

Virginia Administrative Code
Database updated through July 1, 2010

CHAPTER 150
VIRGINIA GAS AND OIL REGULATION
Part I
Standards of General Applicability
Article 1
General Information

- Section 10 Definitions
- Section 20 Basis and authority
- Section 30 Other laws and regulations
- Section 40 Registration
- Section 50 Gas or oil in holes not permitted as a gas or oil well
- Section 60 Due dates for reports and decisions
- Section 70 [Repealed]
- Section 80 Application for a permit
- Section 90 Plats
- Section 100 Operations plans
- Section 110 Permit supplements and permit modifications
- Section 120 Transfer of permit rights
- Section 130 Notice of permit applications and modifications
- Section 135 Waiver of right to object to permit applications
- Section 140 Objections to permit applications
- Section 150 Hearing and decision on objections to permit applications
- Section 160 Approval of permits and permit modifications
- Section 170 Enforcement
- Section 180 Notices of violation
- Section 190 Closure orders
- Section 200 Show cause orders
- Section 210 Monthly reports
- Section 220 Annual reports
- Section 230 Commencement of activity
- Section 240 Signs
- Section 250 Blasting and explosives
- Section 260 Erosion, sediment control and reclamation
- Section 270 Stormwater management
- Section 280 Logs and surveys
- Section 290 Actual well or corehole location
- Section 300 Pits
- Section 310 Tanks

Section 320 Blowout prevention

Section 330 Swabbing, perforating and wireline operations

Section 340 Drilling fluids

Section 350 Gas, oil or geophysical operations in hydrogen sulfide areas

Section 360 Drilling, completion and other reports

Section 370 Wellhead equipment

Section 380 Accidents, spills and unpermitted discharges

Section 390 Shut-in wells

Section 400 Measurement of gas and oil

Section 410 Venting and flaring of gas; escape of oil

Section 420 Disposal of pit and produced fluids

Section 430 Disposal of solids

Section 435 Plugging for abandonment or plug-back operations

Section 440 Abandonment of a gas or oil well or corehole as a water well

Section 450 Identification, plugging and control of wells or coreholes in which radioactive source logging tools have been abandoned

Section 460 Identifying plugged wells and coreholes; plugging affidavit

Section 470 Release of bond

Section 480 Orphaned wells; right of entry

Section 490 Applicability

Section 500 Application for a permit

Section 510 Plats

Section 520 Setback restrictions

Section 530 Casing requirements for conventional gas or oil wells

Section 540 [Repealed]

Section 550 Applicability

Section 560 Application for a permit

Section 570 [Repealed]

Section 580 Variance request to convert a vertical ventilation hole to a coalbed methane gas well

Section 590 Plats

Section 600 Setback restrictions

Section 610 Casing requirements for coalbed methane gas wells

Section 620 Coalbed methane gas wellhead equipment

Section 630 Report of produced waters

Section 640 [Repealed]

Section 650 Abandonment through conversion to a vertical ventilation hole

Section 660 Applicability

Section 670 Application for a permit

Section 680 Plats

Section 690 Operations plans

Section 700 Setback restrictions
Section 710 [Repealed]
Section 711 Voids and lost circular zones
Section 720 Applicability
Section 730 General requirements
Section 740 Operations plans
Section 750 Inspections
FORMS FORMS (4VAC25-150)

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.

"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.

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

"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.

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

"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 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 shaft or hole sunk, drilled, bored or dug, that breaks or disturbs the surface of the earth as part of a geophysical operation for the purpose of exploration for 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, or distance from the vertical and the direction of deviation.

"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.

"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 expands during the hardening process, including but not limited to regular oil field cements with the proper additives.

"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.

"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.

"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 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.

"Inclination survey" means a well or corehole survey, using the surface location of the well or corehole as the apex, to determine the deviation of the well or corehole from the true vertical beneath the apex on the same horizontal subsurface plane.

"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 any mixture of water and clay or other material as the term is commonly used in the industry.

"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 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 stopping of, or a device used for the stopping of, the flow 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.

"Retention basin" means a stormwater management facility which, 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 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 businessman in his 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.

"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.

"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.

"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 to interrupt the flow of water down the grade of the road and divert the water to provide for sediment control.

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

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.1, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-20. Basis and authority.

This chapter implements the Virginia Gas and Oil Act, Chapter 22.1 (§ 45.1-361.1 et seq.) of Title 45.1 of the Code of Virginia. The Director of the Department of Mines,

Minerals and Energy is authorized to promulgate this chapter pursuant to §§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.2, eff. September 25, 1991.

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

Nothing in this chapter shall relieve a permittee of the duty to comply with other laws and regulations.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.3, eff. September 25, 1991.

4VAC25-150-40. Registration.

A. Persons required to register under § 45.1-361.37 of the Code of Virginia shall register with the division on a registration form prescribed by the director.

B. Registered persons shall notify the division within 30 days of any change in the information included on the registration form filed in accordance with subsection A of this section.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.4, eff. September 25, 1991.

4VAC25-150-50. Gas or oil in holes not permitted as a gas or oil well.

In the event any person captures and uses gas or oil and does not permit the shaft or hole as a gas or oil well as provided for in this chapter, the director shall take appropriate enforcement action.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.5, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-60. Due dates for reports and decisions.

A. Where the last day fixed for (i) submitting a request for a hearing, holding a hearing or issuing a decision in an enforcement action under Article 3 (4VAC25-150-170 et seq.) of this part, (ii) submitting a monthly or annual report under Article 4 (4VAC25-150-210 et seq.) of this part, (iii) submitting a report of commencement of activity under 4VAC25-150-230, (iv) submitting a drilling report, a completion report or other report under 4VAC25-150-360, or (v) submitting a plugging affidavit under 4VAC25-150-460

falls on a Saturday, Sunday, or any day on which the Division of Gas and Oil office is closed as authorized by the Code of Virginia or the Governor, the required action may be done on the next day that the office is open.

B. All submittals to or notifications of the Division of Gas and Oil identified in subsection A of this section shall be made to the division office no later than 5 p.m. on the day required by the Act or by this chapter.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.6, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-70. [Repealed]

Historical Notes

Derived from VR480-05-22.1 § 1.7, eff. September 25, 1991; repealed, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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.

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. The proof of notice required in § 45.1-361.29 E of the Code of Virginia, which shall be:
 - a. A copy of a signed 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. Identification of the type of well or other gas, oil or geophysical operation being proposed;
5. The plat in accordance with 4VAC25-150-90;
6. The operations plan in accordance with 4VAC25-150-100;
7. The information required for operations involving hydrogen sulfide in accordance with 4VAC25-150-350;
8. The location where the Spill Prevention Control and Countermeasure (SPCC) plan is available, if one is required;
9. 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;
10. For an application for a conventional well, the information required in 4VAC25-150-500;
11. For an application for a coalbed methane gas well, the information required in 4VAC25-150-560;
12. For an application for a geophysical operation, the information required in 4VAC25-150-670; and
13. 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.8, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-90. Plats.

A. When filing an application for a permit for a well or corehole, the applicant also shall file an accurate plat certified by a licensed professional engineer or licensed land surveyor on a scale, to be stated thereon, of 1 inch equals 400 feet (1:4800). The scope of the plat shall be large enough to show all areas within the greater of 750 feet or one half of the distance specified in § 45.1-361.17 of the Code of Virginia from the proposed well or corehole, or within a unit established by the board for the subject well. The plat shall be submitted on a form prescribed by the director.

B. The known courses and distances of all property lines and lines connecting the permanent points, landmarks or corners within the scope of the plat shall be shown thereon. All lines actually surveyed shall be shown as solid lines. Lines taken from deed descriptions only shall be shown by broken lines.

C. A north and south line shall be given and shown on the plat, and point to the top of the plat.

D. Wells or coreholes shall be located on the plat as follows:

1. The proposed or actual surface elevation of the subject well or corehole shall be shown on the plat, within an accuracy of one vertical foot. The surface elevation shall be tied to either a government benchmark or other point of proven elevation by differential or aerial survey or by trigonometric leveling. The location of the government benchmark or the point of proven elevation and the method used to determine the surface elevation of the subject well or corehole shall be noted and described on the plat.

2. The proposed or actual horizontal location of the subject well or corehole determined by survey shall be shown on the plat. The proposed or actual well or corehole location shall be shown in accordance with the Virginia Coordinate System of 1983, as defined in Chapter 17 (§ 55-287 et seq.) of Title 55 of the Code of Virginia, also known as the State Plane Coordinate System.

3. The courses and distances of the well or corehole location from two permanent points or landmarks on the tract shall be shown; such landmarks shall be set stones, iron pipes, T-rails or other manufactured monuments, including mine coordinate monuments, and operating or abandoned wells which are platted to the accuracy standards of this section and on file with the division. If temporary points are to be used to locate the actual well or corehole location as provided for in 4VAC25-150-290, the courses and distances of the well or corehole location from the two temporary points shall be shown.

4. Any other well, permitted or drilled, within the distance specified in § 45.1-361.17 of the Code of Virginia or the distance to the nearest well completed in the same pool, whichever is less, or within the boundaries of a drilling unit established by the board around the subject well shall be shown on the plat or located by notation. The type of each well shall be designated by the following symbols:

a.	New drilling location	○			
b.	Canceled application or permit	○	CNC		
c.	Oil well	●			
d.	Gas well other than CBM	☼			
e.	Dry hole	⊠			
f.	Enhanced oil recovery injection well	⊘	LI		
g.	Waste disposal well	⊘	WD		
h.	Underground gas storage well	☼	GS		
i.	Abandoned well	●	☼	⊘ LI	⊘ WD
j.	New coalbed methane drilling location	○	CBM		
k.	Coalbed methane gas well	☼	CBM		
l.	Abandoned coalbed methane gas well	☼	CBM		

E. Plats shall also contain:

1. For a conventional gas and oil or injection well, the information required in 4VAC25-150-510;
2. For a coalbed methane gas well, the information required in 4VAC25-150-590; or
3. For a corehole, the information required in 4VAC25-150-680.

F. Any subsequent application for a new permit or permit modification shall include an accurate copy of the well plat, updated as necessary to reflect any changes on the site, newly discovered data or additional data required since the last plat was submitted. Any revised plat shall be certified as required in subsection A of this section.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.9, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Errata, 15:6 VA.R. 938 December 7, 1998; amended, Virginia Register Volume 24, Issue 17, eff. June 12, 2008.

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 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.10, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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 either:

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

The permittee shall submit written documentation of the changes made to the permitted area within seven working 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. Emergency permit supplements. If a change must be implemented immediately 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. Orally 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 written supplement to the permit within seven working days of notifying the director. The supplement shall contain a description of the activity which was changed, a description of the new activity, and any amended data, maps, plats, or other information required by the director.

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. 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;
 - 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 (SPCC) plan is available, if one has been developed for the site of the proposed operations;
 - 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, or 4VAC25-150-670.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.11, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-120. Transfer of permit rights.

A. Applicability.

1. No transfer of rights granted by a permit shall be made without prior approval from the director.
2. Any approval granted by the director of a transfer of permit rights shall be conditioned upon the proposed new operator complying with all requirements of the Act, this chapter and the permit.

B. Application. Any person requesting a transfer of rights granted by a permit shall submit a written application on a form prescribed by the director. The application shall be accompanied by a fee of \$65 and bond, in the name of the person requesting the

transfer, in accordance with § 45.1-361.31 of the Code of Virginia. The application shall contain, but is not limited to:

1. The name and address of the current permittee, the current permit number and the name of the current operation;
2. The name and address of the proposed new operator and the proposed new operations name;
3. Documentation of approval of the transfer by the current permittee;
4. If the permit was issued on or before September 25, 1991, an updated operations plan, in accordance with 4VAC25-150-100, showing how all permitted activities to be conducted by the proposed new permittee will comply with the standards of this chapter;
5. If the permit was issued on or before September 25, 1991, for a well, a plat meeting the requirements of 4VAC25-150-90 updated to reflect any changes on the site, newly discovered data or additional data required since the last plat was submitted, including the change in ownership of the well; and
6. If the permit was issued on or before September 25, 1991, if applicable, the docket number and date of recordation of any order issued by the board for a pooled unit, pertaining to the current permit.

C. Standards for approval. The director shall not approve the transfer of permit rights unless the proposed new permittee:

1. Has registered with the department in accordance with § 45.1-361.37 of the Code of Virginia;
2. Has posted acceptable bond in accordance with § 45.1-361.31 of the Code of Virginia; and
3. Has no outstanding debt pursuant to § 45.1-361.32 of the Code of Virginia.

D. The new permittee shall be responsible for any violations of or penalties under the Act, this chapter, or conditions of the permit after the director has approved the transfer of permit rights.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.12, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Volume 19, Issue 18, eff. July 1, 2003.

4VAC25-150-130. Notice of permit applications and modifications.

A. Gas, oil or geophysical operators shall provide notice of an application for a permit or permit modification in accordance with § 45.1-361.30 of the Code of Virginia, as identified on the "Technical Data Sheet for Permit Applications Under § 45.1-361.29," prescribed by the director.

B. If notice required under § 45.1-361.30 of the Code of Virginia has been sent by certified mail, return receipt requested, and the notice has not been delivered within 15

days of mailing the notice, the director shall consider notice to be given as of the end of the 15-day period and the objection period specified in § 45.1-361.35 shall commence.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.13, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-135. Waiver of right to object to permit applications.

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. The department shall be entitled to rely upon the waiver to approve the permit application.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-140. Objections to permit applications.

A. Objections shall be filed in writing, at the office of the Division, in accordance with § 45.1-361.35 of the Code of Virginia.

B. If after the director has considered notice to be given under 4VAC25-150-130 B of this chapter, a person submits an objection with proof of receipt of actual notice within 15 days prior to submitting the objection, then the director shall treat the objection as timely.

C. Objections to an application for a new or modified permit shall contain:

1. The name of the person objecting to the permit;
2. The date the person objecting to the permit received notice of the permit application;
3. Identification of the proposed activity being objected to;
4. A statement of the specific reason for the objection;
5. A request for a stay to the permit, if any, together with justification for granting a stay; and
6. Any other information the person objecting to the permit wishes to provide.

D. When deciding to convene a hearing pursuant to § 45.1-361.35 of the Code of Virginia, the director shall consider the following:

1. Whether the person objecting to the permit has standing to object as provided in § 45.1-361.30 of the Code of Virginia;
2. Whether the objection is timely; and
3. Whether the objection meets the applicable standards for objections as provided in § 45.1-361.35 of the Code of Virginia.

E. If the director decides not to hear the objection, then he shall notify the person who objects and the permit applicant in writing, indicating his reasons for not hearing the objection, and shall advise the objecting person of his right to appeal the decision.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.14, eff. September 25, 1991.

4VAC25-150-150. Hearing and decision on objections to permit applications.

A. In any hearing on objections to a permit application:

1. The hearing shall be an informal fact finding hearing in accordance with the Administrative Process Act, § 9-6.14:11 of the Code of Virginia.
2. The permit applicant and any person with standing in accordance with § 45.1-361.30 of the Code of Virginia may be heard.
3. Any valid issue in accordance with § 45.1-361.35 of the Code of Virginia may be raised at the hearing. The director shall determine the validity of objections raised during the hearing.

B. The director shall, as soon after the hearing as practicable, issue his decision in writing and hand deliver or send the decision by certified mail to all parties to the hearing. The director shall mail the decision, or a summary of the decision, to all other persons given notice of the hearing. The decision shall include:

1. The subject, date, time and location of the hearing;
2. The names of the persons objecting to the permit;
3. A summary of issues and objections raised at the hearing;
4. Findings of fact and conclusions of law;
5. The text of the decision, including any voluntary agreement; and
6. Appeal rights.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.15, eff. September 25, 1991.

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

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

B. The director may not issue a permit 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 department 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 in Tidewater Virginia until he has considered the findings and recommendations of 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 the Department of Environmental Quality's recommendations.

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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.16, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

Article 3 Enforcement

4VAC25-150-170. Enforcement.

A. The director shall enforce the provisions of the Act, this chapter, 4VAC25 Chapter 160 (4VAC25-160-10 et seq.) entitled "The Virginia Gas and Oil Board Regulation," any board order, or any condition of a permit, and may use the following methods:

1. Obtaining voluntary compliance through conference, warning or other means prior to issuing any enforcement notice or order;
2. Issuing notices of violation in accordance with 4VAC25-150-180;
3. Issuing closure orders in accordance with 4VAC25-150-190;
4. Issuing show cause orders in accordance with 4VAC25-150-200;
5. Issuing emergency orders in accordance with § 45.1-361.27 D of the Code of Virginia; or
6. Any other action in accordance with the Code of Virginia.

B. The purpose of taking actions under this section is to obtain compliance with the provisions of the Act, this chapter, 4VAC25 Chapter 160 (4VAC25-160-10 et seq.) entitled "The Virginia Gas and Oil Board Regulation," any board order, or conditions of a permit.

C. Reclamation operations and other activities intended to protect the public health and safety and the environment shall continue during the period of any notice or order unless otherwise provided in the notice or order.

D. Any person found to be conducting a gas, oil or geophysical operation without a permit from the director shall be subject to enforcement for operating without a permit and for not meeting any other standards of the Act or this chapter which would be required if the person was operating under a permit.

E. Decisions of the director may be appealed to the Virginia Gas and Oil Board pursuant to § 45.1-361.23 of the Code of Virginia.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.17, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-180. Notices of violation.

A. The director may issue a notice of violation if he finds a violation of any of the following:

1. Chapter 22.1 (§ 45.1-361.1 et seq.) of Title 45.1 of the Code of Virginia;
2. This chapter;
3. 4VAC25 Chapter 160 (4VAC25-160-10 et seq.) entitled "The Virginia Gas and Oil Board Regulation";
4. Any board order; or
5. Any condition of a permit, which does not create an imminent danger or harm for which a closure order must be issued under 4VAC5-150-190.

B. A notice of violation shall be in writing, signed, and set forth with reasonable specificity:

1. The nature of the violation, including a reference to the section or sections of the Act, applicable regulation, order or permit condition which has been violated;
2. A reasonable description of the portion of the operation to which the violation applies, including an explanation of the condition or circumstance that caused the portion of the operation to be in violation, if it is not self-evident in the type of violation itself;
3. The remedial action required, which may include interim steps; and
4. A reasonable deadline for abatement, which may include a deadline for accomplishment of interim steps.

C. The director may extend the deadline for abatement or for accomplishment of an interim step, if the failure to meet the deadline previously set was not caused by the permittee's lack of diligence. An extension of the deadline for abatement may not be granted when the permittee's failure to abate has been caused by a lack of diligence or intentional delay by the permittee in completing the remedial action required.

D. If the permittee fails to meet the deadline for abatement or for completion of any interim steps, the director shall issue a closure order under 4VAC25-150-190.

E. The director shall terminate a notice of violation by written notice to the permittee when he determines that all violations listed in the notice of violation have been abated.

F. A permittee issued a notice of violation may request, in writing to the director, an informal fact-finding hearing to review the issuance of the notice. This written request should be made within 10 days of receipt of the notice. The permittee may request, in writing to the director, an expedited hearing.

G. A permittee is not relieved of the duty to abate any violation under a notice of violation during an appeal of the notice. A permittee may apply for an extension of the deadline for abatement during an appeal of the notice.

H. The director shall issue a decision on any request for an extension of the deadline for abatement under a notice of violation within five days of receipt of such request. The

director shall conduct an informal fact-finding hearing, in accordance with the Administrative Process Act, § 9-6.14:11 of the Code of Virginia, no later than 10 days after receipt of the hearing request.

I. The director shall affirm, modify, or vacate the notice in writing to the permittee within five days of the date of the hearing.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.18, eff. September 25, 1991; amended, Virginia Register 15, Issue 2, eff. November 11, 1998.

4VAC25-150-190. Closure orders.

A. The director shall immediately order a cessation of operations or of the relevant portion thereof, when he finds any condition or practice which:

1. Creates or can be reasonably expected to create an imminent danger to the health or safety of the public, including miners; or
2. Causes or can reasonably be expected to cause significant, imminent, environmental harm to land, air or water resources.

B. The director may order a cessation of operations or of the relevant portion thereof, when:

1. A permittee fails to meet the deadline for abatement or for completion of any interim step under a notice of violation;
2. Repeated notices of violations have been issued for the same condition or practice; or
3. Gas, oil or geophysical operations are being conducted by any person without a valid permit from the Division of Gas and Oil.

C. A closure order shall be in writing, signed and shall set forth with reasonable specificity:

1. The nature of the condition, practice or violation;
2. A reasonable description of the portion of the operation to which the closure order applies;
3. The remedial action required, if any, which may include interim steps; and
4. A reasonable deadline for abatement, which may include deadline for accomplishment of interim steps.

D. A closure order shall require the person subject to the order to take all steps the director deems necessary to abate the violations covered by the order in the most expeditious manner physically possible.

E. If a permittee fails to abate a condition or practice or complete any interim step as required in a closure order, the director shall issue a show cause order under 4VAC25-150-200.

F. The director shall terminate a closure order by written notice to the person subject to the order when he determines that all conditions, practices or violations listed in the order have been abated.

G. A person issued a closure order may request, in writing to the director, an informal fact-finding hearing to review the issuance of the order within 10 days of receipt of the order. The person may request, in writing to the director, an expedited hearing within three days of receipt of the order.

H. A person is not relieved of the duty to abate any condition under, or comply with, any requirement of a closure order during an appeal of the order.

I. The director shall conduct an informal fact-finding hearing, in accordance with the Administrative Process Act, § 9-6.14:11 of the Code of Virginia, no later than 15 days after the order was issued, or in the case of an expedited hearing, no later than five days after the order was issued.

J. The director shall affirm, modify, or vacate the closure order in writing to the person the order was issued to no later than five days after the date of the hearing.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.19, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-200. Show cause orders.

A. The director may issue a show cause order to a permittee requiring justification for why his permit should not be suspended or revoked whenever:

1. A permittee fails to abate a condition or practice or complete any interim step as required in a closure order;
2. A permittee fails to comply with the provisions of 4VAC25 Chapter 160 (4VAC25-160-10 et seq.) entitled "The Virginia Gas and Oil Board Regulation"; or
3. A permittee fails to comply with the provisions of an order issued by the Virginia Gas and Oil Board.

B. A show cause order shall be in writing, signed, and set forth with reasonable specificity:

1. The permit number of the operation subject to suspension or revocation; and
2. The reason for the show cause order.

C. The permittee shall have five days from receipt of the show cause order to request in writing an informal fact-finding hearing.

D. The director shall conduct an informal fact-finding hearing, in accordance with the Administrative Process Act, § 9-6.14:11 of the Code of Virginia, no later than five days after receipt of the request for the hearing.

E. The director shall issue a written decision within five days of the date of the hearing.

F. If the permit is revoked, the permittee shall immediately cease operations on the permit area and complete reclamation within the deadline specified in the order.

G. If the permit is suspended, the permittee shall immediately commence cessation of operations on the permit area and complete all actions to abate all conditions, practices or violations, as specified in the order.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.20, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

Article 4
Reporting

4VAC25-150-210. Monthly reports.

A. Each producer shall submit a monthly report, on a form prescribed by the director or in a format approved by the director, to the division no later than 45 days after the last day of each month.

B. Reports of gas production.

1. Every producer of gas shall report in Mcf the amount of production from each well.
2. Reports shall be summarized by county or city.
3. Reports shall provide the date of any new connection of a well to a gathering pipeline or other marketing system.

C. Reports of oil production.

1. Every producer of oil shall report in barrels the amount of oil production, oil on hand and oil delivered from each well.
2. Reports shall be summarized county or city.
3. Reports shall provide the date of any new connection of a well to a gathering pipeline or other marketing system.

D. Reports of shut-in wells. If a well is shut-in or otherwise not produced during any month, it shall be so noted on the monthly report.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.21, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-220. Annual reports.

A. Each permittee shall submit a calendar-year annual report to the division by no later than March 31 of the next year.

B. The annual report shall include as appropriate:

1. A confirmation of the accuracy of the permittee's current registration filed with the division or a report of any change in the information;
2. The name, address and phone number or numbers of the persons to be contacted at any time in case of an emergency;
3. Production of gas or oil on a well-by-well and county-by-county or city-by-city basis for each permit or as prescribed by the director and the average price received for each Mcf of gas and barrel of oil;
4. Certification by the permittee that the permittee has paid all severance taxes for each permit; and
5. When required, payment to the Gas and Oil Plugging and Restoration Fund as required in § 45.1-361.32 of the Code of Virginia.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.22, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

Article 5
Technical Standards

4VAC25-150-230. Commencement of activity.

A. Gas, oil or geophysical activity commences with ground-disturbing activity.

B. A permittee shall notify the division at least two working days prior to commencing ground-disturbing activity, drilling a well or corehole, completing or recompleting a well or plugging a well or corehole. The permittee shall notify the division, either orally or in writing, of the permit number and the date and time that the work is scheduled to commence.

C. For dry holes and in emergency situations, the operator may notify the division within two working days of commencing plugging activities.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.23, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-240. Signs.

A. Temporary signs. Each permittee shall keep a sign posted at the point where the access road enters the permitted area of each well or corehole being drilled or tested, showing the name of the well or corehole permittee, the well name and the permit number, the telephone number for the Division of Gas and Oil and a telephone number to use in case of an emergency or for reporting problems.

The sign shall be posted from the commencement of construction until:

1. The well is completed;

2. The dry hole or corehole is plugged;
3. The site is stabilized; or
4. The permanent sign is posted.

B. Permanent signs. Each permittee shall keep a permanent sign posted in a conspicuous place on or near every producing well or well capable of being placed into production and on every associated facility. For any well drilled or sign replaced after September 25, 1991, the sign shall:

1. Be a minimum of 18 inches by 14 inches in size;
2. Contain, at a minimum, the permittee's name, the well name and the permit number, the Division of Gas and Oil phone number and the telephone number to use in case of an emergency or for reporting problems;
3. Contain lettering a minimum of 1 ¼ inches high; and
4. For a well, be located on the well or on a structure such as a meter house or pole located within 50 feet of the well head.

C. All signs shall be maintained or replaced as necessary to be kept in a legible condition.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.24, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-250. Blasting and explosives.

A. Applicability. This section governs all blasting on gas, oil or geophysical sites, except for:

1. Blasting being conducted as part of seismic exploration where explosives are placed and shot in a borehole to generate seismic waves; or
2. Use of a device containing explosives for perforating a well.

B. Certification.

1. All blasting on gas, oil and geophysical sites shall be conducted by a person who is certified by the Board of Mineral Mining Examiners, the Board of Coal Mining Examiners, or by the Virginia Department of Housing and Community Development.
2. The director may accept a certificate issued by another state in lieu of the certification required in subdivision B 1 of this section, provided the Board of Mineral Mining Examiners, the Board of Coal Mining Examiners, or the Department of Housing and Community Development has approved reciprocity with that state.

C. Blasting safety. Blasting shall be conducted in a manner designed to prevent injury to persons, or damage to features described in the operations plan under 4VAC25-150-100 B.

1. When blasting is conducted within 200 feet of a pipeline or high-voltage transmission line, the blaster shall take due precautionary measures for the protection of the pipeline or high-voltage transmission line, and shall notify the owner of the facility or his agent that such blasting is intended.
 2. Flyrock shall not be allowed to fall farther from the blast than one-half the distance between the blast and the nearest inhabited building, and in no case outside of the permitted area.
 3. When blasting near a highway, the blaster must ensure that all traffic is stopped at a safe distance from the blast. Blasting areas shall be posted with warning signs.
 4. All blasting shall be conducted during daylight hours, one-half hour before sunrise to one-half hour after sunset, unless approved by the director.
 5. Misfires.
 - a. The handling of a misfired blast shall be under the direct supervision of a certified blaster.
 - b. When a misfire occurs, the blaster shall wait for at least 15 minutes or the period of time recommended by the manufacturer of the explosives and the detonator, whichever is longer, before allowing anyone to return to the blast site.
 6. Blasting signals.
 - a. Before a blast is fired, a warning signal audible to a distance of at least one-half mile shall be given by the blaster in charge, who shall make certain that all surplus explosives are in a safe place and that all persons are at a safe distance from the blast site or under sufficient cover to protect them from the effects of the blast.
 - b. A code of warning signals shall be established and posted in one or more conspicuous places on the permitted site, and all employees shall be required to conform to the code.
 7. Explosives and detonators shall be placed in substantial, nonconductive, closed containers (such as those containers meeting standards prescribed by the Institute of Makers of Explosives) when brought on the permitted site. Explosives and detonators shall not be kept in the same container. Containers shall be posted with warning signs.
 8. Storage of explosives and detonators on gas, oil or geophysical sites is allowed only with prior approval by the director.
 9. The permittee shall report to the Division of Gas and Oil by the quickest means possible any theft or unaccounted-for loss of explosives. When reporting such a theft or loss, the permittee shall indicate other local, state and federal authorities contacted.
 10. Damaged or deteriorated explosives and detonators shall be destroyed by a certified blaster in accordance with the manufacturer's recommendations.
- D. Ground vibration.

1. The ground-vibration limits in this subsection shall not apply on surface property owned or leased by the permittee, or on property for which the surface owner gives a written waiver specifically releasing the operator from the limits.
2. Blasting without seismographic monitoring. Blasting may be conducted by a certified blaster without seismographic monitoring provided the maximum charge is determined by the formula $W = (D/D_s)^2$ where W is the maximum weight of explosive in pounds per delay (eight milliseconds or greater); D is the actual distance in feet from the blast location to the nearest inhabited building; and D_s is the scaled distance factor to be applied without seismic monitoring, as found in Table 1.25.D-1.

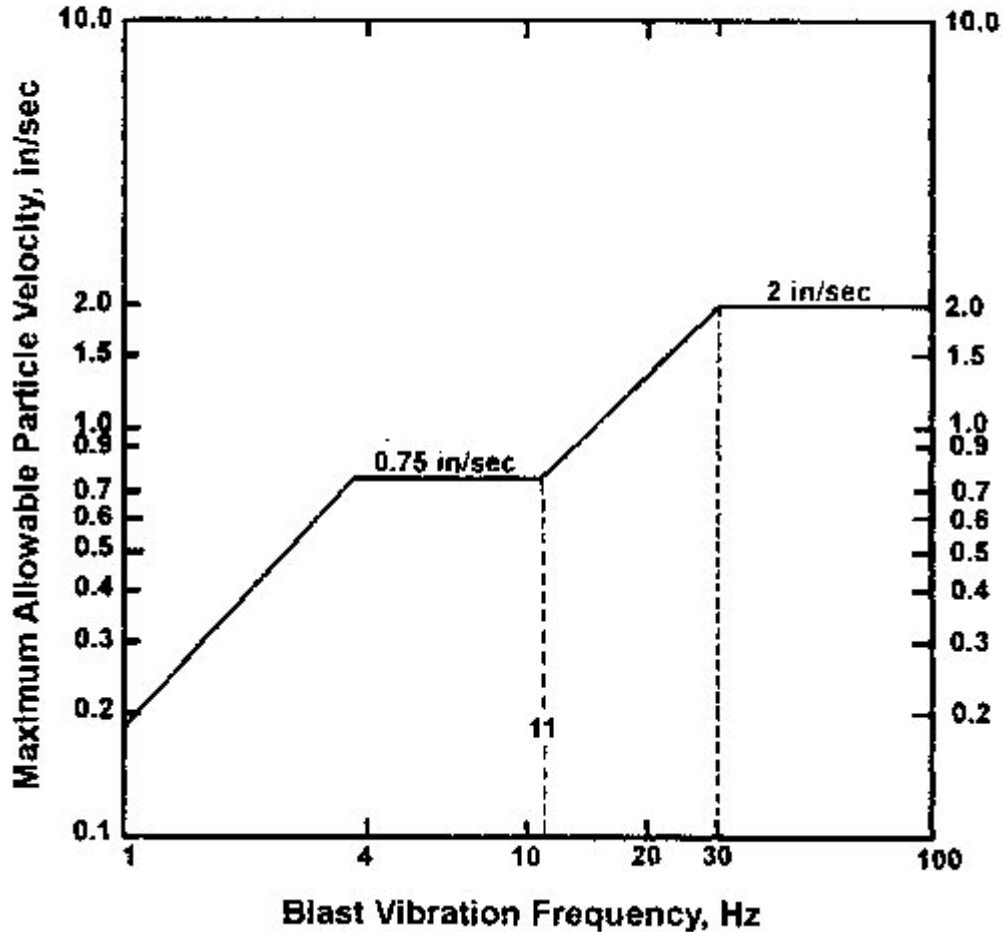
TABLE 1.25.D-1: MAXIMUM ALLOWABLE PEAK VELOCITY

Distance (D) from blasting site in feet	Maximum allowable peak particle velocity (V_{max}) for ground vibration, in inches/second	Scaled Distance Factor (D_s) to be applied without seismic monitoring
0 to 300	1.25	50
301 to 5000	1.00	55
5001 and beyond	0.75	65

3. Blasting with seismographic monitoring.
 - a. A permittee may use the ground-vibration limits in Table 1.25.D-2 to determine the maximum allowable peak particle velocity. If Table 1.25.D-2 is used, a seismographic record including both particle velocity and vibration-frequency levels shall be provided for each blast. The method for the analysis of the predominant frequency contained in the blasting records shall be approved by the director before implementation of this alternative blasting level.
 - b. The permittee may choose to record every blast. As long as the seismographic records indicate particle velocities have remained within the limits prescribed in Tables 1.25.D-1 or 1.25.D-2, the permittee shall be considered to be in compliance with this subsection.

Table 1.25.D-2: ALTERNATIVE BLASTING LEVEL CRITERIA

(Source modified from figure B-1, Bureau of Mines R(8507))



c. Ground vibration shall be measured as the particle velocity. Particle velocity shall be recorded in three mutually perpendicular directions. The maximum allowable peak particle velocity shall apply to each of the three measurements.

d. All seismic tests carried out for the purposes of this section shall be analyzed by a qualified seismologist.

e. All seismic tests carried out for the purposes of this section shall be conducted with a seismograph that has an upper-end flat frequency response of at least 200 Hz.

E. Airblast shall not exceed the maximum limits prescribed in Table 1.25.E-1 at the location of any inhabited building. The 0.1 Hz or lower, flat response or C-weighted, slow response shall be used only when approved by the director.

Table 1.25.E-1: AIRBLAST LIMITS

Lower Frequency Limit of measuring system, in Hz (+3db)		Measurement Level, in db
0.1 Hz or Lower	Flat Response	134 Peak
2 Hz or Lower	Flat Response	133 Peak
6 Hz or Lower	Flat Response	129 Peak
C-weighted	Slow Response	105 Peak

F. If the director concludes that blasting on a particular site has potential to create unsafe conditions, then he may:

1. Require the permittee to monitor ground vibration and airblast for all blasts on the site for a specified period of time;
2. Impose more stringent limits on ground vibration and airblast levels than those specified in this section. The director may order the permittee to obtain an evaluation of the blast site by a vibration consultant or a technical representative of the explosives manufacturer before imposing a more stringent limit. Blasting may not resume on the site being evaluated until the evaluation and recommendations are submitted to the director, and the director has given his approval.

G. Records.

1. The permittee shall keep records of all blasts, and these records shall contain the following:
 - a. Name of company or contractor;
 - b. Location, date, and time of the blast;
 - c. Name, signature, and certification number of the blaster in charge;
 - d. Type of material blasted;
 - e. Number of holes; their burden and spacing;
 - f. Diameter and depth of the holes;
 - g. Types of explosives used;
 - h. Total amount of explosives used per hole;
 - i. Maximum weight of explosives per delay period;
 - j. Method of firing and the type of circuit;
 - k. Direction and distance in feet to the nearest inhabited building;
 - l. Weather conditions (including wind directions, etc.);
 - m. Height or length of stemming;
 - n. Description of any mats or other protection used;
 - o. Type of detonators and delay periods used; and
 - p. Any seismograph reports, including:

- (1) The name and signature of the person operating the seismograph;
 - (2) The name of the person analyzing the seismograph record;
 - (3) The exact location of the seismograph in relation to the blast;
 - (4) The date and time of the reading; and
 - (5) The seismograph reading.
2. The permittee shall retain all records of blasting, including seismograph reports, for at least three years. On request, the permittee shall make these records available for inspection by the director.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.25, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-260. Erosion, sediment control and reclamation.

A. Applicability. Permittees shall meet the erosion and sediment control standards of this section whenever there is a ground disturbance for a gas, oil or geophysical operation. Permittees shall reclaim the land to the standards of this section after the ground-disturbing activities are complete and the land will not be used for further permitted activities.

B. Erosion and sediment control plan. Applicants for a permit shall submit an erosion and sediment control plan as part of their operations plan. The plan shall describe how erosion and sedimentation will be controlled and how reclamation will be achieved.

C. Erosion and sediment control standards. Whenever ground is disturbed for a gas, oil or geophysical operation, the following erosion and sediment control standards shall be met.

1. All trees, shrubs and other vegetation shall be cleared as necessary before any blasting, drilling, or other site construction, including road construction, begins.
 - a. Cleared vegetation shall be either removed from the site, properly stacked on the permitted site for later use, burned, or placed in a brush barrier if needed to control erosion and sediment control. Only that material necessary for the construction of the permitted site shall be cleared. When used as a brush barrier, the cleared vegetation shall be cut and windrowed below a disturbed area so that the brush barrier will effectively control sediment migration from the disturbed area. The material shall be placed in a compact and uniform manner within the brush barrier and not perpendicular to the brush barrier. Brush barriers shall be constructed so that any concentrated flow created by the barrier is released into adequately protected outlets and adequate channels. Large diameter trunks, limbs, and stumps that may render the brush barrier ineffective for sediment control shall not be placed in the brush barrier.
 - b. During construction of the project, topsoil sufficient to provide a suitable growth medium for permanent stabilization with vegetation shall be

segregated and stockpiled. Soil stockpiles shall be stabilized in accordance with the standards of subdivisions C 2 and C 3 of this section to prevent erosion and sedimentation.

2. Except as provided for in subdivisions C 5 and C 12 c of this section, permanent or temporary stabilization measures shall be applied to denuded areas within 30 days of achievement of final grade on the site unless the area will be redisturbed within 30 days.

a. If no activity occurs on a site for a period of 30 consecutive days then stabilization measures shall be applied to denuded areas within seven days of the last day of the 30-day period.

b. Temporary stabilization measures shall be applied to denuded areas that may not be at final grade but will be left inactive for one year or less.

c. Permanent stabilization measures shall be applied to denuded areas that are to be left inactive for more than one year.

3. A permanent vegetative cover shall be established on denuded areas to achieve permanent stabilization on areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is uniform, mature enough to survive and will inhibit erosion.

4. Temporary sediment control structures such as basins, traps, berms or sediment barriers shall be constructed prior to beginning other ground-disturbing activity and shall be maintained until the site is stabilized.

5. Stabilization measures shall be applied to earthen structures such as sumps, diversions, dikes, berms and drainage windows within 30 days of installation.

6. Sediment basins.

a. Surface runoff from disturbed areas that is composed of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The sediment basin shall be designed and constructed to accommodate the anticipated sediment loading from the ground-disturbing activity. The spillway or outfall system design shall take into account the total drainage area flowing through the disturbed area to be served by the basin.

b. If surface runoff that is composed of flow from other drainage areas is separately controlled by other erosion and sediment control measures, then the other drainage area is not considered when determining whether the three-acre limit has been reached and a sediment basin is required.

7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. No trees, shrubs, stumps or other woody material shall be placed in fill.

8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

12. Live watercourses.

a. When any construction required for erosion and sediment control, reclamation or stormwater management must be performed in a live watercourse, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

b. When the same location in a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary stream crossing constructed of nonerodible material shall be provided.

c. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

13. If more than 500 linear feet of trench is to be open at any one time on any continuous slope, ditchline barriers shall be installed at intervals no more than the distance in the following table and prior to entering watercourses or other bodies of water.

Distance Barrier Spacing

Percent of Grade	Spacing of Ditchline Barriers in Feet
3-5	135
6-10	80
11-15	60
16+	40

14. Where construction vehicle access routes intersect a paved or public road, provisions, such as surfacing the road, shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned by the end of the day.

15. The design and construction or reconstruction of roads shall incorporate appropriate limits for grade, width, surface materials, surface drainage control, culvert placement, culvert size, and any other necessary design criteria required by the director to ensure control of erosion, sedimentation and runoff, and safety appropriate for their planned duration and use. This shall include, at a minimum, that roads are to be located, designed, constructed, reconstructed, used, maintained and reclaimed so as to:

- a. Control or prevent erosion and siltation by vegetating or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices;
- b. Control runoff to minimize downstream sedimentation and flooding; and
- c. Use nonacid or nontoxic substances in road surfacing.

16. Unless approved by the director, all temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized within the permitted area to prevent further erosion and sedimentation.

D. Final reclamation standards.

- 1. All equipment, structures or other facilities not required for monitoring the site or permanently marking an abandoned well or corehole shall be removed from the site, unless otherwise approved by the director.
- 2. Each pipeline abandoned in place shall be disconnected from all sources of natural gas or produced fluids and purged.
- 3. If final stabilization measures are being applied to access roads or ground-disturbed pipeline rights-of-way, or if the rights-of-way will not be redisturbed for a period of 30 days, water bars shall be placed across them at 30-degree angles at the head of all pitched grades and at intervals no more than the distance in the following table:

Percent of Grade	Spacing of Water Bars in Feet
3–5	135
6–10	80
11–15	60
16+	40

- 4. The permittee shall notify the division when the site has been graded and seeded for final reclamation in accordance with subdivision C 3 of this section. Notice may be given orally or in writing. The vegetative cover shall be successfully maintained for a period of two years after notice has been given before the site is eligible for bond release.
- 5. If the land disturbed during gas, oil or geophysical operations will not be reclaimed with permanent vegetative cover as provided for in subsection C of this section, the permittee or applicant shall, in the operations plan, request a variance to these reclamation standards and propose alternate reclamation standards and an alternate schedule for bond release.

E. The director may waive or modify any of the requirements of this section that are deemed inappropriate or too restrictive for site conditions. A permittee requesting a variance shall, in writing, document the need for the variance and describe the alternate measures or practices to be used. Specific variances allowed by the director shall

become part of the operations plan. The director shall consider variance requests judiciously, keeping in mind both the need of the applicant to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.26, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-270. Stormwater management.

A. This section shall apply whenever an applicant or permittee must complete an erosion and sediment control plan under 4VAC25-150-260. The erosion and sediment control plan shall also describe how stormwater runoff will be managed in accordance with the standards of this section.

B. Areas downstream from permitted sites shall be protected from sediment disposition, erosion and damage due to increases in volume, velocity and peak flow rates of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following:

1. Increased volumes of sheet flows or concentrated flows that may cause erosion and sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel or a sediment control, detention or retention facility.
2. Adequacy of all channels and pipes shall be verified in the following manner:
 - a. The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is 100 times greater than the contributing drainage area of the site in question; or
 - b. The receiving channel or pipe shall be analyzed as follows:
 - (1) Natural channels shall be analyzed using data for a two-year storm to verify that stormwater will not overtop channel banks or cause erosion of the channel bed or banks.
 - (2) All previously constructed man-made channels shall be analyzed using data for a 10-year storm to verify that stormwater will not overtop its banks and using data for a two-year storm to demonstrate that stormwater will not cause erosion of the channel bed or banks.
 - (3) Pipes and storm sewer systems shall be analyzed using data from a 10-year storm to verify that stormwater will be contained within the pipe or system. A downstream stability analysis at the outfall of the pipe or storm sewer system shall also be performed.
3. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the site.
4. If the applicant chooses an option that includes stormwater detention or retention, then the plan must provide for maintenance of the detention or retention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

5. Outflows from a sediment basin, stormwater management facility or other concentrated runoff leaving a permitted site shall be discharged into an adequate channel.

C. Stormwater runoff which has been contaminated by or come into contact with overburden, raw material, intermediate products, finished products, byproducts or wastes from gas, oil or geophysical operations located on the permitted site shall be managed in accordance with a plan approved by the director.

D. The director may waive or modify any of the requirements of this section that are deemed inappropriate or too restrictive for site conditions. The permittee's written request for a variance shall document the need for the variance and describe the alternate measures or practices to be used. Specific variances allowed by the director shall be documented in the operations plan. The director shall consider variance requests judiciously, keeping in mind both the need of the applicant to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.27, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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- 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 is known to be underlain by coal seams, the following shall be required:

1. The vertical location of coal seams in the borehole shall be determined and shown in the driller's log and gamma ray or other log.
2. The horizontal location of the borehole 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 borehole into a coal seam in which active mining is being conducted within 500 feet of where the borehole will penetrate the seam, the permittee shall conduct an inclination survey to determine whether the deviation of the bore hole exceeds one degree from true vertical. If the borehole 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 borehole; and
 - d. Unless granted a variance by the director, correct the borehole to within one degree of true vertical.
4. Except as provided for in subdivision B 3 of this section, if the deviation of the borehole 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 borehole 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 borehole 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 borehole 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 bore of a 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.28, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-290. Actual well or corehole location.

A. The actual horizontal surface location of the well shall be within three feet of the permitted location designated on the well plat, except where an operator has stated that the location may vary up to 10 feet in the notice as required in § 45.1-361.30 of the Code of Virginia.

B. The permittee shall survey the actual location of the well which may be made from a minimum of two temporary points not disturbed during development of the well or site and shown on the plat submitted with the permit application. The permittee shall submit an updated plat, certified by a licensed land surveyor or licensed professional engineer, showing the actual well location certified to be within three feet of the permitted location, or within 10 feet as provided for in subsection A of this section. This updated plat shall be included with the drilling report submitted in accordance with 4VAC25-150-360.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.29, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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.
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.

B. Technical requirements.

1. Pits shall be constructed of sufficient size and shape to contain all fluids and maintain a two-foot freeboard.
2. Pits shall be lined in accordance with the requirements for liners in subdivision A 3 of this section. If solids are not to be disposed of in the pit, the permittee may request a variance to the liner specifications.

C. Operational requirements.

1. The integrity of lined pits must 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.30, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-310. Tanks.

A. All tanks installed on or after September 25, 1991, shall be designed and constructed to contain the fluids to be stored in the tanks and prevent unauthorized discharge of fluids.

B. All tanks shall be maintained in good condition and repaired as needed to ensure the structural integrity of the tank.

C. Every permanent tank or battery of tanks shall be surrounded by a containment dike or firewall with a capacity of 1½ times the volume of the single tank or largest tank in a battery of tanks.

D. Dikes and firewalls shall be maintained in good condition, and the reservoir shall be kept free from brush, water, oil or other fluids.

E. Permittees shall inspect the structural integrity of tanks and tank installations, at a minimum, annually. The report of the annual inspection shall be maintained by the permittee for a minimum of three years and be submitted to the director upon request.

F. Load lines shall be properly constructed and operated on the permitted area.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.31, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-320. Blowout prevention.

A. Applicability. All wells shall be equipped to control formation pressure during drilling and servicing as follows:

1. Blowout prevention equipment is required when formation pressures of 1,000 pounds or greater are encountered or are expected to be encountered, or when drilling in an area where there is no prior knowledge of the formation pressures to be encountered.

2. A diverter system is required when formation pressures are expected to be less than 1,000 pounds.

B. All blowout preventers, diverters, choke lines, kill lines and manifolds shall be installed above ground level. Casing heads and optional spools may be installed below ground level provided they are readily accessible.

C. The diverter, chokelines and kill lines shall be anchored, tied or otherwise secured to prevent whipping resulting from pressure surges.

D. Pressure ratings.

1. All pipe fittings, valves and unions placed on or connected with the well or corehole, as well as blowout prevention equipment, casing, casing head, drill pipe, or tubing, shall have a minimum working pressure rating of 110% of the maximum anticipated pressure that the material will be exposed to and shall be in good working condition.

2. All ram type blowout preventers and related equipment shall be tested to 110% of the maximum anticipated formation pressure, not to exceed 70% of the rated burst pressure of the casing that the blowout preventers are connected to before being placed in service. Annular type blowout preventers shall be tested in conformance with the manufacturer's published instructions, or those of a licensed professional engineer, prior to use.

E. While in service, blowout prevention equipment shall be visually inspected daily. A preventer operating test shall be performed at least once on all the blowout prevention equipment except the blind rams which shall be tested on each round trip.

F. All employees on the rig shall be trained, knowledgeable and able to properly operate the blowout preventer system. In addition, when blowout prevention equipment is installed, at least one person who is certified in blowout prevention and well control procedures by a school of blowout prevention acceptable to the director shall be responsible for the proper testing and operations of the blowout preventers and related equipment.

G. When repairs or other work must be performed to the blowout prevention equipment, drilling and servicing operations must stop until the blowout prevention equipment is returned to service.

H. A record of all tests on the equipment shall be kept at the rig for inspection by the director until drilling or servicing operations have been completed.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.32, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-330. Swabbing, perforating and wireline operations.

A. All wells and coreholes shall be cleaned into properly constructed pits or containers at a safe distance from the rig floor and from any potential fire hazard.

B. Possible sources of ignition, such as all engines and motors not essential to the swabbing operation, shall be shut down while swabbing operations are being conducted.

C. Swabbing operations shall be conducted only during daylight hours or with adequate illumination.

D. Swabbing shall be conducted so that fluids are routed through a closed-flow system to the maximum extent possible.

E. All oil savers shall be of the type that do not require a person to be near the lubricator or wellhead to control the oil saver.

F. All swabbing lines, blow down lines or flow lines to pits or tanks shall be securely anchored. Whenever hydrocarbons or other volatile fluids may be expected, these lines shall extend a safe distance from the well and away from any other source of ignition.

G. On wells where there is a possibility of flow during swabbing or other wireline operations, a lubricator shall be used that will allow the removal of the swabbing or other tools without venting gas from the well.

H. There shall be no radio or radio-phone transmitters operated where perforating operations are in progress. Warning signs shall be conspicuously placed at entrances to work sites, which shall be at a minimum, 200 feet from the operation where perforating is being done.

I. Upon the conclusion of perforating operations, the work area shall be inspected and all explosive material and scraps shall be placed in containers and removed from the site.

J. Electrical grounding between the well head, service unit, and rig structure shall be made prior to operating tools using explosives.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.33, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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 C 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 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.

If, after a diligent search, a groundwater source (such as a well or spring) cannot be found within 500 feet of the drilling location, the applicant may use water meeting the parameters listed in the Department of Environmental Quality's "Water Quality Criteria for Groundwater," 9VAC25-260-230 et seq. The analysis shall include, but is not limited to, the following items:

- (1) Chlorides;
- (2) Total dissolved solids;
- (3) Hardness;
- (4) Iron;
- (5) Manganese;
- (6) PH;
- (7) Sodium; and
- (8) Sulfate.

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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.34, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-350. Gas, oil or geophysical operations in hydrogen sulfide areas.

A. Applicability. This section shall apply to every permittee who drills or operates a well or drills a corehole:

1. In areas of unknown hydrogen sulfide conditions;
2. Below the base of the devonian shale; or
3. In areas where the hydrocarbons contain gas with a concentration of 100 parts per million (ppm) or greater of hydrogen sulfide as a constituent of the gas.

B. Permittees shall not remove hydrocarbons with a hydrogen sulfide concentration of 100 parts per million or greater from the well site where they were produced unless:

1. The hydrocarbons have been cleaned on-site so that the hydrogen sulfide concentration is less than 100 parts per million; or
2. The permittee has received a variance from the director.

C. General requirements.

1. Each permittee subject to this section shall determine the hydrogen sulfide concentration in the hydrocarbons by a test approved by the director such as a test in accordance with ASTM Standard D-2385-66, or GPA Plant Operation Test Manual C-1, GPA Publication 2265-68.
2. Automatic hydrogen sulfide detection and alarm equipment that will warn of the presence of hydrogen sulfide gas shall be utilized at the site.

D. Materials and equipment.

1. For new construction or modification of facilities, including materials and equipment to be used in drilling and workover operations, permittees shall only use metal components, approved by the director, which have been selected and manufactured so as to be resistant to hydrogen sulfide stress cracking under the operating conditions for which their use is intended. This requirement may be met by use of components that satisfy the requirements of NACE Standard MR-01-75 and API RP-14E, §§ 1.7(c), 2.1(c) and 4.7. The handling and installation of materials and equipment used in hydrogen sulfide service are to be performed in such a manner so as not to induce susceptibility to sulfide stress cracking.
2. Other materials and equipment, including materials and equipment used in drilling and workover operations, may be used for hydrogen sulfide service provided such materials and equipment are proved, as the result of

advancements in technology or as the result of control and knowledge of operating conditions such as temperature and moisture content, suitable for the use intended and where such usage is technologically acceptable as good engineering practice, and the director has approved a variance for the materials and equipment for the specific uses.

3. In the event of a failure of any element of an existing system as the result of hydrogen sulfide stress cracking, the compliance status of the system shall be determined by the director after the operator has submitted a detailed written report on the failure to the director.

E. Reporting. The permittee shall report the hydrogen sulfide concentrations of the hydrocarbon in any well or corehole where the hydrogen sulfide concentration is equal to or exceeds 100 parts per million with the drilling report under 4VAC25-150-360 or with the plugging affidavit for coreholes under 4VAC25-150-460.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.35, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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

A. Each permittee conducting drilling shall file, on a form prescribed by the director, a drilling report within 30 days after a well reaches total depth.

B. Each permittee drilling a well shall file, on a form prescribed by the director, a completion report within 30 days after the well is completed.

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 two years of reaching total depth, file with the division the results of any gamma ray, density, neutron and induction 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.36, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-370. Wellhead equipment.

A. All wellhead connections and equipment, including but not limited to pipe fittings, valves and unions placed on or connected with a well, well casing, casing head, drill pipe, or tubing shall have a working pressure rating of a minimum of 110% of the maximum anticipated pressure that the material will be exposed to, and shall be in good working condition.

B. Adequate and proper wellhead equipment shall be installed and maintained in good working order on every well that is not permanently abandoned and plugged, so that pressure measurements may be obtained at any time. Valves shall be installed so that pressures can be separately obtained from each production string.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.37, eff. September 25, 1991.

4VAC25-150-380. Accidents, spills and unpermitted discharges.

A. Accidents. A permittee shall, by the quickest available means, notify the director in the event of any fire, blowout, pit failure, hydrogen sulfide release, unanticipated loss of drilling fluids, or other accident resulting in an actual or potential imminent danger to the environment, public safety or welfare. The permittee shall take immediate action to abate the actual or potential danger. The permittee shall submit a written report within seven days of the incident containing:

1. A description of the incident and its cause;
2. The date, time and duration of the incident;
3. A description of the steps that have been taken to date; and
4. A description of the steps planned to be taken to prevent a recurrence of the incident.

B. On-site spills.

1. A permittee shall take all reasonable steps to prevent, minimize, or correct any spill or discharge of fluids on a permitted site which has a reasonable likelihood of adversely affecting human health or the environment. All actions shall be consistent with the requirements of an abatement plan, if any has been set, in a notice of violation or closure, emergency or other order issued by the director.

2. A permittee shall orally report on-site spills or unpermitted discharges of fluids which are not required to be reported in subsection A of this section to the division within 24 hours. The oral report shall provide all available details of the incident, including any adverse effects on any person or the environment. A written report shall be submitted within seven days of the spill or unpermitted discharge. The written report shall contain:

- a. A description of the incident and its cause;
- b. The period of release, including exact dates and times;
- c. A description of the steps to date; and
- d. A description of the steps to be taken to prevent a recurrence of the release.

C. Off-site spills. Permittees shall submit a written report of any spill or unpermitted discharge of fluids that originates off of a permitted site with the monthly report under 4VAC25-150-210. The written report shall contain:

1. A listing of all agencies contacted about the spill or unpermitted discharge; and

2. All actions taken to contain, clean up or mitigate the spill or unpermitted discharge.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.38, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-390. Shut-in wells.

A. If a well is shut-in or otherwise not produced for a period of 12 consecutive months, the permittee shall measure the shut-in pressure on the production string or strings. If the well is producing on the backside or otherwise through the casing, the permittee shall measure the shut-in pressure on the annular space.

B. A report of the pressure measurements shall be maintained by the permittee for a minimum of three years and be submitted to the director upon request.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.39, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-400. Measurement of gas and oil.

A. Natural gas.

1. Each producer shall measure all gas produced from each well, or as prescribed by the director, using a method permitting the computation of volumes, in Mcf. This requirement may be met by use of the standards in:

- a. "Orifice Metering of Natural Gas," ANSI/API 2530, American Gas Association, 1978;
- b. "AGA Gas Measurement Manual, Part 2: Displacement Measurement," American Gas Association, 1977; or
- c. "AGA Gas Measurement Manual, Part 3: Gas Turbine Metering," American Gas Association, 1989.

2. The director may require use of meters at designated places to obtain accurate records of the production of gas.

B. Oil. Each permitted oil operation shall use sufficient tanks or meters to measure the volume of oil produced. In no case shall meters be the sole means of measuring oil, unless such metering is conducted in accordance with a method approved by the director such as the API Manual of Petroleum Measurement Standards, 1981, Chapter 6.1, LACT Systems. A permittee may request a variance from the director to use a gauge tank to check the readings of meters.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.40, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-410. Venting and flaring of gas; escape of oil.

A. It shall be unlawful for any permittee to allow crude oil or natural gas to escape from any well, gathering pipeline or storage tank except as provided for in this section or in an approved operations plan. The permittee shall take all reasonable steps to shut in the gas or oil in the well, or make the necessary repairs to the well, gathering pipeline or storage tank to prevent the escape. All actions shall be consistent with the requirements of an abatement plan, if any has been set, in a notice of violation or closure, emergency or other order issued by the director.

B. A permittee shall drill or repair a well with special diligence so that waste of gas or oil from the well shall not continue longer than reasonably necessary under the following circumstances:

1. When, during drilling, gas or oil is found in the well and the permittee desires to continue to search for gas or oil by drilling deeper; or
2. When making repairs to any well producing gas or oil, commonly known as cleaning out.

C. No gas shall be flared or vented from a well for more than seven days after completion of the well except in these circumstances:

1. When a well must be blown to remove accumulated formation fluid which has restricted efficient production, or the well must be otherwise cleaned out as provided for in subsection B of this section;
2. For the safety of mining operations;
3. For any activity excluded in the definition of "waste" under § 45.1-361.1 of the Act; or
4. For any other operational reason approved in advance by the director.

D. In all cases where both gas and oil are found and produced from the same stratum, the permittee shall use special diligence to conserve and save as much of the gas as is reasonably possible.

E. Venting shall only be used when flaring is not safe or not feasible.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.41, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-420. Disposal of pit and produced fluids.

A. Applicability. All fluids from a well, pipeline or corehole shall be handled in a properly constructed pit, tank or other type of container approved by the director.

A permittee shall not dispose of fluids from a well, pipeline or corehole until the director has approved the permittee's plan for permanent disposal of the fluids.

Temporary storage of pit or produced fluids is allowed with the approval of the director. Other fluids shall be disposed of in accordance with the operations plan approved by the director.

B. Application and plan. The permittee shall submit an application for either on-site or off-site permanent disposal of fluids on a form prescribed by the director. Maps and a narrative describing the method to be used for permanent disposal of fluids must accompany the application if the permittee proposes to land apply any fluids on the permitted site. The application, maps, and narrative shall become part of the permittee's operations plan.

C. Removal of free fluids. Fluids shall be removed from the pit to the extent practical so as to leave no free fluids. In the event that there are no free fluids for removal, the permittee shall report this on the form provided by the director.

D. On-site disposal. The following standards for on-site land application of fluids shall be met:

1. Fluids to be land-applied shall meet the parameters listed in the Department of Environmental Quality's "Water Quality Criteria for Groundwater" (9VAC25-260-230 et seq.).
2. Land application of fluids shall be confined to the permitted area.
3. Fluids shall be applied in a manner which will not cause erosion or runoff. The permittee shall take into account site conditions such as slope, soils and vegetation when determining the rate and volume of land application on each site. As part of the application narrative, the permittee shall show the calculations used to determine the maximum rate of application for each site.
4. Fluid application shall not be conducted when the ground is saturated, snow-covered or frozen.
5. The following buffer zones shall be maintained unless a variance has been granted by the director:
 - a. Fluid shall not be applied closer than 25 feet from highways or property lines not included in the acreage shown in the permit.
 - b. Fluid shall not be applied closer than 50 feet from surface watercourses, wetlands, natural rock outcrops, or sinkholes.
 - c. Fluid shall not be applied closer than 100 feet from water supply wells or springs.
6. The permittee shall monitor vegetation for two years after the last fluid has been applied to a site. If any adverse effects are found, the permittee shall report the adverse effects in writing to the division.
7. The director may require monitoring of groundwater quality on sites used for land application of fluids to determine if the groundwater has been degraded.

E. Off-site disposal of fluids.

1. Each permittee using an off-site facility for disposal of fluids shall submit:
 - a. A copy of a valid permit for the disposal facility to be used; and
 - b. Documentation that the facility will accept the fluids.

2. Each permittee using an off-site facility for disposal of fluids shall use a waste-tracking system to document the movement of fluids off of a permitted site to their final disposition. Records compiled by this system shall be available for inspection on request.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.42, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-430. Disposal of solids.

A. Applicability. All drill cuttings and solids shall be disposed of in the on-site pit as provided in subsection C of this section or as approved by the director. All other solid waste from gas, oil or geophysical operations shall be disposed of in a facility permitted to accept that type of waste.

B. Plan. Each operator shall submit a description of how drill cuttings and solids will be disposed of in the operations plan.

C. Disposal in a pit. Drill cuttings and solids may be disposed of on-site in an approved pit, without testing of the material.

The drill cuttings and solids shall be covered with a liner meeting the standards of 4VAC25-150-300, or a low-permeability clay cap, and shall be covered by soil. The combination of soil and liner or cap shall be at least four feet thick, capable of shielding the cuttings and solids remaining in the pit, suitable for supporting vegetation, and sloped to prevent ponding.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.43, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

**Article 6
Plugging and Abandonment**

4VAC25-150-435. Plugging for abandonment or plug-back operations.

A. Permit requirements; variances.

1. Plugging operations shall not commence until a detailed plugging plan has been submitted to and approved by the director. A permit modification is required if the well was not previously permitted for plugging.

2. Any person may file an application with the director to replug a previously plugged well in any manner permissible under provisions of this section to facilitate the safe mining-through of the well at a later date. The application shall be treated in all respects like any other application for a permit under § 45.1-361.29 of the Code of Virginia.

3. The director may, upon application by the permittee, approve a variance to the prescribed plugging methods for the following reasons if it is determined that the alternate plan meets the requirements of the Act:

a. The coal owner or operator requests a special plugging program to facilitate mine safety, mining through the well, or to obtain approval from another governmental agency for the safe mining-through of a well. The application for a variance must include documentation of the request from the coal owner or operator.

b. The permittee has obtained written authorization from the coal owner or operator for alternate plugging of the coal-bearing section. The application for a variance must include documentation of approval by the coal owner or operator.

c. Downhole conditions such as junk in the hole, a stuck or collapsed casing, caving or other adverse conditions which would prevent proper execution of the prescribed plugging methods.

d. A permittee presents an alternate plugging plan which may differ in method from that prescribed herein, but which will achieve the desired result.

B. Plugging in open hole. When a well or section of a well without casing is to be plugged or plugged back, it shall be sealed and filled as prescribed in this section.

1. At a point approximately 20 feet above each oil, gas or water-bearing stratum in open hole, a plug shall be placed so as to completely seal the wellbore. Whenever two or more gas or oil stratum are not widely separated, they may be treated as a single stratum and plugged accordingly. Cement plugs shall be at least 100 feet in length. At least 20 feet of cement shall be placed on top of open hole bridge plugs.

2. At each coal seam, a cement plug shall be placed from not less than 50 feet below the base of the coal to not less than 50 feet above the top of the coal. Whenever two or more coal seams are not widely separated, they may be treated as a single seam and plugged accordingly. This subsection applies only to coal seams which occur at a depth compatible with mining. Coal-bearing sections at greater depths may be plugged in accordance with subdivision B 1 of this section.

3. If a source of groundwater capable of having a beneficial use is exposed in open hole below surface (water-protection) casing, a cement plug at least 100 feet in length shall be placed below the base of the lowest such groundwater zone.

4. A cement plug of a minimum length of 100 feet shall be placed across the shoe of the surface (water-protection) casing. The plug shall be placed so as to have approximately equal lengths in open hole and inside casing. If the well is without surface casing, a continuous cement plug shall be placed from at least 50 feet below the base of the lowest known aquifer or 300 feet depth, whichever is deeper, to the surface.

5. All intervals below and between plugs shall be filled with drilling mud, bentonite gel, or other appropriately weighted materials approved by the director.

C. Plugging in cased hole. When a cased hole or section of a cased hole is to be plugged or plugged back, it shall be sealed and filled as prescribed in this section.

1. All perforated intervals shall be either squeeze-cemented or otherwise isolated from the wellbore by suitable plugs placed across or immediately above the perforated interval. Cement plugs placed across perforations shall extend to at least 50 feet above the top perforations. A cement plug shall be placed to at least 50 feet above squeezed perforations. Cement plugs placed entirely above perforations shall be at least 100 feet in length. At least 20 feet of cement shall be placed on top of bridge plugs, cement retainers, or other tools left in the hole.

2. At each coal seam which is behind a properly installed and cemented coal-protection casing, a cement plug shall be placed from not less than 50 feet below the base of the coal to not less than 50 feet above the top of the coal. Whenever two or more coal seams are not widely separated, they may be treated as a single seam and plugged accordingly.

3. If casing is not to be pulled, and there is uncemented annulus behind the pipe, plugging shall be as follows:

a. Each oil, gas or water-bearing stratum present behind the pipe in an uncemented annulus must be isolated by perforating the casing at each zone and squeezing cement up into the zone, or circulating cement up the annulus such that a cement fill-up of not less than 100 feet is achieved. When squeezing or circulating the annulus, a cement plug of at least 50 feet shall be placed inside the casing above the perforations.

b. If the well penetrates a minable coal-bearing section, and no coal-protection casing was used, and if surface (water-protection) casing is either absent or not properly placed and cemented to surface, the production casing shall be converted to a coal-protection string by perforating at least 50 feet below the base of the lowest coal stratum, and circulating cement in the annulus from that point to the surface.

c. At each coal seam in a minable coal-bearing section which is protected by a properly installed and cemented coal-protection string, a cement plug shall be placed in casing from not less than 50 feet below the base of the coal to not less than 50 feet above the top of the coal. If there is uncemented annulus between the inner casing and the coal-protection string, the casing shall be perforated to allow cement to be circulated over the prescribed interval, and a plug of equal length shall be placed inside the inner casing.

d. If a fresh water aquifer is exposed to the wellbore in an uncemented annulus, it shall be isolated by perforating the casing at least 100 feet below the aquifer and squeezing cement into the annulus or circulating it up the annulus so that a fill-up of not less than 100 feet is achieved. When squeezing or circulating cement, a cement plug of at least 100 feet shall be placed inside the casing above the perforation.

e. At a point no less than 50 feet below the shoe of surface (water-protection) string, the casing shall be perforated and cement circulated up the annulus to a minimum fill-up of 100 feet. A plug of equal length shall be placed inside the casing.

f. From a point not less than 50 feet below surface, a cement plug shall be installed which reaches the surface. If any uncemented annuli are present at the surface, the voids should be filled and sealed to the greatest extent possible by introducing cement from the surface.

g. All intervals below and between plugs shall be filled with drilling mud, bentonite gel, or other appropriately weighted materials approved by the director.

4. If casing is to be pulled, plugging shall be as follows:

a. All perforated intervals shall be isolated as described in subdivision C 1 of this section.

b. Casing stubs shall be isolated by placing a plug across or above the cut-off point. Cement plugs shall be at least 100 feet in length and shall be placed so as to have approximately equal lengths inside and above the remnant casing. Permanent bridge plugs may be placed above the stub and shall be capped by at least 20 feet of cement.

D. Plugging operations involving uncemented water-protection casing or coal-protection casing.

1. If the annulus of the largest casing present across a minable coal-bearing section is not cemented across that section, then one of the two procedures listed below must be followed:

a. The casing must be perforated at least 50 feet below the lowest coal seam, and cement circulated in the annulus to the surface (if water-protection casing is absent or not properly placed and cemented to surface), or to at least 100 feet above the highest coal (if the casing is to be partially pulled to facilitate plugging operations in the fresh water zone). Plugging shall proceed according to cased hole requirements; or

b. The casing shall be pulled from the well, and plugging shall proceed according to open hole requirements.

2. If the annulus of the largest casing present across the fresh-water-bearing section is not cemented across that section, then one of the two procedures listed below must be followed:

a. The casing shall be perforated below the lowest known fresh-water zone or at a minimum depth of 300 feet. Cement shall be circulated in the annulus to the surface. Plugging shall proceed according to cased hole requirements; or

b. The casing shall be pulled from the well, and a continuous cement plug shall be placed from below the base of the lowest known fresh-water aquifer exposed to the wellbore, or 300-foot depth, whichever is deeper, to the surface.

E. Unfillable cavities. When an unfillable cavity such as a cavern, mine void, blast stimulation zone or gob completion is encountered, the section shall be plugged as follows:

1. If the stratum with the unfillable cavities is the lowest gas or oil stratum in the well, a plug shall be placed at the nearest suitable point not less than 20 feet above the stratum. Cement plugs shall be at least 100 feet long, and at least 20 feet of cement shall be placed on top of bridge plugs.

2. If the stratum with unfillable cavities is above the lowest gas or oil stratum, a plug shall be placed below the stratum and shall extend to within 20 feet of its base. A plug shall also be placed above the stratum as described in subdivision E 1 of this section.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-440. Abandonment of a gas or oil well or corehole as a water well.

A permittee wishing to develop a gas or oil well or corehole as a water well shall submit an application for a permit modification in accordance with 4VAC25-150-110.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.44, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-450. Identification, plugging and control of wells or coreholes in which radioactive source logging tools have been abandoned.

A. Permittees shall, by the quickest available means, notify the division of the loss of a radioactive source in a well or corehole.

B. No radioactive source shall be declared abandoned until all reasonable effort has been expended to retrieve the radioactive source tool.

C. A well or corehole in which a radioactive source has been abandoned shall be mechanically equipped and plugged so as to prevent either accidental or intentional mechanical disintegration of the radioactive source, as follows:

1. Sources abandoned in the bottom of the hole shall be covered with a 100-foot standard color cement plug, dyed with red iron oxide, and an approved deflection device shall be placed on top of the plug. The dye is to alert any reentry operator prior to encountering the source. From this point to the surface, the well or corehole shall be plugged as provided in 4VAC25-150-435.
2. Sources lost in locations other than in the bottom of the hole shall be abandoned in accordance with the following standards:
 - a. If a well or corehole with the lost radioactive source will be abandoned and plugged, then a 100-foot standard color cement plug, dyed with red iron oxide, shall be placed above the abandoned source and an approved deflection device shall be placed on top of the plug. From this point to the surface, the well or corehole shall be plugged as provided in 4VAC25-150-435.
 - b. If a well or corehole is to be deviated or sidetracked around a lost radioactive source, then a 100-foot standard color cement plug, dyed with red iron oxide, shall be placed above the abandoned source, and an approved deflection device shall be placed on top of the plug.
 - c. Upon abandoning a well in which a radioactive source has been cemented in place behind a casing string above total depth, a 100-foot standard color cement plug, dyed with red iron oxide, shall be placed opposite the

abandoned source and an approved deflection device placed on top of the plug, in addition to the plugging standards provided in 4VAC25-150-435.

3. If a permittee finds, after expending reasonable effort, that hole conditions make it impossible to abandon the source as prescribed in subdivision C 1 or C 2 of this section, then the permittee shall apply for a variance from the director for an alternate abandonment procedure.

D. Upon plugging and abandoning any well or corehole in which a radioactive source has been left in the hole, and after removing the wellhead equipment, a permanent plaque shall be attached to the top of the casing left in the hole in such a manner that reentry cannot be accomplished without disturbing the plaque. The plaque shall serve as a visual warning to any person reentering the hole that a radioactive source has been abandoned in place in the well. The plaque shall contain the trefoil radiation symbol with a radioactive warning and shall be constructed of a long-lasting material such as monel, stainless steel or brass.

E. The permittee shall erect a permanent marker as a visual warning to any person who may reenter the hole for any reason, showing that the hole contains a radioactive source. In addition to meeting the requirements of 4VAC25-150-460, any marker for a hole containing a radioactive source shall bear the following information:

1. Surface location of the well;
2. Name of the lease;
3. Source of material abandoned in the well;
4. Total depth of the well;
5. Depth at which the source has been abandoned;
6. Date of the abandonment of the source;
7. Activity of the source;
8. Plug-back depth; and
9. A warning not to drill below the plug-back depth.

F. The information required by subsection E of this section shall be provided with the plugging affidavit submitted pursuant to 4VAC25-150-460.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.45, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-460. Identifying plugged wells and coreholes; plugging affidavit.

A. Abandoned wells and coreholes shall be permanently marked in a manner as follows:

1. The marker shall extend not less than 30 inches above the surface and enough below the surface to make the marker permanent.
2. The marker shall indicate the permittee's name, the well name, the permit number and date of plugging.

B. A permittee may apply for a variance from the director to use alternate permanent markers. Such alternate markers shall provide sufficient information for locating the abandoned well or corehole. Provisions shall also be made to provide for the physical detection of the abandoned well or corehole from the surface by magnetic or other means.

C. When any well or corehole has been plugged or replugged in accordance with 4VAC25-150-435, two persons, experienced in plugging wells or coreholes, who participated in the plugging of a well or corehole, shall complete the plugging affidavit designated by the director, setting forth the time and manner in which the well or corehole was plugged and filled, and the permanent marker was placed.

D. One copy of the plugging affidavit shall be retained by the permittee, one shall be mailed to any coal owner or operator on the tract where the well or corehole is located, and one shall be filed with the division within 30 days after the day the well was plugged.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.46, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-470. Release of bond.

A. Application for bond release.

A permittee desiring to have a bond released by the director shall apply in writing identifying the operation, and documenting that the well or disturbed land meets the requirements for partial or full bond release. A bond may be reduced or released by the director only in writing.

B. Partial bond release.

The portion of a permittee's bond covering disturbed land may be released as follows:

1. A permittee with an individual bond under § 45.1-361.31 A of the Code of Virginia shall be eligible for release of the portion of the bond covering disturbed land after the land has been successfully reclaimed to the standards of 4VAC25-150-260 of this chapter.
2. A permittee with a blanket bond under § 45.1-361.31 B of the Code of Virginia shall be eligible for release of 75% of the portion of the bond calculated on acreage of disturbed land after the land has been successfully reclaimed to the standards of 4VAC25-150-260 of this chapter.

C. Full bond release.

A permittee's bond or coverage of a well and land under a blanket bond is eligible for full release when:

1. A well has been plugged, the plugging affidavit has been submitted to the director and the land under the bond has been successfully reclaimed to the standards of 4VAC25-150-260 of this chapter;

2. The well is abandoned as a water well in accordance with 4VAC25-150-440 of this chapter and the land under the bond has been successfully reclaimed to the standards of 4VAC25-150-260 of this chapter;
3. The well is abandoned as a vertical ventilation hole in accordance with 4VAC25-150-650 of this chapter and the land under the bond is permitted by the department's Division of Mined Land Reclamation or has been successfully reclaimed to the standards of 4VAC25-150-260 of this chapter; or
4. Other bond has been accepted by the director.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.47, eff. September 25, 1991.

4VAC25-150-480. Orphaned wells; right of entry.

A. Written consent from the owner of record or lessee, or their authorized agents, is the preferred means for obtaining agreements to enter lands in order to carry out plugging of orphaned wells and restoration of their sites. Nonconsensual entry under § 45.1-361.27 E of the Code of Virginia shall be undertaken only after reasonable efforts have been made to obtain written consent.

B. Consent and entry shall meet the following standards:

1. The director or authorized contractors may enter lands to perform plugging and restoration activities or to conduct studies or investigations of orphaned wells if consent from the owner is obtained.
2. If consent is not obtained, then, prior to entry under this section, the director shall find, in writing, with supporting reasons, that:
 - a. Citizens or the environment of the Commonwealth or persons involved in coal or mineral mining may be at risk from an orphaned well; and
 - b. The owner of the land where entry must be made to plug an orphaned well and restore the site is not known or readily available, or the owner will not give permission for the director or authorized contractors to enter to plug the orphaned well and reclaim the site.

C. If consent is not obtained, the director shall give notice of his intent to enter for the purposes of conducting plugging and restoration at least 30 days before entry into the property. The notice shall be in writing and shall be mailed, return receipt requested, to the owner, if known, with a copy of the findings required by this section. If the owner is not known, or if the current mailing address of the owner is not known, notice shall be posted in one or more places on the property to be entered, where it is readily visible to the public. The notice posted on the property and the newspaper notice pursuant to § 45.1-361.40 C of the Code of Virginia shall include a statement of where the findings required by this section may be inspected or obtained.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 1.48, eff. September 25, 1991.

Part II
Conventional Gas and Oil Wells

4VAC25-150-490. Applicability.

A. Part II of this chapter sets forth requirements unique to conventional gas and oil wells and wells classified as Class II injection wells by the United States, Environmental Protection Agency under 40 CFR Part 146, Section 146.5.

B. Permittees must comply with the standards of general applicability in Part I of this chapter and with the standards for conventional gas and oil and Class II injection wells in this part, except that whenever the Environmental Protection Agency imposes a requirement under the Underground Injection Control (UIC) Program, 40 CFR Part 146, Sections 146.3, 146.4, 146.5, 146.6, 146.7, 146.8, 146.22 and 146.23 that governs an activity also governed by this chapter, the Environmental Protection Agency requirement shall control and become part of the permit issued under this chapter.

C. An application for a permit for a Class II injection well which has not been previously drilled under a permit from the director shall be submitted as an application for a new permit. An application for a permit for conversion of a permitted gas or oil well to a Class II injection well shall be submitted as an application for a permit modification.

D. The director shall not issue a permit for a Class II injection well until after the Environmental Protection Agency has issued its permit for the injection well.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 2.1, eff. September 25, 1991.

4VAC25-150-500. Application for a permit.

A. In addition to the requirements of 4VAC25-150-80 or 4VAC25-150-110, every application for a permit or permit modification for a conventional gas or oil well or a Class II injection well shall contain:

1. The approximate depth to which the well is proposed to be drilled or deepened, or the actual depth to which the well has been drilled;
2. The approximate depth and thickness, if applicable, of all known coal seams, known groundwater-bearing strata, and other known gas or oil strata between the surface and the depth to which the well is proposed to be drilled;
3. If casing or tubing is proposed to be or has been set, a description of the entire casing program, including the size of each string of pipe, the starting point and depth to which each string is to be or has been set, and the extent to which each string is to be or has been cemented; and
4. If the proposed work is for a Class II injection well, a copy of either the permit issued by, or the permit application filed with the Environmental Protection Agency under the Underground Injection Control Program.

B. In addition to the requirements of 4VAC25-150-80 and 4VAC25-150-110, every application for a permit or permit modification for a conventional gas or oil well or a Class II injection well may contain, if the proposed work is to drill, redrill or deepen a well, a

plan showing the proposed manner of plugging the well immediately after drilling if the proposed well work is unsuccessful.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 2.2, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Errata, 15:6 VA.R. 938 December 7, 1998.

4VAC25-150-510. Plats.

A. In addition to the requirements of 4VAC25-150-90, every plat for a conventional gas or oil well shall show:

1. The boundaries of any drilling unit established by the board around the subject well;
2. The boundaries and acreage of the tract on which the well is located or is to be located;
3. The boundaries and acreage of all other tracts within one-half of the distance specified in § 45.1-361.17 of the Code of Virginia or within one-half of the distance to the nearest well completed in the same pool, whichever is less, or within the boundaries of a drilling unit established by the board around the subject well;
4. Surface owners on the tract to be drilled and on all other tracts within the unit where the surface of the earth is to be disturbed;
5. All gas, oil or royalty owners on any tract located within one half of the distance specified in § 45.1-361.17 of the Code of Virginia or within one-half of the distance to the nearest well completed in the same pool, whichever is less, or within the boundaries of a drilling unit established by the board around the subject well;
6. Coal owners and mineral owners on the tract to be drilled and on all other tracts located within 500 feet of the subject well location;
7. Coal operators who have registered operations plans with the department for activities located on the tract to be drilled, or who have applied for or obtained a coal mine license, coal surface mine permit or a coal exploration notice or permit from the department with respect to all tracts within 500 feet of a proposed gas or oil well;
8. Any inhabited building, highway, railroad, stream, surface mine or mine opening within 500 feet of the proposed well; and
9. If the plat is for an enhanced oil recovery injection well, any other well within 2,500 feet of the proposed or actual well location, which shall be presumed to embrace the entire area to be affected by an enhanced oil recovery injection well in the absence of a board order establishing units in the target pool of a different size or configuration.

B. If the well location is underlain by known coal seams, or if required by the director, the well plat shall locate the well and two permanent points or landmarks with reference to the mine coordinate system if one has been established for the area of the well

location, and shall in any event show all other wells, surface mines and mine openings within the scope of the plat.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 2.3, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-520. Setback restrictions.

No permit shall be issued for any well to be drilled closer than 200 feet from any inhabited building unless site conditions as approved by the director warrant the permission of a lesser distance and there exists a lease or agreement between the operator and the owner of the inhabited building. A copy of the lease or agreement shall accompany the application for a permit.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 2.4, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-530. Casing requirements for conventional gas or oil wells.

A. Water-protection string.

1. Except as provided in subdivision A 5 of this section, the permittee shall set a water-protection string 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 in to the surface. If the cement does not return to the surface, every reasonable attempt 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.

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 and 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 is demonstrated by the permittee as not practical, the director may approve a casing program involving the cementing of a coal-protection string in multiple stages, or the cementing of two or more coal-protection strings, or the use of other alternative casing procedures. 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 of 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.

3. 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 substantially 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 to the surface from the top of the void, 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 be verified by a cement top log.

2. For good cause shown, the director may approve alternative 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. 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 2.5, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-540. [Repealed]

Historical Notes

Derived from VR480-05-22.1 § 2.6, eff. September 25, 1991; repealed, Virginia Register 15, Issue 2, eff. November 11, 1998.

Part III
Coalbed Methane Gas Wells

4VAC25-150-550. Applicability.

Part III of this chapter sets forth requirements unique to coalbed methane gas wells. Permittees must comply with the standards of general applicability in Part I of this chapter and with the standards for coalbed methane gas wells in this part.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.1, eff. September 25, 1991.

4VAC25-150-560. Application for a permit.

A. In addition to the requirements of 4VAC25-150-80 or 4VAC25-150-110, every application for a permit or permit modification for a coalbed methane gas well shall contain:

1. An identification of the category of owner or operator, as listed in § 45.1-361.30 A of the Code of Virginia, that each person notified of the application belongs to;
2. The signed consent required in § 45.1-361.29 of the Code of Virginia;
3. Proof of conformance with any mine development plan in the vicinity of the proposed coalbed methane gas well, when the Virginia Gas and Oil Board has ordered such conformance;
4. The approximate depth to which the well is proposed to be drilled or deepened, or the actual depth if the well has been drilled;
5. The approximate depth and thickness, if applicable, of all known coal seams, known groundwater-bearing strata, and other known gas or oil strata between the surface and the depth to which the well is proposed to be drilled;
6. If casing or tubing is proposed to be or has been set, a description of the entire casing program, including the size of each string of pipe, the starting point and depth to which each string is to be or has been set, and the extent to which each string is to be or has been cemented together with any request for a variance under 4VAC25-150-580;
7. An explanation of the procedures to be followed to protect the safety of persons working in an underground coal mine for any coalbed methane gas well to be drilled within 200 feet of or into any area of an active underground coal mine; which shall, at a minimum, require that notice of such drilling be given by the permittee to the mine operator and the Chief at least two working days prior to drilling within 200 feet of or into the mine; and
8. If the proposed work is for a Class II injection well, a copy of the Environmental Protection Agency permit, or a copy of the application filed with the Environmental Protection Agency under the Underground Injection Control Program.

B. In addition to the requirements of 4VAC25-150-80 or 4VAC25-150-110, every application for a permit or permit modification for a coalbed methane well or a Class II

injection well may contain, if the proposed work is to drill, redrill or deepen a well, a plan showing the proposed manner of plugging the well immediately after drilling if the proposed well work is unsuccessful so that the well must be plugged and abandoned.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.2, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Errata, 15:6 VA.R. 938 December 7, 1998.

4VAC25-150-570. [Repealed]

Historical Notes

Derived from VR480-05-22.1 § 3.3, eff. September 25, 1991; repealed, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-580. Variance request to convert a vertical ventilation hole to a coalbed methane gas well.

A. An applicant may request a variance to the casing standards in 4VAC25-150-610 when the applicant desires to convert a vertical ventilation hole drilled prior to September 25, 1991, to a coalbed methane gas well. All other standards for coalbed methane gas wells shall be met. The variance request must be included in the request for a permit, and shall address the following subjects:

1. Method of wellbore completion, whether cased, open or cased/open hole;
2. Coal seams to be left uncased;
3. Mining activity currently being conducted within 750 feet of the location;
4. Depth of the water-protection string and information on how the casing was cemented; and
5. In the case of a coalbed methane gas well drilled through a coal seam from which the coal has been removed, the protection provided to prevent the escape of any gases into the mined out seam.

The production casing shall be tested to 300 psig surface pressure or the highest pressure anticipated to be placed on the casing, whichever is greater. If after 30 minutes, the pressure has dropped by 10% or more of the test pressure, corrective action shall be taken to ensure that the casing is so set and cemented that it will hold at least 90% of the test pressure for 30 minutes or more.

B. No variance to the casing standards in 4VAC25-150-610 shall be allowed for the conversion of any vertical ventilation hole drilled on or after September 25, 1991, to a coalbed methane gas well.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.4, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-590. Plats.

A. In addition to the requirements of 4VAC25-150-90, every plat for a coalbed methane gas well shall show:

1. Boundaries and acreage of any drilling unit established by the board around the subject well;
2. Boundaries and acreage of the tract on which the well is located or is to be located;
3. Boundaries and acreage of all other tracts within one-half of the distance specified in § 45.1-361.17 of the Code of Virginia or within one-half of the distance to the nearest well completed in the same pool, whichever is less, or within the boundaries of a drilling unit established by the board around the subject well;
4. Surface owners on the tract to be drilled and on all other tracts within the unit where the surface of the earth is to be disturbed;
5. All gas, oil or royalty owners on any tract located within one-half of the distance specified in § 45.1-361.17 of the Code of Virginia or within one-half of the distance to the nearest well completed in the same pool, whichever is less, or within the boundaries of a drilling unit established by the board around the subject well;
6. Coal owners and mineral owners on the tract to be drilled and on all other tracts located within 750 feet of the subject well location;
7. Coal operators who have registered operations plans with the department for activities located on the tract to be drilled, or who have applied for or obtained a coal mine license, coal surface mine permit or a coal exploration notice or permit from the department with respect to all tracts within 750 feet of a proposed gas or oil well; and
8. Any inhabited building, highway, railroad, stream, surface mine or mine opening within 500 feet of the proposed well.

B. The well plat shall locate the well and two permanent points or landmarks with reference to the mine coordinate system if one has been established for the area of the well location, and shall show all other wells within the scope of the plat.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.5, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-600. Setback restrictions.

No permit shall be issued for any well to be drilled closer than 200 feet from any inhabited building, unless site conditions as approved by the director warrant the permission of a lesser distance, and there exists a lease or agreement between the operator and the owner of the inhabited building. A copy of the lease or agreement shall accompany the application for a permit.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.6, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

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 lowest 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.

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 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 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 to the surface from the top of the void; 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.7, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Errata, 15:6 VA.R. 938 December 7, 1998.

4VAC25-150-620. Coalbed methane gas wellhead equipment.

Wellhead equipment and facilities installed on any gob well or on any coalbed methane gas well subject to the requirements of §§ 45.1-161.121 and 45.1-161.292 of the Code of Virginia addressing mining near or through a well shall include, but are not limited to, flame arrestors, back-pressure systems, pressure-relief systems, vent systems and fire-fighting equipment. The director may require additional safety equipment to be installed on a case-by-case basis.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.8, eff. September 25, 1991.

4VAC25-150-630. Report of produced waters.

All coalbed methane gas well operators are required to submit monthly reports of total produced waters withdrawn from coalbed methane gas wells, in barrels, on a well-by-well basis, with the monthly report submitted under 4VAC25-150-210 of this chapter. The report shall show monthly produced water withdrawals and cumulative produced water withdrawals.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.9, eff. September 25, 1991.

4VAC25-150-640. [Repealed]

Historical Notes

Derived from VR480-05-22.1 § 3.10, eff. September 25, 1991; repealed, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-650. Abandonment through conversion to a vertical ventilation hole.

A permittee wishing to abandon a coalbed methane gas well as a vertical ventilation hole shall submit an application for a permit modification which includes approval from the chief of the Division of Mines.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 3.11, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

**Part IV
Ground-Disturbing Geophysical Exploration**

4VAC25-150-660. Applicability.

Part IV (4VAC25-150-660 et seq.) of this chapter sets forth requirements unique to ground-disturbing geophysical exploration.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 4.1, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-670. Application for a permit.

A. In accordance with 4VAC25-150-80 and 4VAC25-150-110, a permit shall be required for ground-disturbing geophysical exploration.

B. In addition to the requirements of 4VAC25-150-80 or 4VAC25-150-110, every application for a corehole permit or permit modification under this part shall contain:

1. The approximate depth to which the corehole is proposed to be drilled or deepened, or the actual depth if the corehole has been drilled;
2. The approximate depth and thickness, if applicable, of all known coal seams, known groundwater-bearing strata, and other known gas or oil strata between the surface and the depth to which the corehole is proposed to be drilled;
3. If casing is proposed to be set, the entire casing program, including the diameter of each string of casing, the starting point and depth to which each string is to be set, whether or not the casing is to remain in the hole after the completion of drilling, and the extent to which each string is to be cemented, if applicable; and
4. A plan which shows the proposed manner of plugging or replugging the corehole.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 4.2, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-680. Plats.

A. In addition to the requirements of 4VAC25-150-90, every plat for a corehole shall show:

1. The boundaries of the tract on which the corehole is located or is to be located;
2. Surface owners on the tract to be drilled and surface owners on the tracts where the surface is to be disturbed;
3. Coal owners and mineral owners on the tract to be drilled;
4. Coal operators who have registered operations plans with the department for activities located on the tract to be drilled; and
5. Any inhabited building, highway, railroad, stream, surface mine or mine opening within 500 feet of the proposed corehole.

B. If the corehole location is underlain by known coal seams, the plat shall locate the corehole and two permanent points or landmarks with reference to the mine coordinate system if one has been established for the area of the corehole location, and shall in any event show all other wells within the scope of the plat.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 4.3, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-690. Operations plans.

In addition to the requirements of 4VAC25-150-100, every operations plan for a corehole shall describe the measures to be followed to protect water quality during the drilling, and the measures to be followed to protect any voids encountered during drilling.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 4.4, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998; Errata, 15:6 VA.R. 938 December 7, 1998.

4VAC25-150-700. Setback restrictions.

No permit shall be issued for any corehole to be drilled closer than 200 feet from an inhabited building, unless site conditions as approved by the director warrant the permission of a lesser distance, and there exists a lease or agreement between the operator and the owner of the inhabited building. A copy of the lease or agreement shall accompany the application for a permit.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 4.5, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-710. [Repealed]

Historical Notes

Derived from VR480-05-22.1 § 4.6, eff. September 25, 1991; repealed, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-711. Voids and lost circular zones.

A. Casing through voids.

1. When a corehole 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 to the surface from the top of the void; 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 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 this section.
3. For good cause shown, the director may impose special requirements on the permittee to prevent communication between two or more voids.

B. 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.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

Part V Gathering Pipelines

4VAC25-150-720. Applicability.

A. Part V (4VAC25-150-720 et seq.) of this chapter sets forth requirements unique to gathering pipelines. Permittees must comply with the standards for gathering pipelines in this part and the following standards in Part I:

1. All of Article 1, "General Information"; except 4VAC25-150-50, "Gas or oil in holes not permitted as a gas or oil well";
2. All of Article 2, "Permitting"; except 4VAC25-150-90, "Plats";
3. All of the sections in Article 3, "Enforcement";
4. 4VAC25-150-220, "Annual reports, "; of Article 4, "Reporting";
5. 4VAC25-150-230, 4VAC25-150-240, 4VAC25-150-250, 4VAC25-150-260, 4VAC25-150-270, 4VAC25-150-310, 4VAC25-150-350, 4VAC25-150-380, 4VAC25-150-410, 4VAC25-150-420, and 4VAC25-150-430 of Article 5, "Technical Standards"; and
6. 4VAC25-150-470, "Release of bond, "; of Article 6, "Plugging and Abandonment. ";

B. A permit shall be required for installation and operation of every gathering pipeline and associated structures for the movement of gas or oil production from the wellhead to a previously permitted gathering line, a transmission or other line regulated by the United States Department of Transportation or the State Corporation Commission, to the first point of sale, or for oil, to a temporary storage facility for future transportation by a method other than a gathering pipeline.

C. Each gathering pipeline or gathering pipeline system may be permitted separately from gas or oil wells or may be included in the permit for the well being served by the pipeline.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 5.1, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-730. General requirements.

- A. Gathering pipelines shall be installed to be compatible with other uses of the area.

B. No permit shall be issued for a gathering pipeline to be installed closer than 50 feet from any inhabited building, unless site conditions as approved by the director warrant the use of a lesser distance and there exists a lease or agreement between the operator, the inhabitants of the building and the owner of the inhabited building. A copy of the lease or agreement shall accompany the application for a permit.

C. Materials used in gathering pipelines shall be able to withstand anticipated conditions. At a minimum this shall include:

1. All plastic gathering pipeline connections shall be fused, not coupled.
2. All buried gathering pipelines shall be detectable by magnetic or other remote means from the surface.

D. All new gathering pipelines shall be tested to maintain a minimum of 110% of anticipated pressure prior to being placed into service.

E. All gathering pipelines shall be maintained in good operating condition at all times.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 5.2, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-740. Operations plans.

A. For a gathering pipeline, the operations plan shall be in a format approved by, or on a form prescribed by, the director.

B. On a form prescribed by the director, the operator shall indicate how risks to the public safety or to the site and adjacent lands are to be managed, and shall provide a short narrative, if pertinent.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 5.3, eff. September 25, 1991; amended, Virginia Register Volume 15, Issue 2, eff. November 11, 1998.

4VAC25-150-750. Inspections.

Gathering pipelines shall be visually inspected annually by the permittee. The results of each annual inspection shall be maintained by the permittee for a minimum of three years and be submitted to the director upon request.

Statutory Authority

§§ 45.1-161.3 and 45.1-361.27 of the Code of Virginia.

Historical Notes

Derived from VR480-05-22.1 § 5.4, eff. September 25, 1991.

FORMS (4VAC25-150)

Registration Form, DGO-GO-A (rev. 6/09).

Application for a New Permit, Permit Modification, or Transfer of Permit Rights, DGO-GO-1 (rev. 6/09).

Operator's Surety Bond, DGO-GO-2 (rev. 6/09).

Operator's Cash Bond, DGO-GO-3 (rev. 6/09).

Notice of Application for a Permit or Permit Modification, DGO-GO-4 (rev. 6/09).

Persons Receiving Official Notice of Permit Application or Permit Modification, DGO-GO-5 (rev. 6/09).

Notice by Publication of an Application for a Permit, DGO-GO-6 (rev. 6/09).

Well Location Plat, DGO-GO-7, rev. 1/98.

Information Sheet for Applications to Transfer Permit Rights, DGO-GO-8 (rev. 6/09).

Technical Data Sheet for Permit Applications Under § 45.1-361.29, DGO-GO-9 (rev. 6/09).

Technical Data Sheet for Gathering Pipelines and Associated Facilities, DGO-GO-10 (rev. 6/09).

Technical Data Sheet for Permit Modification to Plug or Replug, DGO-GO-11 (rev. 6/09).

Operations Plan -- Checklist, DGO-GO-12 (rev. 6/09).

Drilling Report, DGO-GO-14 (rev. 6/09).

Completion Report, DGO-GO-15 (rev. 6/09).

Application for Disposal of Pit or Produced Fluids, DGO-GO-16 (rev. 6/09).

Application to Complete Abandoned Gas or Oil Well as a Water Well, DGO-GO-17 (rev. 6/09).

Plugging Affidavit, DGO-GO-18 (rev. 6/09).

Monthly Gas Production Report, DGO-GO-19 (rev. 6/09).

Monthly Oil Production, DGO-GO-20 (rev. 6/09).

Notice of Right to Object, DGO-GO-21 (rev. 6/09).

License to Perform -- Plugging of Orphaned Well, DGO-GO-23 (rev. 6/09).

License to Perform -- Plugging of Well/Bond Forfeiture, DGO-GO-24 (rev. 6/09).

Affidavit and Release in Support of Surface Owner's Application to the Virginia Division of Gas and Oil for Use of an Orphaned Well as a Water Well, DGO-GO-25 (rev. 6/09).