



**Comparative Analysis & Commentary on the  
Report of the Governor's Marcellus Shale Advisory Commission  
August 2011**

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**NOTES FOR THIS ANALYSIS:**

- **PEC Position Documents:**
  - [PEC July 2010 Policy Report](#)
  - [PEC May 2011 Legislative Proposal](#)
  
- **All of the recommendations contained in the PEC Legislative Proposal (released by PEC on May 11, 2011) were submitted to the Governor's Marcellus Shale Advisory Commission ("MSAC"). PEC submitted two additional recommendations concerning public health, which are included at the end of the comparative analysis.**
  
- **The Pennsylvania Department of Environmental Protection (DEP) submitted its own set of recommendations to the MASC on May 27, 2011. Many of these recommendations closely align with PEC's Legislative Proposal. A copy of DEP's recommendations letter is attached to this analysis.**
  
- **All references to "Act" or "Sections" pertain to the Pennsylvania Oil & Gas Act, unless otherwise stated. All proposed legislative changes would amend same, unless otherwise stated.**
  
- **For ease of reference, recommendations of the MSAC Report are addressed sequentially. However, we have arranged the recommendations by issue topics.**

## DATA COLLECTION, SITE ANALYSIS & PERMITTING

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### **MSAC Recommendation 9.2.3**

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

### **PEC Recommendation**

To better protect sensitive public and natural resources, amend Section 205(c) of the Act 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.

### **ANALYSIS**

Conceivably MSAC Recommendation 9.2.3 allows DEP/EQB to establish standards similar to the recommendation submitted by PEC. PEC believes, however, that any amendments to the Act should: (1) include, at a minimum, the additional resources listed in the PEC recommendation; and (2) expressly allow DEP to *condition or deny* a permit approval based upon potential impacts to public resources.

### **MSAC Recommendation 9.2.5**

Pre-drilling notification should be extended from 1,000 feet to 2,500 feet of the proposed well, and include all landowners and water purveyors. In addition, notification shall be made to host municipality or adjacent municipalities within 2,500 feet.

Note: **MSAC Recommendation 9.1.17** references providing notice of permit applications to counties as well.

### **PEC Recommendation**

Same, although PEC expressly proposed notice to host and adjoining (within the 2,500 foot radius) counties.

**ANALYSIS**

PEC supports the MSAC recommendation with the added provision that counties also receive notice.

**MSAC Recommendation 9.2.8**

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

**PEC Recommendation**

PEC raised the issue of orphaned/abandoned wells as potential pollution migration hazards, as well as the benefit of providing incentives to operators to plug or remediate such wells on/near proposed drilling sites, in its 2010 Policy Report. PEC also recommended enhanced site analysis (including the identification of site hazards like abandoned/orphaned wells) in its 2011 Legislative Proposal to prevent pollution incidents.

**ANALYSIS**

PEC supports the MSAC recommendation, and further believes the permit review process should be expanded to include identification and remediation of on-site hazards like abandoned/orphaned wells prior to operation.

**MSAC Recommendation 9.2.26**

Using publicly available data (e.g., PA Natural Diversity Inventory, County Natural Heritage/Natural Area Inventories, and other relevant sources), DEP, DCNR, PGC and PFBC will jointly identify and make accessible for public review information (but not including location information on species) on areas of high ecological value in Pennsylvania (e.g., high conservation value forests, concentrations of biological diversity, sensitive aquatic communities, etc.). When submitting a permit application for an unconventional shale gas well that would be located in such an area, the applicant will be required to provide DEP with a description of its efforts to avoid, minimize or mitigate for impacts to the area (e.g., co-location and centralization of infrastructure, use of specialized BMPs, well pad spacing and density adjustments, working with other companies holding leases in this area to reduce cumulative impacts, etc.). DEP could establish specific conditions on well permits proposed in such areas.

**MSAC Recommendation 9.2.29**

DEP should develop an environmental assessment checklist as part of the permit application process to locate and construct a drilling site. The checklist should be used to identify all the features to which setbacks are applicable; identify all natural features

that DEP is authorized to consider; and to identify those additional Areas of High Ecological Value.

**PEC Recommendation**

In both its 2010 Policy Report and 2011 Legislative Proposal, PEC recommended both regional planning and expansion of the permit application and review process to require greater site information gathering and analysis – including identification of areas of ecological or conservation significance, completion of a site assessment pursuant to published checklist, and the requirement of alternatives analyses where appropriate.

**Analysis**

PEC supports these two MSAC recommendations. However, we believe the more complete site analysis component of our 2011 Legislative Proposal and recommendation submissions to the MSAC should be conducted in addition to the checklist assessment.

**MSAC 9.2.28**

Strengthen and improve effectiveness of the permit review process in protecting rare, threatened and endangered species. State agencies should consider, but not be limited to, the following options: increasing staff capacity and program resources, enhancing quality and presentation of data on wildlife and critical habitats; identifying appropriate opportunities to improve and manage access to such data, upgrading computer systems, providing additional technical and planning assistance, increasing acquisition of current field data, and other options as identified.

**PEC Recommendation**

PEC joined other members<sup>1</sup> of the MSAC in submitting this recommendation for consideration.

**Analysis**

PEC supports this MSAC recommendation which, among other things, would enhance the Pennsylvania Natural Heritage Program.

**Conclusion**

The MSAC recommendations provide a good foundation for improving site assessment and strengthening permit review and approval. However, PEC’s 2011 Legislative Proposal contains more detailed elements and procedures we believe essential for sufficient site

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<sup>1</sup> PEC joined with the Chesapeake Bay Foundation, The Nature Conservancy (PA Chapter), and Western Pennsylvania Conservancy in submitting this recommendation.

assessment and permit review. Any amendments to the Oil & Gas Act should expressly include these additional measures to ensure sufficient analysis and conditions are utilized in approving well site development.

## **SURFACE LAND AND WATER RESOURCE PROTECTION**

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### **MSAC Recommendation 9.1.18**

DEP should ensure that natural gas construction activities are required to meet the same standards as general construction activities. Modifications to current construction standards as they are applied to unconventional natural gas drilling activities may be necessary.

### **MSAC 9.2.20**

The Oil and Gas Act's well site remediation provisions should be amended to authorize the Department to extend the nine-month well-site restoration requirement when the Department determines that an extension would ultimately result in less surface disturbance, increased water reuse, or more efficient development of the resource. Such an extension would be for a defined period of time and could include interim restoration/stabilization measures, as specified by DEP.

### **PEC Recommendation**

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

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

### **ANALYSIS**

During Commission deliberations, it became apparent that in many instances, from a cumulative impacts perspective, that there were environmental benefits in encouraging the reuse of existing well sites. Requiring complete remediation of sites within a limited timeframe after cessation of drilling operations could hamper reuse of the site (and thus encourage the development of new well pad sites in the same area). Therefore PEC supports the MSAC recommendations but maintains that unconventional gas operations, to the extent not inconsistent with this principle, should be fully subject to the provisions of Title 25, Chapter 105 of the Pennsylvania Code. Any amendments to the

Act should effect this standard.

**MSAC Recommendation 9.2.7**

Well operators should be required to track and report on the transporting, processing and treatment or disposal of wastewater from high-volume wells (i.e. 80,000 gallons or more of water used).

**PEC Recommendation**

PEC supported this recommendation, which was submitted to the Commission by DEP.

**ANALYSIS**

PEC supports this recommendation; which will improve data collection and analysis for water withdrawals and wastewater disposal in Pennsylvania.

**MSAC 9.2.11**

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 public water supply operator.

**PEC Recommendation**

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

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

**ANALYSIS**

The MSAC recommendation partially matches PEC's recommendations. In our 2011 Legislative Proposal we recommended that operational Best Management Practices (BMPs) be identified and published by DEP through technical guidance; and be made a mandatory condition for any variance from setbacks in the Oil & Gas Act. There will be instances where variances are desirable and indeed could produce a net environmental benefit, but the implementation of BMPs should be utilized in such instances to ensure environmental protection. Any amendment to the Act should include this requirement.

**MSAC Recommendation 9.2.12**

Provide DEP with additional authority to establish further protective measures for the storage of hazardous chemicals or materials on a well site located within a floodplain.

**MSAC Recommendation 9.2.13**

Impose additional conditions for locating well sites in floodplains, including prohibiting where appropriate.

**PEC Recommendations**

- If a Well Site is located within a Floodplain, prohibit the use of impoundment pits for recycled, produced or flowback waters resulting from, or for use with, an Unconventional Well.
- Provide DEP with additional authority to establish further protective measures for the storage of hazardous chemicals or materials on the Well Site that is within a Floodplain or 500 feet of a Watercourse, Body of Water, or Wetland.
- In addition, PEC proposed listing floodplains as an identified public resource under Section 205(c) of the Act (thus requiring heightened permit review).

**ANALYSIS**

The MSAC recommendations are relatively close to PEC's recommendations, but lack the absolute prohibition on siting of impoundment pits in floodplains. PEC believes any amendment to the Act should include this prohibition.

**MSAC Recommendation 9.2.18**

Over the next six months DEP should evaluate all of its regulatory programs to determine if obstacles exist or changes could be made to facilitate the increase in proper recycling of flow back and produced water from gas wells and to facilitate and encourage the increased use of non-fresh water for hydraulic fracturing.

**MSAC Recommendation 9.2.22**

The Commonwealth should encourage the use of non-freshwater sources where technically feasible and environmentally beneficial. For example, legislation that would provide operators with immunity from environmental liability for the use of acid mine drainage water from abandoned mine pools would encourage operators to reduce their use of freshwater sources for water utilization as well as reduce the amount of acid mine water draining into local streams.

**PEC Recommendation**

In both its 2010 Policy Report and 2011 Legislative Proposal, PEC stressed the need for adaptive management and incentives for co-benefits in management of the shale gas industry.

**ANALYSIS**

PEC supports these recommendations – the use of recycled (produced/flowback) water, or the use of abandoned mine/mine pool drainage, significantly cuts down on demand for fresh water withdrawals and serves to potentially reduce existing water pollution

sources. Proper incentives and regulatory changes should be examined to encourage this activity.

**MSAC Recommendation 9.2.21**

The Oil & Gas Act should be amended to clarify that DEP has authority pursuant to the Clean Streams Law to require a Water Management Plan (Plan) as part of the Section 201 permitting process to protect the ecological health of water resources. Approval of a Plan shall authorize the removal and use of such water away from the riparian lands, provided the use is conducted in accordance with the Plan. An operator must still obtain legal permission from the riparian rights owner for access. Such program should not duplicate the authority of any interstate river basin commissions.

**PEC Recommendation**

To ensure sufficient statutory authority, add a provision to Section 201 that DEP shall have the authority pursuant to the Clean Streams Law (P.L. 1987, No. 394) to regulate water withdrawal for use with any Unconventional Well and to protect the ecological health of water resources.

**ANALYSIS**

PEC fully supports the MSAC recommendation.

**MSAC Recommendation 9.2.24**

The setback standard for an unconventional well shall be increased to 300 feet from the wellbore to a stream or water body as provided in section 205(b) of the Oil and Gas Act. A 100 feet setback from the stream or water body to the edge of disturbance shall also be implemented. DEP’s current waiver authority would be retained for both setbacks. For High Quality and Exceptional Value streams, however, additional setbacks or BMPs may be required by DEP. Additional discussion of the appropriate definition of water body for the purpose of these setbacks is necessary.

**PEC Recommendation**

Amend Section 205(b) as follows:

- Remove reliance on USGS Topographic Maps for water resource identification. Instead, apply setback standards to any Watercourse, Body of Water, or Wetland (new Act definitions).
- 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.

## **ANALYSIS**

The MSAC recommendation comes close to the intent of PEC's recommendation. The current setback standard in the Act is 100 feet from the physical well bore, missing the fact that unconventional well site (minimum edge of earth disturbance, including the placement of impoundment pits or treated/waste water holding tanks) can exceed five acres. The law should include a setback based on edge of disturbance and siting of potential pollution sources. Further, the identification of surface waters for establishing the setback should be updated to be consistent with other state water protection laws – the Act's current reliance on USGS maps is insufficient.

### **MSAC Recommendation 9.2.30**

Invasive Plant Species introductions should be avoided by utilizing techniques such as:

- thorough cleaning of construction equipment;
- minimization of soil disturbances;
- timely re-vegetation of sites using native, non-invasive species;
- annual surveillance to detect and control early infestations.

### **PEC Recommendation**

PEC joined with other members<sup>2</sup> of the MSAC in submitting the concept of this recommendation to the Committee for consideration.

## **ANALYSIS**

PEC supports this recommendation.

## **ADAPTIVE MANAGEMENT; BEST MANAGEMENT PRACTICES**

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### **MSAC Recommendation 9.2.23**

DEP and DCNR – along with industry – should continually review and examine the range of best management practices utilized during construction and operation of the well site, and consider incorporating these types of practices into regulatory and operator guidance. The practices, some of which DCNR already requires for its leases, could include:

- minimizing the size and disturbance of well sites and related facilities;
- stockpiling of topsoil; utilizing rocks, stumps and slash for wildlife enhancement;

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<sup>2</sup> Chesapeake Bay Foundation; The Nature Conservancy (PA Chapter); and Western Pennsylvania Conservancy.

- use of closed-loop drilling systems;
- increased use of flow-back water;
- use of surface water withdrawals rather than groundwater withdrawals;
- utilization of “tank in tank” systems with secondary containment for storage flow-back water;
- use of high-density polyethylene pipe for flow-back water transportation;
- noise abatement strategies for gas processing and compressor stations;
- minimize, avoid or buffer against conflicts with resources such as critical waterways, public parks, endangered or threatened plants, species and habitats, historic and cultural areas;
- avoid or minimize forest loss and fragmentation;
- cement all casing strings to surface to provide multiple protective barriers for aquifer;
- 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 the integrity of well control systems at all times, with a particular focus during completion operations (such as “isolation tools” or “tree savers”);
- avoidance of construction activities during adverse weather conditions which may impact public safety;
- use of marking systems to indicate presence of below-ground gas, water, electric and flow-back pipelines;
- minimize conflicts with recreational activities during holidays and high visitor-use periods.

### **PEC Recommendation**

In its 2011 Legislative Proposal, PEC proposed adding a definition for “Best Management Practices” to the Oil & Gas Act. Best Management Practices would be defined as standards established by DEP through technical guidance. These standards would identify industry practices and actions that can be utilized to better protect natural

resources, communities, and human health. The technical guidance would be reviewed and updated (as appropriate) at least every three years. Implementation of Best Management Practices would be required in any instance where DEP (through existing authority) grants a waiver to a setback or other protective standard in the Act, or where a proposed operation would have an impact on public resources.

**ANALYSIS**

While PEC believes the MSAC recommendation matches the spirit of PEC’s Proposal, we believe any amendment to the Act should meet the express parameters as detailed in our 2011 Legislative Proposal.

**MSAC Recommendation 9.2.25**

DEP should continue to participate in non-profit, multi-stakeholder organizations such as the State Review of Oil and Natural Gas Environmental Recommendations, Inc. (STRONGER), that provide periodic peer review of the Commonwealth’s regulatory structure and enforcement efforts.

**MSAC Recommendation 9.2.31**

Recognize and utilize the expertise of DCNR to advise other Commonwealth agencies which host natural gas development on their land.

**MSAC Recommendation 9.2.32**

DCNR should monitor and document effects, both positive and negative, of natural gas development on plants and forests, wildlife, habitat, water, soil and recreational resources.

**MSAC Recommendation 9.2.33**

The Commonwealth and its agencies should work together to promote, encourage and establish regular communications and information sharing among local communities, operators, environmental and conservation groups and other stakeholders.

**MSAC 9.2.34**

DCNR should establish a Natural Gas Advisory Committee to enhance communications among stakeholders regarding natural gas development on state forest and park land.

**PEC Recommendations**

In both its 2010 Policy Report and 2011 Legislative Proposal, PEC identified the principles of adaptive management, stakeholder input, and informed decision making in the management of the shale gas industry.

## **ANALYSIS**

PEC supports these MSAC recommendations as consistent with its stated principles.

### **MSAC Recommendation 9.2.27**

Conduct an engineering analysis of spill containment systems at unconventional shale gas well sites, including wells, well pads, storage tanks/impoundments and other equipment/facilities. This analysis will evaluate the design and structure of containment systems and determine adequacy and effectiveness in relation to the volumes and types of materials present at these sites at different stages of the production process. The analysis also will review past performance of containment systems used at well sites. Recommendations for new or improved containment practices, structures, and procedures – including, but not limited to, liners and berms on well sites – will be developed as needed.

### **PEC Recommendations**

To better address concerns relating to Well Site impoundment pits, amend Section 208 of the Act as follows:

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

## **ANALYSIS**

The MSAC recommendation goes beyond the scope of PEC's recommendation, which addressed impoundment pits. We support this MSAC recommendation, but believe it needs the additional charge of updating regulatory and permitting requirements, as appropriate, based upon the findings of DEP. PEC also believes that periodic site inspection should be required for key intervals or actions in the well development process (see section on Inspection and Enforcement, below).

## **CONCLUSION**

There are a number of MSAC recommendations which match our 2011 Legislative Proposal, though our 2011 Legislative Proposal contains greater and necessary specificity on many key points to effectively update and amend the Oil & Gas Act. Nonetheless the MSAC recommendations demonstrate there is clear need and common ground to make these amendments promptly through legislative action.

## REGIONAL & CUMULATIVE IMPACTS

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### **MSAC Recommendation 9.1.15**

State law should be amended to authorize PENNDOT to negotiate leases which permit the location of energy and utility infrastructure within PENNDOT's right-of-way.

### **MSAC Recommendation 9.2.35**

Identify legislative/regulatory changes needed to:

- Effect the sharing of pipeline capacity and reduce surface disturbance and associated environmental impacts;
- Encourage the use of existing pipeline infrastructure and co-location with other rights-of-way;
- Achieve coordination and consistency of infrastructure planning and siting decisions by State, county and local governments;
- 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 propose pipelines, in order to avoid or minimize impacts to these resources.

### **PEC Recommendation**

PEC joined with other members<sup>3</sup> of the MSAC in submitting the concept of these recommendations to the Committee for consideration. The issue of consolidating operational infrastructure to reduce cumulative impacts was raised both in PEC's 2010 Policy Report and 2011 Legislative Proposal.

### **ANALYSIS**

PEC supports these recommendations and encourages quick action by the Administration to identify effective legislative and/or regulatory changes that will serve to reduce surface and resource impacts through consolidation of operational infrastructure.

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<sup>3</sup> Chesapeake Bay Foundation; The Nature Conservancy (PA Chapter); and Western Pennsylvania Conservancy.

## CONCLUSION

Given the nature of shale gas development – which requires tremendous advance planning as well as the deployment of large scale operations and targeted infrastructure – PEC believes there is ample opportunity to incorporate advance regional planning in the gas development process to accomplish: (1) greater stakeholder involvement and analysis in decision making; and (2) reduction of overall environmental and community impacts. Incentives should be identified and built into the permitting process to encourage operators to perform regional planning that produces these benefits.

## INSPECTION, COMPLIANCE & ENFORCEMENT

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### MSAC Recommendation 9.1.17

Develop and provide planning tools and educational opportunities relating to unconventional natural gas development to counties; require proper notice of permit applications with an opportunity to comment (similar to notice for host and adjoining municipalities); and, under DEP guidance and consistent with applicable permit conditions, allow for County Conservation Districts to engage in inspections of erosion and sedimentation controls at unconventional well sites, if they choose to do so.

### PEC Recommendation

PEC joined with other members<sup>4</sup> of the MSAC in submitting the concept of these recommendations to the Committee for consideration.

### ANALYSIS

PEC supports DEP partnership with County Conservation Districts in inspection and monitoring of unconventional gas wells, but believes DEP should remain fully engaged for immediate response where warranted.

### MSAC Recommendation 9.2.1

Civil penalties for violations of the Oil and Gas Act should be increased from \$25,000 to \$50,000 and the daily penalty should be increased from \$1,000/day to \$2,000/day. Current criminal penalties for summary and misdemeanor offenses should be reviewed to ensure they are consistent with penalties of comparable environmental statutes.

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<sup>4</sup> Chesapeake Bay Foundation; The Nature Conservancy (PA Chapter); and Western Pennsylvania Conservancy.

**MSAC Recommendation 9.2.2**

Consistent with other environmental statutes, DEP should be able to assess civil penalties, rather than the Environmental Hearing Board.

**PEC Recommendation**

PEC supports higher civil penalties in the Oil & Gas Act for violations; existing penalty levels are outdated and insufficient.

**ANALYSIS**

PEC supports both MSAC recommendations.

**MSAC Recommendation 9.2.4**

Amend the Oil and Gas Act to authorize DEP to suspend, revoke or deny permits in a more timely manner than current law allows when an operator has failed to comply with the Oil and Gas or other applicable environmental statutes and is not correcting the violation to the satisfaction of the department.

**PEC Recommendation**

PEC supported this recommendation when submitted to the Commission by DEP, and believes it is consistent with the inspection and reporting recommendations made by PEC (see MSAC Recommendations 9.2.15 and 9.2.16, below).

**ANALYSIS**

PEC supports this recommendation.

**MSAC Recommendation 9.2.6**

Expand an operator’s presumed liability for impaired water quality from within 1,000 feet of a well to within 2,500 feet of a well, and from 6 months to 12 months of completion or alteration of the well. In addition, the presumed liability should be applied to well stimulation.

**PEC Recommendation**

Amend Section 208 of the Act as follows:

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

**ANALYSIS**

PEC believes, as is done with respect to mining operations, that pre-drilling water well testing should be an express responsibility of the well site operator unless the landowner refuses to allow access for testing. We also recommend that full safe drinking water standards be required for replacement water supplies. PEC supports expanding the presumption of liability as stated in the MSAC recommendation.

**MSAC Recommendation 9.2.10**

Amend the Oil and Gas to authorize DEP to enter into contracts with well control specialists; hold well control specialists free from damages which may arise from emergency response actions; and permit DEP to recover costs from well operators should a contracted well control specialist need to be deployed.

**PEC Recommendation**

PEC supported this recommendation when submitted to the Commission by DEP.

**ANALYSIS**

PEC supports this MSAC recommendation, which will allow DEP to more quickly mobilize emergency response to well sites when necessary.

**MSAC Recommendation 9.2.14**

Amend well stimulation and completion reporting requirements to include, at a minimum, the following:

- Pump rate, pressure and total volume used for Hydraulic Fracturing;
- List of all hazardous chemicals used for Hydraulic Fracturing;
- Identification of all water sources used for hydraulic fracturing, consistent with the DEP-approved water management plan (if applicable).
- Depth of potable aquifers encountered during drilling.
- Whether methane was encountered at other than target formation during drilling.
- Radioactive or other industry standard logs, if appropriate.
- Other information as required by DEP
  - Well stimulation and completion reports should be posted on DEP's website and be accessible to the public

**MSAC Recommendation 9.2.15**

Require enhanced inspection and notice of activity on well sites, including:

- The timely inspection of each well site upon completion of erosion and sedimentation control measures, prior to the commencement of drilling activity;
- Notice by the well operator 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.

**MSAC Recommendation 9.2.16**

Require DEP to post, and regularly update, well inspection reports online. Reports shall include:

- Nature and description of any 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.

**PEC Recommendation**

Same. PEC made these recommendations in its 2011 Legislative Proposal, and in submitted recommendations to the Commission.

**ANALYSIS**

These recommendations will provide enhanced monitoring of well sites, including mandatory inspection prior to commencement of drilling activity. The disclosure provisions ensure that information is provided to the public in timely fashion concerning well activities, potential violations, and enforcement/compliance actions.

**CONCLUSION**

These MSAC recommendations closely match PEC’s 2011 Legislative Proposal and provide a strong foundation that should be adopted through prompt legislative and regulatory action. Additional standards on water supply testing and replacement should be incorporated consistent with PEC’s recommendations.

**FINANCIAL ASSURANCE & IMPACT FEE**

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**MSAC Recommendation 9.2.9**

Current well bonding amounts are \$2,500/well or a \$25,000 blanket bond. Well bonding amounts should be significantly increased (\$10,000/ deep well) in a manner which provides for bond amounts in two tiers based on total wellbore length (up to and including 6,000 feet and greater than 6,000 feet) and authorizes blanket bonds based on the number of wells per operator, up to \$250,000. Well bond amounts and options for alternative financial assurances should be re-examined within three years.

**PEC Recommendation**

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

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

**ANALYSIS**

PEC believes that the concept of blanket bonds is not appropriate for Marcellus Shale development – fines already issued by DEP for incidents at individual wells far exceed the proposed \$250,000 amount. The Trust Fund Concept recommended by PEC and utilized in DEP's mining program proves an effective and sufficient alternative for financial assurance when individual operators have multiple wells in play.

**MSAC Recommendation 9.3.9**

*The actual text of the recommendation is too long to incorporate in this analysis. The recommendation proposes imposition of an impact fee to address regional impacts associated with natural gas development.*

**PEC Recommendation**

PEC joined with other members<sup>5</sup> of the MSAC in submitting a recommendation for a reasonable impact fee or severance tax that would provide funding to address local impacts; provide additional funding to DEP, DCNR, and other resource agencies charged with management of unconventional shale gas development; and provide funding for the Growing Greener Program (Environmental Stewardship Fund).

**ANALYSIS**

PEC maintains its position that funding from an impact fee or severance tax should be used to support the capabilities of DEP, DCNR, and other resource agencies charged with managing Marcellus Shale (and other deep shale) natural gas development. In addition, the Environmental Stewardship Fund is well suited to help address cumulative impacts and other environmental liability concerns relating to the growth of natural gas development throughout Pennsylvania. Any impact fee or severance tax must support these efforts.

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<sup>5</sup> Chesapeake Bay Foundation; The Nature Conservancy (PA Chapter); and Western Pennsylvania Conservancy.

## STATE FOREST & PARK LAND

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### **MSAC Recommendation 9.2.36**

Any future leasing of state forest land should be limited to agreements which result in no or minimal surface impact to Commonwealth-owned land, and prohibits surface disturbance in high conservation value forests and other ecologically important areas.

### **PEC Recommendation**

PEC joined with other members<sup>6</sup> of the MSAC in submitting a recommendation that would prohibit any further leases of state forest land that would necessitate any surface impacts.

### **ANALYSIS**

PEC opposes this MSAC recommendation. We believe there should be no further leasing of state forest land that results in new or additional surface impacts. Future surface land leasing affects other important economic and public uses of the state forest system, which has been developed over the past century with significant public and private investment.

## PUBLIC HEALTH

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### **MSAC Recommendation 9.2.17**

The Commonwealth should enact legislation establishing construction standards for new private water wells to ensure the delivery of safe drinking water to its residents.

### **MSAC Recommendation 9.2.37**

The Department of Health should work in partnership with the Commonwealth's graduate schools of public health and other appropriate medical institutions to better protect and enhance the public health interests of citizens, such as through the establishment of the population-based health registry and curriculum development.

### **MSAC Recommendation 9.2.38**

The Department of Health should collect and evaluate clinical data provided by health care providers.

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<sup>6</sup> Chesapeake Bay Foundation; The Nature Conservancy (PA Chapter); and Western Pennsylvania Conservancy.

**MSAC Recommendation 9.2.39**

The Department of Health should routinely evaluate and assess Marcellus Shale-related environmental data, such as air, water, solid waste, and fish and other food samples, that is collected from a variety of entities, such as PA DEP, US EPA, the US Geologic Survey, water works or treatment facilities, industry and academic partners.

**MSAC Recommendation 9.2.40**

The Department of Health should 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 (i.e. one mile radius) to gas drilling and production sites.

**MSAC Recommendation 9.2.41**

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

**MSAC Recommendation 9.2.42**

The Department of Health should educate health care providers on the presentation and assessment of human illness that may be caused by material in drilling constituents.

**MSAC Recommendation 9.2.43**

The Department of Health should establish public education programs regarding the constituents used in the drilling process, potential pathways to humans, and at what level, if any, they have the potential to cause human illness.

**PEC Recommendation**

With assistance from the University of Pittsburgh Graduate School of Health and Drexel University School of Public Health, PEC submitted two broad sets of recommendations to the Commission. Both recommendation documents can be found after this comparative analysis.

**ANALYSIS**

PEC supports the MSAC recommendations. As stated in PEC's 2010 Policy Report and 2011 Legislative Proposal: PEC believes issues associated with public health are of vital and immediate importance. However, we believe the work is best addressed by qualified health experts through appropriate study.

**Pennsylvania Environmental Council**  
**Public Health Submissions to the Marcellus Shale Advisory Commission**  
May 2011

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**Note:** These recommendations were developed with the assistance of:

- **Marla Gold, MD, Dean, Drexel School of Public Health**
- **Bernard Goldstein, MD, Interim Director, Center for Healthy Environments and Communities, University of Pittsburgh**

### **Recommendation 1**

#### **Summary of the 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:**

#### **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).
- 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.

## **Recommendation 2**

### **Summary of the Challenge or Opportunity:**

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:**

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.



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECRETARY

May 27, 2011

The Honorable Jim Cawley  
Lieutenant Governor  
Governor's Marcellus Shale Advisory Commission  
Chairman  
200 Main Capitol Building  
Harrisburg, PA 17120

Dear Lieutenant Governor Cawley:

We ask that the Governor's Marcellus Shale Advisory Commission consider the Department of Environmental Protection's suggested changes to the Oil and Gas Act (OGA) as it relates to Marcellus Shale and other unconventional natural gas development. The amendments embody Governor Corbett's concepts to improve OGA, as well as some improvements needed that have come to our attention as we regulate the natural gas industry. The amendments are grouped by topic as follows:

## 1. Protecting Water Supplies

### Expand Presumptive Liability and Notification Distances

- Extend operator's presumptive liability from 1,000 feet to 2,500 feet and from 6 months to 12 months. Apply the presumption to pollution or diminution caused by drilling, altering, *and/or stimulating* the well.
- Require operators to provide notice and copy of the plat to property users within 2,500 feet of the proposed well in section 201(b), as well as the host municipality or any municipality within 2,500 feet.

### Increase Mandatory Well Location Restriction

- Increase the private water well distance restriction from 200 feet to 500 feet, unless waived by owner.
- Restrict well drilling from within at least 1,000 feet of a public water supply (water well, surface water intake or reservoir), unless waived by operator.
- Add a provision that prohibits location of the well site in floodplains.

### Cradle to Grave Manifesting of Frack Wastewater at High Volume Wells (More Than 80,000 Gallons Used in Process)

- Provides comprehensive tracking of wastewater
- Permits DEP to more accurately determine wastewater recycling rates

## 2. Increase Bonding Amounts

- Current bonding requirement of \$2,500 per well, or a \$25,000 blanket bond, are simply insufficient. Bond amounts have not increased since 1984. We recommend the bond amounts as outlined in SB 602, PN 803 with the understanding that the Environmental Quality Board can revisit bond levels in future years.

## 3. Tougher Penalties For Violations

### Permit Revocations, Withholding or Denying Permits

- Grant DEP the authority to revoke an operator's well permit if it finds that the operator:
  - has failed and continues to fail to comply with any provision of this act or any other applicable statute administered by DEP and is not correcting the violation to the satisfaction of DEP; or
  - Has shown a lack of ability or intention to comply with any provision of this act or any other applicable statute administered by DEP as indicated by past or continuing violations. A suspension should continue and the department should not issue permits administered by DEP to the operator until the operator has demonstrated to the satisfaction of DEP that the unlawful conduct has been corrected.
- Provide that DEP shall not issue a permit required by the OGA or renew or amend any permit, if it finds after investigation and an opportunity for informal hearing, that:
  - the applicant has failed and continues to fail to comply with any provision of this act or any other applicable statute administered by DEP and is not correcting the violation to the satisfaction of DEP;
  - the applicant has shown a lack of ability or intention to comply with any provision of this act, any other or any other applicable statute as indicated by past or continuing violations; or
  - the applicant has a related entity (partner, associate, corporate officer, managing member of a limited liability corporation, parent corporation or subsidiary corporation, contractor, or subcontractor) that has engaged in unlawful conduct as defined in section 509 of the act unless the permit application indicates that the violation is being corrected to the satisfaction of DEP.

### Civil Penalties

- Remove the requirement that the Environmental Hearing Board (EHB) assess the penalty, thereby giving DEP that authority with appeal to the EHB whose scope of review is limited to whether the penalty is a “reasonable fit” as is outlined in case-law.
- Increase the civil penalty such that it shall not exceed \$50,000, plus \$2,000 for each day of the continued violation.
- Add a provision, similar to the Clean Streams Law, requiring those charged with a violation to pay within thirty days, or if the operator wishes to contest the amount or the violation, forward the amount to an escrow account or post an appeal bond.

### Criminal Penalties

- Existing Oil and Gas Act criminal penalties for summary offenses have a fine of not more than \$300 or undergo imprisonment of not more than 90 days, or both;
- For misdemeanors a fine of not more than \$5,000 or undergo imprisonment of not more than one year, or both; and
- Criminal penalties should be reviewed to ensure they are consistent with penalties for violations of similar statutes.

#### **4. Activities Authorized by the Well Permit**

- Clarify that a well permit authorizes the preparation and construction of the well site and the access road, as well as the operation of the well.
- Require the operator to indicate on its plat the location of the well, well site and access roads.
- Allow DEP to develop a well operation permit so that entities can “adopt” orphaned or abandoned wells. The authority of DEP to allow well adoption through the well registration process was struck down by the EHB in *Foundation Coal v. Barclay*.

#### **5. Consideration of the Impact on Public Resources**

- Grant DEP, by regulation, the authority to condition a well permit based on its assessment of the impact to public resources.

#### **6. Well Control Emergency Response**

- Add a provision that would give DEP the authority to enter into contracts with well control specialists in order to provide adequate emergency response in the event of a well control emergency.

- Add a provision that would hold such well control specialists free from all damages arising from their well control emergency response actions.
- Allow DEP to seek cost recovery from operators where DEP is required to employ the services of the well control specialists because the operator has failed to take timely action to address the well control event.

We believe the suggested amendments will provide DEP with additional tools to ensure that natural gas is extracted in a safe and environmentally protective manner in Pennsylvania. We look forward to working with you and the members of the Commission in your consideration of these recommendations.

If you have any questions or concerns, please contact Patricia M. Allan by e-mail at [pmallan@state.pa.us](mailto:pmallan@state.pa.us) or by telephone at 717.783.8727.

Respectfully,

A handwritten signature in black ink, appearing to read 'Michael L. Krancer', with a long, sweeping horizontal stroke extending to the right.

Michael L. Krancer  
Secretary