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Final Regulation Agency Background Document

Agency name	Department of Mines, Minerals and Energy
Virginia Administrative Code (VAC) citation(s)	4 VAC 25-150
Regulation title(s)	Virginia Gas and Oil Regulation
Action title	Expanding disclosure of ingredients used in well stimulation and completion and reviewing best practices
Date this document prepared	September 13, 2016

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 of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed.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.

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

Statement of final agency action

Please provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.

On September 13th, 2016, DMME adopted the changes to the Virginia Gas and Oil Regulation.

Legal basis

Please identify the state and/or federal legal authority to promulgate this proposed regulation, including: 1) the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable; and 2) promulgating entity, i.e., agency, board, or person. Your citation should include a specific provision authorizing the promulgating entity to regulate this specific subject or program, as well as a reference to the agency/board/person'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 final regulation also appropriately reflects 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.

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 final regulation requires 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 final regulation also contains 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 final regulation establishes 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 final regulation. 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 regulation requires 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.

The final 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 as required by the Virginia Gas and Oil Act. Maintaining that balance is the primary advantage of the final 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.

As there are no applicable federal requirements, there are no requirements in the final 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.

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.

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 final regulation will have no impact on the institution of the family.

Changes made since the proposed stage

*Please list all changes that made to the text of the proposed regulation and the rationale for the changes; explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation. *Please put an asterisk next to any substantive changes.*

Section number	Requirement at proposed stage	What has changed	Rationale for change
30	Language added to	The word “applicable” has been	To provide additional

	specify that a permittee shall comply with local land use ordinances	added.	clarity. Gas and oil operations are primarily regulated at the state level, but some local ordinances may be applicable and the intent of the change is to clarify that permittees are bound to comply with those applicable ordinances.
80(A)(3)	Pre-application meeting requirement for drilling in Tidewater	Adjoining localities shall also receive notice of pre-application meeting, not just the locality where the proposed activity would take place.	This language was added to reflect stakeholder input.
80(C)(3)	Certification from applicant the proposed operation complies with all local land use ordinances	The word "applicable" was added.	See rationale for Section 30 above.
80(C)(7)	Applicant shall submit list of ingredients anticipated to be used in any hydraulic fracturing operations.	Language was added to specify that applicant should identify any ingredients called to be trade secrets and DMME will determine they are entitled to that protection. Language was also added to reflect a July 1, 2017 effective date for this requirement.	This language was added to reflect stakeholder input and to reflect and fully implement recommendations offered by the RAP.
110(A)(2)	Permittees shall submit permit supplements when ingredients expected to be used differ from that which was submitted with the original application.	The words "used or" were stricken. Trade secret language similar to that added in 80(C)(7) was added to this section.	The words "used or" are unnecessary. The regulations already require disclosure of ingredients on the completion report, filed after the fracturing process has taken place.
280(C)	Cement bond log requirement	Language was added to clarify that permittees may request to submit documentation demonstrating an effective bond between casing and the formation.	Language was added for clarity and consistency with Section 360(B).
365(B)	Chemical disclosure registry	Language was added requiring DMME to obtain and maintain data submitted to the chemical disclosure registry.	This language was added to reflect stakeholder input.
365(C)	Protection of trade secrets	Language was added to clarify the criteria DMME will use to determine if an ingredient or combination of ingredients are entitled to trade secret protection.	This language was added for clarity and to reflect stakeholder input. It restates existing law.
365(D)	Circumstances under which trade secrets may be disclosed.	Language was added requiring DMME to notify the trade secret claimant or holder when disclosures are made.	This language was added to reflect stakeholder input.
365(F)	Effective date for this	Language was added specifying a	This language was

	section.	July 1, 2017 effective date for this session.	added to fully implement the recommendation of the RAP with respect to protection of trade secrets.
535(D)(1) & 615(D)(1)	Notification requirement prior to conducting casing pressure test.	Language was added requiring the notification to be submitted electronically.	This language was added to reflect stakeholder input.

Public comment

Please summarize all comments received during the public comment period following the publication of the proposed stage, and provide the agency response. If no comment was received, please so indicate. Please distinguish between comments received on Town Hall versus those made in a public hearing or submitted directly to the agency or board.

THE AGENCY RESPONSE TO COMMENTS RECEIVED CAN BE FOUND AT THE END OF THIS DOCUMENT.

19 Comments were received on Town Hall

Town Hall Commenter	Summary of Comments
RC Gray	The DMME staff is well equipped to manage the implementation of gas and oil exploration in the Commonwealth, according to the existing laws and public interest.
Joy Loving, Stephen Fisher, William Johnson,	A comprehensive interagency review is necessary before any permits are issued. The proposed regulations should be strengthened to further protect the environment.
Thomas Savage	The commenter opposes fracking
J. Harrison Daniel	The commenter believes that fracking in the Coastal Plain should not be undertaken at the present time.
Lena Seville	I am in favor of greater transparency and the full disclosure of ingredients used in hydraulic fracturing.
Robert Johnsen	I strongly urge the State of Virginia to ban the fracking process.
Anna Smith	I believe at this time no exploration, drilling, stimulation or fracking should be allowed in the Coastal Plain.
Nancy Stockner	While I can support some of these regulations, I would like to point out that several of these proposed regulations do nothing more than solve hypothetical problems and add unnecessary costs to an industry operating with a proven safety and environmental record for decades.
Virginia Arnold	Please do whatever you can to stop the ACP from being built through the karst terrain of Augusta and Highland Counties. I know the DMME knows better. I cannot understand how this route proposal was allowed to get as far as it has. The breakthrough technology of today is solar and wind. Horizontal Fracturing is a destructive, gluttonous process and should not be pursued.

Suzanne Keller	Disclosure of toxic chemicals used in fracking is simply not enough. You should be drafting regulations to ban Fracking. That is the only moral option.
King George County Board of Supervisors	DMME should finalize the proposed regulations and amend them to allow for greater local government authority, increased bonding requirements, and greater disclosure requirements.
Brenda Hynson	Does not support fracking in the Taylorsville Basin
King George County Planning Commission	The proposed regulations should be strengthened to further protect the Potomac Aquifer from contamination.
Sue Long, Concerned Citizens	Fracking has been proven to be a safe procedure and is responsible for our gasoline prices being so low, as well as a boost to employment and should be supported at every opportunity.
Lawrence D. Perry	I suggest that DMME require that in any hydraulic fracture operation, the location of the leading edge of the fractures be monitored in real time. And if the fracture is observed to be getting close to the aquifers, then the hydraulic fracture operation be stopped to protect the freshwater aquifers from any potential contamination.
Whitney Whiting, Blue Ridge Environmental Defense League	The currently proposed regulations for oil and gas drilling in Virginia would not protect citizens from even the most minor effects of this hazardous practice. They would instead allow a cascading series of harmful practices to compound already existing realities of climate change, sea level rise, land subsidence, and greenhouse gas emissions that would have game-changing effects on the state of Virginia as a whole

COMMENTS E-MAILED DIRECTLY TO DMME, SUBSTANTIALLY SIMILAR COMMENTS HAVE BEEN GROUPED TOGETHER.

Commenter	Summary of Comments
897 citizens sent an e-mail that was completely or substantially identical.	A comprehensive review of Virginia’s regulations is essential in light of extensive new scientific and medical information about the risks that modern fracking poses to our air, water, land and health. I urge you to complete a comprehensive review of gas drilling regulations before any permits for shale fracking are considered.
Ms. S. A. Shepherd	Ms. Shepherd stated her opposition to hydraulic fracturing.
Stephen Despres	I completely agree that the business of fracking does need regulatory oversight including the disclosing of all substances being injected. I disagree that King George county should be able to stop the business in the manner that they are doing so.
Gem Bingol, Piedmont Environmental Council; Erin Shehane; Kate Wofford, Shenandoah Valley Network; John Hutchinson; Trieste Lockwood, Virginia Conservation Network; John Eckman, Friends of the North Fork of the Shenandoah River; Richard Moncure, Friends of the Rappahannock; Mark Frondork,	The draft regulations are a step in the right direction, but DMME should maintain a separate disclosure registry, reduce water consumption, and eliminate the use of wastewater pits.

Shenandoah Riverkeepers;	
J. Harrison Daniel	Commenter submitted comments via e-mail were virtually identical to that submitted via Town Hall
George M. Neall, III	Fracking should not be permitted in Virginia
Sallyanne Mumpower-Heltzel	DMME should consider halting all drilling and fracking in Washington County, VA.
Karen Shaffer	Ms. Shaffer e-mailed a copy of her comments that she delivered at the Lebanon public hearing. They are summarized below.
Lewis Lawrence, Middle Peninsula Planning District Commission	Local governments will incur costs. Groundwater testing should be expanded. The amendments lack any regulatory limitation on groundwater withdrawals.
Al Mueller, Range Resources	Commenter does not support the regulations
Jerry Davis, Northern Neck Planning District Commission	Comments virtually identical to those submitted by King George County via Town Hall
Sue Delos	Commenter believes proposed regulations are a good start but should go further in many areas.
Linda Burchfiel	No drilling permits should be granted until a comprehensive interagency review has taken place. The regulations should go farther.
Virginia O'Brien	Commenter is concerned that fracking could cause a tsunami.
Greg Kozera, C&J Energy Services	Cement bond log requirements are unnecessary and do not protect groundwater.
John Taylor, Noah Horn Well Drilling; Justin Phillips, Appalachian Energy; Joseph Moore, Appalachian Production Services; Justin Wallace, Appalachian Production Services; Brad Farmer; Jesse Prater; Josh Moore; Jonathan Moore; Darrell Cordill; Curtis White; Charlie Wood, Noah Horn Well Drilling	Facts not hypotheticals need to govern this process. Regulations which do nothing more than solve hypothetical problems and add unnecessary costs to an industry operating with a proven safety and environmental record for decades can have an impact on thousands of very real Virginia jobs, and the very real families they support.
Gerry Kirkpatrick, Environmental Standards, Inc.	Groundwater requirements should take site specific circumstances into account.
Margaret Gregg	Regulations are inadequate in many areas
Steve Tompkins, Caroline County	Commenter is concerned about earthquakes caused by fracking
Virginia Association of Counties	VACo supports responsible policies that enable natural gas extraction while protecting agricultural and water resources. VACo expressed concerns regarding issues of locality involvement.
John Bloom, Virginia Sierra Club	The comments reflect the Sierra Club's belief that the regulations do not go far enough to protect the environment.
Michael Ward, Virginia Petroleum Council/American Petroleum Institute	The commenter expressed concerns that areas of the regulations were excessively burdensome.
Frances Schutz	The commenter supports the regulations.
Denise Mosca	The commenter generally supports additional disclosure and groundwater testing requirements, but states that DEQ should be involved in permitting decisions in Tidewater Virginia.
Larry Korte	The commenter expressed concerns regarding earthquakes and groundwater issues in Pennsylvania and Oklahoma.
Lee De Cola	The commenter expressed concerns regarding fracking and called for a comprehensive review of regulations.
Liz Ronston, Chesapeake Bay	The commenter believes the new requirements will help ensure

Foundation (CBF)	the state meets its required pollution reduction goals and keep the public informed of applications in the region.
Steven Buffone, Consol Energy	The commenter believes the regulation goes too far with respect to local involvement, the requirements for groundwater testing.
Kevin Miller, EnerVest	EnerVest supports and agrees with the comments supplied by Range Resources and the Virginia Oil and Gas Association
Lydia Sinemus, Range Resources	The commenter believes the regulations go too far with respect to requirements for groundwater testing and cement bond logs. The commenter also noted a pre-drilling list of ingredients anticipated to be used would not be meaningful.
Nikki Rovner, The Nature Conservancy	The Nature Conservancy supports many of the requirements in the proposed regulations but would like to see additional requirements related to storage of drilling fluids and testing of surface waters.
Robin Broder, Waterkeepers Chesapeake	A comprehensive interagency review should be completed before any additional permits are issued. Additional requirements should be added to the proposed regulations.
Frank Henderson, Appalachian Energy	The industry is already well regulated. Additional requirements are designed to prevent problems that don't exist in Virginia.
Kristin Davis, Southern Environmental Law Center	The proposed regulations are a significant improvement and should be finalized, but DMME needs to go further.
David Clarke, Virginia Oil and Gas Association	VOGA appreciates DMME's efforts to strike a balance that protects all interests of the Commonwealth and its citizens. In many regards, that balance is achieved with the proposed regulations, but some requirements impose unwarranted burdens on the industry.
Whitney Whiting, Blue Ridge Environmental Defense League	BREDL asserts that the proposed regulations are pitifully inadequate to protect against the myriad of well-documented harmful effects occurring in other parts of the country due to hydraulic fracturing.

**COMMENTS SUBMITTED AT PUBLIC HEARINGS
LEBANON October 20, 2015**

Commenter	Summary of Comment
Juanita Sneeuwjagt, Committee for Constitutional and Environmental Justice	The commenter expressed concern for potential risks to water, air, and property values from natural gas operations.
Cathy St. Clair, Consol Energy	The commenter believes the proposed regulations are a solution in search of a problem and doesn't believe they are necessary.
Jonathan Hess, Consol Energy	Comprehensive regulations are already in place, there is no need for additional regulations.
Leon Boyd, Noah Horn Drilling	The industry is already regulated enough. The impact on jobs should be considered.
Tony Matney	Additional regulations are not necessary.
Lydia Sinemus, Range Resources	The proposed groundwater testing regulations are premature and counterproductive.
Al Mueller, Range Resources	The proposed cement bond log requirement is extremely costly and unnecessary. A visual observation of cement return is sufficient.
Sonny Ciampanella, Consol	The industry has a proven track record of safety. Additional regulations are unnecessary and unduly burdensome.
Greg Kozera, C&J Energy	Hydraulic fracturing has led to decreased gasoline prices. Any additional, costly regulations will result in job losses.
Kathy Selvage	It is unconscionable to have different standards for different regions of the state. We are one commonwealth.

Beth Stockner, Virginia Oil and Gas Association	VOGA believes in a balance between environmental protection and economic development. The proposed regulations are a solution in search of a problem.
Karen Shaffer,	Modern drilling practices are flawed. Baseline groundwater testing is necessary and requirements should go further.
Justin Phillips, Appalachian Energy	The proposed regulations are burdensome and are a solution in search of a problem.

DAHLGREN November 2, 2015

Commenter	Summary of Comment
Bill Johnson, Sierra Club	Public health impacts of hydraulic fracturing should be studied. Virginia should move towards solar and wind energy and away from natural gas.
Diana Johnson, Sierra Club	Drilling in the Taylorsville basin would be much different than drilling in Southwest Virginia. Strong regulations are important and necessary.
Linda Muller, Sierra Club	The proposed regulations are wholly inadequate to protect the Potomac Aquifer
Becky Yates	The Clean Water Act exemption must be removed so that hydraulic fracturing can be regulated at the federal level.
Kathryn Willis	Water quality and quantity issues are very important. Concerned about where water used in fracturing operations would come from, and how it would be disposed.
Cathy St. Clair, Consol Energy	The industry is already well regulated, the proposed regulations are a solution in search of a problem.
Beth Stockner, Virginia Oil and Gas Association	Ms. Stockner reiterated her comments from the Lebanon public hearing described above.
Richard Moncure, Friends of the Rappahannock	The proposed regulations are a step in the right direction, but more should be done to limit environmental impacts and protect the Chesapeake Bay.
Josh Colwell, King George County Planning Commission	The proposed regulations should require full disclosure of hydraulic fracturing ingredients. The Tidewater region is very different from Southwest Virginia and the bonding requirements should reflect that difference.
John Bloom, Sierra Club	Public health impacts should be examined. No permits should be issued until a comprehensive multi-agency review is undertaken.
Whitney Whiting, Blue Ridge Environmental Defense League	Full disclosure of ingredients used in hydraulic fracturing should be required. A multi-agency study is necessary.
David Clarke, Virginia Oil and Gas Association.	Existing regulations are sufficient for Southwest Virginia and the Tidewater region. VOGA members voluntarily disclose ingredients on FracFocus currently. The energy industry creates jobs and unnecessary regulations will result in job losses.
Mike Cumbie	Disclosure of ingredients is necessary. Transparency is important. Bonding amounts are inadequate.
Kathy Waltermire	The proposed regulations are a step in the right direction.
Ms. Ball	The question of local authority is a gray area and should be clarified. Two different Attorneys General authored two different opinions.

RICHMOND November 3, 2015

Commenter	Summary of Comment
Joe Wood, Chesapeake Bay Foundation	The proposed regulations are a step in the right direction. More steps should be taken to decrease the amount of water used in hydraulic fracturing operations.
Kristin Davis, Southern	The proposed regulations are a step in the right direction and should

Environmental Law Center	be finalized. The regulations should be strengthened to reflect the risks inherent in high volume hydraulic fracturing and horizontal drilling.
Trieste Lockwood, Virginia Conservation Network	The proposed regulations are a step in the right direction but DMME should maintain a separate state registry, and take further steps to reduce the amount of water used in the hydraulic fracturing process.
Hannah Wiegard, Appalachian Voices	Tight regulations are necessary. The proposed regulations are an improvement but more should be done to protect the environment.
Drew Gallagher, Chesapeake Climate Action Network	An inter-agency human health study is necessary and more stringent regulations are necessary to protect the environment.
Cathy St. Clair, Consol Energy	Ms. St. Clair reiterated her remarks from the Dahlgren public hearing summarized above.
David Clarke, Virginia Oil and Gas Association	Mr. Clarke reiterated his remarks from the Dahlgren public hearing summarized above.
Beth Stockner, Virginia Oil and Gas Association	Ms. Stockner reiterated her remarks from the Dahlgren public hearing summarized above.
Jonathan Hess, Consol Energy	The natural gas industry is very important to Southwest Virginia. The industry is already very well regulated, and further regulations are not necessary.

All changes made in this regulatory action

Please list all changes that are being proposed and the consequences of the proposed changes. Describe new provisions and/or all changes to existing sections. Explain the new requirements and what they mean rather than merely quoting the proposed text of the regulation

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change, intent, rationale, and likely impact of proposed requirements
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 applicable 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 Memorandum of Agreement 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.

DMME AGENCY RESPONSE TO PUBLIC COMMENT

The mission of the Department of Mines, Minerals and Energy (DMME) is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner to support a more productive economy. The balance inherent in the agency's mission is also reflected in the Gas and Oil Act, the legislation that provides the authority for this regulatory action. DMME received over 1,000 comments on the proposed amendments to its Gas and Oil Regulation, the overwhelming majority of which were direct e-mails.

The comments received generally fell into two categories. Of the 962 e-mails, 896 were completely or virtually identical in calling for a "comprehensive review of fracking regulations". Additionally, 736 e-mails of a similar nature were received after the public comment period closed. These commenters also believed the proposed regulation should have imposed more stringent environmental protection requirements upon permittees, though some commenters indicated the proposed additional requirements were a good step forward.

The second category of comments received generally reflected the opinion that the proposed regulations were too stringent and that the proposed changes would have an adverse economic impact on the natural gas industry and Southwest Virginia. These commenters believed that Virginia has had a long history of safe natural gas production and that further regulation was not necessary.

DMME appreciates all comments received and the final regulation represents a balance between the two perspectives generally presented in the comments. DMME believes the need for a lengthy and costly comprehensive review of fracking regulations is not justified by the evidence. Over 99% of permitted sites have no off-site environmental impacts. Fracking has occurred safely in Southwest Virginia for over 50 years. However, DMME believes that disclosure of ingredients used in hydraulic fracturing operations is an important safeguard and the final regulation requires this disclosure.

DMME also believes further regulation is necessary to protect groundwater resources. Establishing a baseline and requiring testing after each new well is completed provides that protection. Similarly, regulations requiring the use of centralizers and the pressure testing of casing will enhance well integrity by decreasing the chances that gas will escape the wellbore.

DMME incorporated several stakeholder inputs into the final regulation. While there is no indication of any near or long term activity, if pre-application meetings are scheduled in the Tidewater region, DMME will provide notice of the meetings to adjoining localities in addition to the jurisdiction where the proposed drilling would take place. DMME added language to clarify that permittees have a duty to comply with applicable local land use ordinances.

With respect to trade secrets, DMME added clarifying language specifying the criteria that would be used to determine if trade secret protection should be afforded to ingredients used in the hydraulic fracturing process. Language was also added to allow operators to request trade secret protection for ingredients listed on pre-drilling submissions. Finally, stakeholder input

was incorporated by adding language to require operators to notify DMME electronically before conducting pressure testing of casing.

DMME thanks the members of the Regulatory Advisory Panel for their assistance in crafting these regulations. 13 of the RAP's 14 recommendations were incorporated in the final regulation. The last recommendation will be incorporated into a forthcoming guidance document. DMME also thanks each citizen who submitted comments. This feedback is important in assisting the agency in carrying out its mission.