyway. Now the practice is to hide data volumes under none-ingress properties.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

It is unclear whether this recommendation may be implemented with a simple regulation change or whether legislation is required.

POTENTIAL FISCAL IMPACT:

The economic success of Marcellus wells is critically dependent on steering horizontal laterals through complex subsurface structures. The operator needs all possible information including complete 3D seismic surveys.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Public Health, Safety and Environmental Protection

SUBMITTED BY COMMISSION MEMBER(s): David L. Porges

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

This Commission received presentations addressing the concern over the protection of water supplies. The potential for gas migration to public drinking water supplies can be eliminated by proper construction standards. The Commission also heard testimony concerning perceived public health concerns related to natural gas extraction. Greater transparency in disclosure of operators testing of water in the vicinity of gas well should alleviate some public health concerns over drinking water.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

To alleviate potential public health concerns over gas migration, the Department of Environmental Protection (Department) should determine and then implement the most effective method of collecting baseline data for water sources within 2000 feet of a Marcellus well. Data collected should be maintained on a water data registry posted on the Department's website. The Department should also require more stringent gas well construction standards and increase penalties for any violations regarding the same.

77-B

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

In 2010, the Department adopted new regulatory standards for oil and gas wells. It is recommended that the Department further amend its well construction standards contained in 25 Pa. Code Ch. 78 and increase penalties for violations thereof. The Department's Water Quality Standards set forth in 25 Pa. Code Ch 93 could also be amended to establish the water data registry noted above.

POTENTIAL FISCAL IMPACT: none

MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

Enviro 78

WORK GROUP: Public Health, Safety and Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): David L. Porges

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

Oil and gas operators are currently regulated by the 1984 Oil and Gas Act, which was enacted to address permitting and regulation of shallow wells. The current legal framework in Pennsylvania has largely been developed around shallow well development located primarily in western Pennsylvania. The development of deeper shales and the process of horizontal drilling were not contemplated by the Pennsylvania legislature in the passage of the Oil and Gas Act.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

It is recommended that the 90 day study be conducted by members appointed by the Governor and the General Assembly. Members should consist of representatives from the Department of Environmental Protection; environmental groups and industry. A comprehensive environmental impact study should be conducted to assess legislative and regulatory amendments to the Oil and Gas Act.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

78-B

The Oil and Gas Act, 58 P.S. § § 601.101 et seq., is the primary statute regulating natural gas development in the Commonwealth. The Oil and Gas Act, and the regulations promulgated thereunder, 25 Pa Code Chapter 78, governs well drilling in Pennsylvania. After the 90 day study period, changes would be recommended.

POTENTIAL FISCAL IMPACT: none

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MARCELLUS SHALE ADVISORY COMMISSION
Work Group Recommendation Format

WORK GROUP: Public Health, Safety & Environmental Protection
SUBMITTED BY COMMISSION MEMBER(s): David L. Porges

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The Pennsylvania Department of Public Health presented this Commission with concerns of residents over potential health risks related to natural gas extraction. In addition, Dr. Goldstein from the University of Pittsburgh highlighted the potential for lawsuits resulting from illnesses or disease clusters that may not be related to the natural gas industry

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

The Department of Health's Bureau of Epidemiology currently investigates complaints related to alleged health risks by citizens of the Commonwealth. It is recommended that the Bureau of Epidemiology, with consultation from the Physician General, establish a formal complaint process to investigate allegations of health issues related to natural gas extraction. Review and a determination by the Bureau of Epidemiology would be required prior to filing a claim in Pennsylvania courts. The determination by the Bureau of Epidemiology would not bar the filing of a claim before Pennsylvania courts but would be admissible evidence in any claim filed.

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79-B

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

Title 35, Health and Safety and Title 42, Judiciary and Judicial Process would require amendments to establish the complaint review by the Bureau of Epidemiology.

POTENTIAL FISCAL IMPACT: n/a

MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Environmental/ Public Health
SUBMITTED BY COMMISSION MEMBER(s): Nicholas S. Haden

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

The gas industry is currently experiencing excessively long time constraints regarding the PNDI process. Currently, the producer must be screened by the DCNR, DEP, PA Fish & Boat Commission, and PA Game Commission individually. There is currently no coordination between each agency and some agencies clearly lack resources and personnel to effectively provide results in a timely fashion.

RECOMMENDATION (Including benefit, challenges to implementation, and timing):

DCNR must be the lead agency regarding the PNDI screening process. DEP, PA Fish & Boat Commission and PA Game Commission must provide their respective screening in a timely fashion. Finally the gas industry should be represented when improving and enhancing the screening process.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (If yes, please summarize)

POTENTIAL FISCAL IMPACT:

If the above agencies lack the necessary resources and personnel due to current financial constraints, then each agency should receive a commensurate revenue amount from an impact fee to provide the PNDI screening service in a timely fashion.

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MARCELLUS SHALE ADVISORY COMMISSION

Work Group Recommendation Format

WORK GROUP: Environmental/ Public Health

SUBMITTED BY COMMISSION MEMBER(s): Nicholas S. Haden

NOTE: Each recommendation should be brief with a 2 page maximum upon completion. All recommendations are due to Chris Gray (chrgray@state.pa.us) no later than May 31, 2011.

SUMMARY OF CHALLENGE OR OPPORTUNITY:

PA PUC may not have the necessary inspection force to oversee midstream pipeline development. FERC does not have the workforce nor do they want to be in the business of inspecting midstream pipeline development.

RECOMMENDATION (including benefit, challenges to implementation, and timing):

PA PUC must train and hire the necessary inspection workforce so that the gas can get into the marketplace. Secondly, the PA PUC should only inspect midstream pipeline development. The PA PUC should not have regulatory authority over any midstream assets in the way they have regulatory authority for local distribution companies (LDC). In other words a midstream asset is a midstream asset. It is not a regulated utility and should not be considered as such.

LEGISLATION AND/OR REGULATORY CHANGE NEEDED? (if yes, please summarize)

POTENTIAL FISCAL IMPACT: