

Proposed Action on Regulations

Transmittal Sheet PROPOSED OR REPROPOSED Actions on Regulations	Date Filed with AELR Committee	TO BE COMPLETED BY DSD
		Date Filed with Division of State Documents
		Document Number
		Date of Publication in MD Register

1. Desired date of publication in Maryland Register: 11/14/2016

2. COMAR Codification

Title Subtitle Chapter Regulation

26 19 01 .01-.61

3. Name of Promulgating Authority

Department of the Environment

4. Name of Regulations Coordinator

pre-filled

Telephone Number

pre-filled

Mailing Address

1800 Washington Blvd.

City	State	Zip Code
Baltimore	MD	21230

Email

pre-filled

5. Name of Person to Call About this Document

Jeffrey Fretwell

Telephone No.

410-537-3537

Email Address

jeffrey.fretwell@maryland.gov

6. Check applicable items:

New Regulations

Amendments to Existing Regulations

Date when existing text was downloaded from COMAR online: 09-02-2015.

Repeal of Existing Regulations

Recodification

Incorporation by Reference of Documents Requiring DSD Approval

Reproposal of Substantively Different Text:

: Md. R

(vol.) (issue) (page nos) (date)

Under Maryland Register docket no.: --P.

7. Is there emergency text which is identical to this proposal:

Yes No

8. Incorporation by Reference

Check if applicable: Incorporation by Reference (IBR) approval form(s) attached and 18 copies of documents proposed for incorporation submitted to DSD. (Submit 18 paper copies of IBR document to DSD and one copy to AELR.)

9. Public Body - Open Meeting

OPTIONAL - If promulgating authority is a public body, check to include a sentence in the Notice of Proposed Action that proposed action was considered at an open meeting held pursuant to State Government Article, §10-506(c), Annotated Code of Maryland.

OPTIONAL - If promulgating authority is a public body, check to include a paragraph that final action will be considered at an open meeting.

10. Children's Environmental Health and Protection

Check if the system should send a copy of the proposal to the Children's Environmental Health and Protection Advisory Council.

11. Certificate of Authorized Officer

I certify that the attached document is in compliance with the Administrative Procedure Act. I also certify that the attached text has been approved for legality by **Stephanie Cobb Williams**, Assistant Attorney General, (telephone #410-537-3040) on **September 22, 2016**. A written copy of the approval is on file at this agency.

Name of Authorized Officer

Benjamin H. Grumbles

Title

Secretary of the Environment

Telephone No.

410-537-4187

Date [DATE OF SIGN-OFF]

Title 26

DEPARTMENT OF THE ENVIRONMENT

Subtitle 19 Oil and Gas Resources

29.19.01 Oil and Gas Exploration and Production

Authority: Environment Article, §14-103, Annotated Code of Maryland

Notice of Proposed Action

□

The Secretary of the Environment proposes to repeal existing Regulations **.01 – .15** and adopt new Regulations **.01–.61** under **COMAR 26.19.01 Oil and Gas Exploration and Production**.

Statement of Purpose

The purpose of this action is to update the regulations governing the exploration and production of oil and gas to address technologies that were not typically employed in Maryland when the existing regulations were adopted, including hydraulic fracturing and horizontal drilling. Section 14-107.1 of the Environment Article, Annotated Code of Maryland, requires the Department to adopt regulations to provide for the hydraulic fracturing of a well for the exploration and production of natural gas in the State. Section 14-105 of the Environment Article requires the Department to establish fees on the issuance and renewal of drilling and operating permits. The proposed action fulfills both of these requirements. The proposal will ensure that any exploration and production of oil and gas, including from the Marcellus Shale, is conducted in a manner protective of public health, safety, the environment, and natural resources. Specifically, the proposed action addresses the following:

- Protection of drinking water sources through requirements for drilling, well and well pad construction, integrity and pressure testing, storage of chemicals, setbacks and location restrictions, baseline and ongoing water quality monitoring, and replacement of a water supply in the event of contamination due to oil or gas exploration or production activities;
- Protection of aquatic habitat through requirements related to stormwater management, well pad design and storage of chemicals, water withdrawals, setbacks from streams and wetlands, and a prohibition on drilling within the watershed of Deep Creek Lake;
- Protection of air quality through requirements for the use of best available technology for control of air emissions, leak detection and repair, and the reporting and offset of methane emissions;
- Public safety through requirements for emergency response planning, prompt notification and cleanup of spills, releases, fires, or other incidents, site security, provision of chemical information to medical personnel, and blowout prevention;

- Public participation opportunities and access to information through comprehensive development planning, the permit review process for each well, and provisions requiring the disclosure of chemical information;
- Proper management of wastes through requirements for closed-loop management and recycling of flowback and produced water, proper disposal, tracking and recordkeeping for wastes that cannot be recycled on site, and a prohibition on disposal of flowback of produced water through underground injection;
- Well plugging and site reclamation through technical standards and deadlines for plugging wells and reclaiming the well site, bonding for each well, and insurance requirements for personal injury, property damage, and environmental pollution; and
- Consistent Department oversight, including by requiring each operator to conduct drilling and hydraulic fracturing of only one well at a time and requiring Department approval of an operator's proposed date to start drilling.

Comparison to Federal Standards

(Check one option)

There is no corresponding federal standard to this proposed action.

or

There is a corresponding federal standard to this proposed action, but the proposed action is not more restrictive or stringent.

or

In compliance with Executive Order 01.01.1996.03, this proposed action is more restrictive or stringent than corresponding federal standards as follows:

- (1) Regulation citation and manner in which it is more restrictive than the applicable federal standard:
- (2) Benefit to the public health, safety or welfare, or the environment:
- (3) Analysis of additional burden or cost on the regulated person:
- (4) Justification for the need for more restrictive standards:

(by determining that either:)

- (a) The benefit from the more restrictive standard exceeds the burden or cost of the more restrictive standard on the regulated person or business;*
- (b) Conditions or circumstances specific or special to Maryland require that Maryland enact a more restrictive standard;*

The applicable federal standard is not sufficient to protect the public health, safety, or welfare of Maryland citizens; or State law requires the adoption of a more restrictive standard.

Comparison to Federal Standards

Submission and Response Form

Impact Statements (This form goes to DBED)

In accordance with Executive Order 01.01.1996.03 and memo dated July 26, 1996, the attached document is submitted to the Department of Business and Economic Development for review.

The proposal/emergency:

Is not more restrictive or stringent than corresponding federal standards.

Is stricter or more stringent than corresponding federal standards.

COMAR Codification:

Corresponding Federal Standard: **N/A**

Discussion/Justification: **N/A**

Estimate of Economic Impact

I. Summary of Economic Impact. The proposed regulations for oil and gas exploration and production will economically impact many different parties, both positively and negatively, relative to the existing oil and gas regulations. These economic impacts cannot be quantified because the future level of oil and gas development in Maryland depends on market conditions and decisions of independent economic actors. Impacts to each potentially affected party are discussed in detail below; these descriptions focus primarily on impacts to Garrett and Allegany Counties because these areas are currently the most likely to see future oil and gas development, but the impacts described would be similar for oil and gas development in other parts of the State.

II. Types of Economic Impact.

Revenue (R+/R-)

Expenditure
(E+/E-)

Magnitude

A. On issuing agency:

(1) Program implementation	(E+)	Indeterminable
(2) Funding of program implementation	(R+)	Indeterminable

B. On other State agencies: (E+) Minimal

C. On local governments:

(1) Road improvements and maintenance	(E-)	Indeterminable
---------------------------------------	------	----------------

Benefit (+)
Cost (-) Magnitude

D. On regulated industries or trade groups:

(1) Oil and gas companies	(-)	Indeterminable
(2) Trucking companies	(-)	Indeterminable

E. On other industries or trade groups:

(1) Environmental consultants and laboratories	(+)	Indeterminable
(2) Tourism-related businesses	(+)	Indeterminable
(3) Real estate	(+)	Indeterminable

F. Direct and indirect effects on public:

Benefits from protection of public health, drinking water, natural resources, and the environment	(+)	Indeterminable
---	-----	----------------

III. Assumptions. (Identified by Impact Letter and Number from Section II.)

A(1). There will be an economic impact to the Department of the Environment (the

Department). The regulatory and permitting requirements will require additional work by Department staff. How much additional work would vary depending on the level of drilling activity in Maryland. Some of the additional work for the Department would include additional work reviewing the required baseline monitoring data and more detailed permit applications. There would also be additional work to monitor compliance with the more detailed regulations and with permit conditions. Any additional costs to the Department for this work cannot be estimated.

A(2). Environment Article, §14-105, Annotated Code of Maryland authorizes the Department to assess permit and production fees in an amount necessary to operate the regulatory program, with a provision for annual adjustment.

B. Certain State agencies, primarily the Department of Natural Resources (DNR) and the Department of Health and Mental Hygiene (DHMH), will receive copies of the comprehensive development plans (CDPs) and permit applications with an invitation to comment. This will likely result in additional workload but minimal additional expenditures. DNR will also be tasked with coordinating with the Department on the evaluation of the environmental assessment, though this responsibility exists under current law and regulations.

C(1). There is a potential for a positive economic impact to local jurisdictions if roads are improved or maintained at the cost of the exploration or drilling company. Under proposed Regulation .33, one method required to be included in an applicant's transportation plan, if practicable, is improving the roads to be used so that damage to the roads is minimized.

D(1) The largest economic impact will be to oil and gas exploration and production companies that work in Maryland. These companies will have to meet the more stringent oil and gas exploration and production regulations. These regulations are more stringent than what is currently required in Maryland regulations, and as stringent, or more stringent, than what is required in other states that were surveyed. Some of these additional requirements will result in negligible additional costs to the oil and gas companies because many of the best practices that will be required by these regulations have become fairly common industry practices among the larger companies that engage in this type of activity. The added costs to these companies may include the costs related to the Comprehensive Development Plan, one year of baseline water monitoring before a well can be drilled, ongoing monitoring during drilling, hydraulic fracturing, and production, well construction standards, and any additional testing required by the Department. Any additional costs to oil and gas companies from these requirements cannot be estimated. There will also be added costs to oil and gas companies to comply with the financial assurance provisions of the regulations. These companies must have liability insurance, environmental pollution liability insurance, and a performance bond, a blanket bond, cash, a certificate of deposit, or a letter of credit.

D(2). There is also the potential for economic impacts to trucking companies that contract with oil and gas companies to transport materials to and from the well sites. All trucks transporting waste materials from the site must have a Global Positioning System (GPS) to track the transport and disposition of these materials. To the extent that trucks do not already have GPS systems, this will be an additional cost to trucking companies. This cost cannot be estimated, as it

depends on a number of factors, including the level of drilling activity, the number of trucks in a company's fleet, and which trucks if any already have a GPS.

E(1). There will be positive economic impacts to environmental consultants and laboratories for the additional work that will be required by the regulations. It is likely that the drilling companies will hire consultants and use laboratories to do all of the necessary environmental assessments, baseline monitoring, ongoing monitoring, testing and analytical procedures, and any other environmental studies or assessments required by regulations or permit. Any additional revenues to consultants cannot be estimated.

E(2). There will be positive economic impacts to real estate professionals and tourism related businesses in Garrett and Allegany Counties as a result of replacing the existing regulations with these more stringent regulations. The protections included in these regulations will help to minimize any negative impact to property values that may result from drilling activity, which will positively impact property owners and real estate professionals. Stronger regulations for oil and gas drilling will also benefit the tourism industry and tourism related businesses by ensuring better protection of the natural environment which is the driver for much of the tourism in these two Counties.

E(3). There will be positive economic impacts to real estate professionals and tourism related businesses in Garrett and Allegany Counties as a result of replacing the existing regulations with these more stringent regulations. The protections included in these regulations will help to minimize any negative impact to property values that may result from drilling activity, which will positively impact property owners and real estate professionals. Stronger regulations for oil and gas drilling will also benefit the tourism industry and tourism related businesses by ensuring better protection of the natural environment which is the driver for much of the tourism in these two Counties.

F. There will be positive economic impacts to the residents in Garrett and Allegany Counties by enacting these more stringent regulations in replacement of the existing regulations. The regulations will minimize the impacts from drilling to public health, safety, the environment and natural resources in these two Counties. By minimizing these impacts, the general citizenry of the two Counties will benefit from enhanced public health protection and safety, including better protections for air quality and sources of drinking water. Additionally, the natural environment of the two Counties will be better protected, including forests, rivers, streams and other water bodies, wildlife, flora and fauna.

Economic Impact on Small Businesses

The proposed action has a meaningful economic impact on small businesses. An analysis of this economic impact follows.

Small Business Analysis Worksheet

1a. Intended Beneficiaries. Who are the intended beneficiaries of the proposed regulation? Are these intended beneficiaries primarily households or businesses?

The intended beneficiaries of the proposed regulations are residents of and visitors to Garrett and Allegany Counties or other areas where oil and gas development may occur in the future. These beneficiaries are primarily households. The proposed regulations will have some indirect benefits to environmental consultants and laboratories, as well as the real estate and tourism industries, but these are not the primary intended beneficiaries.

1b. Intended Beneficiaries: Households. If households are the primary intended beneficiaries, will the proposal affect their income or purchasing power such that the volume or patterns of their consumer spending will change? If so, what directions of change would you anticipate? Will these expected spending changes have a disproportionate impact on small businesses? Can you descriptively identify the industries or types of business activities that are impacted?

The proposal should not materially affect the income or purchasing power of households and thus will not change the volume or patterns of their consumer spending.

1c. Intended Beneficiaries: Businesses. If businesses are the intended beneficiaries, identify the businesses by industry or by types of business activities. How will businesses be impacted? Are these Maryland establishments disproportionately small businesses? If so, how will these Maryland small businesses be affected? Can you identify or estimate the present number of small businesses affected? Can you estimate the present total payroll or total employment of small businesses affected?

Companies in the tourism business may benefit because the proposed regulations are much more protective of the environment and natural resources than the existing regulations. Some of these companies are small businesses. The Department does not have information on the number or proportion of small businesses in the total population of the tourism businesses.

2a. Other Direct or Indirect Impacts: Adverse. Businesses may not be the intended beneficiaries of the proposal. Instead, the proposal may direct or otherwise cause businesses to incur additional expenses of doing business in Maryland. Does this proposal require Maryland businesses to respond in such a fashion that they will incur additional work-time costs or monetary costs in order to comply? Describe how Maryland establishments may be adversely affected. Will Maryland small businesses bear a disproportionate financial burden or suffer consequences that affect their ability to compete? Can you estimate the possible number of Maryland small businesses adversely affected? (Note that small business compliance costs in the area of regulation are the sum of out-of-pocket (cash) costs plus time costs — usually expressed as payroll, akin to calculations for legislative fiscal notes. Precise compliance costs may be difficult to estimate, but the general nature of procedures that businesses must accomplish to comply can be described.)

The proposed regulations affect oil and gas exploration and production companies. Most of

these companies are likely to be large businesses. However, it is possible that some companies or their contractors are small businesses. The Department does not have information on the number or proportion of small businesses in the total population of oil and gas businesses. Oil and gas companies will have to meet the more stringent regulations when conducting drilling operations in Maryland. The regulatory requirements are more stringent than what is currently required in Maryland regulations. Some of these additional requirements will result in negligible additional costs to large oil and gas companies because some of the requirements are already included among common industry practices. The smaller oil and gas companies will likely have larger additional costs to comply with the regulations to the extent that the additional requirements are not practices that they currently follow. Any additional costs to small oil and gas businesses from these requirements cannot be estimated. There will also be added costs to oil and gas companies to comply with the financial assurance provisions of the regulations. Any additional costs to small businesses from the financial assurance requirements cannot be estimated.

There is also potential for economic impacts to trucking companies that contract with oil and gas companies to transport materials to and from the well sites. All trucks transporting these materials must have a GPS to ensure the safe tracking and disposition of these materials. To the extent that trucks do not already have GPS systems, this will be an additional cost to trucking companies. These costs cannot be estimated. The Department does not have information on the number or proportion of small businesses in the total population of trucking companies.

2b. Other Direct or Indirect Impacts: Positive. Maryland businesses may positively benefit by means other than or in addition to changed consumer spending patterns. How may Maryland businesses be positively impacted by this initiative? Will Maryland small businesses share proportionately or disproportionately in these gains? Can you estimate the possible number of Maryland small businesses positively affected?

There will be positive economic impacts to environmental consultants and laboratories for the additional work that will be required by the regulations. It is likely that the drilling companies will hire consultants and use laboratories to do all of the necessary environmental assessments, baseline monitoring, ongoing monitoring, testing and analytical procedures, and any other environmental studies or assessments required by regulations or permit. Any additional revenues to consultants cannot be estimated. The Department cannot estimate the number or portion of small businesses in the total population of environmental consulting and laboratory businesses likely to be positively impacted by these regulations.

There may also be positive economic impacts to real estate professionals and tourism related businesses in areas in which oil and gas development occurs by enacting these more stringent regulations. The protections included in these regulations will help to minimize any negative impacts to property values that may otherwise have resulted from drilling activity, which will positively impact property owners and real estate professionals. Stronger regulations for oil and

gas drilling will also benefit the tourism industry and tourism related businesses by ensuring better protection of the natural environment which is the driver for much of the tourism in Garrett and Allegany Counties in particular. The Department cannot estimate the total number or portion of small businesses in the total population of either real estate businesses or tourism related businesses, although it is likely to be a large proportion of the total population of both. The Department also cannot estimate the total additional revenues to either of these types of businesses.

3. Long-Term Impacts. There are instances where the longer run economic impact effect from regulations differ significantly from immediate impact. For example, regulations may impose immediate burdens on Maryland small businesses to comply, but the overall restructuring of the industry as a consequence of monitoring and compliance may provide offsetting benefits to the affected small businesses in subsequent years. Can you identify any long run economic impact effects on Maryland small businesses that over time (a) may compound or further aggravate the initial economic impact described above, or (b) may mitigate or offset the initial economic impact described above?

Costs to oil and gas companies and trucking companies to comply with the more stringent regulations may be concentrated in the first few years of oil and gas development as these companies make initial capital expenditures on equipment (such as GPS systems for trucks) and training. Many of the planning requirements in the proposed regulations may involve more significant initial efforts by oil and gas companies, after which the plans can be adapted for site-specific conditions at each well. As a result, long-term economic impacts to oil and gas companies and trucking companies may be mitigated or offset by these initial expenditures.

4. Estimates of Economic Impact. State Government Article, §2-1505.2 requires that an agency include estimates, as appropriate, directly relating to: (1) cost of providing goods and services; (2) effect on the work force; (3) effect on the cost of housing; (4) efficiency in production and marketing; (5) capital investment, taxation, competition, and economic development; and (6) consumer choice.

(1) Cost of providing goods and services: The Department cannot determine the additional costs of providing the services included in the regulations.

(2) Effect on the work force: There will be better public health and safety protections for oil and gas employees in Maryland from these more stringent regulations. The Department cannot estimate this benefit in dollar terms.

(3) Effect on the cost of housing: The added protections in these regulations should serve to limit any decrease in home values that may otherwise have occurred as a result of oil and gas development by affording homeowners better public health, safety, and environmental protections. The extent of this effect cannot be estimated.

(4) Effect on efficiency in production and marketing: None expected.

(5) Capital investment, taxation, competition, and economic development: The level of capital investment, taxation, competition, and economic development resulting from these regulations is unlikely to be significantly different than that under the current regulations. The Department cannot estimate any changes in these amounts.

(6) Consumer choice: None expected.

Impact on Individuals with Disabilities

The proposed action has no impact on individuals with disabilities.

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 19 OIL AND GAS RESOURCES

Chapter 01 Oil and Gas Exploration and Production

Authority: Environment Article, §14-103, Annotated Code of Maryland

.01 Scope and Applicability.

A. This chapter establishes the requirements for:

- (1) Conducting seismic operations;
- (2) Drilling a new well for the exploration or production of oil or gas;
- (3) Operating a well for the exploration or production of oil or gas; and
- (4) Drilling and operating a well for the storage of gas.

B. A seismic operation is subject only to Regulations .04 – .07, .10, and .60 of this chapter.

C. The renewal of a drilling and operating permit for a well that has already been drilled:

- (1) Is subject to the permit renewal procedures under .18 of this chapter; and
- (2) Is not subject to the:
 - (a) Comprehensive development plan requirements under Regulations .10, .12, and .13 if this chapter;
 - (b) Requirements for the initial drilling and operating permit application under Regulations .14— .17 of this chapter;
 - (c) Environmental assessment and baseline monitoring requirements under Regulation .19 of this chapter; or
 - (d) Location restrictions and setbacks under Regulation .20 of this chapter.

.02 Definitions.

A. In this subtitle, the following terms have the meanings indicated.

B. Terms Defined.

(1) *Administratively Complete.*

(a) “Administratively complete” means that the application contains the information and supporting documents requested on the application form.

(b) “Administratively complete” does not mean that the application is complete for purposes of Regulation .17C.

(2) “Angular deviation and directional survey” means a well survey that indicates, at frequent intervals, the amount and azimuth that the hole has departed from vertical.

(3) “Annular space” means the area between the inner and outer walls of two concentric casings and the area between the outer casing and the wall of a borehole.

(4) “API” means American Petroleum Institute, a national trade association that represents the oil and natural gas industry in the United States and that develops and publishes standards and other documents.

(5) “Aquatic habitat” means all streams, rivers, seeps, springs, wetlands, lakes, ponds, water reservoirs and 100 year floodplains.

(6) “Base fluid” means the continuous phase fluid used in the makeup of a well stimulation treatment fluid or drilling fluid.

(7) “Baseline monitoring” means gathering and reporting data according to protocols developed by the Department to characterize the condition of ground water and surface water in the vicinity of a planned well pad before site preparation and drilling.

(8) “Blowout” means an uncontrolled flow of gas, oil, or other well fluids into the atmosphere, which may occur when formation pressure exceeds the pressure applied to it by the column of drilling fluid.

(9) “Blowout prevention equipment” means devices attached to the top of the well casing that can be closed and shut off to control pressure and flow at the wellhead.

(10) “Brackish and salt water” means water with a total dissolved solids concentration greater than 1,000 milligrams per liter.

(11) “Bridge plug” means an expandable device used inside the casing of a well to isolate certain zones or to seal the casing to a shallower depth.

(12) “CAS” means Chemical Abstract Service.

(13) “Comprehensive Development Plan (CDP)” means a document prepared by a person holding oil or gas interests describing the person’s plans for exploration and production in the Maryland portion of an oil- or gas-bearing formation for at least the succeeding 5 years.

(14) “Circulating medium” means any type of liquid, gas, or slurry used as an agent to remove drill cuttings and to cool the bit.

(15) *CO₂ Equivalent Emissions (CO₂e).*

(a) “CO₂ equivalent emissions (CO₂e)” means the amount of greenhouse gas emitted.

(b) “CO₂ equivalent emissions (CO₂e)” for methane is computed by multiplying the mass amount of emissions, in tons per year, by methane’s associated global warming potential.

(16) “Commingle production” means to mix hydrocarbons from two or more pay zones in the same well.

- (17) "Conductor pipe" means a pipe used near the surface to prevent unconsolidated material from caving or sloughing into the hole.
- (18) "Coning" means the cone-shaped invasion of water underlying oil or gas in an oil or gas reservoir or invasion of gas overlying oil in a reservoir as the oil or gas is withdrawn from a well.
- (19) "Critical Area" has the meaning stated in COMAR 27.01.01.01B.
- (20) "Cuttings" means the fragments of rocks and soil produced by the drill bit during the drilling process and brought to the surface in the circulating medium.
- (21) "Department" means the Department of the Environment.
- (22) "Directional drilling" means:
- (a) Aiming wells at horizontally displaced bottom-hole targets; and
 - (b) Intentional deviation of a borehole from the path it would naturally take.
- (23) "Diesel fuel" means a substance with one of the following CAS numbers:
- (a) 68334-30-5 Primary Name: Fuels, diesel;
 - (b) 68476-34-6 Primary Name: Fuels, diesel, No. 2;
 - (c) 68476-30-2 Primary Name: Fuel oil, No. 2;
 - (d) 68476-31-3 Primary Name: Fuel oil, No. 4; or
 - (e) 8008-20-6 Primary Name: Kerosene.
- (24) "Discharge" has the meaning stated in COMAR 26.08.01.01B(20).
- (25) Drilling Liquid.
- (a) "Drilling liquid" means a fluid, such as mud or water, circulated in a borehole to remove the drill cuttings from the hole and to cool the drill bit.
 - (b) "Drilling liquid" does not include air or gas.
- (26) "Dry hole" means a well that encountered no oil or gas of commercial significance.
- (27) "Environmental assessment" means a document prepared by an applicant for a gas and oil drilling and operating permit in accordance with guidance from the Department and submitted with an application for the permit that includes, at a minimum, a discussion and evaluation of the possible ecological, aesthetic, historic, cultural, economic, social, or health impacts of the planned drilling and operating activity.
- (28) "Existing well" means a well drilled before October 1, 2017.
- (29) "Explosives" means any chemical compound, mixture, or device, the primary purpose of which is to function by explosion through substantially instantaneous release of gas and heat, unless the compound, mixture, or device is otherwise specifically classified by the Interstate Commerce Commission or other federal agency.
- (30) "Flowback" means well stimulation treatment fluid and formation water that comes to the surface through the borehole during the first few days after well stimulation is completed.
- (31) "FracFocus" means the national hydraulic fracturing chemical registry managed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission.
- (32) "Fresh water" means water with a total dissolved solids concentration of 1,000 milligrams per liter or less.
- (33) "Gas" means all natural gas and other fluid hydrocarbons, not defined as oil, that are produced from a natural oil or gas reservoir.
- (34) "Gross vehicle weight rating (GVWR)" means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle, consistent with good engineering judgment.
- (35) "Heavy duty engine" means any engine which the engine manufacturer could reasonably expect to be used for motive power in a heavy-duty vehicle.
- (36) "Heavy duty vehicle" means any motor vehicle that:
- (a) Is rated at more than 8,500 pounds GVWR;
 - (b) Has a vehicle curb weight of more than 6,000 pounds; or
 - (c) Has a basic vehicle frontal area of more than 45 square feet.
- (37) "High volume hydraulic fracturing" means all stages of a stimulation treatment of a well by the pressurized application of more than 80,000 gallons per stage or more than 300,000 gallons total of hydraulic fracturing fluid and proppant to initiate or expand fractures in a geologic formation to enhance extraction or production of oil or gas.
- (38) "Hydraulic fracturing" means a stimulation treatment performed on oil and gas wells in low-permeability oil or gas reservoirs whereby specially engineered fluids are pumped at high pressure and rate into the reservoir interval to be treated, causing fractures to open.
- (39) "Hydraulic fracturing fluid" means a mixture of a base fluid, proppant and chemical additives injected through a well drilled into an oil- or gas-bearing rock formation under high but controlled pressure to initiate or propagate fractures in a geologic formation to enhance extraction or production of oil or gas.
- (40) "Impermeable" means having a hydraulic conductivity of less than or equal to 1 times 10^{-7} centimeters per second.
- (41) "Initial drilling and operating permit" means a drilling and operating permit for a well or proposed well for which no drilling and operating permit has previously been issued.
- (42) "Injection well" means a well used for the subsurface emplacement of fluids.
- (43) "Irreplaceable Natural Area" means a site designated by the Department of Natural Resources as Tier 1 or Tier 2 under the Biodiversity Conservation Network.
- (44) "Killing the well" means overcoming downhole pressure through the use of drilling liquid or water.

(45) "Log" means a continuous record as a function of depth, usually graphic and plotted to scale on a narrow paper strip, of observations made on the rocks and fluids of the geologic section exposed in a well bore.

(46) "Mechanical plug" means an expandable device placed in a well to act as a water-tight, oil-tight, and gas-tight seal.

(47) "Mineral owner" means a person who has the right by deed, lease, or otherwise to drill into and produce from a pool, or to store in a pool, and appropriate the oil or gas the person produces or stores either for the person or others.

(48) "New well" means an oil or gas well drilled on or after October 1, 2017.

(49) "Nonporous material" means bentonitic solids, cement, or equivalent materials approved by the Department which will retard the movement of fluids.

(50) "Nontidal wetland" has the meaning stated in COMAR 26.23.01.01.

(51) "Oil" means crude petroleum oil and other hydrocarbons, regardless of specific gravity, that are produced at the wellhead in liquid form, except liquid hydrocarbons known as distillate or condensate recovered or extracted from gas.

(52) "Oil or gas reservoir" means a natural underground oil- or gas-bearing formation.

(53) "Open-flow test" means a measurement of the rate of flow of a gas well when flowing into the air, unrestricted by any pressure other than that of the atmosphere, and usually measured in thousands of cubic feet (Mcf) per day.

(54) Operator.

(a) "Operator" means a person who, by virtue of ownership, or under the authority of a lease or any other agreement, has the right to drill, stimulate, complete, operate, maintain, or control an oil or gas well or production facility.

(b) "Operator" includes:

(i) A person who holds a permit to drill or operate a well;

(ii) A supplier, other than one that only supplies an additive or proppant for use in drilling or well stimulation; and

(iii) A mineral owner.

(55) "Pay zone" means an oil or gas reservoir or portion of a reservoir that contains economically producible hydrocarbons.

(56) "Perforating" means making holes through the casing opposite the producing zone to allow the oil or gas to flow into the well.

(57) "Permittee" means the person in whose name a seismic permit or a drilling and operating permit has been issued.

(58) "Person" means the federal government, the State, a county, municipal corporation, or other political subdivision of the State, or their units, or an individual, receiver, trustee, guardian, executor, administrator, fiduciary, or representative of any kind, or a partnership, firm, association, public or private corporation, or any other entity.

(59) "Pilot hole" means a vertical boring located from land surface to the bottom of the targeted geologic formation to assist in the identification of geologic features, underground voids, gas- or water-bearing formations, geologic faults, and the deepest underground source of drinking water.

(60) "Pollutant" has the meaning stated in COMAR 26.08.01.01B(66).

(61) "Plug" means a mechanical device or cement placed in a well as a barrier to prevent the movement of liquids and gas.

(62) "Plugging" means the installation of a plug in a well following the end of operation of the well, as required under Regulation .55 of this chapter.

(63) "Pool" means an underground oil or gas reservoir containing a common accumulation of oil or gas, or both.

(64) "Pooled unit" means an area within which owners of different properties in an area have voluntarily agreed to participate in a well drilled within the unit.

(65) "Pressure maintenance" means the injection of liquid or gas into an oil or gas reservoir to increase or maintain reservoir pressure in order to recover additional quantities of hydrocarbons.

(66) "Produced water" means water that is produced from a wellbore that is not flowback.

(67) "Producer" means the owner of a well capable of producing oil, gas, or both.

(68) "Producing zone" means the stratum, bed, or formation from which oil or gas enters the well.

(69) Production.

(a) "Production" means the act or process of producing oil or gas from a natural oil or gas reservoir.

(b) "Production" does not include the sale or distribution of oil or gas.

(70) Production Facility.

(a) "Production facility" means any equipment attendant to oil and gas production.

(b) "Production facility" includes:

(i) Tanks;

(ii) Flowlines;

(iii) Headers;

(iv) Wellheads;

(v) Heater treaters;

(vi) Pumps;

(vii) Valves;

(viii) Compressors located on site at a well pad;

(ix) Injection equipment; and

(x) Gathering lines and intrastate pipelines, except those that are downstream of the point of custody transfer of the oil or gas and are not controlled by the operator of the oil or gas production operation.

(71) "Proppant" means material inserted or injected into the underground geologic formation that is intended to prevent fractures from closing.

(72) "Ready-reserve" means the state of an engine that may not be performing work at all times, but must be ready to take over powering all or part of an operation at any time to ensure safe operation of a process.

(73) "Recomplete a well" means to seal off one producing zone, and perforate a new producing zone.

(74) "Reduced emission completion" has the meaning stated in 40 CFR § 60.5430.

(75) "Re-enter" means to drill out the plugs of an abandoned well in a new effort to establish oil or gas production, or use the well for another purpose.

(76) "Refracturing" means a subsequent high volume hydraulic fracturing event following initial drilling and high volume hydraulic fracturing to increase gas production.

(77) "Rework" means to perform remedial measures in a well in order to restore oil or gas production that has declined substantially or stopped completely.

(78) "Royalty interest" means the right to receive royalty payments on the production of oil or gas.

(79) "Seismic operations" means the controlled application of vibratory energy from any source to determine if favorable conditions exist for the subsurface entrapment of oil or gas.

(80) "Seismic section" means a graphic, near-vertical display of waveform data processed by a computer program to facilitate interpretation of subsurface conditions.

(81) "Seismic survey" means a planned network or program of seismic operations conducted by one person, one time, under one permit.

(82) "Shotholes" means drilled holes which are subsequently loaded with explosives, the detonation of which generates seismic waves during a seismic survey.

(83) "Shut-in pressure" means the pressure in the well measured at the wellhead in a specified period of time after the valves are closed.

(84) "Special Conservation Areas" mean State-designated Wildlands and areas identified by the Department of Natural Resources as Irreplaceable Natural Areas.

(85) "Stimulate a zone" means to use techniques such as hydraulic fracturing and acidizing in order to increase oil or gas production from a formation.

(86) Stimulation Additive.

(a) "Stimulation additive" means a substance or combination of substances added to a base fluid for purposes of preparing well stimulation treatment fluid, including an acid stimulation treatment fluid or a hydraulic fracturing fluid.

(b) "Stimulation additive" includes an additive that may:

(i) Serve additional purposes beyond the transmission of hydraulic pressure to a geologic formation;

(ii) Be of any phase; and

(iii) Be a proppant.

(87) "Supplier" means an entity performing drilling or a well stimulation treatment or an entity supplying an additive or proppant directly to the operator for use in drilling or a well stimulation treatment.

(88) "Surface impoundment" means a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials, that is not an injection well.

(89) "Tidal wetlands" has the meaning stated in COMAR 26.24.01.02B.

(90) "Underground source of drinking water" means water with a total dissolved solids concentration of 10,000 milligrams per liter or less.

(91) "Volatile organic compound (VOC)" has the meaning stated in COMAR 26.11.01B(53).

(92) "Waters of this State" has the meaning stated in Environment Article, §9-101, Annotated Code of Maryland.

(93) "Water supply" means a source of water used for drinking or other domestic purpose or for agriculture, including livestock.

(94) Well Pad.

(a) "Well pad" means the area extending to the limit of disturbance of the grading plan for a drilling site where a well is to be drilled and where drill rigs, pumps, engines, generators, mixers and similar equipment, fuel, pipes, and chemicals are located.

(b) "Well pad" does not include temporary worker housing and employee parking lots unless equipment, fuel, or chemicals are stored there.

(95) Well Stimulation Treatment Fluid.

(a) "Well stimulation treatment fluid" means a base fluid mixed with physical and chemical additives, which may include acid, for the purpose of a well stimulation treatment.

(b) "Well stimulation treatment fluid" includes hydraulic fracturing fluids and acid stimulation treatment fluids.

(96) Wellhead Protection Area.

(a) "Wellhead protection area" means the surface and subsurface area, determined by the Department under the Department's Water Supply Program, surrounding a water well or well field that supplies a public water system, through which contaminants are reasonably likely to move toward and reach the water well or well field; and

(b) "Wellhead protection area" includes, for a public water system for which a wellhead protection area has not been defined by the Department's Water Supply Program, a fixed radius of 1,000 feet around the one or more water wells.

(97) "Wildcat well" means an exploratory well drilled for oil or gas on a geologic feature not yet proven to be productive, or in an unproven territory, or to a zone that has never produced or is not known to be productive in the general area.

(98) "Wildlands" means areas designated by the General Assembly under Natural Resources Article, §5-1205, Annotated Code of Maryland.

(99) Workover.

(a) "Workover" means the repair or stimulation of an existing oil or gas production well for the purpose of restoring, prolonging, or enhancing the production of hydrocarbons.

(b) "Workover" includes refracturing.

(100) "Zonal isolation" means the isolation through specified cementing and casing practices of all fluid-bearing formations, whether the fluids are gaseous or liquid, along the vertical borehole.

.03 Incorporation by Reference.

In this chapter, the following documents are incorporated by reference:

A. Guidelines for Administering Oil and Gas Activity on State Forest Lands (Pennsylvania Department of Conservation and Natural Resources, Revised 2013);

B. Maryland Standards and Specifications for Soil Erosion and Sediment Control, which has been incorporated by reference in COMAR 26.17.01.11;

C. Certification for Drinking Water Treatment Chemicals – Health Effects (NSF/ANSI Standard 60, 2015 Edition);

D. 40 CFR Part 86, as amended; and

E. 40 CFR § 60.5430, as amended.

.04 Responsibility for Compliance.

A. Where an obligation is imposed on an operator under this chapter, the permittee is responsible for assuring that the obligation is met.

B. If an obligation imposed on an operator under this chapter is not met, the operator as well as the permittee is liable for the noncompliance.

C. No indemnification, hold harmless, or similar agreement or conveyance is effective to transfer from the permittee, to any other person, the liability imposed under this chapter.

D. Nothing in this regulation bars any agreement to insure, hold harmless, or indemnify a party to such agreement for any liability under this chapter.

.05 Incident Notification.

A. In addition to any other notifications required by law or permit, an operator shall report immediately, but no later than 30 minutes after detection, any condition such as a fire, break, blowout, leak, escape, spill, overflow, or other occurrence at the well pad, at a pipeline or compressor, or during transport that creates a safety or pollution hazard to:

(1) The emergency contact official of the nearest downstream water supplier if pollutants are not contained on the well pad; and

(2) The Department.

B. After an occurrence listed under §A of this regulation, the operator shall remain available until clearance to leave is given by the Department.

.06 Seismic Permit Application Procedures.

A. A person may not conduct seismic operations in the State without obtaining a seismic permit from the Department.

B. A seismic permit is not transferrable except with written permission of the Department.

C. Application Procedures for a Seismic Permit Applicant.

(1) A seismic contractor or the contractor's authorized agent shall complete and sign a seismic permit application on a form provided by the Department, including:

(a) The name, address, and telephone number of the applicant's resident agent;

(b) U.S. Geological Survey 7.5-minute topographic maps, hydrographic charts, or copies, showing the location of seismic lines;

(c) Certification that State and county permit and bond requirements have been met for any seismic operations;

(d) A statement, on a form provided by the Department, signed by each affected property owner providing the operator with the right of entry to conduct seismic operations;

(e) Authorization, on a form provided by the Department, signed by property owners who can grant legally binding rights of entry to the property, authorizing representatives of the Department and the Department of Natural Resources to enter their private property for the purpose of inspecting seismic operations that are ongoing or have been conducted on the property;

(f) A reclamation plan detailing how any area disturbed by the seismic operation will be restored;

(g) A certificate of insurance for personal injury and property damage liability coverage of not less than \$1,000,000 for each person injured and \$5,000,000 for each occurrence or accident; and

(h) A specific calendar schedule for the proposed operation which prohibits any in-stream work during the spawning season of anadromous fish and the spawning season for self-sustaining brook trout and other trout populations.

(3) An applicant for a permit to conduct seismic operations on the waters of Chesapeake Bay or its tidal tributaries shall include with the permit application a written agreement to provide the Department with processed seismic sections as soon as these sections are available, but no later than 1 year after field operations are completed.

(4) The applicant shall provide additional information considered necessary by the Department to process the permit.

D. Seismic Permit Modification.

(1) A person proposing to modify a seismic operation shall submit to the Department, in writing, a request for modification of the activities approved under the seismic permit.

(2) A person may not conduct modified seismic operations under the Department has approved the request for modification.

E. Application Processing Procedures for the Department.

(1) The Department shall review the application to determine whether it is administratively complete.

(2) If the required information is not included, the Department shall advise the applicant by written or oral communication that the application is incomplete, and may suspend processing the permit application pending receipt of deficiencies.

(3) Except as provided under §E(4) of this regulation, the Department's decision to grant or deny a seismic permit shall be issued no later than 30 calendar days after the application is administratively complete.

(4) The Department may extend the period for issuing its decision to grant or deny a seismic permit for an additional 30 calendar days with written notice to the applicant.

(5) The Department may deny a permit if the:

(a) Applicant does not submit the information required by the Department;

(b) Proposed activity poses a substantial risk of causing environmental damage that cannot be mitigated by the applicant such as that set forth in Environment Article, § 14-109(b)(6)(ii), Annotated Code of Maryland; or

(c) Proposed operation would violate this chapter.

(6) If the Department's decision is to deny the permit, the Department shall issue a notification of denial stating the reasons for denial, modifications, if any, necessary for approval of the application, and the hearing rights as provided in Environment Article, § 5-204, Annotated Code of Maryland and State Government Article, Title 10, Subtitle 2, Annotated Code of Maryland.

(7) Information contained in the application and accompanying documents and required reports is available to the public, except for confidential geological and geophysical information protected under General Provisions Article, § 4-335, Annotated Code of Maryland.

(8) The Department may include special provisions or modify conditions in the permit for environmental, safety, or other relevant reasons.

F. A seismic permit is valid for 12 months from the date of issuance.

G. In addition to any other remedies provided by law, after notice to the permittee and the opportunity for a hearing, the Department may revoke a seismic permit for the reasons in Regulation .61 of this chapter.

.07 Use of Explosives in Seismic Operations.

A. An operator who uses explosives in seismic operations shall comply with all applicable local, State, and federal laws and regulations that control the handling or detonation of explosive materials.

B. An operator may not use explosives in seismic operations on or in the waters of the Chesapeake Bay or its tributaries.

C. An operator who uses explosives shall be licensed to handle explosives under the Public Safety Article, Title 11, Subtitle 1, Annotated Code of Maryland.

D. An operator who uses explosives shall do so in a manner that does not cause injury to persons, damage to public or private property, adverse impacts on an underground mine, or bring about any change in the course, current, channel, or availability of ground water or surface waters.

E. An operator may not use explosive charges on elevated poles as an energy source, referred to as the Poulter method, or with the charges laid on the surface of the ground.

F. After explosives are loaded into shotholes, the explosives handler shall keep the loaded holes under surveillance until the charges are detonated.

G. An operator who uses explosives in seismic operations may not:

(1) Detonate explosives in a shothole unless the explosives handler determines that the area is clear and safe to proceed;

(2) Leave explosives unattended in a shothole overnight;

(3) use explosives outside daylight hours, or outside any more restrictive time period established by the Department; and

H. If any shots fail to completely explode, the operator shall notify the Department immediately and provide:

(1) A public safety plan that ensures public access to the area is prevented until the failed or unexploded shots can be removed; and

(2) A plan to safely remove all failed or unexploded shots

I. Blasting Restrictions.

(1) The operator shall obtain written approval from the Department before blasting within 500 feet of any occupied dwelling, commercial building, school, church, or hospital.

(2) The Department may require a seismographic record of any blast.

(3) The Department may prohibit blasting at specific times and in specific areas, if necessary, to protect public safety, natural resources, or the environment.

.08 Completion of Seismic Permit Operations.

No later than 30 days after the completion of seismic work, the operator shall;

A. Notify the Department of the status of the operation in writing;

B. Provide the Department with the results of the seismic survey, which is considered public information except for confidential geological and geophysical information protected under General Provisions Article, §4-335, Annotated Code of Maryland; and

C. Complete reclamation work as required by the seismic permit.

.09 Drilling and Operating Permit Required.

A. A person who proposes to conduct any of the following operations to explore for, store, produce, or increase the production of oil or gas within the State shall obtain a drilling and operating permit from the Department before the person:

(1) Prepares a well site for the operation;

(2) Drills a well for oil or gas;

(3) Redrills at a location previously permitted;

(4) Re-enters a well;

(5) Deepens an existing well drilled for oil or gas; or

(6) Drills a well for the storage of natural gas or the observation of the storage of natural gas.

B. An operator shall maintain a valid permit until the well is abandoned in accordance with the approved plan for abandoning the well..

10 Prerequisite for Application for a Permit.

A. Except as provided in §B of this regulation, unless the new oil or gas well is included in a final CDP completed under Regulation .12 of this chapter, the Department may not accept or process an application for a drilling and operating permit for an oil or gas well that will use one or more of the following techniques:

(1) Directional drilling;

(2) More than one well on a well pad;

(3) Acid stimulation, except for acid stimulation of a storage well; and

(4) High volume hydraulic fracturing.

B. A person may submit, and the Department may accept and process, an application for the following without first completing a CDP in accordance with this chapter:

(1) A drilling and operating permit for a new wildcat well that would not be within 2.5 miles of an existing wildcat well, regardless of whether one of the techniques listed in §A(1)–(4) of this regulation is used;

(2) A drilling and operating permit to drill a new oil or gas well that would not use any of the techniques listed in §A(1)–(4) of this regulation;

(3) A renewal of an existing drilling and operating permit; and

(4) A drilling and operating permit for a well for the storage of natural gas.

.11 Fees Associated with Seismic Permits and Drilling and Operating Permits.

A. The Department shall set fees under this regulation at the rate necessary to administer and implement programs to oversee oil and gas exploration and production, storage of oil and gas in depleted underground pools, and other requirements related to the drilling of oil and gas wells, including all costs incurred by the State to:

(1) Review, inspect, and evaluate monitoring data, applications, licenses, permits, analyses, and reports;

(2) Perform and oversee assessments, investigations, and research;

(3) Conduct permitting, inspection, and compliance activities; and

(4) Develop, adopt, and implement regulations, programs, or initiatives to address risks to public safety, human health, and the environment related to the drilling and development of oil and gas wells, including the method of hydraulic fracturing.

B. In any fiscal year, if the fee schedule established by the Department generates revenue that exceeds or falls short of the amount necessary to operate a regulatory program to oversee the drilling of oil and gas wells, the Department shall adjust the fees in the following fiscal year.

C. Until modified in accordance with §D of this regulation:

(1) An applicant for a seismic permit shall pay a fee of \$5,000 to the Department upon submission to the Department of the application for a seismic permit;

(2) An applicant for a drilling and operating permit shall pay a fee for each well to the Department of:

(a) \$30,000 with the application for drilling a new well or reentering a well;

(b) \$20,000 with the application for refracturing or reworking a well; and

(c) \$25,000 for the 5-year renewal of a drilling and operating permit for an oil or gas well installed after October 1, 2010; and

(3) A permittee who requests a modification or transfer of a permit shall pay a fee of \$1,000 to the Department.

D. The Department may administratively adjust its fees in accordance with §B of this regulation by:

(1) Posting a proposed revised fee schedule on its website along with justification for the proposed fee revision at least 30 days before the new fee schedule is to take effect;

(2) Allowing public comment for 30 days after posting;

(3) Considering comments made during the public comment period; and

(4) Posting the final fee revisions on its website.

E. Fees paid to the Department under this regulation are not refundable.

.12 Comprehensive Development Plan—Scope and Contents.

A. This regulation applies to an applicant required to complete a CDP under Regulation .10 of this chapter.

B. Scope.

(1) An applicant shall address in its CDP as much as possible of an applicant's planned development, but not less than the plans for the 5 years following the publishing of the final CDP.

(2) An applicant shall ensure that the geographic scope of the CDP includes, at a minimum, all land on or under which the applicant expects to conduct exploration or production activities over a period of at least the succeeding 5 years.

(3) A CDP may be submitted by a single person or by more than one person for an assemblage of land in which the persons hold mineral rights.

(4) In completing the CDP, the applicant shall avoid, to the extent possible, the surface impacts associated with the applicant's planned development, minimize the surface impacts that cannot be avoided, and mitigate the remaining impacts.

C. Contents. An applicant shall ensure that the CDP includes:

(1) A map and accompanying narrative showing the proposed location of all planned wells (vertical and horizontal portions), well pads, gathering and transmission lines, compressor stations, separator facilities, access roads, and other supporting infrastructure to be constructed or operated by the applicant;

(2) Survey data and field notes from a geological survey of the area covered by the CDP, including, at a minimum:

(a) Locations of all abandoned and existing gas and oil wells, current water supply wells, and springs;

(b) A geologic map and cross section of the area;

(c) Fracture-trace mapping, orientation and location of all joints, faults and fractures; and

(d) Other geologic information as required by the Department;

(3) Travel routes in Maryland for transportation of equipment and materials to and from the well pad;

(4) A water acquisition plan that:

(a) Identifies the amount of water needed to support the CDP;

(b) Identifies the sources of the water; and

(c) Includes, if a water appropriation permit will be needed, a generalized water appropriation plan that identifies the proposed locations and amounts of water withdrawals; and

(5) The sequence of well drilling over the lifetime of the plan that places priority on locating the first well pads in areas removed from sensitive natural resources.

D. In preparing a CDP, an applicant may use existing, available geospatial data, including State-provided data, to the extent the data is sufficiently complete and recent, as determined by the Department. The applicant shall provide other information as needed, including a field assessment for unmapped streams, wetlands, and other sensitive areas.

.13 Public Participation for Comprehensive Development Plan.

A. This regulation applies to an applicant required to complete a CDP under Regulation .10 of this chapter.

B. An applicant shall prepare a draft CDP in accordance with Regulation .12 of this chapter and submit the draft CDP to:

(1) The Department;

(2) The Department of Natural Resources;

(3) The Department of Health and Mental Hygiene; and

(4) The local agencies responsible for land use, roads, public health, emergency management, and environmental protection within the areas covered by the draft CDP.

C. Following submission under §B of this regulation, an applicant shall publish a notice of the draft CDP:

(1) On its website; and

(2) Once per week for two consecutive weeks in a newspaper of general circulation in the areas where the proposed development would occur.

D. The public notice required under §C of this regulation shall contain:

(1) The name and address of the applicant;

(2) A link to the applicant's website where the public may view the draft CDP;

(3) Notice of a comment period on the draft CDP, which shall end no earlier than:

(a) 30 calendar days after the notice was last published in the newspaper under §B(2) of this regulation; and

(b) 5 calendar days after the public meeting required under §D(5) of this regulation;

(4) A description of how the public may submit comments to the applicant on the draft CDP; and

(5) The time and location for a public meeting on the draft CDP, to be held:

(a) Within the area covered in the CDP; and

(b) No sooner than 14 calendar days after the notice was last published in the newspaper under §B(2) of this regulation.

E. The applicant shall hold a public meeting on the draft CDP to:

(1) Provide the public with an overview of the applicant's planned development under the CDP;

(2) Answer questions regarding the CDP; and

(3) Accept oral comments on the CDP.

F. The applicant shall:

(1) Accept and consider each public comment submitted during the comment period, including any comments submitted by an agency that received the draft CDP under §B of this regulation; and

(2) Publish each public comment on its website, including both written comments and any oral comments made at the public meeting.

G. The applicant may make changes to the draft CDP in response to public comments.

H. The applicant shall publish the final CDP on its website and notify the Department of the date the CDP was published.

I. Term of and Modifications to the CDP.

(1) A final CDP remains in effect for 10 years from the date the final CDP was published.

(2) If a significant modification to a final CDP is made, such as a change in the location of a drilling pad that places it closer to special conservation areas, or the addition of new drilling pads, the applicant shall prepare of a modified CDP and complete the public participation procedures required under §§B—H of this regulation.

(3) A modification that causes no change in the surface impact in the approved CDP, such as the installation of additional wells on an existing pad or a change in the sequence of development, may be made by publishing the modified CDP on the applicant's website and notifying the Department of the date the modified CDP was published.

.14 Application for an Initial Drilling and Operating Permit.

A. Applicability. This regulation establishes the contents for an application for an initial drilling and operating permit. Regulation .18 of this chapter establishes the procedures for renewal of a drilling and operating permit.

B. An applicant for a drilling and operating permit required under Regulation .09 of this chapter shall submit an application to the Department, on forms provided by the Department, containing the following:

(1) The names, addresses, business status, and telephone numbers of the applicant, operator, and resident agent;

(2) A plat prepared and certified by a Maryland licensed professional land surveyor or property line surveyor containing the information required in §C of this regulation;

(3) An environmental assessment, as required under Regulation .19 of this chapter;

(4) The results of baseline surface and ground water monitoring, as required under Regulation .19 of this chapter;

(5) If a CDP is required under Regulation .10 of this chapter:

(a) A copy of the final CDP;

(b) A summary of the public participation opportunities provided, including a copy of the notice of the draft CDP published in the newspaper; and

(c) A summary of the public comments received during the comment period on the draft CDP and any changes made to the draft CDP in response to the comments;

(6) Proof that the applicant meets the financial assurance requirements of Regulation .55 of this chapter;

(7) A copy of the oil and gas lease that gives the operator the right to enter and drill at the location shown on the plat and if the mineral rights have been severed, a copy of the right of entry agreement with the surface owner;

(8) If a pooled unit, copies of all leases in the unit which shall accompany the application showing the right to pool interests;

(9) A copy of an agreement signed by the applicant and the landowner stating that the Department may enter the land to inspect for compliance with laws, regulations and permit conditions at any reasonable time during the term of the permit and until the performance bond is released;

(10) Certification and documentation by the applicant that the applicant has served the following persons personally or by certified mail with notice of the pending application:

(a) Each landowner and leaseholder of real property that borders or is within 2,640 feet of the boundary of the proposed drillable lease area of the applicant's intention to file an application for a permit to drill a well; and

(b) Appropriate local officials;

(11) Written approval by the local planning and zoning authority that all local planning and zoning requirements, if any, have been met;

(12) A sediment and erosion control plan approved by the Department or the appropriate soil conservation district;

(13) A reclamation plan for restoring the well site;

(14) A spill prevention, control, and countermeasure plan;

(15) A statement listing all other federal, State, county, and local permits and approvals required, and the status of each;

(16) The plan for construction and operation required under Regulation .23 of this chapter; and

(17) Other relevant information and documents considered necessary by the Department.

C. When an applicant seeks to directional drill, the applicant shall state the:

(1) Reason for the proposed directional drilling;

(2) Depth at which deviation from the vertical is planned;

(3) Total depth of the vertical drill; and

(4) Horizontal distance and direction of the planned well with reference to the surface location.

D. Drilling and Operating Permit Plat.

(1) The applicant shall submit the plat or plats:

(a) On paper that is of appropriate quality and dimensionally-stable at a scale of 1 inch equals 600 feet; and

(b) In a digital format approved by the Department.

(2) *Information Required to be Included in Plat.* The applicant shall ensure that the plat or plats include the following information prepared by a Maryland licensed professional land surveyor or property line surveyor:

- (a) The proposed well location;
 - (b) If directional drilling is proposed, the locations of the surface borehole, the proposed bottom-hole, and the lateral shall be shown;
 - (c) At least two permanently established property tract boundary corners, with bearings and distances to the proposed well established by an on-ground survey;
 - (d) Boundaries of the lease or pooled unit containing the well location, with individual lease boundaries within a pooled unit being shown by an on-ground survey, deed calls, or tax map references;
 - (e) Boundaries of adjoining properties with names and addresses of fee owners, surface owners, mineral owners, and oil and gas lessees; and
 - (f) The following information obtained from the best available sources:
 - (i) Active oil and gas drilling, production wells, abandoned wells, storage wells, and injection wells within 2,640 feet of any vertical or horizontal segments of the proposed well;
 - (ii) Water wells and springs within 2,640 feet of the proposed vertical wellbore location;
 - (iii) Churches, schools, buildings, and occupied dwellings within 2,640 feet of the proposed vertical wellbore location;
 - (iv) Any part of the Critical Area, 100-year floodplain as established by the Federal Emergency Management Agency flood insurance rate maps, nontidal wetlands, streams, or other bodies of water within 1 mile of the proposed vertical wellbore;
 - (v) Roads, railroads, and other transportation routes within 2,640 feet of the proposed vertical wellbore location;
 - (vi) Location of active and abandoned underground coal mines and workings within 1 mile of the proposed well; and
 - (vii) A legend identifying the different types of wells and other features shown on the plat.
- (3) For the locations of abandoned wells under §D(2)(f)(i), the best available sources of information shall include any available databases or historical sources, or if not available, results of a survey of property owners within the 2,640 foot area of review.
- (4) The applicant shall ensure that all plat lines actually surveyed are shown with solid lines, and lines taken only from deed descriptions or tax maps are shown by broken lines.
- (5) The applicant may base ownership and lease information upon current tax records or land record indexes.
- (6) The applicant may supply ownership and lease information on a supplemental list indexed to the tracts on the plat.

.15 Review Procedures for Drilling and Operating in the Critical Area.

A. Following receipt of an initial drilling and operating permit application to drill a new well located in the Critical Area, the Department shall send a copy of the permit application and all accompanying documents to the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays for review and recommendations.

B. The Critical Area Commission for the Chesapeake and Atlantic Coastal Bays shall submit written recommendations on the application to the Department within 150 days of receipt of the application and accompanying documents.

C. Following receipt of the recommendations by the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays on the application, the Department shall adopt, to the maximum extent permitted by law, permit conditions recommended by the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays.

.16 Drilling and Operating Permit Term and Permit Conditions.

A. The Department may place in a drilling and operating permit conditions which the Department deems reasonable and appropriate to assure that the operation fully complies with the requirements of Environment Article, Title 14, Subtitle 1, Annotated Code of Maryland and this chapter, and provide for public safety and the protection of the State's natural resources.

B. The Department may issue a drilling and operating permit for a term of up to 5 years.

.17 Departmental Review Procedures for Drilling and Operating Permit.

A. *Applicability.* This regulation establishes the review procedures for an application for an initial drilling and operating permit. Regulation .18 of this chapter establishes the procedures for renewal of a drilling and operating permit.

B. *Completeness.*

(1) Following receipt of an application for an initial drilling and operating permit, the Department shall conduct a review to determine if the application is administratively complete and notify the applicant of deficiencies.

(2) The Department may request additional information from the applicant after the application is administratively complete.

(3) When the Department determines that all necessary information has been submitted in proper form, it shall notify the applicant that the application is considered complete and proceed with public participation in accordance with §C of this regulation.

(3) If the applicant has submitted all required information except for the results of baseline monitoring and the environmental assessment required under Regulation .14B(3)—(4) of this chapter, the Department may conduct a preliminary review of the application while the applicant completes the baseline monitoring and environmental assessment. The application will not be considered complete, nor will the Department proceed with public participation, until all information required under Regulation .14 has been submitted.

C. *Public Participation.*

(1) The Department shall forward the application or portions of the application to appropriate State and local government agencies with responsibility for public health, natural resources, emergency management, cultural and historical resources, and roads, with a request for comment on the application within 30 calendar days.

(2) Contents of Public Notice. The Department shall prepare a notice of the application containing:

(a) The name and address of the applicant;

(b) A description of the location and nature of the activity for which application has been made;

(c) The name, address, and telephone number of the office within the Department from which information about the application may be obtained;

(d) A statement that any further notices about actions on the application will be provided by mail to those persons on a mailing list of interested persons;

(e) A description of how persons may submit information or comments about the application or request to be included on the mailing list of interested persons;

(f) A description of how persons may request a public informational meeting, or, if requested by the applicant, a notice that a public informational meeting has been scheduled; and

(g) A deadline for the close of the public comment period by which information, comments, or requests must be received by the Department.

(3) Provision of Notice.

(a) The Department shall publish notice of the application once per week for 2 consecutive weeks in a newspaper of general circulation in the county where the proposed permit activity would occur.

(b) The applicant shall pay all costs associated with publishing notice of the application in the newspaper.

(c) The Department shall mail public notices to a general subscription mailing list.

(4) The Department shall compile an interested persons list containing the names of all contiguous property owners, appropriate local officials, and individuals that comment on, request meetings on, or make inquiries about an application during any phase of the Department's review.

(5) Public Informational Meeting.

(a) After publication of the notice of the application, a person interested in the application may request that the Department schedule a public informational meeting.

(b) If the Department receives a request for an informational meeting, it shall:

(i) Hold the meeting within 45 calendar days after the date of the request, unless extenuating circumstances justify an extension of time; and

(ii) Publish notice of the public informational meeting once per week for 2 consecutive weeks in a newspaper of general circulation in the county where the proposed permit activity would occur; and

(iii) Mail notice of the public informational meeting to those persons on the interested persons list no later than 14 calendar days before the meeting.

D. The Department shall deny a drilling and operating permit if the Department determines that the proposed activities pose a substantial threat to public health or safety or a risk of significant adverse environmental impact, particularly to:

(1) The Critical Area;

(2) Tidal or nontidal wetlands;

(3) Endangered or threatened species, or species in need of conservation of their habitat;

(4) Historic properties as provided for in State Finance and Procurement Article, §5A-326, Annotated Code of Maryland;

or

(5) Populated areas.

E. Except as provided under §F of this regulation, the Department shall issue its decision to grant or deny a drilling and operating permit no later than 30 calendar days after the close of the record for the public informational meeting, if one is held, or no later than 30 calendar days after the close of the public comment period if one is not held.

F. The Department may extend the period for issuing its decision to grant or deny a drilling and operating permit for an additional 30 calendar days with written notice to the applicant.

G. The Department shall mail or provide electronic written notice of the decision to grant or deny the permit to:

(1) The applicant;

(2) Persons on the interested persons list; and

(3) All landowners and owners of mineral, oil, and gas rights within 1,000 feet of the proposed well surface location.

.18 Renewal of a Drilling and Operating Permit.

A. To renew a drilling and operating permit, a permittee shall submit to the Department a request for renewal no later than 60 calendar days before the expiration of the drilling and operating permit.

B. Upon submission of a request for renewal of a drilling and operating permit, the Department may require the applicant to submit any additional information it determines to be necessary to review the permit renewal request, including information on current site conditions.

.19 Environmental Assessment and Baseline Monitoring.

A. As part of an application for a drilling and operating permit to drill a new well, the applicant shall submit an environmental assessment and data from 1 year of baseline monitoring of the surface water and ground water in the vicinity of the well pad.

B. An applicant may initially submit to the Department all required portions of the application except for the environmental assessment and baseline monitoring to allow the Department to conduct a preliminary review of the partial application while the applicant collects baseline monitoring data and prepares the environmental assessment. An application will not be considered administratively complete, nor will the Department complete its review or proceed with public participation, until the baseline monitoring data and environmental assessment have been submitted.

C. The Department shall develop guidance for the environmental assessment and the baseline monitoring, including sampling design, monitoring protocols, quality assurance and quality control criteria, and specifications for analysis and data submission.

D. The Department shall include in its monitoring protocols sampling of each private drinking water well located within 2,500 feet from a vertical wellbore, except for a private drinking water well in which the owner of the well denies permission for sampling.

E. The Department shall coordinate with the Department of Natural Resources in its evaluation of the environmental assessment.

.20 Location Restrictions and Setbacks.

A. This regulation does not apply to a renewal of a drilling and operating permit for a production or storage well that has already been drilled, nor does it apply to a permit to drill a new gas storage well that is a replacement for a gas storage well on the same wellpad, where the gas storage well being replaced was in existence before January 1, 2017.

B. The Department may not issue a drilling and operating permit for drilling in the waters or tributaries of the Chesapeake Bay.

C. The Department may not issue a drilling and operating permit to drill in the Critical Area unless the applicant has obtained written approval from the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays.

D. In addition to the setbacks and location restrictions in this regulation, the Department may:

(1) Increase the setback distances in §E of this regulation if necessary due to local topography, prevailing winds, or other site-specific conditions; and

(2) For a well proposed to be drilled outside of Garrett and Allegany Counties, impose additional location restrictions to protect watersheds other than those listed in §E(2) of this regulation.

E. The Department may not issue a drilling and operating permit if any part of the land within the limit of disturbance for the well pad is:

(1) Within 1,000 feet from the boundary of the property on which the well is to be drilled, except with:

(a) Written agreement by the surface owner and the holder of mineral rights on the adjoining property; and

(b) Approval by the Department that the proposed location of the well pad is not expected to pose significant risk of adverse impact to adjoining properties;

(2) Within the watersheds of any of the following:

(a) Broadford Lake;

(b) Piney Reservoir;

(c) Savage Reservoir; or

(d) Deep Creek Lake;

(3) Within an arc of 2,000 feet parallel to and above the surface water intake of a public drinking water supply;

(4) Within 300 feet from a stream, measured horizontally from the edge of the stream;

(5) Within 300 feet from a Wetland of Special State Concern;

(6) Within 100 feet from a wetland other than a Wetland of Special State Concern;

(7) Within public lands owned or managed by the Department of Natural Resources, except with the approval of the

Department of Natural Resources;

(8) Within 750 feet from known caves, as discovered through a geologic survey or environmental assessment;

(9) Within 750 feet from the downdip side of a limestone outcrop, as discovered through a geologic survey or environmental assessment;

(10) Within 1,000 feet from any occupied building, school or church;

(11) Within 1,000 feet from the boundary of a wellhead protection area;

(12) Within 2,000 feet from a private drinking water well; or

(13) Within an arc of 2,000 feet parallel to and above the discharge of a spring used as the source of domestic drinking water, unless the Department approves an alternative based on the delineation of the recharge area of the spring.

F. If any part of the land within the limit of disturbance for the well pad has a slope, before grading, of greater than 15 percent, the Department may require additional sediment control measures or reject the site location if it determines that additional measures would not be adequately protective.

G. Cultural or Historical Sites.

(1) If any cultural or historical sites, State or federal parks, trails, wildlife management areas, wild and scenic rivers, or scenic byways are identified in the environmental assessment, the Department shall consult with the appropriate State or federal agency, such as the Department of Natural Resources or the Maryland Historical Trust.

(2) In consultation with the appropriate State agency, the Department may:

(a) Require additional information from the applicant to assess the potential impact of the proposed well on the cultural or historical site;

(b) Impose additional permit conditions, if necessary to adequately protect the cultural or historical resource; and

(c) Reject the proposed location if it determines that the cultural or historical resource could not be adequately protected.

H. Special Conservation Areas.

(1) If any Special Conservation Area is identified in the environmental assessment, the Department shall consult with the Department of Natural Resources.

(2) In consultation with the Department of Natural Resources, the Department may:

(a) Require additional information from the applicant to assess the potential impact of the proposed well on the Special Conservation Area;

(b) Impose additional permit conditions, if necessary to adequately protect the Special Conservation Area; and

(c) Reject the proposed location if it determines that the Special Conservation Area could not be adequately protected.

I. Access Roads.

(1) In designing and constructing access roads to the well pad, an operator shall consider proximity to nearby water resources.

(2) Except as provided in §I(3) of this regulation, the operator may not locate an access road:

(a) Within 100 feet from a stream, measured horizontally from the edge of the stream; or

(b) Within 25 feet from a nontidal wetland or floodplain.

(3) If the Department determines there is no feasible design to maintain the setbacks listed in §H(2) of this regulation, the operator shall locate, design, and construct access roads to minimize impacts to streams and other aquatic habitats.

J. Abandoned or Active Oil or Gas Wells.

(1) Unless the applicant provides evidence satisfactory to the Department that its plan for well completion operations will control pressure and fluid movement within the target geological formation so these changes do not adversely interact with an abandoned oil or gas well or other wells, the Department may not issue a permit to drill a vertical or horizontal segment of a well within 1,320 feet of an abandoned oil or gas well or an active oil or gas well.

(2) The Department may issue a permit to drill a well within 1,320 feet of an abandoned historical gas well if the operator first properly plugs the abandoned historical gas well to the satisfaction of the Department.

(3) If the Department determines it is necessary to avoid adverse impacts, the Department may require an applicant to properly plug an abandoned historical gas well located within 2,640 feet of a horizontal or vertical segment of a proposed well.

K. Except for wells with horizontal segments drilled from vertical boreholes on a common well pad, the Department may not issue a permit to drill and complete a gas well closer than 2,000 feet to an existing gas well in the same oil or gas reservoir unless the Department is provided with credible geologic evidence of reservoir separation to warrant granting a spacing exception.

L. Except for wells with horizontal segments drilled from vertical boreholes on a common well pad, the Department may not issue a permit to drill and complete an oil well closer than 1,320 feet to an existing oil well in the same oil or gas reservoir unless the Department is provided with credible geologic evidence of reservoir separation to warrant granting a spacing exception.

.21 Prohibited Acts.

A person may not operate a well in a manner that results in physical and preventable loss of oil and gas through inefficient or careless operating practices, such as:

A. Operating or producing any oil or gas well in a manner that would result in a reduction of the ultimate quantity of oil or gas to be recovered from a pool;

B. Inefficient storing or improper handling of oil causing excessive evaporative loss, spillage on the surface, or leakage into the subsurface;

C. Producing oil or gas in a manner causing unnecessary water channeling or coning;

D. Permitting gas produced from a gas well to escape into the air;

E. Flaring of gas from a well producing both oil and gas; or

F. Creating fire hazards.

.22 Wildcat Well.

A. A CDP is not a prerequisite for a permit to drill a wildcat well.

B. Except as provided in §A of this regulation, an applicant for a drilling and operating permit for a well shall meet all substantive and procedural requirements for a drilling and operating permit, including submission of the information required for a completion report under Regulation .43 of this chapter and submission of 1 year of baseline monitoring of surface water and ground water and an environmental assessment as required under Regulation. . 19 of this chapter.

C. The operator of a wildcat well shall comply with all of the location restrictions, setbacks, and other requirements for a drilling and operating permit.

D. Once a permit for a wildcat well has been issued, the operator of the wildcat well may not apply for a permit for another wildcat or production well within a 2.5 mile radius around the wildcat well until a CDP has been approved, if required under Regulation .10 of this chapter.

E. Unless the Department determines that the wildcat well can be connected to a transmission line without any adverse impact on wetlands, forest, or nearby residents, the operator may not convert the exploratory well to a production well until a CDP for that area is approved, if required under Regulation .10 of this chapter.

.23 Performance Standards and Minimum Requirements.

A. In an application for a drilling and operating permit to drill a new well, the applicant shall submit a detailed plan for construction and operation of the well that demonstrates that the proposed activity meets or exceeds the performance standards and minimum requirements under Regulations .24 through .54 of this chapter.

B. In preparing the plan, the applicant shall consider industry standards and practices, including API standards.

C. The Department may require the applicant to use specified technology for drilling, well stimulation, production and abandonment if those methods have been demonstrated to have lower potential adverse impacts and to be as effective as the applicant's proposed technology.

D. If the Department approves the plan, it shall incorporate the plan by reference into the drilling and operating permit.

.24 Drilling.

A. The operator shall condition and test the drilling liquid daily to ensure it is capable of:

- (1) Sealing off each oil, gas, brackish and salt water, or fresh water zone to be encountered; and
- (2) Exerting pressure in excess of those pressures anticipated by the operator in any formation to be penetrated.

B. When air is permitted as the circulating medium, the operator shall have sufficient liquid available at the site at all times to kill any flow from the well.

C. Procedure for Beginning of Drilling.

(1) After an operator has obtained a drilling and operating permit to drill a new well, the operator shall notify the Department in writing of a proposed date to begin drilling.

(2) An operator may not begin drilling until the Department has approved the proposed drilling date.

(3) An operator may conduct drilling and stimulation of only one well at a time.

(4) The Department may not approve an operator's proposed drilling date until the operator has completed drilling and stimulation of any other well for which the Department has already approved a proposed drilling date.

D. When actual drilling begins, the operator shall:

(1) Notify the Department at least 72 hours before beginning to drill;

(2) Collect samples of drill cuttings for the Department's use as directed in the drilling and operating permit;

(3) Conduct an electrical induction and gamma ray log to determine depth of fresh water zones; and

(4) Conduct and provide any other logs required by the Department in the permit..

.25 Stormwater.

A. The operator may not allow a discharge of stormwater from the pad as long as any fuel or chemicals are present on the pad.

B. The operator may use stormwater collected from the pad for hydraulic fracturing but, before use, the stormwater shall be stored in tanks and not in a surface impoundment.

C. During the production phase of the wells on a pad, unless fuel or chemicals are present, the operator shall follow a stormwater management plan for the pad area approved by the Department or the authorized approval authority.

.26 Sediment and Erosion Control.

The operator shall ensure that sediment and erosion are controlled in accordance with State law and an approved sediment and erosion control plan for all construction, including the well pad, ponds, access roads, and pipelines.

.27 Well Pad.

A. The operator may not allow a discharge of pollutants from the pad.

B. Except for a well pad for an existing well, an operator shall construct the pad with a liner and berms with a hydraulic conductivity of 10^{-7} centimeter per second or less.

C. Except for a well pad for an existing well, the operator shall ensure that:

(1) The pad is capable of containing, at a minimum, the volume of the 25-year, 24-hour precipitation event;

(2) The liner is protected from damage by decking or other material; and

(3) The pad design allows for the transfer of stormwater and other liquids that collect on the pad to storage tanks on the pad or to trucks that can safely transport the liquid for proper treatment, storage, or disposal.

D. If the area around an existing well is vegetated, the operator shall ensure that the area around the existing well is mowed regularly to ensure the wellhead remains clear and accessible.

.28 Access Roads.

The operator shall ensure that:

A. Access roads are constructed and operated to allow safe passage of vehicles accessing the site and to include controls for stormwater, dust, and mud; and

B. The design, construction, and maintenance of any new unpaved access road to a production facility shall be at least as protective of the environment as the standards in Guidelines for Administering Oil and Gas Activity on State Forest Lands.

.29 Freshwater Storage.

A. An operator may store only fresh water in a surface impoundment.

B. The operator shall ensure that a surface impoundment:

- (1) Has at least 2 feet of freeboard at all times;
- (2) Is at least 1 foot above the ground water table;
- (3) Is impermeable;
- (4) Allows no liquid or solid discharge of any kind into the waters of the State; and
- (5) Diverts surface runoff away from the surface impoundment.

C. The operator shall ensure that a dike associated with a surface impoundment is:

- (1) Constructed of compacted material, free of trees and other organic material, and essentially free of rocks or any other material which could affect their structural integrity;
- (2) Maintained with a slope that shall preserve their structural integrity; and
- (3) Constructed and maintained in accordance with the current Maryland Standards and Specifications for Soil Erosion and Sediment Control.

.30 Chemical Use, Storage and Handling.

A. Except in an emergency, the operator may only use additives for drilling and well stimulation that have been disclosed to the Department in advance.

B. The operator may not use diesel fuel or diesel mixtures in hydraulic fracturing or any other part of the drilling or fluid injection process other than as fuel in diesel engines.

C. The operator shall ensure that:

- (1) All liquids, except fresh water, are stored in watertight, closed tanks or containers with secondary containment capable of holding the volume of the largest tank or container;
- (2) All non-liquid chemicals are stored safely and protected from contact with precipitation or collected water; and
- (3) Any tanks holding liquid that have the potential to emit methane or VOCs and that are vented to the environment are equipped with pollution control equipment to destroy or capture methane and VOCs.

.31 Disclosure of Chemicals.

A. An applicant for a drilling and operating permit to drill a new gas well shall provide to the Department with the application the name, CAS number, and concentration of every chemical constituent of every commercial chemical product it intends to use on the site. Unless the applicant or supplier attests that the information is a trade secret, the chemical information is public information.

B. No later than 10 days after well completion, the operator shall provide to the Department a list of all chemicals used in fracturing, the weight of each used, and the concentration of the chemical in the fracturing fluid. Unless the operator attests that the information is a trade secret, the information is public information under General Provisions Article, §4-335, Annotated Code of Maryland.

C. No later than 30 days after well completion, the operator shall provide to FracFocus a list of all chemicals used in fracturing, the weight of each used, and the concentration of the chemical in the fracturing fluid in accordance with FracFocus rules on reporting and trade secrecy.

D. If a claim is made that the concentration of a chemical in either a commercial chemical product or the fracturing fluid is a trade secret, the operator shall attest to that fact and, in addition to providing the complete list to the Department, provide a second list that includes every chemical by name and CAS number, but does not link the chemical to a specific commercial product or reveal the concentration. The second list is public information under General Provisions Article, §4-335, Annotated Code of Maryland.

E. The Department may share trade secret information with other State and federal agencies that agree to protect the confidentiality of the information.

F. The operator shall provide the local emergency response agency with:

- (1) The list of chemicals developed under §B of this regulation, if no trade secrecy is claimed;
- (2) The second list, developed under §D of this regulation, if trade secrecy is claimed; and
- (3) A copy of the Safety Data Sheets for every commercial product brought to the well site that contains a substance designated as a hazardous chemical by the federal Occupational Safety and Health Administration.

G. Upon request, the operator shall provide the public with the same information made available to the local emergency response agency. The operator may satisfy this requirement by providing the information to the Department in a format the Department specifies; the Department will post the information on its website until the well completion report is filed and will maintain it in the Department's file on the well until the well is properly abandoned.

H. If a claim of trade secrecy is made, the operator shall provide to the Department contact information, including the name of the company, an authorized representative, and a telephone number answered 24 hours per day, 7 days per week by a person with the ability and authority to provide the trade secret information in accordance with this regulation.

I. Health Care Professionals Diagnosing or Treating a Patient.

- (1) An operator shall give the trade secret information immediately to a health care professional who states, orally or in writing, that the health care professional needs the trade secret information to diagnose or treat a patient.
- (2) The operator may not condition the disclosure upon the execution of a confidentiality agreement.
- (3) The operator may not delay the disclosure for the execution of a confidentiality agreement.
- (4) The health care professional may share the information with other persons only as medically necessary, including, but not limited to, the patient, other health professionals involved in the treatment of the patient, the patient's family members if the

patient is unconscious, unable to make medical decisions, or is a minor, the Centers for Disease Control and Prevention, and other government public health agencies.

J. Public Health Professionals.

(1) Upon receipt of a written request and statement of need for public health purposes, the operator shall give the trade secret information to any health professional, toxicologist, or epidemiologist who is employed in the field of public health, including such persons employed at academic institutions who conduct public health research.

(2) The disclosure may be conditioned on the signing of a confidentiality agreement before disclosure.

(3) The recipient may share the information as professionally necessary.

.32 Radioactive Sealed Sources and Other Radioactive Materials.

A. An operator shall comply with applicable provisions of the Maryland Radiation Act, Environment Article, Title 8, Annotated Code of Maryland, and regulations promulgated under that title.

B. An operator may not use a radioactive material in charges used to perforate casing, cement, or both.

.33 Transportation and Truck Traffic.

A. An applicant for an initial drilling and operating permit to drill a new well shall submit to the Department a plan to ensure that travel for all heavy truck traffic to or from the well pad or to or from centralized facilities serving the well pad minimizes conflicts with the public.

B. An applicant shall ensure that its transportation plan, at a minimum:

(1) Avoids truck traffic during times of school bus transport of children to and from school locations;

(2) Ensures that truck traffic does not interfere with public events or festivals;

(3) Minimizes truck traffic in residential areas; and

(4) Minimizes conflict with public uses such as hunting and fishing.

B. If practicable, the applicant's plan shall reduce the number of truck trips to deliver material to the well pad and remove wastes from the well pad, and minimize the impact of remaining trips, through one or more of the following methods:

(1) Establishing a centralized water storage facility at a location that minimizes the use of roads near homes or other occupied buildings for the truck transportation of water to the centralized water storage facility;

(2) Improving the roads to be used so that damage to the roadways is minimized;

(3) Transferring water from the centralized storage facility to the well pad using aboveground temporary hoses or pipes;

(4) If proven to be safe and effective and to have less impact, establishing a centralized facility with all the equipment necessary for preparing and pressurizing the fracturing fluid, with noise and air pollution controls that minimize impacts to people, and deliver the water, proppant, and additives to the well pad using pipes;

(5) If proven to be safe and effective and to have less impact, performing fracturing using alternatives to high volume water-based fracturing fluid; and

(6) Implementing other modifications proposed by the applicant which are accepted by the Department as traffic reduction measures.

.34 Protection of Sensitive Aquatic Resources during Water Withdrawals.

A. If practicable, an operator shall arrange to acquire water for drilling and hydraulic fracturing from one or more permanent or semi-permanent water supply access points with large capacity and storage options to decrease risks related to water withdrawals such as invasive species.

B. In consultation with the Department of Natural Resources, the Department may require the applicant to perform additional studies to ensure a water withdrawal will not negatively impact aquatic life if the applicant seeks a water appropriation permit for water from:

(1) A sensitive headwater stream;

(2) A Class III stream; or

(3) A Tier II water.

.35 Protection of Fresh Water Aquifers.

A. The operator shall protect fresh water aquifers from contamination during drilling and during the life of the well.

B. The operator shall ensure that the drilling fluid used to drill intervals before reaching the depth 100 feet below the deepest known stratum bearing an underground source of drinking water, or the deepest known workable coal, whichever is deeper:

(1) Consists only of air, fresh water, a fresh water-based drilling fluid, or a combination of these; and

(2) Contains only additives that the manufacturer warrants have been certified under NSF/ANSI Standard 60, Certification for Drinking Water Treatment Chemicals – Health Effects.

.36 Control and Reporting of Air Emissions.

A. This regulation does not apply to an oil or gas well drilled before January 1, 2017, nor does it apply to a permit to drill a new gas storage well that is a replacement for a gas storage well on the same wellpad, where the gas storage well being replaced was in existence before January 1, 2017.

B. An operator shall ensure that reduced emissions completion is achieved on an oil or gas well that is subjected to high volume hydraulic fracturing or re-fracturing.

C. The operator shall use top-down best available technology, as determined by the Department and included as a condition of the drilling and operating permit, for the control of air emissions, including, to the extent relevant to the operations:

- (1) Improved compressor maintenance to reduce emissions from reciprocating compressors;
- (2) Low-bleed or no-bleed pneumatic controllers used to reduce emissions from control devices;
- (3) Dry seal systems to reduce emissions from centrifugal compressor seals;
- (4) A rigorous leak detection and repair program;
- (5) Zero emission or desiccant well gas dehydration;
- (6) Vapor recovery units used to reduce emissions from storage tanks;
- (7) A pipeline inspection, maintenance, and repair program; and
- (8) Plunger lift systems when natural gas liquids are present.

D. Methane Offset.

(1) Each calendar year the operator shall estimate the methane emissions from each well pad including the emissions from the well or wells on the pad and any other equipment on the pad.

(2) If practicable, the operator shall verify the estimates by operational data and from the leak detection and repair program.

(3) By April 1 of each year, the operator shall report to the Department the methane emissions for the previous calendar year, converted to CO₂ equivalent emissions.

(4) Upon notification from the Department that CO₂ equivalent allowances are available, the permittee shall purchase sufficient allowances to offset its methane emissions and provide documentation to the Department of the purchase.

.37 Engines and Compressors.

The operator shall ensure that:

A. All on-road and non-road vehicles and equipment using diesel fuel use ultra-low sulfur diesel fuel with maximum sulfur content of 15 ppm;

B. All on-road vehicles and equipment limit unnecessary idling to 5 minutes;

C. All trucks used to transport fresh water or wastewater meet EPA heavy duty engine standards for 2004 to 2006 engine model years in 40 CFR Part 86 which include a combined NO_x and non-methane hydrocarbon emission standard of 2.5 grams per brake horsepower-hour; and

D. Except for engines necessarily kept in ready-reserve, all diesel non-road engines limit idling to 5 consecutive minutes.

.38 Blowout Prevention.

The operator shall ensure that:

A. The well is equipped with blowout prevention equipment with two or more redundant mechanisms;

B. The blowout preventer is tested at a pressure at least 1.2 times the highest pressure expected to be experienced during the life of the well, including during well stimulation; and

C. The blowout preventer is tested on a weekly basis.

.39 Leak Detection and Repair (LDAR).

A. The applicant for an initial drilling and operating permit shall submit to the Department for approval a written plan for methane leak detection and repair.

B. The application shall ensure that the plan addresses:

(1) Training;

(2) LDAR audits;

(3) Contractor accountability;

(4) Internal leak definition for valves and pumps;

(5) More frequent monitoring;

(6) Repairing leaking components;

(7) Delay of repair compliance assurance;

(8) Electronic monitoring and storage of LDAR data;

(9) Quality assurance and quality control of LDAR data;

(10) Calibration and calibration drift assessment; and

(11) Records maintenance.

C. In its plan, the operator shall address leak detection and repair from wellhead to transmission line and the prompt repair of leaks.

D. The operator shall make records of leak detection and repair available to the Department upon request.

.40 Well Construction, Casing and Cement.

A. An operator shall ensure that a well is drilled, cased, and cemented to effectively isolate the borehole from the surrounding formations and prevent the migration of gas or liquids into or out of the casing and the formations.

B. Pilot Hole.

(1) Pilot Hole Required.

(a) Except as provided in §B(1)(b) of this regulation, an operator shall drill at least one pilot hole from a well pad before drilling a well from that pad that will include directional drilling.

(b) An operator proposing not to drill a pilot hole from a well pad prior to directional drilling shall submit to the Department for approval an explanation of how the operator will determine the geologic and hydrogeologic nature of the well

pad site and identify geologic features, underground voids, gas- or water-bearing formations, geologic faults, and the lowest underground sources of drinking water.

(2) *Pilot Hole Notification.* An operator who intends to drill a pilot hole shall:

(a) Obtain a well construction permit under COMAR 26.04.04; and

(b) No later than 30 days before beginning drilling of the pilot hole, submit to the Department a notification that includes:

(i) The name and contact information for the operator;

(ii) The location of the proposed pilot hole; and

(iii) A description of the logging to be conducted on the pilot hole.

(3) The operator shall drill the pilot hole from the surface of the ground to the bottom of the targeted geologic formation.

(4) The operator shall perform open hole logging on the pilot well to determine the geologic and hydrogeologic nature of the well pad site and to assist in the identification of geologic features, underground voids, gas- or water-bearing formations, geologic faults, and the lowest underground sources of drinking water.

(5) The operator shall submit the results of tests run on the pilot hole, including the open hole logging data, to the Department no later than 30 days after completing the pilot hole.

(6) The operator shall properly abandon and seal the pilot hole in accordance with COMAR 26.04.04.

C. The applicant for a drilling and operating permit to drill a new well shall submit a plan for the Department's approval that describes, at a minimum, how:

(1) A stable borehole will be drilled with minimal roughness of the borehole wall;

(2) Complete removal of drilling fluid will be accomplished;

(3) The cement system design addresses challenges to zonal isolation;

(4) Other factors that could interfere with the proper placement of the cement around the casing will be addressed;

(5) Corrosion of casing will be prevented, addressed, and monitored; and

(6) The casing and cement will assure integrity throughout the life of the well.

D. The Department shall include adherence to the drilling, casing and cementing plan, as well as integrity testing, as a condition of the permit.

E. Unless the applicant submits proof that demonstrates to the satisfaction of the Department that the applicant's plan assures isolation of the borehole from the surrounding formations and prevents the migration of gas or liquid into or out of the casing and the formation, as well or better than the minimum standards and criteria established in this section, the applicant shall ensure that its plan meets the following minimum standards and criteria:

(1) A conductor pipe shall be cemented to the surface;

(2) A drinking water casing shall:

(a) Extend from the surface to at least 100 feet below the depth of the deepest private drinking water well in the vicinity, including within at least 2,500 feet from the vertical wellbore, measured horizontally from the surface;

(b) If no private drinking water well exists within 2,500 feet from the vertical wellbore, extend from the surface to at least 100 feet below the depth of the deepest fresh water; and

(c) Be cemented along its entire length;

(3) A surface casing shall:

(a) Extend from the surface to at least 100 feet below the deepest underground source of drinking water, or 100 feet below the deepest coal seam through which the well passes, whichever is deeper; and

(b) Be cemented along its entire length;

(4) An intermediate casing shall:

(a) Extend from the surface to the depth necessary to provide for well control, downhole stability, safety, and separation of flow zones, but no shallower than 100 feet below the lowest underground source of drinking water; and

(b) Be cemented along its entire length;

(5) A production casing shall:

(a) Extend from the surface to its entire depth; and

(b) Be cemented along the horizontal portion of the well bore and to at least 500 feet above the highest formation where hydraulic fracturing will be performed, or to the base of the intermediate casing, whichever is shallower;

(6) A representative sample of each cement formulation shall be tested before use under conditions that are similar to those found in the well where the cement will be used;

(7) Open hole logging shall be performed and used to optimize the design and installation of the well;

(8) All casing installed in a well shall be steel alloy casing and have a minimum internal yield pressure rating designed to withstand at least 1.2 times the maximum pressure to which the casing may be subjected during drilling, production, or stimulation operations;

(9) The minimum internal yield pressure rating shall be based upon engineering calculations that shall be included in the plan;

(10) Thread and coupling designs for casing and tubing shall meet or exceed the maximum anticipated tensile, compressive, burst, and bending stress conditions for the well;

(11) Casing strings with threads shall be assembled to the correct torque specifications to ensure leak-proof connections;

(12) An operator shall use a sufficient number of centralizers to properly center the casing in each borehole; and

(13) The cement shall be allowed to set at static balance or under pressure for a minimum of 12 hours and shall have reached a compressive strength of at least 500 psi before the operator drills the plug or initiates any integrity testing.

F. Reconditioned Casing.

(1) An operator may permanently set reconditioned casing in a well only after the casing has passed a hydrostatic pressure test with an applied pressure at least 1.2 times the maximum internal pressure to which the casing may be subjected, based upon known or anticipated subsurface pressure, or pressure that may be applied during stimulation, whichever is greater, and assuming no external pressure.

(2) The operator shall mark the casing to verify the test status.

(3) The operator shall conduct any hydrostatic pressure tests using a method approved by the Department.

(4) The operator shall provide a copy of the test results to the Department before the casing is installed in the well.

G. The following requirements are applicable to wells drilled after October 1, 2017.

(1) The operator shall equip the well with a downhole safety valve and shall test the valve before putting the well into production and periodically thereafter.

(2) Unless otherwise approved by the Department, the operator shall ensure that the annulus between the production casing and production tubing is filled with a sufficient quantity of non-corrosive liquid to help prevent gas from flowing up the wellbore in the event that gas leaks into the annulus and to allow for ongoing monitoring of the liquid level as an indication of internal well integrity.

.41 Integrity and Pressure Testing.

A. The operator shall conduct integrity testing to ensure proper cementing of the well casing to the geological formations.

B. Integrity and Pressure Testing Plan.

(1) An applicant for an initial drilling and operating permit shall provide a plan for integrity and pressure testing of the cased hole for approval by the Department.

(2) The applicant shall include the following in the plan required under §B(1) of this regulation:

(a) Segmented radial cement bond logging, supplemented by other methods that the Department may require in a permit, such as omnidirectional cement bond logging and neutron logging;

(b) Pressure testing of each of the drinking water, surface, and intermediate casings after the casing is cemented and before drilling out of the casing;

(c) Casing shoe testing after drilling out of each of the drinking water, surface, and intermediate casings;

(d) Before perforating the casing and conducting hydraulic fracturing, pressure testing of the production casing;

(e) Periodic integrity testing during the lifetime of the well, no less frequently than every 5 years;

(f) Additional integrity testing before a well is re-fractured or before a well is restarted after being shut in for longer than one year.

C. Before commencing hydraulic fracturing, the operator shall certify to the Department the integrity of the casing and cement, the isolation of all fluid-bearing (gas or liquid) formations, and the sufficiency of the zonal isolation with supporting data.

D. If there is evidence of inadequate casing integrity or cement integrity, the operator shall notify the Department and propose remedial action.

E. The Department may specify in the permit specific tests and frequencies for integrity testing during the lifetime of the well.

F. The operator shall report all integrity test results to the Department.

.42 Monitoring During Drilling and High Volume Hydraulic Fracturing.

A. The operator shall perform a tiltmeter or microseismic survey for the first well hydraulically fractured on each pad to provide information on the extent, geometry, and location of fracturing.

B. The Department may require that tiltmeter or microseismic surveys also be conducted for second and subsequent wells on a pad.

C. The operator shall provide the results of the tiltmeter or microseismic survey, with an accompanying narrative, to the Department with the completion report required by Regulation .43 of this chapter.

D. The operator shall maintain, at the site, a written record of:

(1) Each pressure test, integrity test, and mechanical test of:

(a) Casings;

(b) Blowout preventers;

(c) Surface connections;

(d) Fittings; and

(e) Auxiliary wellhead equipment; and

(2) The following information, recorded daily:

(a) Footage drilled;

(b) Hole size;

(c) Accidents; and

(d) Spills.

.43 Completion Report.

A. No later than 30 days after the drilling, stimulating, and testing of a well are completed, the operator shall submit to the Department a completion report.

B. Except as provided in Regulation .31 of this chapter and for confidential geological and geophysical information protected under General Provisions Article, §4-335, Annotated Code of Maryland, information contained in the completion report and accompanying documents is available to the public.

C. The operator shall include in its completion report the following information, on a form provided by the Department:

- (1) The depth at which any fresh water inflow was encountered;
- (2) The lithology of penetrated strata, including color;
- (3) The total depth of the well;
- (4) A record of all commercial and noncommercial oil and gas encountered, including depths, tests, and measurements;
- (5) A record of all brackish and salt water inflows;
- (6) A log of the drilling liquid used, including the weight, the additives used, and at what depth;
- (7) A record of all casing used, including:
 - (a) Size, weight per foot, length, and depth set;
 - (b) Volume of cement used on each casing string; and
 - (c) Amount of casing recovered from the hole if the well was abandoned;
- (8) Generalized core descriptions, including:
 - (a) The type and depth of sample;
 - (b) Indications of oil, water, or gas;
 - (c) Estimates of porosity and permeability; and
 - (d) Percent recovery;
- (9) Data recorded regarding perforating, stimulating, and testing, including open-flow tests and shut-in pressures;
- (10) Data on bridge plugs set, make and type of plug, depth plug was set, whether plug was left in place or removed, and details of the plug-back operation below the bridge;
- (11) Information regarding the constituents of the fracturing fluid required under Regulation .31 of this chapter;
- (12) A copy of all electric, radiation, sonic, caliper, directional, and any other type of logs run in the well; and
- (13) The date on which verbal approval was obtained from the Department to plug the hole as a dry hole in a continuous progression from drilling or reworking.

.44 Site Security.

A. The operator shall secure the site.

B. At a minimum, the operator shall ensure that the security measures include:

- (1) Perimeter fencing, or another method of limiting access to the site approved by the Department;
- (2) Providing local emergency responders with duplicate keys to locks;
- (3) Fencing around any surface impoundments; and
- (4) Appropriate signage that:
 - (a) Has letters at least 1 inch high;
 - (b) Indicates the name of the permittee, the name of the lessor or landowner, and the Department and API well identification numbers;
 - (c) Indicates phone numbers for the operator and regulatory agencies required to be contacted in the event of an emergency at the site;
 - (d) Is posted in a prominent place as directed by the Department; and
 - (e) Is kept in good condition.

.45 Management of Drilling Fluids, Stimulation Fluids and Produced Water.

A. The operator shall:

- (1) Manage all drilling fluids and cuttings on the well pad in a closed loop system without the use of a surface impoundment for mud or cuttings;
- (2) Manage flowback and produced water in a closed loop system of tanks or containers at the pad site; and
- (3) Recycle flowback and produced water to the maximum extent practicable.

B.. Unless the applicant demonstrates that it is not practicable, the Department shall include in the permit a requirement that at least 90 percent of the flowback and produced water be recycled, and that the recycling be performed on the pad site of generation.

.46 Gathering Lines and Pipelines.

A. The operator shall obtain all necessary approvals and permits before beginning construction of gathering lines or pipelines, including approvals or permits for sediment and erosion control, dredging and filling of wetlands, and stream crossing.

B. The operator shall ensure that gathering lines are properly constructed, installed, and operated to prevent any leaks.

C. A person who owns or operates an underground facility for the conveyance of oil or gas shall participate as an owner-member in the one-call system under Public Utilities Article, § 12-101, Annotated Code of Maryland.

D. The operator shall ensure that pipelines and pipeline fittings used in the drilling, operating, or producing of an oil well, a gas well, or both, are designed for at least the greatest anticipated operating pressure or the maximum regulated relief pressure in accordance with the current recognized design practices of the industry.

.47 Flaring.

A. An operator may conduct flaring only if the content of flammable gas is too low to sustain combustion, or when flaring is required for safety.

B. The following circumstances do not justify flaring:

- (1) Inadequate water disposal capacity;
- (2) Undersized flowback equipment; or
- (3) Except for wildcat wells, lack of a pipeline connection.

C. When flaring is permitted during well completion, re-completions, or workovers of any well, the operator shall adhere to the following requirements:

(1) The operator shall either use a raised or elevated flare or an engineered combustion device with a reliable continuous ignition source, which has at least a 98 percent destruction efficiency of methane.

(2) The operator may not use impoundment flaring.

(3) The operator may not use flaring for more than 30 days on any wildcat well, unless the operator submits proof in a form acceptable to the Department that an extension of time is necessary.

(4) The operator shall ensure that flares are designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

.48 Noise.

A. The operator shall reduce noise to the lowest practicable level.

B. An applicant for an initial drilling and operating permit shall provide to the Department a power plan that results in the lowest practicable noise impact from the choice of energy source, including consideration of the impact of noise from on-site generators.

C. The operator shall use and maintain appropriate noise reduction devices on all equipment at the pad site.

D. The operator shall conduct noise modeling before beginning operations to demonstrate that noise standards in COMAR 26.02.03 will be met and noise sensitive areas will be protected.

E. The operator shall conduct noise monitoring at least once during drilling and once during hydraulic fracturing, to confirm that noise standards are met.

F. The Department may require the operator to perform noise monitoring in response to complaints about noise.

.49 Lighting.

A. Notwithstanding §§B—D of this regulation, the operator shall ensure that lighting at the well pad is sufficient to protect worker safety in accordance with State and federal requirements.

B. The operator shall ensure that night lighting:

- (1) Is used only when and where necessary;
- (2) Is directed downward; and
- (3) Uses low pressure sodium light sources wherever possible.

C. If a well pad is located within 1,000 feet of aquatic habitat, the Department may require screens or restrictions on the hours of operation to reduce light pollution.

D. In establishing light restrictions and management protocols, the operator shall minimize conflicts with recreational activities, in addition to minimizing stress and disturbance to sensitive aquatic and terrestrial communities.

.50 Spill Prevention, Control and Countermeasures and Emergency Response Plan.

A. The operator shall enter a spill in the record required under Regulation .42D of this chapter.

B. In addition to any other notifications required by law or permit, an operator shall report to the Department immediately, but not later than 30 minutes after detection, a spill or release that is not contained on the well pad.

C. An operator shall immediately clean up a spill or release and properly dispose of the waste.

D. Within 10 days after cleanup of a spill or release, an operator shall submit to the Department a written report containing:

- (1) The date, time, and place of spill or release;
- (2) The amount and type of material spilled or released;
- (3) A complete description of circumstances contributing to the spill or release;
- (4) A complete description of containment, removal, and cleanup operations including disposal sites;
- (5) Procedures, methods, and precautions instituted to prevent recurrence of a spill or release from the facility involved;
- (6) Any other information required by the Department to provide a complete description of the spill or release incident;

and

(7) A certification that the information provided is true and correct to the knowledge of the person signing the report.

E. Each applicant for an initial drilling and operating permit shall prepare and submit to the Department for approval a site-specific emergency response plan for preventing the spills of oil and hazardous substances and addressing spills that occur.

F. Before preparing the plan, the operator shall:

(1) Consult with the governing body of the local jurisdiction in which the well is located to verify that local responders have appropriate equipment and training to respond to an emergency at a well;

(2) Identify the nearest downstream water system with a surface intake, the estimated time of travel of a spill from the well site to the intake of that downstream system under low, median and high flow conditions, the emergency contact information of the nearest downstream water supplier; and

(3) Notify the nearest downstream water supplier regarding the location of the planned drilling by certified mail, return receipt requested.

G. At a minimum, the operator shall include the following in the plan:

(1) Using drip pans and secondary containment structures to contain spills;

(2) Conducting periodic inspections;

(3) Using signs and labels;

(4) Having appropriate personal protective equipment and appropriate spill response equipment at the facility;

(5) Training employees and contractors;

(6) Establishing a list of available disposal sites to be used for waste from clean-up in the event of a spill or release; and

(7) Establishing a communication plan for providing notification, information and updates about spills and other incidents

that:

(a) Contains contact names and telephone numbers; and

(b) Describes the process for informing:

(i) The public;

(ii) Local government;

(iii) Downstream water systems;

(iv) The Department; and

(v) The media.

H. The operator shall have at least two vacuum trucks on standby during drilling, fracturing, and flowback so that any spills occurring during those stages, which could be of significant volume, could be promptly removed from the pad.

I. The operator shall identify specially trained and equipped personnel who will respond to a well blowout, fire, or other incident that personnel at the site cannot manage. These specially trained and equipped personnel shall be capable of arriving at the site within 24 hours of the incident.

.51 Ongoing Monitoring and Corrective Measures.

A. If there is evidence of inadequate casing or cement integrity or methane migration, the operator shall notify the Department immediately and propose remedial action.

B. The operator shall monitor in accordance with the Department's standard protocols for environmental assessment monitoring, recordkeeping, and reporting during drilling, hydraulic fracturing, and production, as specified in the drilling and operating permit.

C. The Department shall develop standard protocols for ongoing monitoring and assessment for water quality, terrestrial and aquatic living resources, invasive species, geophysical assessments, and such additional information as may be required by the Department.

D. The operator shall report all information collected at the site and within the study area to the Department according to the protocols.

E. The Department may require more extensive testing of air, surface water, and ground water in instances where elevated levels of pollutants are suspected or have been detected.

.52 Invasive Species.

A. The applicant shall submit a plan with a new drilling and operating permit application for preventing the introduction of invasive species (plants and animals) and controlling any invasive species that is introduced.

B. The applicant shall ensure that the invasive species management plan required under §A of this regulation

(1) Emphasizes avoidance, early detection, and rapid response; and

(2) Includes, at a minimum:

(a) Flora and fauna inventory surveys of sites prior to operations, including water withdrawal sites;

(b) Procedures for avoiding the transfer of species by clothing, boots, vehicles, and water transfers, including assuring that the water withdrawal equipment is free from invasive species before use and before it is removed from the withdrawal site;

(c) Interim reclamation following construction and drilling to reduce opportunities for invasive species to be introduced;

(d) Annual monitoring and treatment of new invasive species populations as long as the well is active; and

(e) Post-activity restoration to pre-activity community structure and composition using seed that is certified free of noxious weeds.

C. The Department may require invasive species monitoring at the appropriate times of the year to identify early infestations.

.53 Site Reclamation.

A. The operator shall provide the Department with pre-development and post-development photographic documentation to ensure site closure conditions are satisfied.

B. The operator shall reclaim the site in two stages:

(1) Interim reclamation following well completion to stabilize the ground and reduce opportunities for invasive species; and

(2) Final restoration using species native to the geographic range and seed that is certified free of noxious weeds.

C. As part of site reclamation, the operator shall address all disturbed land, including the pad, access roads, ponds, pipelines, and locations of ancillary equipment.

D. Drilling and Operating Reclamation Plan. The operator shall prepare and submit to the Department a reclamation plan that:

(1) Describes how roads, well sites, and impoundments will be reclaimed; and

(2) Includes a:

(a) Proposed time schedule for each major step in the reclamation plan;

(b) Description of measures to be employed to dispose of debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard, and a description of the contingency plans which have been developed to preclude sustained combustion of these materials;

(c) Plan for backfilling, soil stabilization, compacting, grading, and controlling surface drainage following regrading, with contour maps at a scale of 1 inch equals 50 feet and cross sections that show the existing slope and the anticipated final surface configuration of the proposed permit area;

(d) Plan for removal, storage, and redistribution of topsoil, subsoil, or other materials, and revegetation to protect the site from erosion;

(e) Description, including appropriate cross sections and maps, of the measures to be used to plug, case, or manage wildcat wells, other wells, and other openings within the proposed permit area;

(f) Description of how contaminated materials will be disposed in accordance with requirements of the Department;

(g) Plan for disposing of the cuttings by:

(i) Transporting to an approved disposal facility; or

(ii) Other methods of disposal as approved by the Department; and

(h) Plan for removing and reclaiming the fresh water surface impoundment.

.54 Wastes and Wastewater.

A. The operator shall ensure that wastes and wastewater are handled in accordance with applicable federal, State, and local laws and regulations and managed in a way that prevents pollution of the environment.

B. The operator may not deliver drilling fluids, hydraulic fracturing fluid, flowback, produced water or other wastewater associated the exploration, development, or production of crude oil or natural gas to a wastewater treatment facility that discharges to waters of this State unless the discharge permit for the wastewater treatment facility specifically allows it to accept that wastewater.

C. A person may not apply flowback or produced water to land or use it for de-icing.

D. A person may not dispose of drilling fluids, hydraulic fracturing fluid, flowback or other fluid brought to the surface in connection with natural gas storage operations or conventional oil or natural gas production, in an underground injection well in Maryland.

E. The operator shall keep a record of the volumes of wastes and wastewater generated on-site, the amount treated or recycled on-site, a record of each shipment off-site, and a confirmation that the amount of waste shipped was received at the designated facility.

F. The operator of a truck, tanker, or dump truck transporting liquid or solid wastes from a well pad shall ensure that the truck, tanker, or dump truck is fitted with a GPS system to track and record travel routes and travel time.

G. The operator shall ensure that cuttings, drilling mud, flowback, produced water, residue from treatment of flowback and produced water, and any equipment where scaling or residual is likely to occur or sludge is likely to collect are tested by a qualified consultant for radioactivity and disposed of in accordance with federal, State, and local laws and regulations.

H. If cuttings show no level of radioactivity beyond background as established by a qualified consultant obtained by the operator, and the material meets all criteria established by the Department, including sulfates and salinity, the Department may permit on-site disposal of cuttings.

I. The operator shall maintain records regarding wastes and waste shipments for a period of 3 years and shall make the records available to the Department upon request.

.55 Financial Assurance.

A. The applicant for a drilling and operating permit shall submit to the Department proof of financial assurance by satisfying the requirements of §B or C of this regulation.

B. The applicant shall provide:

(1) A certificate of liability insurance showing personal injury and property damage liability coverage of at least \$1,000,000 for each person and \$5,000,000 for each occurrence or accident;

(2) A certificate of environmental pollution liability insurance in an amount not less than \$10,000,000 per loss for bodily injury and property damage to persons and for natural resource damage, including the costs of cleanup and remediation, caused by the sudden or nonsudden release of pollutants, including the costs and expenses incurred in the investigation, defense, or settlement of claims; and

(3) A performance bond, a blanket bond, cash, a certificate of deposit, or a letter of credit, satisfactory to the Department, of at least \$50,000 for each gas or oil well, including each well on a multiwell pad, but not less than the most recent closure cost estimate provided by the operator under the Environment Article, § 14-105(a), Annotated Code of Maryland.

C. Gas Wells in Existence Before October 1, 2013.

(1) Except as provided in §F(2) of this regulation, a permittee for drilling and operating a gas well that was in existence on or before October 1, 2013, shall provide financial assurance by maintaining the same performance bond and liability insurance that is required for the holder's most recent permit or permit renewal issued on or before October 1, 2013.

(2) If a gas or oil well that was in existence on or before October 1, 2013, is modified after October 1, 2013, by recompletion, stimulation, deepening, or adding lateral extensions, the permittee shall comply with the requirements for financial assurance contained in §B of this regulation.

.56 Oil and Gas Correlative Rights.

A. Unless the drilling and operating permit provides for controlled directional drilling or estimated natural deviation, an operator may not drill a well that varies more than 3 degrees from the vertical.

B. If an operator needs to deviate more than 3 degrees from the vertical, the operator shall notify the Department. Deviations larger than 3 degrees from vertical may be permitted by the Department in order to straighten the hole, sidetrack impenetrables, or to correct other mechanical difficulties, if correlative rights are not in dispute.

C. The Department may require the deviation to be less than 3 degrees to protect correlative rights.

D. The Department shall have the right to require the operator to run a complete angular deviation and directional survey by a company knowledgeable about downhole surveys in directionally drilled wells at the operator's sole cost and risk.

E. If an angular deviation and directional survey verifies violations of the approved well location or spacing requirements, the Department may require the well to be redrilled or plugged and abandoned.

.57 Requirements for Plugging and Abandonment of Oil or Gas Wells.

A. An operator shall plug and abandon a well in accordance with this regulation.

B. Upon the abandonment or ending of operation of any dry hole, gas or oil well, storage well, pressure maintenance well, or stratigraphic well, the operator shall plug the hole in compliance with the plan approved by the Department.

C. The operator shall notify the Department at least 72 hours before beginning plugging operations.

D. The operator shall plug a dry hole no later than 60 days after completion of the well or before removal of the drill or completion rig, whichever occurs first.

E. Except as provided under §§ F and G of this regulation, an operator shall plug an oil or gas well no later than 60 days after primary production has stopped for 12 consecutive months.

F. Temporary Shut-In.

(1) The operator may submit a written request to the Department to temporarily shut in a well for economic or other reasons.

(2) The Department may grant the request, in writing, for a period of up to 1 year and with any conditions it determines necessary.

(3) By the end of the period specified by the Department under §F(2) of this regulation, the operator shall plug the well, recommence operation, or apply for an extension of the temporary shut-in period.

G. The Department may grant an extension of time to begin plugging operations upon written request of the operator, if the Department determines that the request is reasonable.

H. The operator may not recover surface casing at any location, except by written approval of the Department.

I. After plugging a well, the operator shall erect a permanent marker over the plugged well which:

(1) Consists of a length of pipe with a minimum diameter of 6 inches, filled with concrete;

(2) Extends at least 30 inches above the surface;

(3) Extends at least 10 feet into the well and is set in concrete; and

(4) Has the Department and American Petroleum Institute well identification numbers stamped or welded on the marker in a permanent manner.

J. Upon written request by the operator or by the surface owner, the Department may allow an offset marker to replace the marker over a plugged well if the wellhead marker interferes with subsequent activities, such as agriculture or construction.

K. The operator shall permanently fill the area immediately around the casing and conductor pipe to the surface just below plow depth with nonporous material to keep surface water from entering the well bore.

L. For wells in noncoal areas, the operator shall plug the well as follows:

(1) If total depth is deeper than the cemented production casing seat, as in an open hole completion, the operator shall fill the open hole portion of the well with cement to a point 50 feet above the top of the uncased portion of the hole;

(2) In the cemented part of the production casing, the operator shall set cement plugs to extend from at least 50 feet below the base of each oil, gas, or water-bearing zone to a point at least 100 feet above the top of the zone;

(3) The operator may use a mechanical plug, set at least 20 feet above the oil, gas, or water-bearing zone after filling the hole to that point with nonporous material, instead of a cement plug;

(4) When multiple oil, gas, or water zones occur within 500 vertical feet of one another, the operator may treat them as one zone for plugging, unless one zone has greater than hydrostatic pressure;

(5) After the plugging of the cemented portion of the production casing, the operator may separate and recover the uncemented portion of the production casing;

- (6) The operator shall set a cement plug 50 feet below and 50 feet above the point of casing separation;
 - (7) If the uncemented portion of the production casing cannot be recovered, the operator shall plug oil or gas zones behind the casing by perforating the casing and squeezing cement into the annular space;
 - (8) If the production casing is not set, the operator shall set a cement plug at least 50 feet below and 50 feet above each oil, gas, or water-bearing zone;
 - (9) The operator shall set a cement plug at least 50 feet below and 50 feet above the base of the surface casing;
 - (10) The operator shall place a cement plug of at least 50 vertical feet in the top of the well;
 - (11) After placing the top plug, the Department may require the operator to cut the casing below plow depth to prevent interference with any subsequent agricultural activities; and
 - (12) The operator shall place nonporous material in all portions of the well between cement plugs.
- M. If total depth cannot be reached in plugging a well with or without cemented production casing, the operator shall obtain written permission of the Department for an alternate means to plug the well.
- N. If a mineable coal seam greater than 1 foot in thickness is encountered in the drilling of a well, the operator shall contact the Department to obtain additional plugging instructions.
- O. The operator shall submit to the Department an affidavit, no later than 30 days after the plugging of the well, certifying that the well was plugged according to plans approved by the Department.

.58 Oil and Gas Bond Performance and Release Procedures.

A. The liability on the performance bond required in Regulation .55 of this chapter is conditioned on compliance with the law, regulations, permit, orders of the Department, and the regulations and approvals, if any, of the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays under COMAR 27.01 and continues until the:

- (1) Department approves the transfer of the drilling and operating permit and the transferee satisfies the financial assurance requirements, at which time the transferor's bond shall be released;
- (2) Department has approved the:
 - (a) Physical plugging of the well;
 - (b) Reclamation of the well site;
 - (c) Receipt of all logs, plugging records, and samples; and
 - (d) Performance of all requirements of these regulations and the drilling and operating permit; or
- (3) Drilling and operating permit terminates because drilling was not started within 18 months, and the Department approves the reclamation of the site.

B. The permittee shall ensure that a bond or other security contains a provision that it cannot be cancelled by the surety, bank, or other issuing entity except after not less than 90 days written notice to the permittee and Department. At least 45 days before the cancellation date indicated in the notice, the permittee shall file with the Department a commitment from a surety, bank, or other issuing entity, to provide a substitute bond or other security which shall be effective on the cancellation date indicated in the notice.

C. The operator may apply for bond release from the Department upon meeting all the requirements of these regulations and the drilling and operating permit.

D. Upon written request by the operator, the Department shall notify the surety and the principal by certified mail, return receipt requested, when the liability under the bond has been terminated.

E. The performance bond is forfeited on failure of the operator to perform in a manner set forth in the authorized drilling and operating permit and the reclamation plan, or upon revocation of the permit.

F. The Department shall notify the operator by certified mail, return receipt requested, of its intention to initiate a forfeiture proceeding.

G. Following receipt of the forfeiture notice by the operator, the operator has 30 days to show cause why the bond should not be forfeited.

H. On the operator's showing of cause, the Department shall provide sufficient time for the operator to comply with all permit conditions.

I. On failure of the operator to show cause, the bond is forfeited nisi, and the Department shall give notice by certified mail, return receipt requested, to the operator and surety of the forfeiture.

J. If the operator fails to comply with the permit conditions following forfeiture nisi within the time period set by the Department, the bond is forfeited absolute.

K. On an absolute forfeiture, the Department shall use the funds made available by the forfeiture to complete abandonment procedures and reclaim the area authorized by the drilling and operating permit.

L. On an absolute forfeiture, any funds remaining after the Department completes the abandonment procedures and reclaims the area shall be deposited in the Oil and Gas Fund.

.59 Replacement of a Contaminated Water Supply.

A. Presumptive Impact Area.

(1) A presumptive impact area exists for each well drilled for the exploration or production of gas from a deep shale deposit.

(2) The presumptive impact area includes:

(a) The area extending from the vertical wellbore to a radius of 2,500 feet from the vertical wellbore, measured horizontally from the surface; and

(b) The period of time from the beginning of drilling to 365 days after the last event of drilling, completion, or hydraulic fracturing.

B. Notification.

(1) The permittee shall:

(a) Notify the Department within 24 hours of any reported or known contamination of a water supply within the presumptive impact area; and

(b) File a written report with the Department within 72 hours of the notification that identifies the cause of the contamination and how and when the permittee will replace the water supply.

(2) The Department may extend the time for filing the report if the permittee demonstrates that the delay is due to circumstances beyond the control of the permittee.

C. Replacement of Water Supply.

(1) Except as provided in §C(2) and C(3) and of this regulation, a permittee shall replace, at no expense to the property owner, a water supply that is contaminated within the presumptive impact area.

(2) The permittee is not required to replace the water supply if the permittee demonstrates to the Department by a preponderance of the evidence that:

(a) The contamination is not the result of activities relating to the gas well; or

(b) The contamination existed before the commencement of activities allowed by the permit and was not worsened by those activities.

(3) If the permittee requested the permission of the property owner to sample and test the water supply before beginning activities allowed by the permit and offered to provide the property owner with a complete copy of the test results, and the property owner refused permission:

(a) The presumption of causation established under §C(1) and (2) of this regulation does not apply; and

(b) The Department may require the permittee to replace the contaminated water supply only if it determines that the permittee's activities were the cause of the contamination.

(4) A permittee that is required under this regulation to replace a water supply shall:

(a) Immediately provide a temporary water supply until a permanent replacement can be provided;

(b) Notify the property owner that if it is determined by the Department that the contamination was not the result of activities relating to the gas well or that the contamination existed before the commencement of activities allowed by the permit and was not worsened by those activities, the cost of water supply replacement is subject to reimbursement by the property owner;

(c) Provide, at no cost to the property owner, a permanent potable water supply by providing a new or retrofitted well or other alternative water supply that is capable of yielding potable water equal to the volume used or needed by the property owner before the contamination of the water supply;

(d) Provide adequate testing to verify the potability of the replacement water supply; and

(e) Submit to the Department, no later than 15 days after the completion of the replacement, a report detailing the procedures taken to replace the contaminated water supply.

D. If it is determined by the Department under §C(2) of this regulation that the contamination was not the result of activities relating to the gas well or that the contamination existed before the beginning of activities allowed by the permit and was not worsened by those activities, the permittee may seek reimbursement for the cost of the water supply replacement from the property owner.

E. Nothing in this regulation limits the ability of the Department to take any action authorized under Regulation .61 of this chapter for a violation of a provision of Environment Article, §§14-101—14-120, Annotated Code of Maryland, or this chapter or a permit issued under this chapter.

.60 Modification, Termination, or Transfer of Drilling and Operating Permits.

A. A person holding a valid drilling and operating permit, and who proposes to conduct operations not included in the person's current drilling and operating permit, in an effort to obtain or increase the production of oil or gas within the State, shall obtain a modification of the drilling and operating permit from the Department before the person:

(1) Recompletes a well in a different oil or gas reservoir or formation;

(2) Recompletes a well to commingle production from two or more oil or gas reservoirs within the same formation;

(3) Stimulates a zone that has been in production;

(4) Deepens a well;

(5) Skids a drill rig 75 feet or less; or

(6) Converts from one type of well to another.

B. A drilling and operating permit terminates 18 months after the date of issuance, if the proposed drilling has not started, unless the Department approves an extension for good cause shown.

C. A drilling and operating permit is not transferrable or assignable without prior written approval by the Department, and the satisfaction of the financial assurance requirements by the transferee or assignee. Before approval of the transfer, the permittee shall maintain the financial assurance requirements.

D. A permittee seeking to transfer or assign a drilling and operating permit shall submit an application transfer on a form provided by the Department, signed by both the transferor or assignor and the transferee or assignee, which contains provisions that the transferee or assignee acknowledges:

(1) Full awareness of the obligations, costs, and liabilities in performing reclamation, plugging, and other requirements of the drilling and operating permit and any other permit associated with the well; and

(2) The obligation to fulfill all requirements of the permit, Environment Article 14, Subtitle 1, Annotated Code of Maryland, and this chapter regardless of whether the transferor or assignor started the activity, or failed to properly perform the requirements before the transfer or assignment.

.61 Violations of Statutory, Regulatory, or Permit Requirements.

A. A person who violates or causes an act which violates a provision of Environment Article, §§14-101—14-120, Annotated Code of Maryland, or this chapter, or who violates or fails to comply with a permit issued under this chapter or an order of the Department when due notice is given, is guilty of a misdemeanor, and, upon conviction, the violator is subject to a fine not exceeding \$10,000 per day for each day of the offense, not to exceed a total fine of \$50,000, with costs imposed at the discretion of the court.

B. If the Department determines that there has been a violation of a provision of Environment Article, §§14-101—14-120, Annotated Code of Maryland, and this chapter, or a violation or failure to comply with a permit issued under this chapter, the Department may cause a written complaint to be served upon the alleged violator specifying the nature of the violation.

C. After or concurrent with service of the complaint, the Department may:

(1) Issue an administrative order requiring necessary corrective action, including stopping work and restoration, to be performed within the time prescribed, and providing the alleged violator with the opportunity to request a hearing before the Department within 10 days after receipt of the order;

(2) Require the alleged violator to file a written report regarding the alleged violation; or

(3) Require the alleged violator to appear before the Department at a time and place the Department specifies to answer the charge outlined in the complaint.

E. A written complaint or an order the Department issues shall be served on the alleged violator personally, by certified mail, return receipt requested, or by any method allowed for service of a summons under the Maryland Rules.

F. Upon failure by the alleged violator to comply with the requirements of an administrative order, a permit may be modified or suspended by the Department.

G. Modification or suspension of a permit shall be effective without stay upon appropriate notice to the alleged violator.

H. An administrative action or a permit suspension or modification may not be stayed pending a hearing.

I. Under emergency conditions, such as violation or imminent violation of an applicable State requirement, a permit may be modified or suspended.

J. The Department may inspect a permitted site at any time in order to determine whether conditions of the permit have been satisfied or whether the permit should be modified, suspended, or revoked.

K. The Department may revoke a permit after notice to the permittee, if the Department determines that:

(1) The permittee or operator has failed to comply with the requirements of an administrative order;

(2) False or inaccurate information was contained in the application for the permit;

(3) Conditions or requirements of the permit have been or are about to be violated;

(4) Substantial deviation from plans, specifications, or requirements has occurred;

(5) The operator has failed to allow an authorized representative of the Department upon presentation of proper credentials to:

(a) Enter at any reasonable time upon the permittee's premises where pertinent operations are conducted, or where records are required to be kept under terms and conditions of the permit;

(b) Have access to and copy any records required to be kept under terms and conditions of the permit;

(c) Inspect facilities to ensure compliance with the conditions of the permit; or

(d) Inspect any monitoring equipment or method required in the permit; or

(6) A change in any condition exists that requires temporary or permanent modification or elimination of the permitted operation.

L. The permittee has 10 calendar days to request, in writing, a hearing on the permit revocation to determine if the permit shall be reinstated.

M. The provisions of this regulation may not be construed to limit or otherwise affect the authority of the Department to proceed against violators under any applicable federal or State law.