

Department of Legislative Services
Maryland General Assembly
2015 Session

FISCAL AND POLICY NOTE

House Bill 952 (Delegate Lam, *et al.*)
Environment and Transportation

Public Health - Hydraulic Fracturing Chemicals - Information and Fund

This bill requires an applicant for a permit to hydraulically fracture a well to submit to the Department of Health and Mental Hygiene (DHMH) information about the chemicals to be used in hydraulic fracturing, as well as other specified information. DHMH must provide access to this information to specified entities, including the Maryland Poison Center, specified public health professionals that submit a statement of need for the information, and a health care provider who requests the information as a result of a patient that may have been injured by a chemical used in hydraulic fracturing. The information may be shared by a health care provider with other specified parties. The bill establishes a fee to be paid by a party submitting the required information and a fund supported by fee revenues to be used to address the potential health risks associated with chemicals used in hydraulic fracturing, among other things. The bill also establishes a civil penalty for submitting false information or otherwise violating the bill's information submission requirements; penalty revenues are directed to the new fund. DHMH must adopt regulations to implement the bill.

Fiscal Summary

State Effect: General and/or special fund expenditures may increase beginning in FY 2016 for DHMH to hire additional personnel to implement the bill to the extent that any applications for permits to hydraulically fracture a well are submitted. Special fund expenditures from the new fund may increase beginning in FY 2016 for the provision of financial assistance for individuals injured by hydraulic fracturing chemicals. Special fund revenues may increase from the collection of fees and penalties established by the bill. General and/or special fund revenues associated with general economic activity may decrease to the extent that the bill reduces development of gas resources that would occur in the absence of the bill, as discussed below.

Local Effect: Local severance tax revenues and other revenues associated with general economic activity may decrease for Allegany and Garrett counties, beginning in FY 2016, to the extent that the bill reduces development of gas resources that would occur in the absence of the bill, as discussed below.

Small Business Effect: Potential meaningful.

Analysis

Bill Summary:

Information Submission and Other Requirements

An applicant for a permit to hydraulically fracture a well must submit to DHMH information relating to each chemical constituent or material, including proppants and engineered nanomaterials that will be used in the hydraulic fracturing of the well, including specified information about each chemical or material. The applicant must also report the location of the portion of the well in which the hydraulic fracturing will take place, the anticipated extent of the fractures or other modifications to the shale or underground geologic formation, specified health and safety data relating to the chemicals that will be used, and information on chemical changes or reactions that may occur as a result of the hydraulic fracturing of the well.

DHMH must provide access to the chemical information collected under the bill to the Maryland Poison Center, specified public health professionals who submit a written statement of need, and a health care provider – on request – who suspects a patient may have an illness or injury caused by a chemical used in hydraulic fracturing. A health care provider may share the information as professionally necessary, including with the patient, any other health professional involved in the treatment of the patient, a family member of the patient if the patient is unable to make medical decisions or is a minor, and the U.S. Centers for Disease Control and Prevention or other government public health agency. A health care provider, health professional, or government agency must maintain that information and patient medical records in accordance with any law or regulation relating to confidentiality.

DHMH must establish an educational program for health care providers on the potential health risks associated with chemicals used in hydraulic fracturing. DHMH must also adopt regulations to implement the bill.

A person that knowingly or recklessly submits false information required by the bill, or that otherwise violates the information submission requirements of the bill, is subject to a civil penalty of up to \$100,000 for each violation.

New Fee and Fund

The bill requires DHMH to establish a fee by regulation to be paid by an entity submitting the information required by the bill. The fee must be based on the cost to DHMH of establishing the educational program required by the bill, the potential public health and safety risk of injury or illness from chemicals used in hydraulic fracturing, and the administrative costs of implementing the bill.

The bill also establishes a Hydraulic Fracturing Chemical Education and Impact Fund, administered by DHMH, to address the potential health risks associated with chemicals used in hydraulic fracturing. The fund consists of revenues from the fee and penalties established by the bill, as well as other appropriations in the State budget, investment earnings – which may not revert to the general fund – and money from any other source. The fund may be used only for financing the required educational program, providing financial assistance to a person that has an illness or injury caused by a chemical used in hydraulic fracturing, and DHMH's reasonable administrative costs.

Current Law/Background:

Current Oil and Gas Regulations

A person must obtain a permit from the Maryland Department of the Environment (MDE) before drilling a well for the exploration, production, or underground storage of gas or oil in Maryland. An applicant that wants to extract gas from the Marcellus Shale may also be required to apply for a number of other State environmental permits.

MDE regulates gas exploration and production and has broad authority to impose conditions on permits to protect the State's natural resources and to provide for public safety. Further, MDE may deny a permit based on a substantial threat to public safety or a risk of significant adverse environmental impact. However, current MDE oil and gas regulations were written prior to the use of high-volume hydraulic fracturing and, as of February 2015, have not been revised since 1993. These regulations apply to all gas wells in Maryland, are not specific to the practice of hydraulic fracturing, and in some cases, are incompatible with modern industry practices.

Chapter 383 of 2010 established an Oil and Gas Fund to support MDE's administration of a regulatory program that oversees the drilling, development, production, and storage of oil and gas wells in the State. Under Chapter 383, MDE is required to set and collect permit

and production fees at a rate necessary to, among other things, develop and implement regulations to address the risks to public safety, human health, and the environment from oil and gas well drilling and development. Regulations that set various fees and otherwise establish a regulatory regime for the development of the Marcellus Shale were published in the January 9, 2015 issue of the *Maryland Register*.

Proposed Oil and Gas Regulations

Under the proposed regulations, a permit applicant must prepare a comprehensive gas development plan (CDP) before applying for a permit to drill a well. Following the submission of a CDP, an application for a drilling and operating permit must include, among other things, an environmental assessment (including an assessment of public health impacts) and two years of baseline monitoring of surface water, groundwater, and the air in the vicinity of the well pad, as well as detailed plans for activities associated with drilling, such as a site restoration plan, and a spill prevention, control, and countermeasure plan. After an application is deemed complete by MDE, public notification of the application and opportunity for a public hearing is provided. The regulations also establish numerous technical and engineering standards and criteria for well drillers and others involved in the process of hydraulic fracturing.

The proposed regulations also describe the requirements for chemical disclosure in depth, including the process of protecting trade secret data and confidentiality when distributing such data to specified individuals, such as health care and public health professionals. A company making the claim of trade secrecy must provide MDE with contact information and be available 24 hours per day, 7 days per week to provide the trade secret information to authorized individuals.

Marcellus Shale Safe Drilling Initiative

Governor Martin O'Malley established the Marcellus Shale Safe Drilling Initiative by executive order in June 2011 to ensure that, if drilling for natural gas from the Marcellus Shale proceeds in Maryland, it is done in a way that protects public health, safety, natural resources, and the environment.

In preparation for completion of the final report of the Marcellus Shale Safe Drilling Initiative, MDE and the Department of Natural Resources commissioned a public health study on the effects of Marcellus Shale development by the Maryland Institute for Applied Environmental Health of the University of Maryland. The public health study included public scoping meetings to set study boundaries and objectives; a baseline assessment of current regional population health, including demographics, causes of morbidity and mortality, local health priorities, vulnerable populations, local health care and social infrastructure; an impact assessment of potential public health impacts, including hazards

and known health impacts both directly and indirectly associated with hydraulic fracturing; and a final report of the study findings, monitoring and assessment recommendations, and public health response and mitigation strategies. The final report contained 52 recommendations for addressing the potential risks to public health. The report was reviewed by several academic experts and elicited dozens of comments by individuals and other organizations.

More information on the practice of hydraulic fracturing, the Marcellus Shale, the Marcellus Shale Safe Drilling Initiative, and the recently submitted oil and gas exploration and production regulations may be found in the **Appendix – High-volume Hydraulic Fracturing in the Marcellus Shale**.

State Expenditures: General and/or special fund administrative expenditures may increase by \$157,627 in fiscal 2016 to the extent that DHMH hires personnel beginning January 1, 2016, following any issuance of permit applications by MDE for hydraulic fracturing in the Marcellus Shale (following the potential adoption of MDE regulations). DHMH advises that, if permit applications are approved, then it needs one public health laboratory chemist to evaluate chemical information and data submitted by permit applicants; one community health educator to develop and conduct the educational outreach program required by the bill; and one program administrator and office secretary responsible for all administrative aspects of the bill’s implementation. Additionally, DHMH advises that one nurse may be needed by July 1, 2016 (fiscal 2017), to evaluate any claims of compensation for injuries or illnesses to the extent that hydraulic fracturing has occurred prior to that date.

	<u>FY 2016</u>	<u>FY 2017</u>
New Positions	4	1
Salaries and Fringe Benefits	\$139,317	\$346,194
Start-up and Operating Expenses	<u>18,310</u>	<u>7,091</u>
Total DHMH Administrative Expenditures	\$157,627	\$353,285

Future year expenditures reflect full salaries with annual increases and employee turnover as well as annual increases in ongoing operating expenses.

Although the bill requires that DHMH establish fees to cover its administrative costs, fee revenues may not be available for a portion, or the entirety, of fiscal 2016 or 2017, and may not be sufficient to cover the initial personnel and administrative costs. Thus, it is assumed that initial expenditures are covered at least in part by general funds.

This estimate does not account for any expenditures associated with the payment of financial assistance to a person injured by a chemical used in hydraulic fracturing, as

authorized by the bill. It is unknown how many such injuries may occur in any fiscal year or how much assistance may be provided, as discussed further below.

The impacts described above may begin in future years, rather than in fiscal 2016, depending on when permit applications are first approved by MDE.

State Revenues: Special fund revenues increase to the new fund as a result of the fee established by DHMH to cover its administrative costs and to provide financial assistance to those injured by chemicals used in hydraulic fracturing. A reliable estimate of the fee revenues cannot be made due to uncertainty regarding the timing and frequency of permit applications received by MDE, the effect that the bill may have on the industry (as discussed further below), the level of financial assistance provided to those injured by hydraulic fracturing chemicals, and the level of fees established by DHMH – including any future changes to the fees.

The Marcellus Shale Safe Drilling Initiative Advisory Commission and related State agencies commissioned a study of the economic impacts of natural gas production from high-volume hydraulic fracturing in the Marcellus Shale, which was recently completed by the Regional Economic Studies Institute (RESI) of Towson University. RESI has developed several scenarios used for modeling future economic and fiscal impacts of Marcellus Shale development. **Exhibit 1** shows the number of wells that might be drilled under a low- and high-extraction scenario, which is based on a recent U.S. Geological Survey resource projection and several additional assumptions.

As shown in the exhibit, RESI assumes that the initial extraction of gas does not occur until fiscal 2017, although the application for, and approval of, permits may occur in fiscal 2016. For purposes of this fiscal and policy note, it is assumed that the permit application for each of the wells represented in Exhibit 1 is received in the prior fiscal year (thus, beginning in fiscal 2016), along with the fee required by the bill.

Given the estimated range in the number of wells to be drilled, and the personnel and other administrative costs discussed above, the level of fee established by DHMH might need to be set at a minimum of \$4,400 in fiscal 2016 to cover administrative costs if 36 permit applications are received (based on high-extraction scenario); if the low-extraction scenario is used instead, then, based on an assumption that 8 permit applications are received, DHMH might need to establish a fee of at least \$19,700. In order to establish a prudent fund balance, and in anticipation of injury claims to the fund that may occur once drilling commences, the fee may initially be set toward the upper-end of this range.

Exhibit 1
Estimated Number of Wells and Production for Each Extraction Scenario
Fiscal 2016-2026

<u>Fiscal Year</u>	<u>Low-extraction Case Wells</u>	<u>High-extraction Case Wells</u>
2016	0	0
2017	8	36
2018	16	72
2019	29	63
2020	22	54
2021	18	63
2022	15	42
2023	12	36
2024	12	36
2025	12	36
2026	6	12
Total	150	450

Note: This fiscal and policy note assumes that the permit application for each well is received in the fiscal year prior to the year that drilling commences.

Source: Regional Economic Studies Institute, Towson University

Because the bill also requires the fee to be set to provide financial assistance to those injured by hydraulic fracturing chemicals, the fee must be set at an even higher level the following year. Such financial assistance may be needed as early as fiscal 2017, once drilling has commenced. As noted, the amount of financial assistance to be paid each year, if any, is highly uncertain. However, *for illustrative purposes only*, using the estimated administrative expenses and projected number of wells to be drilled, as discussed above, and further assuming \$100,000 in financial assistance is provided from the fund each year based on any injury claims, then the fee may need to increase to between about \$6,300 and \$28,300 in fiscal 2017 (based upon the low- and high-extraction scenarios discussed above). DHMH may have greater certainty in setting the fees for fiscal 2017 based on the actual number of permit applications received in fiscal 2016. It should be noted that, if financial assistance provided by the fund exceeds \$100,000 per year, the fee may need to be significantly higher than described in this estimate.

Any increase in special fund revenues from the assessment of penalties established by the bill cannot be reliably estimated but may be significant, given the maximum penalty of \$100,000.

Finally, it should be noted that the bill's disclosure requirements, fees, penalties, and other restrictions may result in fewer permit applications for development of the Marcellus Shale than would otherwise occur in the absence of the bill. Thus, general and special fund revenues associated with general economic activity may decrease, likely no earlier than fiscal 2017, to the extent that the bill delays or prevents the development of natural gas resources that would otherwise occur in the absence of the bill.

Local Fiscal Effect: Local revenues associated with general economic activity, as well as local severance tax revenues, may decrease, likely no earlier than fiscal 2017, to the extent that the bill delays or prevents the development of natural gas resources that would otherwise occur in the absence of the bill. This estimate assumes that a permit could be issued in fiscal 2016, although, as noted above, MDE likely must adopt new regulations before any permits may be issued. Further, the bill's disclosure requirements may affect the willingness of some natural gas production companies to operate in Maryland, even after any new regulations are adopted.

Small Business Effect: The bill may have a meaningful adverse impact on small businesses engaged in providing services related to hydraulic fracturing and the development of natural gas resources to the extent the bill prevents or delays such development. The bill may have a meaningful beneficial impact on small businesses in Western Maryland reliant upon tourism to the extent that the development of natural gas resources would impact the levels of tourism in the area; however, any such impact is unclear.

Additional Information

Prior Introductions: HB 1030 of 2014 received a hearing in the House Environmental Matters Committee, but no further action was taken.

Cross File: None.

Information Source(s): Garrett County, Maryland Department of the Environment, Department of Health and Mental Hygiene, Regional Economic Studies Institute, Maryland Institute for Applied Environmental Health, Department of Legislative Services

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Appendix – High-volume Hydraulic Fracturing in the Marcellus Shale

The Marcellus Shale formation is a geologic feature that has attracted significant attention from the energy industry for its rich natural gas and liquids resources contained within seven states. In Maryland, the only anticipated areas of potential gas production are in Garrett and western Allegany counties. Applications for permits to produce natural gas in Maryland using horizontal drilling and high-volume hydraulic fracturing were first filed with the Maryland Department of the Environment (MDE) in 2010, but were subsequently withdrawn.

Concerns Regarding High-volume Hydraulic Fracturing

As the use of hydraulic fracturing has increased, so has concern about its potential impacts. MDE has advised that, although accidents are relatively rare, exploration for and production of natural gas in nearby states have resulted in injuries, well blowouts, releases of fracturing fluids, releases of methane, spills, fires, forest fragmentation, road damage, and evidence of water contamination.

In 2010, the U.S. Environmental Protection Agency (EPA) raised several concerns regarding the impact of hydraulic fracturing on water supplies, water quality, and air quality, among other issues, and is currently examining the practice more closely. In April 2012, EPA adopted a final rule to address air emissions from hydraulic fracturing, and in December 2012, EPA released a progress report on its comprehensive study of hydraulic fracturing impacts on water resources; a full draft report is expected to be released for public comment and peer review in 2015, although a series of peer-reviewed studies of various aspects of hydraulic fracturing have been published and are publicly available on the agency's website. Other states, academic and environmental organizations, and the oil and gas industry are also conducting research into the impacts of hydraulic fracturing on public health, safety, and the environment. On December 17, 2014, Governor Andrew M. Cuomo of New York prohibited the practice of high-volume hydraulic fracturing in New York State following the release of a multi-year study conducted by the State's Department of Health that recommended a ban until sufficient information on the risks of the practice became available.

Marcellus Shale Safe Drilling Initiative

Governor Martin O'Malley established the Marcellus Shale Safe Drilling Initiative by executive order in June 2011 to ensure that, if drilling for natural gas from the Marcellus Shale proceeds in Maryland, it is done in a way that protects public health, safety, natural resources, and the environment. The executive order directed MDE and the Department of Natural Resources (DNR) to assemble and consult with an advisory commission.

Specifically, the executive order tasked MDE and DNR, in consultation with the advisory commission, with conducting a three-part study and reporting recommendations.

Part I of the study, a report on findings and recommendations regarding sources of revenue and standards of liability for damages caused by gas exploration and production, was released in December 2011. The findings and recommendations of the report led to the introduction of several bills during the 2012 legislative session; the General Assembly passed only one of the bills, however. Chapter 703 of 2012 (House Bill 1123) established a presumptive impact area applicable to areas around a well for which MDE has issued a gas exploration or production permit. In a presumptive impact area, it is presumed that the contamination of a “water supply” was caused by the activities of gas exploration or production; this presumption may be rebutted.

Part II of the study – a report on best practices – was completed in August 2013 and reflected changes made after consideration of more than 4,000 public comments. This report was based upon work conducted by two experts at the University of Maryland Center for Environmental Science, Appalachian Laboratory. The experts provided MDE and DNR with a suite of recommendations that have been used or studied in other states. The departments considered each recommended best practice and decided, in consultation with the advisory commission, which practices to accept. While the report contained many recommendations, the centerpiece was the use of a Comprehensive Gas Development Plan (CDP), which a drilling applicant would be required to submit as a prerequisite to an individual well permit. A CDP would address, before any well is drilled, the broad and cumulative issues associated with the completion of numerous wells and the effects that the well construction and resource extraction and transportation would have on a large scale.

The third and final report required by the executive order was scheduled to be released by August 1, 2014. However, the departments released a draft report on July 11, 2014, and announced that public comments would be accepted through November 17, 2014. A draft of the final report of the Marcellus Shale Safe Drilling Initiative Study was released on November 25, 2014, and contained information from a risk assessment, a public health study, and an economic impact study commissioned by the departments. The final report contained all final findings and recommendations and addressed all remaining issues identified by the executive order.

The report incorporated findings from the risk assessment, including several impacts that were characterized as high, moderate, or low risks. Impacts identified as high-risk include (1) road repair costs; (2) disruptive noise and vibrations from truck traffic; (3) temporary and localized air emissions during the drilling process (under a “high-extraction” development scenario only); and (4) ecosystem fragmentation from pipeline development (high-extraction scenario only). The report also identified several moderate risks,

including (1) air emissions from combustion equipment, well pads, pipelines, and trucks; (2) ecological and agricultural impacts from land clearing; (3) community health and safety impacts from a significant increase in truck traffic; (4) the effect on aquatic ecosystems from large water withdrawals; (5) land fragmentation from the construction of natural gas gathering lines; and (6) exposure of dissolved methane to drinking water wells and groundwater. The characterization of a risk as “low,” “moderate,” or “high” results from a weighing of both the probability of an event’s occurrence and its severity. Ultimately, the departments concluded that the risks to public health and the environment can be adequately managed under a stringent regulatory regime that relies on the best practices identified in their report. MDE subsequently developed such regulations, which were published in the *Maryland Register* on January 9, 2015.