DEPARTMENT OF MINES, MINERALS AND ENERGY
Proposed Regulation


Statutory Authority: §§ 45.1-161.3, 45.1-361.4, and 45.1-361.27 of the Code of Virginia.

Public Hearing Information:

October 20, 2015 - 2 p.m. - Conference Center, Russell County Office Building, 139 Highland Drive, Lebanon, VA 24266

November 2, 2015 - 2 p.m. - University of Mary Washington, Dahlgren Campus, 4224 University Drive, King George, VA 22485

November 3, 2015 - 2 p.m. - Virginia State Capitol, House Room 3, 1000 Bank Street, Richmond, VA 23219

Public Comment Deadline: December 4, 2015.

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Basis: Section 45.1-161.3 of the Code of Virginia grants the Department of Mines, Minerals and Energy (DMME) the authority to promulgate regulations necessary or incidental to the performance of duties or execution of powers conferred under Title 45.1 of the Code of Virginia. Section 45.1-361.4 of the Code of Virginia grants the Director of DMME the authority to regulate gas, oil, or geophysical operations in the Commonwealth.

Purpose: Though hydraulic fracturing has been used safely in Virginia since the 1960s, DMME believes that expanding disclosure of ingredients used in gas well stimulation and completion is an appropriate and necessary safeguard for the citizens of the Commonwealth. The proposed regulations also appropriately reflect industry best practices such as baseline groundwater testing and monitoring, submission of emergency response plans, and measures to enhance well integrity. These measures help ensure protection of the environment and public health and safety.

It is important to note that “industry best standards” is the criteria being applied. A review of some of those standards shed some light on the amount of variance that exists and can identify different areas of interest. They also give insight into why regulations are so important to the process. One such document, Extracting the Facts: An Investor Guide to Disclosing Risks from Hydraulic Fracturing Operations (http://www.iehn.org/documents/frackguidance.pdf), comes from the Interfaith Center on Corporate Responsibility. The Executive Summary begins on page 3 of this document and the second paragraph contains some important notes on hydraulic fracturing in the U.S.

Many governments and communities around the world are looking to learn from the U.S. experience before deciding whether and how to permit exploitation of their shale resources. In the U.S. there have been numerous incidents of poorly constructed wells, equipment failures, degraded local and regional air quality, water contamination, strained community relations, and related government enforcement actions and private lawsuits. Moratoria or bans have been enacted in New York State, the Delaware River basin, and by local governments in several U.S. states. Outside the U.S., France
has banned fracturing and the Province of Quebec, Canada and South Africa, among other jurisdictions, have enacted moratoria.

While designed for the “investor”, the list of Goals and the Best Practices required to achieve those Goals appears to be consistent of good stewardship of the environment and the health of citizens. These are the Goals set forth:

1. Manage Risks Transparently and at Board Level: Ensure environmental, health, safety, and social risks are core elements of corporate risk management strategy.
2. Reduce Surface Footprint: Minimize surface disruption from natural gas exploration and production activities.
3. Assure Well Integrity: Achieve zero incidence for accidental leaks of hazardous gases and fluids fro well sites.
4. Reduce and Disclose All Toxic Chemicals
5. Protect Water Quality by Rigorous Monitoring: identify baseline conditions in neighboring water bodies and drinking water sources and routinely monitor quality during fracturing and production.
6. Minimize Fresh Water Use: Draw the minimum potable water necessary to conduct fracturing operations, substitution non-potable sources to the fullest extent practicable.
7. Prevent Contamination From Waste Water: Store waste waters in secure closed containers, not in pits open to the atmosphere.
8. Minimize and Disclose Air Emissions: Prevent/minimize emissions of greenhouse gases and toxix chemicals by systematically identifying emission sources of all sizes, implementing operational practices to reduce emissions, and installing emission control equipment; monitor ambient air quality prior to and during operations.
9. Prevent Contamination from Solid Waste and Sludge Residuals: Minimize risks and impacts of solid waste/sludge residuals from drilling and fracturing operations and fully characterizing and tracking toxic substances.
10. Assure Best in Class Contractor Performance: Systematically assess contractor performance against the company's own BMPs and KPIs across the entire range of environmental, health, safety, and social concerns, with the objective of engaging and retaining best-in-class, continually improving contractors.
11. Secure Community Consent: During the site selection process, identify all communities impacted and address major concerns central to community acceptance of company operations; establish community engagement process and third party conflict resolution mechanisms.

Each of these goals is provided, in the document, with Best Practices lists and some Key Performance Indicators.


Another publicly available resource for “best practices” is *Performance Standards; Version 1.4;* Adopted: August 19, 2013; Amended April 7, 2016; Center for Sustainable Shale Development (CSSD). This document provides Performance Standards for Water, Pits/Impoundments, Groundwater Protection, and Air. “The goal of the water standards is that there be zero contamination of fresh
Substance: Permit application requirements are updated to include disclosure of all ingredients anticipated to be used in hydraulic fracturing operations, a plan to conduct groundwater baseline sampling and analysis, and the submission of an emergency response plan. These additions support environmental protection and public health and safety.

It is important to note that the full disclosure of materials used will not be revealed until the time of the accident. This can cause a delay in First Responder actions as they may not have the training or equipment necessary to facilitate a rapid response. Also not clarified is who would pay for the training or equipment.

The proposed regulations require well operators to use the FracFocus website (http://fracfocus.org) to disclose the chemicals used in hydraulic fracturing operations. Approximately 20 states already utilize FracFocus. Requiring chemical disclosure promotes transparency and environmental protection when combined with groundwater sampling and monitoring protocols. The proposed regulations also contain provisions that protect trade secrets from public dissemination. However, this information will be made available to first responders and local officials in the event of an emergency. (see note with preceeding paragraph)

The proposed regulations establish a groundwater sampling, analysis, and monitoring program. Baseline sampling data within one-quarter-mile radius from the proposed well will be submitted with the permit application. After the well is completed, additional sampling is required. If that sampling demonstrates exceedances of applicable standards, DMME has the authority to order follow-up testing in addition to existing enforcement authority.

Based upon a review of other recommended sampling distances, this one-quarter-mile radius is at the bottom end of the scale. Most sources recommend one-half mile radius or more. (Fracking Debate: The Importance of Pre-Drill Water-Quality Testing …, Increased stray gas abundance in a subset of drinking water neare Marcellus shale gas extraction) In all cases of best practices, there should be some note of whether they apply to all wells, only horizontal wells, or only vertical wells.

Well integrity is another area of emphasis in the proposed regulations. Language was added to strengthen casing and pressure testing requirements for well casings used in conventional and coalbed methane gas wells. This language will ensure the steel casings used in the drilling process are sufficiently strong to protect the surrounding formation. Language was also added related to the use of centralizers in the water protection string of casing. This will ensure the casing is centered in the hole while the well is drilled. Ensuring well integrity protects the environment and public health and safety.

With respect to potential drilling in Tidewater Virginia, the regulations require a pre-application meeting with DMME and the Department of Environmental Quality to ensure potential permit applicants understand the requirements of the environmental impact assessment required pursuant to § 62.1-195.1 of the Code of Virginia.

Issues: The proposed regulation requires disclosure of the ingredients used in hydraulic fracturing operations to the public while also protecting industry trade secrets except in case of an emergency. These requirements strike the appropriate balance between environmental protection and economic development required by the Virginia Gas and Oil Act, Chapter 22.1 (§ 45.1-361.1 et seq.) of Title 45.1 of the Code of Virginia. Maintaining that balance is the primary advantage of the proposed regulation. The balance is further maintained by the added requirements to ensure current industry best practices are utilized. There are no disadvantages to the public or the Commonwealth.
As noted in previous sections, if information concerning ingredients is not known until such time as an accident occurs, this delays emergency responses. The cost of equipment and training of first responders is may be considerable, yet this is not included in an environmental assessment.

Department of Planning and Budget's Economic Impact Analysis:

Summary of the Proposed Amendments to Regulation. The Department of Mines, Minerals and Energy proposes to 1) require disclosure of all ingredients anticipated to be used in hydraulic fracturing operations at the application stage as well as ingredients actually used at the well completion stage; 2) require operators to submit a groundwater sampling and a monitoring plan at the application stage and an emergency response plan; require groundwater sampling before and after well construction as well as follow-up testing if needed; and expand the required groundwater sampling area; 3) incorporate industry best practices with respect to the use of centralizers, standards for casing, and pressure testing requirements; 4) require a pre-application meeting for operators wishing to drill for gas or oil in the Tidewater area; and 5) require certification from operators that the proposed operation complies with local land use ordinances.

What about testing during operation? This reports only before the well is built and after construction. Water testing during the course of operation would help to insure that problems are quickly identified and corrected.

Result of Analysis. The benefits likely exceed the costs for all proposed changes.

Estimated Economic Impact. These regulations establish rules for the gas and oil industry in Virginia. Currently, all drilling activity in the Commonwealth occurs in seven counties in far Southwest Virginia. Approximately 85,000 acres of land have been leased for potential future drilling activity in five counties in Tidewater area. However, DMME has not yet received any applications for a permit in this area. There are approximately 8,000 existing wells and approximately 150 applications are received for new wells each year. Operators pump approximately 300 - 400 thousand gallons of water with about 1% chemical content into an average size well.

DMME proposes to update permit application and well completion report requirements. The proposed changes will require disclosure of all ingredients anticipated to be used in hydraulic fracturing operations at the application stage and disclosure of ingredients actually used in fracturing operations when the well is completed to DMME and on FracFocus.1

FracFocus is available to oil and gas operators who voluntarily disclose the chemicals they use and to those who are required to disclose such information. Approximately 20 states already require disclosure on FracFocus. Some states require full disclosure including ingredients in the mix, their proportions, trade secrets, etc. while some others require only partial disclosure. Since disclosure of trade secrets may result in an operator losing its competitive advantage, DMME proposes that trade secrets not be required on FracFocus, but be submitted to the agency with the well application and the completion reports. However, in case of an emergency, DMME will have the authority to disclose the trade secret information to emergency responders.

The proposed disclosure requirements will help improve transparency in the hydraulic fracking operations which has been used safely in Virginia since the 1960s and address concerns associated with environmental effects. However, they will also safeguard trade secrets and allow operators to maintain the competitive advantage they may have. While the proposed disclosure requirements may introduce some additional reporting costs on operators, DMME indicates that some of the oil and gas operators
already use FracFocus voluntarily and that it is a free service. Thus, additional reporting costs on regulated operators are expected to be small.

The proposed changes will also require operators to submit a groundwater sampling and monitoring plan at the application stage. DMME will also require submission of an emergency response plan. Additionally, groundwater sampling before and after well construction as well as follow-up testing if the sampling demonstrates exceedances of applicable standards will be required. While these requirements are not currently in the regulations explicitly, DMME indicates that all providers already comply with these requirements. However, DMME proposes to expand the sampling area which is used to establish the groundwater quality before and after drilling a well from 500 feet radius to one-quarter-mile radius. DMME believes that the cost of groundwater sampling for the currently required area is in the range of $1,000 to $2,000 and that the increase in the cost of sampling due to a larger area will be less than double the current costs. In addition, sampling from a larger area will allow more accurate comparison of before and after groundwater quality reducing the operators' liability somewhat compared to their liability that may result from statistically less reliable comparison.

What is meant by “emergency response plan”? Does this mean that each well/company will have their own team of first responders who will manage the emergency? Extending the groundwater sampling from 500 ft. to one-quarter-mile would only bring the sampling radius up to a minimal standard. Many other sources of best practices call for a one-half-mile radium (see notes above)

The proposed changes will also amend the regulation to reflect industry best practices with respect to use of centralizers, standards for casing, and pressure testing requirements that enhance well integrity. For example these changes include a requirement for using steel casings in the drilling process to be sufficiently strong to protect the surrounding formation; and a requirement to use centralizers in the water protection string of casing to make sure the casing is centered in the hole while the well is drilled. DMME states that all operators already maintain high standards to ensure well integrity and are in compliance with the proposed changes. Thus, no additional costs are expected from this change other than clarification of the well integrity standards in the regulation.

The proposed changes also require a pre-application meeting jointly conducted by DMME and the Department of Environmental Quality (DEQ) for operators wishing to drill for gas or oil in Tidewater, Virginia. This area of the Commonwealth requires special consideration due to its potential impact on the Chesapeake Bay's sensitive environmental balance and the lack of information on the potential impact of drilling on this balance since any gas or oil drilling has yet to be performed in this area. The preapplication meeting will give a chance to DMME and DEQ to address the requirements of the environmental impact assessment required pursuant to Code of Virginia Section 62.1-195.1 and 9VAC15-20 and help prevent any potential unintended consequences.

Finally, the proposed changes will require certification that the proposed operation complies with local land use ordinances to ensure compliance with them.

This may be the most important piece of the legislation. Local jurisdiction have the right to review and update their zoning ordinances and comprehensive plans to reflect the values of citizens within their jurisdiction.

In summary, the proposed changes are expected to introduce small administrative costs due to the proposed disclosure requirements, additional reports and plans, additional meetings, and less than two thousand dollars for groundwater testing of an enlarged area. Additional administrative costs are anticipated to be minimal as the proposed application and reporting requirements are contained within the existing electronic permitting and reporting systems. DMME expects to incur negligible, one-time
costs to update its electronic permitting system to reflect the changes in the proposed regulation. On the other hand, the main benefits of the proposed changes include enhancement of the groundwater protection as well as of the public health and safety.

Businesses and Entities Affected. There are about 20 operators and approximately 200 contractors and subcontractors in the Commonwealth's gas and oil industry with a heavy focus on natural gas. Majority of the drilling is conducted by a few very large operators. Remaining operators, all of the contractors and subcontractors are believed to be small businesses.

Localities Particularly Affected. The proposed changes particularly affect Lee, Wise, Dickenson, Buchanan, Scott, Russell, and Tazewell counties as all of the current drilling activity occurs in these counties. The proposed changes may also affect Essex, Caroline, King and Queen, Westmoreland, and King George counties as gas and oil drilling activity may start there in the future.

Projected Impact on Employment. The proposed amendments are anticipated to increase the demand for labor from operators and DMME in terms of filing of additional reports, plans, attending meetings, but are unlikely to significantly affect employment.

Effects on the Use and Value of Private Property. The proposed amendments are unlikely to significantly affect the use and value of private property.

Small Businesses: Costs and Other Effects. The proposed amendments are anticipated to introduce additional small administrative and sampling costs for the gas and oil operators. Though there are only a few large operators, they perform the majority of the drilling in the Commonwealth. The costs and other effects on small business operators are the same as discussed above.

Small Businesses: Alternative Method that Minimizes Adverse Impact. There is no known alternative method that would have a smaller impact and accomplish the same goals as the proposed changes.

Real Estate Development Costs. The proposed amendments are unlikely to affect real estate development costs.

Legal Mandate.

General: The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with § 2.2-4007.04 of the Code of Virginia and Executive Order Number 17 (2014). Section 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the report should include but not be limited to:

- the projected number of businesses or other entities to whom the proposed regulation would apply,
- the identity of any localities and types of businesses or other entities particularly affected,
- the projected number of persons and employment positions to be affected,
- the projected costs to affected businesses or entities to implement or comply with the regulation, and
- the impact on the use and value of private property.

Small Businesses: If the proposed regulation will have an adverse effect on small businesses, § 2.2-
4007.04 requires that such economic impact analyses include:

- an identification and estimate of the number of small businesses subject to the proposed regulation,
- the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the proposed regulation, including the type of professional skills necessary for preparing required reports and other documents,
- a statement of the probable effect of the proposed regulation on affected small businesses, and
- a description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation.

Additionally, pursuant to § 2.2-4007.1, if there is a finding that a proposed regulation may have an adverse impact on small business, the Joint Commission on Administrative Rules is notified at the time the proposed regulation is submitted to the Virginia Register of Regulations for publication. This analysis shall represent DPB's best estimate for the purposes of public review and comment on the proposed regulation.

1 FracFocus is a chemical disclosure registry maintained by the Ground Water Protection Council and the Interstate Oil & Gas Compact Commission. The registry offers its disclosure services free of charge to oil and natural gas industry.

Agency's Response to Economic Impact Analysis: The Department of Mines, Minerals and Energy concurs with the economic impact analysis conducted by the Department of Planning and Budget.

Summary:
The Department of Mines, Minerals and Energy (DMME) proposes to (i) amend permit application requirements to include disclosure of all ingredients anticipated to be used in hydraulic fracturing operations, certification that the proposed operation complies with local land use ordinances, inclusion of a groundwater sampling and monitoring plan, and submission of an emergency response plan; (ii) require a pre-application meeting jointly conducted by the DMME and the Department of Environmental Quality before an operator drills for gas or oil in Tidewater Virginia; (iii) require well operators to use FracFocus, the national hydraulic fracturing chemical registry website, to disclose the chemicals used in hydraulic fracturing operations; (iv) establish a groundwater sampling, analysis, and monitoring program before and after well construction; (v) add language related to the use of centralizers in the water protection string of the casing; (vi) strengthen casing and pressure testing requirements for well casings used in conventional and coalbed methane gas wells; and (vii) provide protection for trade secrets from public dissemination while allowing this information to be made available to first responders and local officials in the event of an emergency.

Again, it should be noted that if first responders do not receive information as to the chemical used until there is an accident, then they may not have the necessary equipment and training to deal with a dangerous situation. FracFocus is a great tool that is easily accessible by the public. The same cannot be said for “industry best practices”. Citizens would have no way of knowing which “best practices” sets are being used and may not have access to those “best practices”.