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Action: Expanding disclosure of ingredients used in well stimulation & ...

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Part I

Standards of General Applicability

Article 1

General Information

4VAC25-150-10. Definitions.

The following words and terms when used in this chapter shall have the following meaning unless the context clearly indicates otherwise:

"Act" means the Virginia Gas and Oil Act of 1990, Chapter 22.1 (§ 45.1-361.1 et seq.) of Title 45.1 of the Code of Virginia.

"Adequate channel" means a watercourse that will convey the designated frequency storm event without overtopping its banks or causing erosive damage to the bed, banks and overbank sections.

"Applicant" means any person or business who files an application with the Division of Gas and Oil.

"Approved" means accepted as suitable for its intended purpose when included in a permit issued by the director or determined to be suitable in writing by the director.

"Berm" means a ridge of soil or other material constructed along an active earthen fill to divert runoff away from the unprotected slope of the fill to a stabilized outlet or sediment trapping facility.

"Board" means the Virginia Gas and Oil Board.

"Bridge plug" means an obstruction intentionally placed in a well at a specified depth.

"CAS number" means the unique number identifier for a chemical substance assigned by the Chemical Abstracts Service.

"Cased completion" means a technique used to make a well capable of production in which production casing is set through the productive zones.

"Cased/open hole completion" means a technique used to make a well capable of production in which at least one zone is completed through casing and at least one zone is completed open hole.

"Casing" means all pipe set in wells except conductor pipe and tubing.

"Causeway" means a temporary structural span constructed across a flowing watercourse or wetland to allow construction traffic to access the area without causing erosion damage.

"Cement" means hydraulic cement properly mixed with water.

"Cement bond log" means an acoustic survey or sonic-logging method that records the quality or hardness of the cement used in the annulus to bond the casing and the formation.

"Centralizer" means a device secured around the casing at regular intervals to center it in the hole.

"Channel" means a natural stream or man-made waterway.

"Chemical Disclosure Registry" means the chemical registry website known as FracFocus.org developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission.

"Chief" means the Chief of the Division of Mines of the Department of Mines, Minerals and Energy.

"Coal-protection string" means a casing designed to protect a coal seam by excluding all fluids, oil, gas, or gas pressure from the seam, except such as may be found in the coal seam itself.

"Cofferdam" means a temporary structure in a river, lake, or other waterway for keeping the water from an enclosed area that has been pumped dry so that bridge foundations, pipelines, etc., may be constructed.

"Completion" means the process ~~which~~ that results in a well being capable of producing gas or oil.

"Conductor pipe" means the short, large diameter string used primarily to control caving and washing out of unconsolidated surface formations.

"Corehole" means any hole drilled solely for the purpose of obtaining rock samples or other information to be used in the exploration for coal, gas, or oil. The term shall not include a borehole used solely for the placement of an explosive charge or other energy source for generating seismic waves.

"Days" means calendar days.

"Denuded area" means land that has been cleared of vegetative cover.

"Department" means the Department of Mines, Minerals and Energy.

"Detention basin" means a stormwater management facility which temporarily impounds and discharges runoff through an outlet to a downstream channel. Infiltration is negligible when compared to the outlet structure discharge rates. The facility is normally dry during periods of no rainfall.

"Dike" means an earthen embankment constructed to confine or control fluids.

"Directional survey" means a well survey that measures the degree of deviation of a hole from true vertical, and the distance and direction of points in the hole from vertical.

"Director" means the Director of the Department of Mines, Minerals and Energy or his authorized agent.

"Diversion" means a channel constructed for the purpose of intercepting surface runoff.

"Diverter" or "diverter system" means an assembly of valves and piping attached to a gas or oil well's casing for controlling flow and pressure from a well.

"Division" means the Division of Gas and Oil of the Department of Mines, Minerals and Energy.

"Emergency response plan" means the document that details the steps to prevent, control, and provide adequate countermeasures for a petroleum product discharge not covered by the spill prevention, control, and countermeasures plan or for a non-petroleum product discharge.

"Erosion and sediment control plan" means a document containing a description of materials and methods to be used for the conservation of soil and the protection of water resources in or on a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory and management information with needed interpretations, and a record of decisions contributing to conservation treatment. The plan shall contain a record of all major conservation decisions to ensure that the entire unit or units of land will be so treated to achieve the conservation objectives.

"Expanding cement" means any cement approved by the director ~~which~~ that expands during the hardening process, including but not limited to regular oil field cements with the proper additives.

"Firewall" means an earthen dike or fire resistant structure built around a tank or tank battery to contain the oil in the event a tank ruptures or catches fire.

"Flume" means a constructed device lined with erosion-resistant materials intended to convey water on steep grades.

"Flyrock" means any material propelled by a blast that would be actually or potentially hazardous to persons or property.

"Form prescribed by the director" means a form issued by the division, or an equivalent facsimile, for use in meeting the requirements of the Act or this chapter.

"Gas well" means any well which produces or appears capable of producing a ratio of 6,000 cubic feet (6 Mcf) of gas or more to each barrel of oil, on the basis of a gas-oil ratio test.

"Gob well" means a coalbed methane gas well ~~which~~ that is capable of producing coalbed methane gas from the de-stressed zone associated with any full-seam extraction of coal that extends above and below the mined-out coal seam.

"Groundwater" means all water under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, which has the potential for being used for domestic, industrial, commercial, or agricultural use or otherwise affects the public welfare.

"Highway" means any public street, public alley, or public road.

"Hydraulic fracturing" means the treatment of a well by the application of hydraulic fracturing fluid under pressure for the express purpose of initiating or propagating fractures in a target geologic formation to enhance production of oil or natural gas.

"Hydraulic fracturing fluid" means the fluid, including the applicable base fluid and all additives, used to perform hydraulic fracturing treatment.

"Inclination survey" means a survey taken inside a wellbore that measures the degree of deviation of the point of the survey from true vertical.

"Inhabited building" means a building, regularly occupied in whole or in part by human beings, including, but not limited to, a private residence, church, school, store, public building or other structure where people are accustomed to assemble except for a building being used on a temporary basis, on a permitted site, for gas, oil, or geophysical operations.

"Intermediate string" means a string of casing that prevents caving, shuts off connate water in strata below the water-protection string, and protects strata from exposure to lower zone pressures.

"Live watercourse" means a definite channel with bed and banks within which water flows continuously.

"Mcf" means, when used with reference to natural gas, 1,000 cubic feet of gas at a pressure base of 14.73 pounds per square inch gauge and a temperature base of 60°F.

"Mud" means a mixture of materials that creates a weighted fluid to be circulated downhole during drilling operations for the purpose of lubricating and cooling the bit, removing cuttings, and controlling formation pressures and fluid.

"Natural channel" or "natural stream" means nontidal waterways that are part of the natural topography. They usually maintain a continuous or seasonal flow during the year, and are characterized as being irregular in cross section with a meandering course.

"Nonerodible" means a material such as riprap, concrete, or plastic that will not experience surface wear due to natural forces.

"Oil well" means any well ~~which~~ that produces or appears capable of producing a ratio of less than 6,000 cubic feet (6 Mcf) of gas to each barrel of oil, on the basis of a gas-oil ratio test.

"Open hole completion" means a technique used to make a well capable of production in which no production casing is set through the productive zones.

"Person" means any individual, corporation, partnership, association, company, business, trust, joint venture, or other legal entity.

"Plug" means the sealing of, or a device or material used for the sealing of, a gas or oil wellbore or casing to prevent the migration of water, gas, or oil from one stratum to another.

"Pre-development" means the land use and site conditions that exist at the time that the operations plan is submitted to the division.

"Produced waters" means water or fluids produced from a gas well, oil well, coalbed methane gas well, or gob well as a byproduct of producing gas, oil, or coalbed methane gas.

"Producer" means a permittee operating a well in Virginia that is producing or is capable of producing gas or oil.

"Production string" means a string of casing or tubing through which the well is completed and may be produced and controlled.

"Red shales" means the undifferentiated shaley portion of the Bluestone formation normally found above the Pride Shale Member of the formation, and extending upward to the base of the Pennsylvanian strata, which red shales are predominantly red and green in color but may occasionally be gray, grayish green, and grayish red.

"Red zone" is a zone in or contiguous to a permitted area that could have potential hazards to workers or to the public.

"Retention basin" means a stormwater management facility ~~which~~ that, similar to a detention basin, temporarily impounds runoff and discharges its outflow through an outlet to a downstream channel. A retention basin is a permanent impoundment.

"Sediment basin" means a depression formed from the construction of a barrier or dam built to retain sediment and debris.

"Sheet flow;" ~~also called~~ or "overland flow;" means shallow, unconcentrated and irregular flow down a slope. The length of strip for sheet flow usually does not exceed 200 feet under natural conditions.

"Slope drain" means tubing or conduit made of nonerosive material extending from the top to the bottom of a cut or fill slope.

"Special diligence" means the activity and skill exercised by a good businessperson in a particular specialty, which must be commensurate with the duty to be performed and the individual circumstances of the case; not merely the diligence of an ordinary person or nonspecialist.

"Spill prevention, control, and countermeasure plan" or "SPCC plan" means the document that details the steps to prevent, control, and provide adequate countermeasures to certain petroleum product discharges.

"Stabilized" means able to withstand normal exposure to air and water flows without incurring erosion damage.

"Stemming" means the inert material placed in a borehole after an explosive charge for the purpose of confining the explosion gases in the borehole or the inert material used to separate the explosive charges (decks) in decked holes.

"Stimulate" means any action taken by a gas or oil operator to increase the inherent productivity of a gas or oil well, including, but not limited to, fracturing, shooting, or acidizing, but excluding (i) cleaning out, bailing, or workover operations and (ii) the use of surface-tension reducing agents, emulsion breakers, paraffin solvents, and other agents that affect the gas or oil being produced, as distinguished from the producing formation.

"Storm sewer inlet" means any structure through which stormwater is introduced into an underground conveyance system.

"Stormwater management facility" means a device that controls stormwater runoff and changes the characteristics of that runoff, including but not limited to, the quantity, quality, the period of release, or the velocity of flow.

"String of pipe" or "string" means the total footage of pipe of uniform size set in a well. The term embraces conductor pipe, casing, and tubing. When the casing consists of segments of different size, each segment constitutes a separate string. A string may serve more than one purpose.

"Sulfide stress cracking" means embrittlement of the steel grain structure to reduce ductility and cause extreme brittleness or cracking by hydrogen sulfide.

"Surface mine" means an area containing an open pit excavation, surface operations incident to an underground mine, or associated activities adjacent to the excavation or surface operations, from which coal or other minerals are produced for sale, exchange, or commercial use; and includes all buildings and equipment above the surface of the ground used in connection with such mining.

"Target formation" means the geologic gas or oil formation identified by the well operator in his application for a gas, oil or geophysical drilling permit.

"Temporary stream crossing" means a temporary span installed across a flowing watercourse for use by construction traffic. Structures may include bridges, round pipes or pipe arches constructed on or through nonerodible material.

"Ten-year storm" means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 10 years. It may also be expressed as an exceedance probability with a 10% chance of being equaled or exceeded in any given year.

"Tidewater Virginia" means the region defined in § 62.1-44.15:68 of the Code of Virginia.

"Trade secret" means the term defined in § 59.1-336 of the Code of Virginia.

"Tubing" means the small diameter string set after the well has been drilled from the surface to the total depth and through which the gas or oil or other substance is produced or injected.

"Two-year storm" means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in two years. It may also be expressed as an exceedance probability with a 50% chance of being equaled or exceeded in any given year.

"Vertical ventilation hole" means any hole drilled from the surface to the coal seam used only for the safety purpose of removing gas from the underlying coal seam and the adjacent strata, thus, removing the gas that would normally be in the mine ventilation system.

"Water bar" means a small obstruction constructed across the surface of a road, pipeline right-of-way, or other area of ground disturbance in order to interrupt and divert the flow of water on a grade for the purpose of controlling erosion and sediment migration.

"Water-protection string" means a string of casing designed to protect groundwater-bearing strata.

4VAC25-150-30. Other laws and, regulations, and ordinances.

Nothing in this chapter shall relieve a permittee of the duty to comply with other laws ~~and, regulations, and~~ [applicable] local land use ordinances.

Article 2 Permitting

4VAC25-150-80. Application for a permit.

A. Applicability.

1. Persons required in § 45.1-361.29 of the Code of Virginia to obtain a permit or permit modification shall apply to the division on the forms prescribed by the director. All lands on which gas, oil, or geophysical operations are to be conducted shall be included in a permit application.

2. In addition to specific requirements for variances in other sections of this chapter, any applicant for a variance shall, in writing, document the need for the variance and describe the alternate measures or practices to be used.

3. Prior to accepting an application for a permit to drill for gas or oil in Tidewater Virginia, the department shall convene a pre-application meeting within the locality where the operation is proposed. The pre-application meeting shall ensure those who desire to submit an application are aware of the requirements established in § 62.1-195.1 of the Code of Virginia and 9VAC15-20. The department, in conjunction with the Department of Environmental Quality, shall conduct the meeting. The meeting shall be open to the public and the department shall notify the locality in which the meeting is to take place [and adjacent localities]. No application for a

permit to drill for gas or oil in Tidewater Virginia shall be accepted until the meeting is completed.

B. The application for a permit shall, as applicable, be accompanied by the fee in accordance with § 45.1-361.29 of the Code of Virginia, the bond in accordance with § 45.1-361.31 of the Code of Virginia, and the fee for the Orphaned Well Fund in accordance with § 45.1-361.40 of the Code of Virginia.

C. Each application for a permit shall include information on all activities, including those involving associated facilities, to be conducted on the permitted site. This shall include the following:

1. The name and address of:

a. The gas, oil, or geophysical applicant;

b. The agent required to be designated under § 45.1-361.37 of the Code of Virginia; and

c. Each person whom the applicant must notify under § 45.1-361.30 of the Code of Virginia;

2. The certifications required in § 45.1-361.29 E of the Code of Virginia;

3. Certification from the applicant that the proposed operation complies with all [applicable] local land use ordinances;

~~3.~~ 4. The proof of notice to affected parties required in § 45.1-361.29 E of the Code of Virginia, which shall be:

a. A copy of a signed receipt or electronic return receipt of delivery of notice by certified mail;

b. A copy of a signed receipt acknowledging delivery of notice by hand; or

c. If all copies of receipt of delivery of notice by certified mail have not been signed and returned within 15 days of mailing, a copy of the mailing log or other proof of the date the notice was sent by certified mail, return receipt requested;

~~4.~~ 5. If the application is for a permit modification, proof of notice to affected parties, as specified in subdivision C ~~3~~ 4 of this section;

~~5.~~ 6. Identification of the type of well or other gas, oil, or geophysical operation being proposed;

7. A list of ingredients anticipated to be used in any hydraulic fracturing operations [. The applicant should identify any ingredients claimed to be trade secrets and the department shall utilize the process described in 4VAC25-150-365(C) to determine if the identified ingredients are entitled to trade secret protection] ;

8. The groundwater baseline sampling, analysis, and monitoring plan in accordance with 4VAC25-150-95;

~~6.~~ 9. The plat in accordance with 4VAC25-150-90;

~~7.~~ 10. The operations plan in accordance with 4VAC25-150-100;

~~8.~~ 11. The information required for operations involving hydrogen sulfide in accordance with 4VAC25-150-350;

~~9.~~ 12. The location where the Spill Prevention Control and Countermeasure spill prevention, control, and countermeasure (SPCC) plan is available, if one is required;

13. The emergency response plan;

~~40-~~ 14. The Department of Mines, Minerals and Energy, Division of Mined Land Reclamation's permit number for any area included in a Division of Mined Land Reclamation permit on which a proposed gas, oil, or geophysical operation is to be located;

~~41-~~ 15. For an application for a conventional well, the information required in 4VAC25-150-500;

~~42-~~ 16. For an application for a coalbed methane gas well, the information required in 4VAC25-150-560;

~~43-~~ 17. For an application for a geophysical operation, the information required in 4VAC25-150-670; and

~~44-~~ 18. For an application for a permit to drill for gas or oil in Tidewater Virginia, the environmental impact assessment meeting the requirements of § 62.1-195.1 B of the Code of Virginia and 9VAC15-20.

~~D. After July 1, 2009, all~~ All permit applications and plats submitted to the division shall be in electronic form or a format prescribed by the director.

4VAC25-150-95. Groundwater baseline sampling, analysis, and monitoring plan.

A. Each application for a permit shall include a groundwater baseline sampling, analysis, and monitoring plan. The groundwater monitoring program will consist of initial baseline groundwater sampling and testing followed by subsequent sampling and testing after setting the production casing or liner.

B. If four or fewer available groundwater sources are present within a one-quarter-mile radius of the location of a proposed oil or gas well, or department-approved monitoring well, the operator shall collect a sample from each available groundwater source.

C. If more than four available groundwater sources are present within the one-quarter-mile radius, the operator shall submit a plan for approval to the director for selecting the available groundwater sources based on all of the following criteria:

1. Available groundwater sources closest to the location of the (i) proposed oil or gas well, (ii) department-approved monitoring well, or (iii) multi-well pad are preferred.

2. Sample locations shall be chosen in a radial pattern around the permitted location.

3. Where available groundwater sources are present in different aquifers, a sample shall be collected from each aquifer. Where multiple available groundwater sources are present in a single aquifer, an operator shall give adequate consideration to vertical separation and aquifer zones in selecting available groundwater sources for sampling.

4. If groundwater flow direction is known or reasonably can be inferred, samples from both upgradient and downgradient available groundwater sources are required, if available.

D. The initial sampling and testing shall be conducted within the 12-month period prior to drilling the well or the first well on a multi-well pad. Subsequent sampling and testing shall be conducted between six and 12 months after setting the production casing or liner. An operator shall make a reasonable attempt to conduct all sampling during the same month of the year. An operator may request in writing

approval from the director to deviate from these sampling and testing timeframes in its permit application based on site specific geologic and hydrologic conditions (e.g., flow rate and direction). Previously sampled groundwater sources, including samples obtained by other operators, may be used if collection of the sample or samples meets all of the requirements of this section and are approved by the director.

E. All samples collected pursuant to this section shall be analyzed and tested by a laboratory certified or accredited under the Virginia Environmental Laboratory Accreditation Program established in 1VAC30-45 and 1VAC30-46.

F. Copies of all final laboratory analytical results and spatial coordinates of the available water source shall be provided by the operator or its representative to the department and water source owner within three months of sample collection. All analytical results and spatial coordinates of the available water source shall be made available to the public by the department.

G. The initial and subsequent sampling and testing described in this section shall, at a minimum, include the following items:

1. Chlorides;
2. Total dissolved solids;
3. Dissolved gases (methane, ethane, propane);
4. Hardness;
5. Iron;
6. Manganese;
7. pH;
8. Sodium; and
9. Sulfate.

Field observations such as odor, water color, sediment, bubbles, and effervescence shall also be documented. Handheld detection devices shall be sufficient for testing for methane.

H. If free gas or a dissolved methane concentration greater than 10.0 milligrams per liter (mg/L) is detected in a water sample, gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen δ 12C, 13C, 1H, and 2H) shall be performed to determine gas type.

I. The operator shall provide verbal and written notification to the director and groundwater source owner within 24 hours if test results indicate:

1. The presence of thermogenic or a mixture of thermogenic and biogenic gas;
2. The methane concentration increases by more than 5.0 mg/L between sampling periods;
3. The methane concentration is detected at or above 10.0 mg/L; or
4. Exceedances of the parameters listed in 9VAC25-280-70.

J. Upon receiving notification pursuant to this subsection, the director shall have the authority to order an additional sampling test to be completed within six months of the test that resulted in the notification. This authority is in addition to enforcement actions the director may utilize pursuant to 4VAC25-150-170.

4VAC25-150-100. Operations plans.

A. Each application for a permit or permit modification shall include an operations plan, in a format approved by or on a form prescribed by the director. The operations plan and accompanying maps or drawings shall become part of the terms and conditions of any permit which is issued.

B. The operations plan shall describe the specifications for the use of centralizers to ensure casing is centered in the hole. The specifications shall include, at a minimum, one centralizer within 50 feet of the water protection string seat and then in intervals no greater than every 150 feet above the first centralizer and are subject to the approval of the director.

~~B. C.~~ The applicant shall indicate how risks to the public safety or to the site and adjacent lands are to be managed, consistent with the requirements of § 45.1-361.27 B of the Code of Virginia, and shall provide a short narrative, if pertinent. The operations plan shall identify red zone areas.

4VAC25-150-110. Permit supplements and permit modifications.

A. Permit supplements.

1. Standard permit supplements. A permittee shall be allowed to submit a permit supplement when work being performed:

- a. Does not change the disturbance area as described in the original permit; and
- b. Involves activities previously permitted.

The permittee shall submit written documentation of the changes made to the permitted area no later than 30 days after completing the change. All other changes to the permit shall require a permit modification in accordance with § 45.1-361.29 of the Code of Virginia.

2. Permit supplements for disclosure of ingredients used in hydraulic fracturing. Prior to completion of a well, the permittee shall submit a permit supplement when the ingredients [~~used or~~] expected to be used in the hydraulic fracturing process differ in any way from that which was submitted pursuant to subdivision C 7 of 4VAC25-150-80. [The permittee should identify any ingredients claimed to be trade secrets and the department shall utilize the process described in 4VAC25-150-365(C) to determine if the identified ingredients are entitled to trade secret protection.]

~~2.~~ 3. Emergency permit supplements. If a change must be implemented immediately for an area off the disturbance area as described in the original permit, or for an activity not previously permitted due to actual or threatened imminent danger to the public safety or to the environment, the permittee shall:

- a. Take immediate action to minimize the danger to the public or to the environment;
- b. Notify the director as soon as possible of actions taken to minimize the danger and, if the director determines an emergency still exists and grants oral approval, commence additional changes if necessary; and
- c. Submit a supplement to the permit within seven working days of notifying the director with a written description of the emergency and action taken. An incident report may also be required as provided for in 4VAC25-150-380.

Any changes to the permit are to be temporary and restricted to those that are absolutely necessary to minimize danger. Any permanent changes to the permit shall require a permit modification as provided for in subsection B of this section.

B. Permit modifications.

1. **Applicability.** All changes to the permit which do not fit the description contained in subsection A of this section shall require a permit modification in accordance with § 45.1-361.29 of the Code of Virginia.

2. **Notice and fees.** Notice of a permit modification shall be given in accordance with § 45.1-361.30 of the Code of Virginia. The application for a permit modification shall be accompanied, as applicable, by the fee in accordance with § 45.1-361.29 of the Code of Virginia and the bond in accordance with § 45.1-361.31 of the Code of Virginia.

3. **Waiver of right to object.** Upon receipt of notice, any person may, on a form approved by the director, waive the time requirements and their right to object to a proposed permit modification. The department shall be entitled to rely upon the waiver to approve the permit modification.

4. **Permit modification.** The permittee shall submit a written application for a permit modification on a form prescribed by the director. The permittee may not undertake the proposed work until the permit modification has been issued. As appropriate, the application shall include, but not be limited to:

a. The name and address of:

(1) The permittee; and

(2) Each person whom the applicant must notify under § 45.1-361.30 of the Code of Virginia;

b. The certifications required in § 45.1-361.29 E of the Code of Virginia;

c. The proof of notice required in § 45.1-361.29 E of the Code of Virginia, as provided for in 4VAC25-150-80 C 3 4;

d. Identification of the type of work for which a permit modification is requested;

e. The plat in accordance with 4VAC25-150-90;

f. All data, maps, plats and plans in accordance with 4VAC25-150-100 necessary to describe the activity proposed to be undertaken;

g. When the permit modification includes abandoning a gas or oil well as a water well, a description of the plugging to be completed up to the water-bearing formation and a copy of the permit issued for the water well by the Virginia Department of Health;

h. The information required for operations involving hydrogen sulfide in accordance with 4VAC25-150-350 if applicable to the proposed operations;

i. ~~The location where the Spill Prevention Control and Countermeasure~~ spill prevention, control, and countermeasure (SPCC) ~~plan is available~~, if one has been developed for the site of the proposed operations, or the emergency response plan;

j. The Department of Mines, Minerals and Energy, Division of Mined Land Reclamation's permit number for any area included in a Division of Mined Land Reclamation permit; and

k. The information, as appropriate, required in 4VAC25-150-500, 4VAC25-150-560, 4VAC25-150-670, or 4VAC25-150-720.

5. Upon receipt of an application for a permit modification for a well in Tidewater Virginia, the director may require additional documentation to supplement

information submitted to the department pursuant to subsection B of § 62.1-195.1 of the Code of Virginia. If additional documentation is required, the operator shall submit that documentation to the director and the Department of Environmental Quality.

4VAC25-150-160. Approval of permits and permit modifications.

A. Permits, permit modifications, permit renewals, and transfer of permit rights shall be granted in writing by the director.

B. The director may not issue a permit, permit renewal, or permit modification prior to the end of the time period for filing objections pursuant to § 45.1-361.35 of the Code of Virginia unless, upon receipt of notice, any person may, on a form approved by the director, waive the time requirements and their right to object to a proposed permit application or permit modification application. The director shall be entitled to rely upon the waiver to approve the permit application or permit modification.

C. The director may not issue a permit to drill for gas or oil or approve a permit modification for a well where additional documentation is required pursuant to subdivision B 5 of 4VAC25-150-110 in Tidewater Virginia until he has considered the findings and recommendations of the collaborated with the Department of Environmental Quality, ~~as provided for in § 62.1-195.1 of the Code of Virginia and, where appropriate, has required changes in the permitted activity based on to ensure permit conditions accurately reflect the results from the~~ Department of Environmental Quality's recommendations coordinated review of the environmental impact assessment required pursuant to § 62.1-195.1 of the Code of Virginia.

D. The provisions of any order of the Virginia Gas and Oil Board that govern a gas or oil well permitted by the director shall become conditions of the permit.

4VAC25-150-280. Logs and surveys.

A. Each permittee drilling a well or corehole shall complete a driller's log, a gamma ray log, or other log showing the top and bottom points of geologic formations and any other log required under this section. The driller's log shall state, at a minimum, the character, depth, and thickness of geological formations encountered, including groundwater-bearing strata, coal seams, mineral beds, and gas-bearing or oil-bearing formations.

B. When a permittee or the director identifies that a well or corehole is to be drilled or deepened in an area of the Commonwealth ~~which~~ that is known to be underlain by coal seams, the following shall be required:

1. The vertical location of coal seams in the well or corehole shall be determined and shown in the driller's log and gamma ray log or other log.

2. The horizontal location of the well or corehole in coal seams shall be determined through an inclination survey from the surface to the lowest known coal seam. Each inclination survey shall be conducted as follows:

a. The first survey point shall be taken at a depth not greater than the most shallow coal seam; and

b. Thereafter shot points shall be taken at each coal seam or at intervals of 200 feet, whichever is less, to the lowest known coal seam.

3. Prior to drilling any well or corehole within 500 feet of a coal seam in which there are active workings, the permittee shall conduct an inclination survey to determine whether the deviation of the well or corehole exceeds one degree from

true vertical. If the well or corehole is found to exceed one degree from vertical, then the permittee shall:

- a. Immediately cease operations;
 - b. Immediately notify the coal owner and the division;
 - c. Conduct a directional survey to drilled depth to determine both horizontal and vertical location of the well or corehole; and
 - d. Unless granted a variance by the director, correct the well or corehole to within one degree of true vertical.
4. Except as provided for in subdivision B 3 of this section, if the deviation of the well or corehole exceeds one degree from true vertical at any point between the surface and the lowest known coal seam, then the permittee shall:
- a. Correct the well or corehole to within one degree of true vertical; or
 - b. Conduct a directional survey to the lowest known coal seam and notify the coal owner of the actual well or corehole location.
5. The director may grant a variance to the requirements of subdivisions B 3 and B 4 of this section only after the permittee and coal owners have jointly submitted a written request for a variance stating that a directional survey or correction to the well or corehole is not needed to protect the safety of any person engaged in active coal mining or to the environment.
6. If the director finds that the lack of assurance of the horizontal location of the well or corehole to a known coal seam poses a danger to persons engaged in active coal mining or the lack of assurance poses a risk to the public safety or the environment, the director may, until 30 days after a permittee has filed the completion report required in 4VAC25-150-360, require that a directional survey be conducted by the permittee.
7. The driller's log shall be updated on a daily basis. The driller's log and results of any other required survey shall be kept at the site until drilling and casing or plugging a dry hole or corehole are completed.

C. Each permittee completing a well shall complete a cement bond log for the water protection string. [Permittees may petition the director to submit alternative documentation that demonstrates effective bond between the casing and the formation.]

4VAC25-150-300. Pits.

A. General requirements.

1. Pits are to be temporary in nature and are to be reclaimed when the operations using the pit are complete. All pits shall be reclaimed within 180 days unless a variance is requested and granted by the field inspector.
2. Pits may not be used as erosion and sediment control structures or stormwater management structures, and surface drainage may not be directed into a pit.
3. Pits shall have a properly installed and maintained liner or liners made of 10 mil or thicker high-density polyethylene or its equivalent.
4. Pits shall be constructed of sufficient size and shape to contain all fluids and maintain a two-foot freeboard.

5. Pits shall be enclosed by adequate fencing to secure the site from access by the public and wildlife.

B. Operational requirements.

1. The integrity of lined pits ~~must~~ and their enclosures shall be maintained until the pits are reclaimed or otherwise closed. Upon failure of the lining or pit, the operation shall be shut down until the liner and pit are repaired or rebuilt. The permittee shall notify the division, by the quickest available means, of any pit leak.
2. Motor oil and, to the extent practicable, crude oil shall be kept out of the pit. Oil shall be collected and disposed of properly. Litter and other solid waste shall be collected and disposed of properly and not thrown into the pit.
3. At the conclusion of drilling and completion operations or after a dry hole, well, or corehole has been plugged, the pit shall be drained in a controlled manner and the fluids disposed of in accordance with 4VAC25-150-420. If the pit is to be used for disposal of solids, then the standards of 4VAC25-150-430 shall be met.

4VAC25-150-340. Drilling fluids.

A. Operations plan requirements. Applicants for a permit shall provide, prior to commencing drilling, documentation that the water meets the requirements of subsection B of this section, and a general description of the additives and muds to be used in all stages of drilling. Providing that the requirement in ~~4VAC25-150-340 subsection C of this section~~ is met, variations necessary because of field conditions may be made with prior approval of the director and shall be documented in the driller's log.

B. Water quality in drilling.

1. Before the water-protection string is set, permittees shall use one of the following sources of water in drilling:

- a. Water that is from a water well or spring located on the drilling site; or
- b. Conduct an analysis of groundwater within ~~500 feet~~ a one-quarter-mile radius of the drilling location, and use:

(1) Water which is of equal or better quality than the groundwater; or

(2) Water which can be treated to be of equal or better quality than the groundwater. A treatment plan must be included with the application if water is to be treated.

~~(3)~~ If, after a diligent search, a groundwater source (such as a well or spring) cannot be found within ~~500 feet~~ a one-quarter-mile radius of the drilling location, the applicant may use water meeting the parameters listed in the Department of Environmental Quality's "Ground water criteria," 9VAC25-280-70. The analysis shall include, but is not limited to, the following items:

~~(1)~~ (a) Chlorides;

~~(2)~~ (b) Total dissolved solids;

~~(3)~~ (c) Hardness;

~~(4)~~ (d) Iron;

~~(5)~~ (e) Manganese;

~~(6)~~ (f) PH;

~~(7)~~ (g) Sodium; and

~~(8)~~ (h) Sulfate.

(4) Drilling water analysis shall be taken within a one-year period preceding the drilling application.

2. After the water-protection string is set, permittees may use waters that do not meet the standards of subdivision B 1 of this section.

C. Drilling muds. No permittee may use an oil-based drilling fluid or other fluid which has the potential to cause acute or chronic adverse health effects on living organisms unless a variance has been approved by the director. Permittees must explain the need to use such materials and provide the material data safety sheets. In reviewing the request for the variance, the director shall consider the concentration of the material, the measures to be taken to control the risks, and the need to use the material. Permittees shall also identify what actions will be taken to ensure use of the additives will not cause a lessening of groundwater quality.

4VAC25-150-360. Drilling, completion, and other reports.

A. Each permittee conducting drilling shall file, electronically or on a form prescribed by the director, a drilling report within 90 days after a well reaches total depth.

B. Each permittee drilling a well shall file, electronically or on a form prescribed by the director, a completion report within 90 days after the well is completed. All completion reports shall include the cement bond log required in subsection C of 4VAC25-150-280. Subject to the approval of the director, permittees may submit alternative documentation that demonstrates effective bond between the casing and the formation.

C. The permittee shall file the driller's log, the results of any other log or survey required to be run in accordance with this chapter or by the director, and the plat showing the actual location of the well with the drilling report, unless they have been filed earlier.

D. The permittee shall, within 90 days of reaching total depth, file with the division the results of any gamma ray, density, neutron ~~and~~, induction, and cement bond logs, or their equivalent, that have been conducted on the wellbore in the normal course of activities that have not previously been required to be filed.

4VAC25-150-365. Disclosure of well stimulation fluids.

A. In addition to other requirements that may be prescribed by the director, each completion report required in 4VAC25-150-360 shall also contain the following disclosures:

The operator of the well shall complete the Chemical Disclosure Registry form and upload the form on the Chemical Disclosure Registry, including:

- a. The operator name;
- b. The date of completion of the hydraulic fracturing treatment or treatments;
- c. The county in which the well is located;
- d. The American Petroleum Institute (API) number for the well;
- e. The well name and number;
- f. The longitude and latitude of the wellhead;
- g. The total vertical depth of the well;

- h. The total volume of water used in the hydraulic fracturing treatment or treatments of the well or the type and total volume of the base fluid used in the hydraulic fracturing treatment or treatments, if something other than water;
- i. Each additive used in the hydraulic fracturing treatments and the trade name, supplier, and a brief description of the intended use or function of each additive in the hydraulic fracturing treatment or treatments;
- j. Each chemical ingredient used in the hydraulic fracturing treatment or treatments of the well that is subject to the requirements of 29 CFR 1910.1200(g)(2), as provided by the chemical supplier or service company or by the operator, if the operator provides its own chemical ingredients;
- k. The actual or maximum concentration of each chemical ingredient listed under subdivision j of this subsection in percent by mass;
- l. The CAS number for each chemical ingredient listed, if applicable; and
- m. A supplemental list of all chemicals, their respective CAS numbers, and the proportions thereof not subject to the requirements of 29 CFR 1910.1200(g)(2), that were intentionally included in and used for the purpose of creating the hydraulic fracturing treatments for the well.

B. [The department shall obtain and maintain data submitted to the Chemical Disclosure Registry.] If the Chemical Disclosure Registry is temporarily inoperable, the operator of a well on which hydraulic fracturing treatment or treatments were performed shall supply the department with the required information and upload the information on the registry when it is again operable. The information required shall also be filed as an attachment to the completion report for the well, which shall be posted, along with all attachments, on the department's website, except that information determined to be subject to trade secret protection shall not be posted.

C. All information related to the specific identity or CAS number or amount of any additive or chemical ingredient used in hydraulic fracturing shall be submitted to the department and shall be available to the public unless the department determines that information supplied by the operator and claimed to be a trade secret is entitled to such protection. All information claimed as a trade secret shall be identified as such at the time of submission of the appropriate report. The department shall treat as confidential in accordance with law, information that meets the criteria specified in law for a trade secret and is contained on such forms and filings as is required under this chapter. [Such criteria shall include, but not be limited to, a demonstration by the claimant that the information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.]

Should the department determine that information is protected as a trade secret, the operator of the well shall indicate on the Chemical Disclosure Registry or the supplemental list that the additive or chemical ingredient or their amounts are entitled to trade secret protection. If a chemical ingredient name or CAS number is entitled to trade secret protection, the chemical family or other similar description associated with such chemical ingredient shall be provided. The operator of the well on which hydraulic fracturing was performed shall provide the contact information, including the name, authorized representative, mailing address, and phone number of the business organization for which trade secret protection exists. Unless the information is entitled to protection as a trade secret, information submitted to the department or uploaded on the Chemical Disclosure Registry is public information.

D. The operator understands that the director may disclose information regarding the specific identity of a chemical, the concentration of a chemical, or both the specific identity and concentration of a chemical claimed to be a trade secret to additional department staff to the extent that such disclosure is necessary to assist the department in responding to an emergency resulting in an order pursuant to subsection D of § 45.1-361.27 of the Code of Virginia provided that such individuals shall not disseminate the information further. In addition, the director may disclose such information to any relevant state or local government official to assist in responding to the emergency. Any information so disclosed shall at all times be considered confidential and shall not be construed as publicly available. [The director shall notify the trade secret claimant or holder of disclosures made to relevant state or local government officials as soon as practicable after such disclosure is made.]

E. An operator may not withhold information related to chemical ingredients used in hydraulic fracturing, including information identified as a trade secret, from any health professional or emergency responder who needs the information for diagnostic, treatment, or other emergency response purposes subject to procedures set forth in 29 CFR 1910.1200(i). An operator shall provide directly to a health professional or emergency responder, all information in the person's possession that is required by the health professional or emergency responder, whether or not the information may qualify for trade secret protection under this section. The person disclosing information to a health professional or emergency responder shall include with the disclosure, as soon as circumstances permit, a statement of the health professional's confidentiality obligation. In an emergency situation, the operator shall provide the information immediately upon request to the person who determines that the information is necessary for emergency response or treatment. The disclosures required by this subsection shall be made in accordance with the procedures in 29 CFR 1910 with respect to a written statement of need and confidentiality agreements, as applicable.

4VAC25-150-535. Pressure testing requirements for production casing in conventional gas or oil wells.

A. The operator shall install casing that can withstand the effects of tension and can prevent leaks, burst, and collapse during (i) the casing's installation and cementing and (ii) subsequent drilling and producing operations.

B. Except as provided in subsection C of this section, all casing must be a string of new pipe with an internal pressure rating that is at least 20% greater than the anticipated maximum pressure to which the casing will be exposed.

C. Used casing may be approved for use as surface, intermediate, or production casing but shall be pressure tested after cementing and before completion. A passing pressure test is holding the anticipated maximum pressure to which it will be exposed for 30 minutes with not more than a 10% decrease in pressure.

D. New or used plain end casing, except when being used as conductor pipe, that is welded together for use must meet the following requirements:

1. The casing must pass a pressure test by holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease in pressure. The operator shall notify the department [electronically] at least 24 hours before conducting the test. The test results shall be entered on the drilling report.

2. The casing shall be welded using at least three passes with the joint cleaned between each pass.

4VAC25-150-610. Casing requirements for coalbed methane gas wells.

A. Water protection string.

1. Except as provided in subdivision A 5 of this section, the permittee shall set a water-protection string set to a point at least 300 feet below the surface or 50 feet below the deepest known groundwater horizon, whichever is deeper, circulated and cemented to the surface. If cement does not return to the surface, every reasonable effort shall be made to fill the annular space by introducing cement from the surface.
2. The operator shall test or require the cementing company to test the cement mixing water for pH and temperature prior to mixing the cement and to record the results on the cementing ticket.
3. After the cement is placed, the operator shall wait a minimum of eight hours and allow the cement to achieve a calculated compressive strength of 500 psi before drilling, unless the director approves a shorter period of time. The wait-on-cement (~~WOC~~) time shall be recorded within the records kept at the drilling rig while drilling is taking place.
4. When requested by the director, the operator shall submit copies of cement tickets or other documents that indicate the above specifications have been followed.
5. A coal-protection string may also serve as a water protection string only for gob wells.

B. Coal protection strings.

1. When any well penetrates coal seams that have not been mined out, the permittee shall, except as provided in subdivisions B 2 and B 3 of this section, set a coal-protection string. The coal-protection string shall exclude all fluids, oil, gas, and gas pressure, except that which is naturally present in each coal seam. The coal-protection string shall also exclude all injected material or disposed waste from the coal seams or the wellbore. The string of casing shall be set to a point at least 50 feet below the lowest coal seam, or as provided in subdivision B 3 of this section, and shall be circulated and cemented from that point to the surface, or to a point not less than 50 feet into the water-protection string or strings which are cemented to the surface.
2. For good cause shown, either before or after the permit is issued, when the procedure specified in subdivision B 1 of this section is demonstrated by the permittee as not practical, the director may approve a casing program involving:
 - a. The cementing of a coal-protection string in multiple stages;
 - b. The cementing of two or more coal-protection strings; or
 - c. The use of other alternative casing procedures.
3. The director may approve the program, provided he is satisfied that the result will be operationally equivalent to compliance with the provisions of subdivision B 1 of this section for the purpose of permitting the subsequent safe mining through the well or otherwise protecting the coal seams as required by this section. In the use of multiple coal-protection strings, each string below the topmost string shall be cemented at least 50 feet into the next higher string or strings that are cemented to the surface and be verified by a cement top log.
4. Depth of coal-protection strings.

a. A coal-protection string shall be set to the top of the red shales in any area underlain by them unless, on a showing by the permittee in the permit application, the director has approved the casing point of the coal-protection string at some depth less than the top of the red shales. In such event, the permittee shall conduct a gamma-ray/density log survey on an expanded scale to verify whether the well penetrates any coal seam in the uncased interval between the bottom of the coal-protection string as approved and the top of the red shales.

b. If an unanticipated coal seam or seams are discovered in the uncased interval, the permittee shall report the discovery in writing to the director. The permittee shall cement the next string of casing, whether a part of the intermediate string or the production string, in the applicable manner provided in this section for coal-protection strings, from a point at least 50 feet below the lowest coal seam so discovered to a point at least 50 feet above the highest coal seam so discovered.

c. The gamma-ray/density log survey shall be filed with the director at the same time the driller's log is filed under 4VAC25-150-360.

d. When the director believes, after reviewing documentation submitted by the permittee, that the total drilling in any particular area has verified the deepest coal seam higher than the red shales, so that further gamma-ray/density logs on an expanded scale are superfluous for the area, he may waive the constructing of a coal-protection string or the conducting of such surveys deeper than 100 feet below the verified depth of the deepest coal seam.

C. Coal-protection strings of wells drilled prior to July 1, 1982. In the case of wells drilled prior to July 1, 1982, through coal seams without coal-protection strings as prescribed in subsection B of this section, the permittee shall retain such coal-protection strings as were set. During the life of the well, the permittee shall, consistent with a plan approved by the director, keep the annular spaces between the various strings of casing adjacent to coal seams open to the extent possible, and the top ends of all such strings shall be provided with casing heads, or such other approved devices as will permit the free passage of gas or oil and prevent filling of the annular spaces with dirt or debris.

D. Producing from more than one stratum. The casing program for any well designed or completed to produce from more than one stratum shall be designed in accordance with the appropriate standard practices of the industry.

E. Casing through voids.

1. When a well is drilled through a void, the hole shall be drilled at least 30 feet below the void. The annular space shall be cemented from the base of the casing up to the void, and every reasonable attempt shall be made to fill up the annular space from the top of the void to the surface; or it shall be cemented at least 50 feet into the next higher string or strings of casing that are cemented to the surface, and shall be verified by a cement top log.

2. For good cause shown, the director may approve alternate casing procedures proposed by the permittee, provided that the director is satisfied that the alternative casing procedures are operationally equivalent to the requirements imposed by subdivision E 1 of this section.

3. For good cause shown, the director may impose special requirements on the permittee to prevent communication between two or more voids.

F. A well penetrating a mine other than a coal mine. In the event that a permittee has requested to drill a well in such a location that it would penetrate any active mine other than a coal mine, the director shall approve the safety precautions to be followed by the permittee prior to the commencement of activity.

G. Production casing.

1. Unless otherwise granted in a variance from the director:

a. For coalbed methane gas wells with cased completions and cased/open hole completions, production casing shall be set and cemented from the bottom of the casing to the surface or to a point not less than 50 feet into the lowest coal-protection or water-protection string or strings which are cemented to the surface.

b. For coalbed methane gas wells with open hole completions, the base of the casing shall be set to not more than 100 feet above the uppermost coalbed which is to be completed open hole. The casing shall be cemented from the bottom of the casing to the surface or to a point not less than 50 feet into the lowest coal-protection or water-protection string or strings which are cemented to the surface.

2. A coal-protection string may also serve as production casing.

H. Reporting of lost circulation zones. The permittee shall report to the director as soon as possible when an unanticipated void or groundwater horizon is encountered that results in lost circulation during drilling. The permittee shall take every necessary action to protect the lost circulation zone.

4VAC25-150-615. Pressure testing requirements for production casing in coalbed methane gas wells.

A. The operator shall install casing that can withstand the effects of tension and can prevent leaks, burst, and collapse during (i) the casing's installation and cementing and (ii) subsequent drilling and producing operations.

B. Except as provided in subsection C of this section, all casing must be a string of new pipe with an internal pressure rating that is at least 20% greater than the anticipated maximum pressure to which the casing will be exposed.

C. Used casing may be approved for use as surface, intermediate, or production casing but shall be pressure tested after cementing and before completion. A passing pressure test is holding the anticipated maximum pressure to which it will be exposed for 30 minutes with not more than a 10% decrease in pressure.

D. New or used plain end casing, except when being used as conductor pipe, that is welded together for use must meet the following requirements:

1. The casing must pass a pressure test by holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease in pressure. The operator shall notify the department [electronically] at least 24 hours before conducting the test. The test results shall be entered on the drilling report.

2. The casing shall be welded using at least three passes with the joint cleaned between each pass.

E. The provisions of this section shall not apply to gob wells.