

Pennsylvania Council of Professional Geologists (PCPG) Marcellus Shale Gas Position Statement

Synopsis of PCPG's Marcellus Position Statement:

The Pennsylvania Council of Professional Geologists is a diverse group of licensed Professional Geologists (PGs) and allied scientists with an overriding ideology of advocating the use of sound science in the: (a) formulation of public policy; (b) protection of human health and the environment; (c) establishment and evaluation of regulatory programs; and (d) the dissemination of accurate information. Early participation by Professional Geologists and allied scientists in evaluations and decisions involving natural resources facilitates sound scientific outcomes.

PCPG supports the responsible development of Pennsylvania's natural resources, including Marcellus shale gas, and has prepared this statement to provide a balanced review and discussion of Marcellus shale gas issues. This statement is also intended to dispel common misunderstandings, provide comments as to appropriate public and regulatory policy, from a technical and geologic perspective, and identify critical areas where additional information and study are needed. PCPG expects to periodically review and amend this statement as Marcellus shale gas exploration and development procedures evolve, and as geologic and technologic advances continue to change the exploration and production landscape across the Commonwealth of Pennsylvania and the Appalachian Basin.

The elements of PCPG's position on the Marcellus are as follows:

1. PCPG considers Marcellus shale gas exploration and production to be a worthwhile and necessary endeavor that will have a very significant and continuing positive effect on Pennsylvania's economy. Additional shale gas production in Pennsylvania means more energy independence for the United States. As natural gas is the cleanest burning fossil fuel, there are positive implications for air quality.
2. Subjective and selective interpretation of Marcellus shale gas exploration and development information, as is sometimes reported in print, broadcast media, and the Internet, often conveys erroneous information to the public and to public officials. This can result in the creation of misinformation, unnecessary confusion, and exaggerated concerns. Such reports should be carefully scrutinized for accuracy and agenda.
3. Natural gas well drilling and production can and must be done in an environmentally responsible and scientifically sound manner while minimizing the potential for adverse environmental impacts.
4. Historically, horizontal drilling and hydraulic fracturing (fracing) technologies have a low incidence of proven adverse impacts to potable water quality. Marcellus natural gas wells typically consist of a vertical bore (drilled with technically sound, time-tested equipment and methods) which is extended downward and then directionally drilled to horizontally tap into the Marcellus target, at depths between 5,000 and 9,000 feet below ground surface. Fracing of such wells occurs at those same depths, with a radius of influence designed to be limited to approximately 500 feet or less around the well bore. It is unlikely that a properly designed and constructed Marcellus gas well will have an adverse affect on the much shallower fresh water aquifer zones, which typically occur

within 500 feet or less from the ground surface. Key to the successful installation of Marcellus shale gas wells is a proper well design and detailed permit application, PADEP approval based on a thorough review process, and correct execution and verification of the well drilling, casing and plugging programs, conducted by experienced and competent natural gas drilling operators.

5. Natural gas drilling and production can and must be conducted in accordance with best industry practices and well-established (existing) state oil and gas, and environmental regulations. Spills of drilling-related fluids and improper disposal of drilling wastes are relatively few, but should all be preventable. The natural gas industry bears responsibility for mitigating the effects of any ground surface releases and using lessons learned to continually improve best management practices. Although rare, stray gas issues can arise from faulty surface and production casing implementation and when this occurs, the natural gas industry bears responsibility for mitigation.
6. It is important that state agencies such as the PADEP and the PADCNR (where drilling on state lands) have sufficient resources to enforce existing regulations and/or propose new regulations as appropriate, and to conduct continuing research, data-gathering, and database management to document the environmental effects, or lack thereof, of Marcellus well drilling and development.
7. PCPG believes that the careful management of effluent (drilling fluids, frac flowback water, and production brines) generated during well installation, treatment and production, is a significant concern. Technical research and innovation by industry, trade associations, stakeholders, and government must continue with regard to: a) drilling waste volume reduction; b) modification/construction of existing/new treatment facilities with advanced treatment technologies; and c) use of on-site treatment and reuse and recycling systems to properly handle remaining water and wastes.
8. Of great concern to Pennsylvania citizens is the withdrawal of surface water and groundwater for use in the drilling and fracing processes. PCPG believes that the Water Management Plan component of the well drilling permit application package, and the additional required approvals from the Susquehanna River Basin Commission and the Delaware River Basin Commission for projects in those respective basins, provides ample protection of Pennsylvania's groundwater and surface water resources and their inherent ecological values.
9. The majority of the volume of frac fluids currently utilized by industry consists of water and quartz sand. Small quantities of chemical additives are also typically utilized. The likelihood that the low concentrations of man-made chemical components will impact drinking water supplies is very low. However, public concern over the use of chemical additives remains heightened and should be addressed. The natural gas industry therefore should prioritize continued research and development of frac fluid formulas that reduce and/or exclude the use of hazardous substances, and provide transparent and accessible reporting of frac fluid composition to the public and to regulatory agencies.

Summary of PCPG Marcellus Position Statement:

Bad news often travels faster than good news – much of the information in the news over the last several years regarding Marcellus shale gas exploration in Pennsylvania has contained sensationalized language,

inaccurate statements and misrepresentations that have often been devoid of reasoned geologic science. PCPG believes it is important to maintain perspective and understand that:

- Marcellus shale natural gas exploration, like other energy production endeavors, involves risks that can be successfully managed and controlled, and is a source of significant benefit to the citizens of Pennsylvania. Potential adverse environmental impacts must be recognized and prevented via the use of best industry practices, appropriate regulations and strict enforcement.
- Accidental spills or releases of chemicals or waste materials to soil, surface water bodies, or groundwater unfortunately can and have occurred from most manufacturing, transportation, or industrial activities. However, rather than discouraging manufacturing, transportation or industrial enterprises in Pennsylvania, PCPG strongly advocates environmental stewardship through best management practices and appropriate regulation and enforcement to minimize discharges to the environment and to promptly address discharges when they occur. Such diligence is good for business and the community, as it helps to create and preserve jobs while protecting the environment. PCPG sees no rational basis to treat Marcellus shale gas development differently from any other industry. The actual drilling and fracing processes, when done prudently and in accordance with regulations and best industry practices, will minimize any adverse affects to the environment. Existing regulations and enforcement provisions ensure that responsible parties are held accountable for damages and for restoration of environmental impacts;
- Continued regulatory and economic pressures on drilling waste management and disposal practices are already resulting in rapid advancements and improvements in waste treatment, minimization and beneficial water reuse and recycling.
- Shale gas development is a source of widespread benefit to the Commonwealth of Pennsylvania in the form of boosts to our state's economy, increased energy independence, lowered energy costs, much needed jobs, and a cleaner-burning fossil fuel. With proper management, technological innovation and constant attention to Pennsylvania's environment, the benefits of shale gas development are likely to persist for decades to come.

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