



Comments on Proposed COMAR 26.19.01-.58 Oil and Gas Exploration and Production

Thank you for the opportunity to comment on the proposed regulations for oil and gas exploration and production (published in the Maryland Register, Volume 42, Issue 1, Friday, January 9, 2015). Please accept these comments on behalf of Earthworks. Founded in 1988, Earthworks is a national nonprofit organization dedicated to protecting communities and the environment from the impacts of energy development while seeking sustainable solutions. Core aspects of our work include investigating and documenting the effects of oil and gas development on health and persistent gaps in the enforcement of oil and gas regulations.

Earthworks greatly appreciates Maryland's efforts to develop strong regulations *before* high-volume hydraulic fracturing operations would be permitted—a step that many other states have neglected to take. However, **we strongly caution the Maryland Departments of the Environment (MDE) and Natural Resources (DNR) from presuming that the adoption of strong regulations alone will protect Marylander's health and the environment.** While these new regulations are critical measures, they are only as effective as their enforcement.

MDE must have the funds, staff, and other resources necessary to fully oversee the gas industry. This applies to planning reviews and inspections during all phases of exploration, extraction, production, transport, and clean up—which must be adequately supported *prior to* moving forward with gas development. In addition, MDE (in collaboration with other agencies such as the U.S. Environmental Protection Agency, Maryland Department of Health and Mental Hygiene, and DNR) must have the ability to collect from operators the information needed to enforce regulations, respond to citizen concerns, conduct inspections and investigations, and take action to stop violators.

26.19.10 Fees Associated with Seismic Permits and Drilling and Operating Permits

MDE currently has only three oil and gas inspectors on staff. This severe level of understaffing makes effective oversight and regulatory enforcement impossible. While MDE intends the permit fees in 26.19.10 to fund new hires, it is essential the Department not grant a permit¹ until a sufficient number of inspectors are hired and trained and their equipment procured.

Instead, the Department must have the entire enforcement apparatus already in place before the first drill bit strikes ground. If MDE relies solely on permit fees, the Department will be positioning itself to play regulatory “catch up” with the commencement of drilling activities—and resulting environmental and public health damage. The Department risks falling behind before it has the opportunity to deploy a regulatory program and put new regulations into practice.

Earthworks raises this critical point based on our experience documenting gaps in oil and gas regulations and lapses in their enforcement. In 2012, Earthworks issued a groundbreaking report, *Breaking All the Rules: The Crisis in Oil & Gas Regulatory Enforcement*, based on in-depth analysis of data on the regulatory programs of six states (Colorado, New Mexico, New York, Ohio, Pennsylvania, and Texas).

Our research showed that nationwide, more than half of active oil and gas wells go completely uninspected each year and companies are seldom held accountable for regulatory violations.² We also found that when inspectors do go looking, they find problems—a clear indication that more violations and other environmentally damaging incidents occur than is ever documented by regulatory agencies.

Environmental Assessment and Baseline Monitoring 26.19.17

We strongly support the Department’s proposal to require permit applicants to submit two years of baseline monitoring of the surface water, ground water, and air in the vicinity of the well pad.³

The Departments should define “vicinity” for baseline testing at least as stringent as that set out in Maryland’s presumption of liability law⁴, which presumes operator liability for water contamination within 2,500 feet of gas and oil wells. Emerging science would justify an even longer distance, particularly given the long distances of laterals used for horizontal drilling. For example, Duke University researchers have found methane levels 6 times higher and ethane levels 23 times higher in drinking water wells that are less than one kilometer (0.6 miles) from shale gas wells than in water wells that are further away.⁵

Stormwater 26.19.23

We strongly support the requirement of stormwater runoff prevention when fuels or chemicals are at well sites. However, we suggest that this proposed regulation require that operators follow their approved stormwater management plan during all phases of oil and gas activities, including well drilling, pad construction, plugging, closure, and reclamation.

From start to finish, operation of a well site can last years. Following a stormwater management plan only during production phases⁶ risks the likelihood that contaminated runoff will pollute the waters of the state. It would also allow operators to avoid responsibility for preventing stormwater runoff during periods when wells are idled but sites have not yet been re-vegetated and restored.

Sediment and Erosion Control 26.19.24

We strongly support the Department’s proposals to control sediment and erosion from the well pad in accordance with state law.

Chemical Use, Storage, and Handling 26.19.28

We strongly support the Department’s proposal to prohibit the use of diesel fuels in hydraulic fracturing.⁷ A recent report by the Environmental Integrity Project revealed at least 33 companies drilled 351 wells in 12 states using prohibited diesel fuels in violation of the Safe Drinking Water Act.⁸

Management of Drilling Fluids, Stimulation Fluids and Produced Water 26.19.43

We appreciate the Department’s proposed requirement for the use of closed-loop systems for management of drilling fluids, cuttings, flowback, and produced water. This is a well-established “best practice;” for example, the Center for Sustainable Shale Development states that operators “shall contain drilling fluid and flowback water in a closed loop system at the well pad, eliminating

the use of pits for all wells.”⁹ Making closed-loop systems a requirement will help Maryland avoid the soil and water contamination problems that have occurred in many states due to the use of open pits and impoundments.

We also support requiring operators to recycle 90% of the flowback and produced water on site.¹⁰ However, this regulation should clarify that the 90% standard applies to wells for refracturing, rework, and workover.¹¹ The final regulation should remove the word “demonstrates” from 26.19.43(C) and replace it with “certifies.”

Industry frequently states that much of the water used in current operations is recycled, and that recycling will help solve the problem of intensive water use and waste creation that are an inherent part of high-volume hydraulic fracturing operations. If this is true, operators should have no trouble reaching the 90% recycling threshold.

However, an operator’s ability to recycle fluids diminishes over time because of increasing concentrations of salts and chemicals. As a result, MDE runs the risk that operators will claim impracticability because it is costly or more difficult to treat and process wastewater than to dispose of it—in turn risking the generation of large volumes of waste with concentrated levels of contaminants.

Accordingly, MDE should also establish a mechanism for operators to report the volumes of recycled water that is used in operations (as is currently done in other states, including Pennsylvania, West Virginia, and Colorado). MDE should further specify the kind of supporting documentation (e.g., site location or stage of production) necessary to certify whether 90% recycling is impracticable.

Flaring 26.19.45

We strongly support the Department’s proposal to require 98% flaring efficiency.¹² This is essential to reducing emissions of volatile organic compounds that have been demonstrated to harm the health of residents near operations and to minimize methane emissions that contribute to climate change.

Wastes and Wastewater 29.19.52

This proposed regulation should delete the categorical exemption that oil and gas exploration and production (E&P) wastes enjoy from the federal Resource Conservation and Recovery Act (RCRA).¹³ With the exemption removed, MDE should require hazardous waste determinations¹⁴ in wastewater testing, i.e., for toxicity, ignitability, flammability, and corrosivity characteristics.¹⁵

Unfortunately, much remains unknown about the characterization of oil and gas E&P wastes because of their RCRA exemption.¹⁶ However, EPA has concluded, “It is clear that some portions of both the large-volume and associated waste would have to be treated as hazardous if the Subtitle C exemption were lifted.”¹⁷ MDE and DNR reiterated this position in their *Draft Partial Responses to Comments On Draft Best Practices Report*:

*Looking at the situation in 2014, we note that some flowback and produced water from HVHF (high volume hydraulic fracturing) contain some constituents at greater than 100 times drinking water standards. **If the exemption were not in place, it is possible that these wastes would qualify as hazardous.** When these wastes are mismanaged, they have the potential to cause damage.* (Emphasis

added.)¹⁸

This view is also supported by documentation of flammability, toxicity, and ignitability levels high enough to trigger RCRA requirements for E&P wastes, were it not for the exemption. This includes a 2009 study analyzing constituents of flowback in West Virginia and Pennsylvania that detected both barium and known carcinogens such as benzene, toluene, ethylbenzene, and xylene in excess of their regulatory thresholds for toxicity.¹⁹

In 2002, the California Department of Toxic Substances Control found 11% of oil waste samples tested exceeded ignitability regulatory thresholds.²⁰ As early as 2003, federal regulators became aware that E&P wastes do spontaneously combust. In January of that year, a Texas collection pit of E&P waste ignited when hydrocarbon vapors interacted with sediments and water in the pit.²¹ In May 2006, a natural gas condensate tank and pit operated by EnCana caught fire and burned for five hours.²² In April 2010, a wastewater impoundment in Washington County, PA ignited reportedly shooting flames 100 feet in the air.²³

In addition, we strongly recommend that MDE not allow onsite disposal of drill cuttings,²⁴ which implies burial. MDE clearly recognizes that drill cuttings have radioactive content; even if it is at “background levels,” disposal onsite would allow for low-level radioactive waste to be deposited at shallow depths, potentially leaching into groundwater and surface water sources and agricultural soils.

The EPA defines Naturally Occurring Radioactive Material (NORM) to be materials that are “undisturbed,” and Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) as “materials that have been concentrated or **exposed to the accessible environment** as a result of human activities.”²⁵ (Emphasis added.) MDE should follow the federal definition pertaining to radioactive content and not allow far weaker standards—and risky practices—for the disposal of drill cuttings than for other wastes.

A recent report on TENORM in drilling wastes by the Pennsylvania Department of Environmental Protection states, “Because landfills accept natural gas industry wastes such as drill cuttings and treatment sludge that may contain TENORM, there is a potential for leachate from those facilities to also contain TENORM.”²⁶ This same concern would apply to cuttings disposed of at well sites.

In addition, cuttings are laced with drilling fluids made up of toxic chemicals that, if contained in any other waste form, would not be acceptable for onsite disposal. Maryland should require operators to remove *all* drilling waste for proper handling and disposal.

Conclusion

Earthworks disagrees with the Department’s conclusion that the proposed regulations, when fully enforced, will protect Maryland residents from unacceptable risks.²⁷ Even with a fully mature enforcement capacity and the changes suggested above, Marylanders would still face damage to their environment and public health. There are few places more poorly suited to accommodate drilling activities than Garrett and Allegany Counties—a region with an economic base greatly dependent on its rural character and natural beauty.

We note that the Maryland Institute for Applied Environmental Health (MIAEH) analysis of public health risks from gas development in 2014 is predicated not only on the state’s adoption of strong

regulations, but also the widespread use by operators of Best Management Practices (BMPs) and submission of a Comprehensive Gas Development Plan (CGDP) that would include all foreseen exploration and production activities.

Yet even with the presumption that all these strong protective measures would be in place, MIAEH concluded that there is a High or Moderately High Likelihood that all aspects but one (earthquakes) would be negatively impacted by unconventional natural gas development (i.e., air, water, and soil quality, noise, social determinants, occupational exposures, health infrastructure, and cumulative exposures). This speaks to the essentially unequivocal risk posed by natural gas development, an inherently polluting process.

Any form of this heavy industrial activity in Western Maryland will inevitably create unacceptable levels of risk. We therefore urge the Departments not to issue any drilling permits under this Subtitle.

Respectfully submitted,



Aaron Mintzes
Policy Advocate, Earthworks
1612 K St., NW #808
Washington, DC 20006



Nadia Steinzor
Eastern Program Coordinator, Earthworks
PO Box 149, Willow, NY 12495



Bruce Baizel
Energy Program Director, Earthworks
P.O. Box 1102 Durango, CO 81302

¹ Proposed COMAR 26.19.08 and 26.19.09

² Earthworks 2012. *Breaking All the Rules: The Crisis in Oil and Gas Regulatory Enforcement*. See national overview and state-specific reports at <http://enforcement.earthworksaction.org>.

³ Proposed COMAR 26.19.17(A)

⁴ HB 1123 became law in 2012.

⁵ Robert B. Jackson, Avner Vengosh, Thomas H. Darrah, et al. *Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction*. Proceedings of the National Academy of Sciences of the United States of America, June 2013.

⁶ Proposed COMAR 26.19.23 (C)

⁷ Proposed COMAR 26.19.28(B)

⁸ Fracking Beyond the Law: Despite Industry Denials, Investigation Reveals Continued Use of Diesel in Hydraulic Fracturing found at <http://environmentalintegrity.org/archives/6940>

⁹ CSSD. Performance Standards and Regulatory Standards across the Appalachian Basin. Water Standards. 2014.

¹⁰ Proposed COMAR 29.19.43(C)

¹¹ As defined in proposed COMAR 29.19.01 (B)(73, 74, and 95)

¹² Proposed COMAR 26.19.45 (C)(1)

¹³ Maryland has incorporated the federal exemption in to state regulations. COMAR 26.13.02.04-1(A)(5)

¹⁴ COMAR 26.13.03.02

¹⁵ If the Hazardous Waste Determination reveals that the wastewater exhibits any of the characteristics identified in COMAR 26.13.02.10—14, then all requirements of Title 26 Subtitle 13 Chapter 3 should apply.

¹⁶ See “Loopholes for Polluters” fact sheet. Earthworks 2011.

www.earthworksaction.org/library/detail/loopholes_for_polluters.

¹⁷ US Environmental Protection Agency. “Regulatory Determination for Oil and Gas and Geothermal Exploration, Development, and Production Wastes.” *Federal Register*, Volume 53, 1988.

www.epa.gov/osw/nonhaz/industrial/special/oil/ogreg88.txt.

¹⁸ Marcellus Shale Safe Drilling Initiative Study, Draft Partial Response to Comments On Draft Best Practices Report, April 2014, Classification of wastes under the Resource Conservation and Recovery Act (RCRA)

¹⁹ T. Hayes. *Sampling and Analysis of Water Streams Associated with the Development of Marcellus Shale Gas*, Gas Technology Institute, report prepared for the Marcellus Shale Coalition. December 2009.

<http://energyindepth.org/wp-content/uploads/marcellus/2012/11/MSCcommission-Report.pdf>

²⁰ Claudia Zagrean Nagy, California Dep’t of Toxic Substances Control, Oil, Exploration and Production Wastes Initiative (2002) at 36

²¹ U.S. Dep’t of Labor, Occupational Safety and Health Admin., Potential Flammability Hazard Associated with Bulk Transportation of Oilfield Exploration and Production (E&P) Waste Liquids, SHIB 03-24-2008. It is possible also that this incident might meet the RCRA standard for reactivity.

²² Earthworks Oil & Gas Accountability Project, Spring/Summer 2006 Report

²³ Janice Crompton, *Residents Reported Gas Odors Before Explosion*, Pittsburg Post-Gazette, Apr. 1, 2010 at B-1

²⁴ Proposed COMAR 29.19.52 (G).

²⁵ US EPA. Technical Report on Technologically Enhanced Naturally Occurring Radioactive Materials from Uranium Mining, Volume 2. 2008.

²⁶ PermaFix Environmental Services for PADEP. Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study Report. 2015.

²⁷ See Executive Order 01.01.2011.11 June 6, 2011