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## Proposed Regulation Agency Background Document

<b>Agency name</b>	Department of Mines, Minerals, & Energy
<b>Virginia Administrative Code (VAC) citation(s)</b>	4 VAC 25 – 150
<b>Regulation title(s)</b>	Virginia Gas and Oil Regulation
<b>Action title</b>	Expanding disclosure of ingredients used in well stimulation and completion and reviewing best practices
<b>Date this document prepared</b>	March 10, 2015

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 17 (2014) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

### Brief summary

*Please provide a brief summary (preferably no more than 2 or 3 paragraphs) of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed. Alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation.*

The Department of Mines, Minerals, and Energy (DMME) is amending provisions of the [Virginia Gas and Oil Regulation](#) to expand the disclosure requirements of ingredients used in well stimulation and to ensure that the regulations reflect current industry best practices. To assist in this effort, DMME formed a Regulatory Advisory Panel (RAP) consisting of a wide variety of stakeholders. Representatives from industry, environmental groups, other state agencies and local government participated on the RAP. All RAP meetings were open to the public and DMME created a [webpage](#) and e-mail list to keep the public informed of the RAP's progress. The RAP offered fourteen recommendations, thirteen of which have been incorporated in the proposed regulations. The last recommendation will be incorporated in a forthcoming guidance document.

Permit application requirements will be amended 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, a groundwater sampling and monitoring plan, and submission of an emergency response plan. This section also requires a pre-application meeting jointly conducted by DMME and DEQ for persons wishing to drill for gas or oil in Tidewater, Virginia.

Well completion report requirements will be amended to include disclosure of ingredients used in fracturing operations on [FracFocus](#), the national hydraulic fracturing chemical registry website. Finally, the proposed regulations will be amended to reflect industry best practices with respect to the use of centralizers and other requirements that enhance well integrity, thus protecting groundwater and public health and safety.

## Acronyms and Definitions

*Please define all acronyms used in the Agency Background Document. Also, please define any technical terms that are used in the document that are not also defined in the “Definition” section of the regulations.*

CBM	Coalbed methane gas (CBM gas)
DEQ	Department of Environmental Quality
DMME	Department of Mines, Minerals and Energy
RAP	Regulatory Advisory Panel

## Legal basis

*Please identify the (1) the agency (includes any type of promulgating entity) and (2) the state and/or federal legal authority for the proposed regulatory action, including the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable. Your citation should include a specific provision, if any, authorizing the promulgating entity to regulate this specific subject or program, as well as a reference to the agency’s overall regulatory authority.*

[§ 45.1-161.3](#) of the Code of Virginia grants DMME the authority to promulgate regulations necessary or incidental to the performance of duties or execution of powers conferred under Title 45.1. [§ 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

*Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Describe the specific reasons the regulation is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.*

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.

## Substance

*Please briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both. A more detailed discussion is provided in the “Detail of changes” section below.*

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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.

The proposed regulations require well operators to use the [FracFocus](#) website 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.

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.

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 CBM 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 DEQ to ensure potential permit applicants understand the requirements of the environmental impact assessment required pursuant to Code of Virginia Section 62.1-195.1.

## Issues

*Please identify the issues associated with the proposed regulatory action, including: 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions; 2) the primary advantages and disadvantages to the agency or the Commonwealth; and 3) other pertinent matters of interest to the regulated community, government officials, and the public. If there are no disadvantages to the public or the Commonwealth, please indicate.*

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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. 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.

### Requirements more restrictive than federal

*Please identify and describe any requirement of the proposal which is more restrictive than applicable federal requirements. Include a rationale for the need for the more restrictive requirements. If there are no applicable federal requirements or no requirements that exceed applicable federal requirements, include a statement to that effect.*

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As there are no applicable federal requirements, there are no requirements in the proposed regulation that are more restrictive than applicable federal requirements.

### Localities particularly affected

*Please identify any locality particularly affected by the proposed regulation. Locality particularly affected means any locality which bears any identified disproportionate material impact which would not be experienced by other localities.*

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Presently, all drilling activity in the Commonwealth occurs in seven counties in far Southwest Virginia: Lee, Wise, Dickenson, Buchanan, Scott, Russell, and Tazewell. Approximately 85,000 acres of land have been leased for potential future drilling activity in Essex, Caroline, King and Queen, Westmoreland and King George counties; however, DMME has not received any applications for a permit in these jurisdictions.

### Public participation

*Please include a statement that in addition to any other comments on the proposal, the agency is seeking comments on the costs and benefits of the proposal and the impacts of the regulated community.*

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In addition to any other comments, DMME is seeking comments on the costs and benefits of the proposal and the potential impacts of this regulatory proposal. Also, the agency is seeking information on impacts on small businesses as defined in § 2.2-4007.1 of the Code of Virginia. Information may include 1) projected reporting, recordkeeping and other administrative costs, 2) probable effect of the regulation on affected small businesses, and 3) description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

Anyone wishing to submit written comments for the public comment file may do so by mail, email or fax to Michael Skiffington, DMME Program Support Manager, 1100 Bank Street, 8<sup>th</sup> Floor, Richmond VA, 23219; 804-692-3212 phone; 804-692-3237 fax; [michael.skiffington@dmme.virginia.gov](mailto:michael.skiffington@dmme.virginia.gov). Comments may also be submitted through the Public Forum feature of the Virginia Regulatory Town Hall web site at: <http://www.townhall.virginia.gov>. Written comments must include the name and address of the commenter. In order to be considered, comments must be received by 11:59 pm on the last day of the public comment period.

At least one public hearing will be held following the publication of this stage and notice of the hearing(s) will be posted on the Virginia Regulatory Town Hall website (<http://www.townhall.virginia.gov>) and on the Commonwealth Calendar website (<https://www.virginia.gov/connect/commonwealth-calendar>). Both oral and written comments may be submitted at that time.

### Economic impact

*Please identify the anticipated economic impact of the proposed new regulations or amendments to the existing regulation. When describing a particular economic impact, please specify which new requirement or change in requirement creates the anticipated economic impact.*

<p><b>Projected cost to the state to implement and enforce the proposed regulation, including:</b>  <b>a) fund source / fund detail; and</b>  <b>b) a delineation of one-time versus on-going expenditures.</b></p>	<p>There will be a negligible, one-time cost to DMME to update its electronic permitting system to reflect the changes in the proposed regulation.</p>
<p><b>Projected cost of the new regulations or changes to existing regulations on localities.</b></p>	<p>\$0. The proposed regulation imposes no new requirements on localities.</p>
<p><b>Description of the individuals, businesses, or other entities likely to be affected by the new regulations or changes to existing regulations.</b></p>	<p>Natural gas drilling operators, contractors, and subcontractors</p>
<p><b>Agency’s best estimate of the number of such entities that will be affected. Please include an estimate of the number of small businesses affected.</b> Small business means a business entity, including its affiliates, that:  a) is independently owned and operated and;  b) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.</p>	<p>About 20 natural gas operators and approximately 200 contractors and subcontractors may be affected by these regulations. It is believed that the majority of the contractors and subcontractors would meet the definition of a small business.</p>
<p><b>All projected costs of the new regulations or changes to existing regulations for affected individuals, businesses, or other entities. Please be specific and include all costs including:</b>  <b>a) the projected reporting, recordkeeping, and other administrative costs required for compliance by small businesses; and</b>  <b>b) specify any costs related to the development of real estate for commercial or residential purposes that are a consequence of the proposed regulatory changes or new regulations.</b></p>	<p>Projected costs are expected to be minimal. Many of the requirements will impose no additional costs on permittees. Additional administrative costs are also anticipated to be minimal as the proposed application and reporting requirements are contained within the existing electronic permitting and reporting systems. For example, some permittees already voluntarily disclose ingredients on FracFocus.</p> <p>Most of the permittees bound by these regulations do not qualify as a small business.</p> <p>There are no costs related to the development of real estate for commercial or residential purposes.</p>
<p><b>Beneficial impact the regulation is designed to produce.</b></p>	<p>The proposed regulation protects public health by requiring disclosure of well stimulation fluids, groundwater baseline testing and monitoring, and pressure testing of casing.</p>

### Alternatives

*Please describe any viable alternatives to the proposal considered and the rationale used by the agency to select the least burdensome or intrusive alternative that meets the essential purpose of the action. Also, include discussion of less intrusive or less costly alternatives for small businesses, as defined in § 2.2-4007.1 of the Code of Virginia, of achieving the purpose of the regulation.*

Through the RAP process, various alternatives were examined. RAP members debated options concerning various aspects of the regulation before achieving consensus and offering recommendations.

One major area of discussion was if and how industry should disclose the ingredients of chemicals used in well stimulation to the public. Some states do not require well operators to disclose the ingredients they use to stimulate wells. Other states require operators to disclose not only all of the ingredients, but the proportions of each ingredient in the mix, including trade secrets. While this alternative may address concerns of members of the public, it can be very costly to companies especially if it means losing the competitive advantage of a trade secret. Other states require a partial disclosure.

DMME drafted the proposed regulations to require operators to upload ingredients used in well stimulation to FracFocus and for DMME to download and maintain that information for its records. Information determined by DMME to be trade secrets would be disclosed only in the event of an emergency. To keep the costs of compliance low and ensure efficiency in the reporting process, the proposed regulations require that the information be uploaded to FracFocus, DMME will work with FracFocus to ensure that members of the general public can only access ingredients and not proportions or recipes that are subject to trade secret protection.

### Regulatory flexibility analysis

*Pursuant to § 2.2-4007.1B of the Code of Virginia, please describe the agency's analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.*

In order to conduct a comprehensive analysis of alternative regulatory measures to balance health and safety along with economic development, DMME convened a RAP consisting of a wide variety of stakeholders. This group convened numerous meetings, all of which were open to the general public. The RAP was provided alternatives from different states and best practice compilations. Thirteen of the RAP's fourteen recommendations were incorporated in the proposed regulations.

One RAP recommendation that simplifies reporting requirements is in the area of chemical disclosure. Under the proposed regulations, operators (many of whom operate in more than one state) are required to disclose ingredients once to FracFocus. DMME will maintain its own copy of the data by automatically downloading it from FracFocus, thus eliminating the need for operators to report the same data to two entities.

The proposed regulations are partly based on a performance standard because they give the operators flexibility to demonstrate, at the discretion of the director, that the cement bond is adequate between the casing of the well and the surrounding rock formation. The flexibility built into the regulations will allow DMME to seamlessly adapt to new technology and best practices to ensure that well integrity is not compromised and public health and safety are protected.

### Periodic review and small business impact review report of findings

*If this NOIRA is the result of a periodic review/small business impact review, use this NOIRA to report the agency's findings. Please (1) summarize all comments received during the public comment period*

following the publication of the Notice of Periodic Review and (2) indicate whether the regulation meets the criteria set out in Executive Order 17 (2014), e.g., is necessary for the protection of public health, safety, and welfare, and is clearly written and easily understandable. In addition, as required by 2.2-4007.1 E and F, please include a discussion of the agency’s consideration of: (1) the continued need for the regulation; (2) the nature of complaints or comments received concerning the regulation from the public; (3) the complexity of the regulation; (4) the extent to which the regulation overlaps, duplicates, or conflicts with federal or state law or regulation; and (5) the length of time since the regulation has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the regulation.

This NOIRA was not the result of a periodic review or a small business impact review.

**Public comment**

Please summarize all comments received during the public comment period following the publication of the NOIRA, and provide the agency response.

Commenter	Comment	Agency response
Odell Owens, Washington County Board of Supervisors	Comment in regard to chemical disclosure: “Your proposed changes to the law pertaining to disclosing the ingredients used in hydraulic fracturing is a very positive change. In our county many people are very concerned about ‘fracking’ mainly because they do not know what ingredients are used. Changing the law should relieve most concerns.”	DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.
Private citizen	Comment in regard to chemical disclosure and hydraulic fracturing: “I support regulations calling for list of ingredients in all wells...We demand ingredients in food so I want to know what is put in the water, the ponds, and the air.  I wish that no hydrofracking were being done. We need to increase opportunities for non fossil fuel energies.”	DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.  The oil and gas regulations do not address non-fossil fuel energy development.

<p>Mary Harshfield</p>	<p>Comments regarding groundwater quality and well integrity:          “The safety of our public water supply is of utmost importance. The public and all state agencies involved have every right to know what goes into the ground since there is no guarantee that the chemicals will not migrate into unintended areas. In fact, it is not a matter of IF water will be contaminated by hydraulic fracking fluid, but WHEN. Even the natural gas industry recognizes that there is a certain failure rate of cement casings that are supposed to contain the fluid.”</p>	<p>DMME agrees that protecting groundwater supplies while developing oil and gas resources is very important to public health and economic development. The proposed regulations establish a groundwater sampling and monitoring program for all wells as well as requirements for well operators to submit documentation to the Department that establishes the quality of the cement bonding between the steel casings and the surrounding geologic formation.</p>
<p>Steven Hopp, Voting Citizen of Virginia</p>	<p>Comment regarding chemical disclosure:          “I encourage the state of Virginia to require disclosure of all chemicals used in fracking, and to make this information available to the public. The nondisclosure rules are devious. If the industry wants to claim the process and the chemicals are safe, then they need to be forthcoming about what they are doing and what chemicals they are using.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>

<p>Karen Shaffer, citizen of Virginia</p>	<p>Comments regarding chemical disclosure:          “I am relieved that DMME is taking comments regarding gas drilling and the issue of disclosing chemicals used in that process.</p> <p>It would do the public no harm, and the citizens and communities a great service, if DMME were to require disclosure of such chemicals.</p> <p>...</p> <p>I like the idea of identifying these additives with their Chemical Abstract Numbers. It needs to be posted in a public forum so we can access it, and emergency responders can access it too. It should be listed at least 72 hours in advance of use.”</p> <p>The commenter also voiced concern over the expansion of drilling operations in Washington County, possible drilling in the George Washington National Forest, and Tidewater Virginia.</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid.</p> <p>Under the proposed regulation, any trade secrets claimed by the industry would be disclosed to DMME, but would not be made public unless an emergency requiring such a disclosure were to occur. First responders are among many individuals who would have quick access to this information.</p> <p>The proposed regulation does not address drilling operations to occur on federal lands. It does require permit applicants interested in drilling in Tidewater, Virginia to meet with DMME and DEQ representatives to discuss the additional permit application requirements for such applications.</p>
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<p>Eric Gregory / King George County</p>	<p>The commenter offered input regarding six topics.</p> <ol style="list-style-type: none"> <li>1) Regulatory action should protect natural resources in the Chesapeake Bay and Tidewater regions of Virginia.</li> <li>2) Regulations should require chemical disclosure (ingredients and blends) to regulatory agencies (FracFocus may be inadequate).</li> <li>3) Regulations should reflect industry best practices.</li> <li>4) Drilling requirements should account for differences in geology that exist between different geographical regions of Virginia.</li> <li>5) Permit applicants should certify that they comply with pertinent local ordinances.</li> <li>6) DMME should not approve gas and oil permit applications until the review of the oil and gas regulations is complete.</li> </ol>	<p>DMME agrees that regulations should require chemical disclosure and require the use of appropriate industry best-practices.</p> <ol style="list-style-type: none"> <li>1) The proposed regulations add a pre-application meeting for permit applicants seeking to start drilling operations in Tidewater, Virginia with both DMME and DEQ to discuss additional statutory and regulatory requirements for drilling in such an environment.</li> <li>2) The proposed regulations require full disclosure to FracFocus (ingredients and blend), however upon request from the well operator, the blend may be deemed a trade secret. If it is afforded trade secret protection, the blend information will not be available to the general public for view unless there is an emergency requiring the information's dissemination.</li> <li>3) The proposed regulations strengthen groundwater monitoring and cement testing requirements.</li> <li>4) Addressed by 1)</li> <li>5) The proposed regulations ask that applicants provide such certification.</li> <li>6) DMME believes that the revised oil and gas regulations will be in place soon enough to ensure that an adequate proportion of wells will need to meet the new requirements.</li> </ol>
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<p>Lyn Snodgrass, Tap Water Drinker</p>	<p>Commenter conveys significant concern with hydraulic fracturing and its impact on groundwater quality:          “There are Hundreds of Complaints of groundwater contamination in the 4 states at the heart of fracking: West Virginia, Pennsylvania, Ohio, and Texas...The Virginian-Pilot article on Jan. 26, 2014 entitled "Fracking in eastern Virginia" points out a lot of horror stories that we can expect after fracking through our huge freshwater aquifer that needs to supply water for the next 200 years...To get to this Virginia Shale Formation between Fredericksburg and Richmond, they have to drill through this huge pool of Fresh Water Aquifer (that we need for the current and future generations of Virginians).”</p>	<p>DMME agrees that protecting groundwater supplies from natural gas or well-stimulation fluid intrusion is important. The proposed regulation requires groundwater baseline sampling and monitoring to ensure that no methane or other harmful or toxic substances are being detected in the groundwater. In addition, the proposed regulations strengthen well integrity requirements.</p>
<p>Sallyanne M. Heltzel</p>	<p>Comments pertaining to chemical disclosure:          “[P]lease make sure chemicals are identified in simple wording and also look deeper at damage to soil, water and landscape.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid.</p>
<p>Brittney Horn, Emory &amp; Henry College Student</p>	<p>Commenter expressed support for chemical disclosure. Landowners have a right to know the kinds of chemicals are being used to stimulate wells close to them, and disclosure will help first responders respond to an emergency.</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid.</p> <p>DMME also agrees that information is critical especially during an emergency, which is why the proposed regulations require well operators to disclose even proprietary blends to DMME. DMME will only disseminate this information in the event of an emergency.</p>

<p>Kathy Selvage, Citizen</p>	<p>Commenter voicing support for chemical disclosure:                  “I strongly support and urge you to mandate and enforce the requirement of divulging the identity of ingredients/chemicals used in the drilling, stimulation, and completion of gas and oil wells. We should, at the very least, identify present and past materials used, and store in a easily identifiable electronic location for public access. The groundwater, springs, wells and drinking water supplies of this nation are at potential risk from unexposed sources currently. Make these public.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>Jamie Tubmen</p>	<p>Commenter in support of chemical disclosure and groundwater protection:                  “I fervently support strong regulation of fracking in Virginia's oil &amp; gas wells. We defin[e]tly need clear and public disclosure of all chemicals which are used in this industry. Please bear in mind the ‘down the road’ cost to water table, infrastructure and public health.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate, and the proposed regulatory action helps provide consistent disclosure practices among different firms in the industry. The groundwater baseline sampling and monitoring requirements and requirements to improve well-integrity reinforce DMME’s and the industry’s commitment to developing Virginia’s oil and gas resources in a safe and responsible way.</p>
<p>Rucker Keister</p>	<p>Commenter in support of disclosure:                  “Until and unless regulators know and evaluate the processes and materials used no-one can be certain it is safe. Taking the word of those who stand to profit from questionable science is bad policy and puts everyone and our environment at risk.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>

<p>Matthew Hepler</p>	<p>Commenter in support of disclosure:                  “Please allow that all chemicals be disclosed in any kind of gas drilling operation, or underground Injection control operation.”</p> <p>The commenter also references incidents in West Virginia and the recent coal ash spill in the Dan River that have impacted the public’s willingness to rely on public water systems.</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency. The proposed regulations were drafted after incorporating concerns from stakeholders as well as reviewing best practices used in other states. DMME believes that the proposed regulations appropriately balance economic development and environmental protection.</p>
<p>Lucy E. Phillips,                  Washington County                  Virginia Attorney</p>	<p>Commenter indicates that Washington County is interested and in the process of developing zoning regulations to govern the siting of natural gas wells. The County is appreciative of DMME’s comments and assistance during the early stages of the process.</p>	<p>DMME believes that local governments are important partners to the responsible development of Virginia’s oil and gas resources. DMME will continue to provide assistance to local governments seeking to redevelop their zoning regulations to manage the development of oil and natural gas resources in their locality.</p>
<p>Beth Bingman</p>	<p>Commenter in support of chemical disclosure:                  “I urge you to strengthen regulations to require companies to disclose the chemicals used in fracking operations. I get my water from a spring that may well be affected by ----- ? Unless companies are required to disclose what they use, I can’t know. In order to make decisions about our water, we need to know what is being injected into wells.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>Rees Shearer</p>	<p>Commenter in support of chemical disclosure:                  “For DMME to exercise adequate regulation, industry must provide full disclosure of chemicals used in drilling and hydraulic fracturing.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>

<p>Judith McBride</p>	<p>Commenter in support of chemical disclosure and baseline water sampling:          “Please demand the full disclosure of ALL chemicals used in gas fracking.”</p> <p>Commenter also expresses the need for baseline groundwater sampling and monitoring that is comprehensive and can detect the chemicals used in well stimulation.</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p> <p>The proposed regulations’ groundwater baseline sampling and monitoring requirements are designed to protect groundwater. In addition, the proposed regulations strengthen well integrity requirements.</p>
<p>James A. Warden,          Citizen of Washington          County</p>	<p>Commenter in support of chemical disclosure:          “We must require full disclosure of all chemicals proposed for use in this process, and fully describe all potential risks to those living near any proposed drilling site.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>Theresa L. Burriss</p>	<p>Commenter in support of chemical disclosure:          “Given the latest scientific studies that attribute certain illnesses in humans and livestock to contaminated water from hydrofacking, it is imperative from a public health perspective for companies to fully disclose the chemicals used in the process. When toxic materials are used where humans and other animals obtain their water, the industry has no right to employ a "trade secret" tactic. Please stand up for what is right and just, not what lines the pockets of a few at the expense of many.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>

<p>Frank Taylor</p>	<p>Commenter in support of chemical disclosure:                  “I request that DMME require all drillers of gas wells divulge all chemicals used in the drilling process including those chemicals that heretofore have not been divulged.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>April Cain</p>	<p>Commenter in support of chemical disclosure:                  “The regulations should require the divulging of heretofore undisclosed chemicals that can affect our water and threaten our communities and way of life.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>Merry Outlaw</p>	<p>Commenter in support of chemical disclosure and groundwater quality monitoring:                  “All citizens deserve to know what is in the water they drink, as well as impacts to health and well being. Please insure that regulations mandate the [divulgence] of all ingredients used in gas and oil well stimulation and completion on permitted gas and oil operations in the Commonwealth.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p> <p>The proposed regulations’ groundwater baseline sampling and monitoring requirements are designed to protect groundwater. In addition, the proposed regulations strengthen well integrity requirements.</p>

<p>Neal Reid</p>	<p>Commenter in support of increased chemical disclosure and measures to protect groundwater quality:          “The prospect of migration of hydrofracturing chemicals into [Virginia’s] drinking water resources is reprehensible. We, as citizens, deserve protection beyond that given to corporations seeking to liquidate our mineral resources. Please protect our water and make disclosure of all chemicals used in any such processes a standard and mandatory process. Damage to our water resources will be [irreversible] and uncleanable, much like the treatment history will give to the politicians who allowed it to go on.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p> <p>The proposed regulations’ groundwater baseline sampling and monitoring requirements are designed to protect groundwater. In addition, the proposed regulations strengthen well integrity requirements.</p>
<p>Archie Abaire</p>	<p>Commenter in support of chemical disclosure:          “Full disclosure should be mandatory as a matter of principle for all chemical substances deposited in the environment where they do not occur naturally or in quantities substantially exceeding their natural occurrences.”</p> <p>The commenter also contends that the costs to industry of complying with full disclosure requirements are less than the costs of “mitigating the harm caused by...such substances that turn out unexpectedly to be problematic.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p> <p>The proposed regulations’ groundwater baseline sampling and monitoring requirements are designed to protect groundwater. In addition, the proposed regulations strengthen well integrity requirements.</p>

<p>Lee F Lykins III, DDS. Resident of Washington Co.</p>	<p>Commenter in support of chemical disclosure: “Countless reports of water contamination from several states and one confirmed earthquake have been directly related to the fracking technique and chemicals used for the last ten years. If we continue to proceed too fast without full disclosure of chemical agents used and without thorough scientific studies of the effects these chemicals have in man and animals just as the FDA evaluates the prescription drugs we consume, we may appear to be as nothing more but greedy fools who have no wisdom.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
<p>Jaculyn Hanrahan, Appalachian Faith &amp; Ecology Center</p>	<p>I strongly support the plan that requires expanding the disclosure requirements of the ingredients used in gas or oil development in Virginia. I also urge...[DMME]... to enforce compliance with the expanded disclosure requirements. I support intended regulatory activity that will consider expanded “disclosure of ingredients used in gas and oil well stimulation and completion” as well as industry best practices for oil and gas development.”</p> <p>The commenter also believes that there should be no exemptions to chemical disclosure, that they should be publicly available, that there should be penalties for a failure to comply, and that this change should “require disclosure of past drilling, stimulation and completion and closure of gas and oil wells.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency. DMME believes that this proposal adequately balances the need of the public to know the nature of the chemical used in well-stimulation while protecting the ability of firms to competitively develop Virginia’s oil and gas resources.</p> <p>Enforcement mechanisms are already in place in the existing regulations.</p>
<p>Ed Davis of Washington County, VA</p>	<p>Commenter in support of chemical disclosure: “The more we all know about the chemical substances being released into our communities, the better chance we have of making good decisions AS a community. Please increase the transparency required of companies in the mining industry.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>

<p>Anthony Flaccavento, Abingdon Organics Farm</p>	<p>Commenter in support of chemical disclosure: “[T]he gas companies should fully disclose the chemicals they use in the process, and be subject to rigorous water and air pollution regulations.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. Proprietary data will be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p>
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<p>DMME received this identical comment form 209 individuals. Additionally, 70 other individuals submitted substantially similar comments.</p>	<p>209 comments in support of chemical disclosure and inter-agency consultation to study hydraulic fracturing:</p> <p>“I am writing to urge the Department of Mines, Minerals and Energy to require full disclosure of chemicals used by the oil and gas industry in Virginia. This disclosure is in line with industry best practices; residents deserve to know what chemicals are being used in their communities. No waiver should exist for ‘trade secrets.’</p> <p>Additionally, I urge the Department to participate in a multi-agency study (along with the Department of Environmental Quality) to assess the impacts of hydraulic fracturing on the environment, transportation, the economy, and other areas in Tidewater Virginia. Neighboring states have recently rushed to use fracking technology but did not adequately examine the consequences of their actions on local communities. They are now, in hindsight, trying to deal with the pollution impacts. The Commonwealth of Virginia must be thorough in its study of this extraction technology prior to allowing it to occur in Tidewater. Our water resources are critical and must be protected.</p> <p>Also current pollution protections should be reviewed thoroughly to ensure they adequately preserve the quality and quantity of surface and ground water resources. The Department of Environmental Quality, in conjunction with the State Water Control Board, should be the lead agency on the review of current protections. Throughout this entire process, the public should be fully informed and allowed the opportunity to participate.</p> <p>Thank you for your consideration.”</p>	<p>DMME agrees that requiring the disclosure of chemicals used in well-stimulation is appropriate. The proposed regulations require operators to disclose the chemicals they are using in their well-stimulation fluid on an online repository that is searchable and that can be downloaded by members of the general public. There will be no “waivers” for trade secrets. Trade secrets (the specific blend or mix of the fluid) will still be reported, but will be held by DMME unless its dissemination is necessary to respond to an emergency.</p> <p>Understanding the environmental and health impacts of resource extraction on local communities is also very important, which is why DMME will require permit applicants to certify compliance with local land use ordinances. The high-volume hydraulic fracturing used to access deep shale formations in Pennsylvania and other neighboring states does not occur in Virginia. 80% of the natural gas wells are relatively shallow CBM wells that do not use as much water as the operations in neighboring states do. A potentially viable shale formation may exist in Tidewater, Virginia, but well operators and applicants by statute would be required to seek permits from DMME and DEQ, and those permits would only be issued, if at all, after extensive collaboration between these two and other state agencies.</p> <p>DMME also agrees that protecting groundwater resources from contamination is an important responsibility. The proposed regulations include groundwater baseline sampling and monitoring requirement that are designed to ensure that no methane or other harmful or toxic substances are being detected in the groundwater. In addition, the proposed regulations strengthen the testing requirements to ensure that cement bonding is adequate. DMME believes that when taken together, these two measures will protect Virginia’s water resources.</p>
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## Family impact

*Please assess the impact of this regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one’s spouse, and one’s children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.*

The proposed regulatory actions will have no impact on the institution of the family.

## Detail of changes

*Please list all changes that are being proposed and the consequences of the proposed changes; explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation. If the proposed regulation is a new chapter, describe the intent of the language and the expected impact. Please describe the difference between existing regulation(s) and/or agency practice(s) and what is being proposed in this regulatory action. If the proposed regulation is intended to replace an emergency regulation, please list separately: (1) all differences between the pre-emergency regulation and this proposed regulation; and 2) only changes made since the publication of the emergency regulation.*

<b>Current section number</b>	<b>Proposed new section number, if applicable</b>	<b>Current requirement</b>	<b>Proposed change, intent, rationale, and likely impact of proposed requirements</b>
4VAC25-150-10	N/A	Section defines terms used in the regulation	Multiple definitions are added to enhance clarity and to support other additions to the regulation.
4VAC25-150-30	N/A	Relation of regulations to other laws and regulations	This addition specifies that the regulations will not remove the obligation of a permittee to abide by local land use ordinances. This specification was added for clarity.
4VAC25-150-80	N/A	Specifies information required in application for a permit	This section contains additional requirements for permit applications: pre-application meeting for applicants seeking a permit to drill in Tidewater Virginia; applicant certification to abide by local land use ordinances; list of ingredients anticipated to be used in hydraulic fracturing operations; a plan to monitor groundwater quality; a spill prevention, control and countermeasure plan if one is required; and an emergency response plan. These requirements were added to protect the environment and public health and safety.

N/A	4VAC25-150-95	This section does not currently exist	This section details the requirements for the groundwater baseline sampling and analysis program.
4VAC25-150-100	N/A	Specifies requirements of an operations plan to be submitted with the application for a drilling permit	This section specifies that the use of centralizers is to be included in the operations plan and that the use of centralizers is subject to the approval of the director. This requirement is added to enhance well integrity.
4VAC25-150-110	N/A	Additional requirements regarding permit supplements and modifications	This addition provides that a permit supplement is necessary when the ingredients used or expected to be used in the hydraulic fracturing process are different from what was submitted in the application and that permit modifications for wells in Tidewater Virginia may require additional material that needs to be submitted to DMME and DEQ. This ensures that DMME will receive the most current information with respect to chemical disclosure and environmental impact analyses.
4VAC25-150-160	N/A	Specify the approval of permits and permit modifications by the Director	The edits to this section clarify that no permit or permit modification for drilling a well in Tidewater Virginia can be approved until after DMME has collaborated with DEQ. This is a codification of an existing <a href="#">Memorandum of Agreement</a> between the two agencies.
4VAC25-150-280	N/A	Provides the additional requirements for the necessary logs and surveys	This section requires permittees to run a cement bond log for the water protection string unless other documentation is submitted. This language is added to enhance well integrity requirements.
4VAC25-150-300	N/A	Additional requirements regarding pits near gas wells	This section adds a requirement that pits must be enclosed by fencing to secure the pit from members of the public and wildlife. This requirement was added to protect public health and safety.
4VAC25-150-340	N/A	Requirements for water quality testing prior to drilling and disclosure of drilling fluids	This section modifies the radius from the drilling location of the groundwater characterization from 500 feet to a quarter-mile to be consistent with the baseline groundwater testing/monitoring program. This change was made for clarity and consistency.

4VAC25-150-360	N/A	Other drilling and completion reports necessary up well completion	The section requires that the well completion reports must include cement bond logs or similar documentation that certifies the quality of the cement job subject to approval by the director, required in 4VAC25-150-280(C). Requiring the submission of the logs will allow DMME to ensure wells are constructed appropriately.
N/A	4VAC25-150-365	This section does not currently exist	This new section provides for the disclosure of well stimulation fluid; the department will retain the disclosure and make it public with the exception that trade secrets will not be made public except in case of an emergency. This requirement was added to promote transparency and for environmental protection.
N/A	4VAC25-150-535	This section does not currently exist	This section adds extra testing requirements for the pressure of casings in conventional oil and gas wells. These requirements enhance well integrity.
4VAC25-150-610	N/A	Section designates depth requirements for CBM well casings	This section clarifies that the provisions governing water protection strings do not apply to gob wells. Gob wells are unique to one area of the Commonwealth where these requirements are not necessary.
N/A	4VAC25-150-615	This section does not currently exist	This section adds extra testing requirements for the pressure of casings in CBM gas wells. These requirements enhance well integrity.