

12 VAC 5-640-10 et seq.

Alternative Discharging Sewage Treatment Regulations

For Individual Single Family Dwellings

December 16, 2015

Part I

General Provisions

12VAC5-640-5. Definitions.

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

"Agent" means a legally authorized representative of the owner.

"All weather stream" means any stream that will, at all times, dilute point source discharge effluent from a pipe at least 10:1 as measured during a seven consecutive day average of a 10-year low flow (7-Q-10).

"Alternative discharging sewage treatment system" or "discharging system" means any device or system that results in a point source discharge of treated sewage for which the board may issue a permit authorizing construction and operation when such system is regulated by the SWCB pursuant to a general VPDES permit issued for an individual single family dwelling with flows less than or equal to 1,000 gallons per day on a monthly average.

"Alternative onsite sewage treatment system" means a treatment works that is not a conventional onsite sewage system and does not result in a point source discharge.

"Biochemical oxygen demand, five day" or "BOD₅" means the quantitative measure of the amount of oxygen consumed by bacteria while stabilizing, digesting, or treating biodegradable organic matter under aerobic conditions over a five-day incubation period; BOD₅ is expressed in milligrams per liter (mg/l).

"Biological treatment unit" means a method, technique, equipment, or process other than a septic tank or septic tanks that uses biological organisms to treat sewage to produce effluent of a specified quality.

"Board" means the State Board of Health.

"Combined Application" means a Virginia Department of Health Discharging System Application Form for Single Family Dwellings Discharging Sewage Less Than or Equal to 1,000 Gallons Per Day and a State Water Control Board Virginia Pollutant Discharge Elimination System General Permit Registration Statement for Domestic Sewage Discharges Less Than or Equal to 1,000 Gallons Per Day.

"Commissioner" means the State Health Commissioner or his subordinate who has been delegated powers in accordance with subdivision 2 of 12VAC5-640-80.

"Conventional onsite sewage system" means a treatment works consisting of one or more septic tanks with gravity, pumped, or siphoned conveyance to a gravity distributed subsurface drainfield.

"Dechlorination" means a process that neutralizes chlorine in the final effluent.

"Department" means the district or local health department with jurisdiction over the site or proposed site of the alternative discharging sewage treatment system.

"Disinfection" means a process used to destroy or inactivate pathogenic microorganisms in wastewater to render them noninfectious.

"Disinfection unit" means a separate treatment component that disinfects wastewater.

"District health department" means a consolidation of local health departments as authorized in § 32.1-31 C of the Code of Virginia.

"Division" means the Division of Onsite Sewage, Water Services, Environmental Engineering, and Marina Programs.

"Dry ditch" means a naturally occurring swale or channel that is topographically connected to an all weather stream. In some cases, a dry ditch may have a manmade component that provides a topographical connection to an existing, naturally occurring swale or channel. A dry ditch may have observable flow during or immediately after a storm event or snow melt. For the purposes of this chapter, all dry ditches shall have a well defined natural channel with sides that have at least a 1:10 (rise:run) slope.

"Emergency pump and haul" means an emergency condition to pump out the treatment systems tanks by a licensed sewage handler as needed to not allow a discharge to protect public health and the environment.

"Failing alternative discharging sewage treatment system" means any alternative discharging sewage treatment system that discharges effluent having a BOD₅, total suspended solids, pH, chlorine residual, dissolved oxygen, or bacteria value that is out of compliance with the General Permit or fails to comply with 12VAC5-640-430. The failure to discharge due to exfiltration may indicate system failure.

"Failing onsite sewage disposal system" means an onsite sewage disposal system where the presence of raw or partially treated sewage on the ground's surface or in adjacent ditches or waterways or exposure to insects, animals, or humans is *prima facie* evidence of a system failure. Pollution of the groundwater or backup of sewage into plumbing fixtures may also indicate system failure.

"General approval" means that a treatment unit has been evaluated and approved for TL-2 effluent or TL-3 effluent in accordance with the requirements of this chapter and 12VAC5-610.

"General Permit" means a Virginia Pollutant Discharge Elimination System (VPDES) General Permit for domestic sewage discharges less than or equal to 1,000 gallons per day on a monthly average issued by the State Water Control Board.

"Intermittent stream" means any stream that will not, at all times, dilute point source discharge effluent at least 10:1 as measured during a seven consecutive day average of a 10-year

low flow (7-Q-10). For the purposes of this section, an intermittent stream is identified as a dashed or dotted line on a United States Geological Survey 7.5 minute topographic map or an all weather stream that provides less than 10:1 dilution of the effluent based on 7-Q-10 flow.

"Local health department" means the department established in each city and county in accordance with § 32.1-30 of the Code of Virginia.

"Maintenance" means performing adjustments to equipment and controls and in-kind replacement of normal wear and tear parts such as light bulbs, fuses, filters, pumps, motors, or other like components. Maintenance includes pumping the tanks or cleaning the building sewer on a periodic basis.

"Modify" means to alter a treatment works, excluding actions taken to "operate" the treatment works and "maintenance" activities as those terms are defined in § 32.1-163 of the Code of Virginia.

"National Pollutant Discharge Elimination System" or "NPDES" means the national program for (i) issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits and (ii) imposing and enforcing pretreatment requirements under §§ 307, 402, 318, and 405 of the Clean Water Act (33 USC § 1251 et seq.). The term includes an approved program.

"Operate" means the act of making a decision on one's own volition to (i) place into or take out of service a unit process or unit processes or (ii) make or cause adjustments in the operation of a unit process at a treatment works.

"Operation" means the biological, chemical, and mechanical processes of transforming sewage or wastewater to compounds or elements and water that no longer possess an adverse environmental or health impact.

"Operation and maintenance contract" means an agreement between an owner and a licensed operator that the operator will provide services to operate, maintain, monitor, repair, and report on the treatment system in accordance with this chapter.

"Owner" means the Commonwealth or any of its political subdivisions, including sanitary districts, sanitation district commissions and authorities, or any individual, any group of individuals acting individually or as a group, or any public or private institution, corporation, company, partnership, firm, or association that owns or proposes to own a sewerage system or treatment works.

"Person" means any and all persons, including individuals, firms, partnerships, associations, public or private institutions, municipalities or political subdivisions, governmental agencies, or private or public corporations organized under the law of this Commonwealth or any other state or country.

"Point source discharge" means any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater run-off.

"Post-aeration unit" means a treatment component that is designed to add oxygen to an effluent.

"Post-filtration unit" means a treatment component that physically removes total suspended solids.

"Reliability" means a measure of the ability of a component or system to perform its designated function without failure or interruption of service. Overflow criteria, such as an allowable period of a noncompliant discharge, are utilized solely for the establishment of reliability classification for design purposes and are not to be construed as authorization for, or defense of, an unpermitted discharge to state waters. The reliability classification shall be based on the water quality and public health and welfare consequences of a component or system failure.

"Reliability Class I" means a measure of reliability that requires a treatment system design to provide continuous satisfactory operation during power failures, flooding, peak loads, equipment failure, and maintenance shut-down. For the purposes of this chapter, continuous operability shall be defined as restoring proper operation or otherwise eliminating the out-of-compliance discharge within 24 hours. This class includes design features, such as additional electrical power sources, additional flow storage capacity, and additional treatment units that provide operation in accordance with the issued permit requirements.

"Reliability Class II" means a measure of reliability that requires a treatment design that limits out-of-compliance discharges due to power failures, flooding, peak loads, equipment failure, and maintenance shut-down to less than 36 hours. This class includes design features such as alarms with telemetry to the operator, additional treatment units, or additional flow storage capacity that provide operation in accordance with the issued permit requirements.

"Reliability Class III" means a measure of reliability that requires a treatment design that limits out-of-compliance discharges due to power failures, flooding, peak loads, equipment failure, and maintenance shut-down to less than 48 hours. This class includes design features such as onsite alarms and owner initiated operator notification to address the alarm condition to provide operation in accordance with the issued permit requirements.

"Sanitary survey" means an investigation of any condition that may affect public health.

"Sewage" means water carried and non-water carried human excrement, kitchen, laundry, shower, bath, or lavatory wastes separately or together with such underground, surface, storm, and other water and liquid industrial wastes as may be present from residences, buildings, vehicles, industrial establishments, or other places.

"Site sketch" means a scale drawing of a proposed site for a discharge system, with pertinent distances shown. The scale shall typically be 1" = 50' for lots of three acres or less and 1" = 100' for larger lots. Site sketches may be made by the homeowner or any agent for the homeowner.

"Surface waters" means:

1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters, including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds and the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - a. That are or could be used by interstate or foreign travelers for recreational or other purposes;
 - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - c. That are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as surface waters under this definition;
5. Tributaries of waters identified in subdivisions 1 through 4 of this definition;
6. The territorial sea; and
7. Wetlands adjacent to waters, other than water that are themselves wetlands, identified in subdivisions 1 through 6 of this definition.

"SWCB" means the State Water Control Board and its designees.

"Total residual chlorine" or "TRC" means a measurement of the combined available chlorine and the free available chlorine available in a sample after a specified contact time.

"Total suspended solids" or "TSS" means solids in effluent samples that can be removed readily by standard filtering procedures in a laboratory and expressed as mg/l.

"Treatment level 2 effluent" or "TL-2 effluent" means effluent that has been treated to produce BOD₅ and TSS concentrations less than or equal to 30 mg/l each.

"Treatment level 3 effluent" or "TL-3 effluent" means effluent that has been treated to produce BOD₅ and TSS concentrations less than or equal to 10 mg/l each.

"Treatment system" means the combination of treatment components that together produce the required quality of effluent.

"Variance" means a conditional waiver of a specific regulation that is granted to a specific owner relating to a specific situation or facility and may be for a specified time period.

"VPDES permit" means a Virginia Pollutant Discharge Elimination System permit issued by the SWCB under the authority of the federal NPDES program.

"Water well" or "well" means any artificial opening or artificially altered natural opening, however made, by which groundwater is sought or through which groundwater flows under natural pressure or is intended to be artificially drawn. This definition shall not include wells drilled for the following purposes: (i) exploration or production of oil or gas, (ii) building foundation investigation and construction, (iii) elevator shafts, (iv) grounding of electrical apparatus, or (v) the modification or development of springs.

"Wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

12VAC5-640-10. (Repealed.)

12VAC5-640-20. Purpose of regulations.

Title 32.1 of the Code of Virginia and specifically §§ 32.1-12, 32.1-163, and 32.1-164 of the Code of Virginia provide that the board has the duty to protect the public health and the environment. In order to discharge this duty, the board is empowered to supervise and regulate

the construction, location, and operation of alternative discharging sewage treatment systems with flows less than or equal to 1,000 gallons per day on a monthly average for an individual single family dwelling within the Commonwealth when such a system is regulated by the Virginia State Water Control Board pursuant to a Virginia Pollutant Discharge Elimination System General Permit.

These regulations have been promulgated by the State Board of Health to:

1. Ensure that discharging systems are permitted, constructed, and operated in a manner which protects the environment and protects the public welfare, safety and health;
2. Guide the commissioner in his determination of whether a permit for construction and operation of a discharging system should be issued or denied;
3. Guide the owner or his agent in the requirements necessary to secure a permit for construction of a discharging system;
4. Guide the owner or his agent in the requirements necessary to secure an operation permit following construction;
5. Guide the owner or his agent in the requirements necessary to operate and maintain a discharging system;
6. Guide the commissioner in his determination of whether a discharging system is being operated in a manner which protects public health and the environment; and
7. Guide the commissioner in his determination of what actions are appropriate to correct violations of this chapter.

12VAC5-640-30. Scope of regulations.

- A. This chapter applies to all alternative discharging sewage treatment systems constructed and operated to serve an individual single family dwelling with flows less than or equal to 1,000 gallons per day on a monthly average. This includes the following systems:

1. All new discharging systems described in this subsection when such systems are regulated by the State Water Control Board pursuant to a General Permit.
2. All existing discharging sewage treatment systems, as described in this subsection, constructed prior to July 30, 1992, and permitted by the State Water Control Board under its individual VPDES permit program shall be governed by this chapter, except for the monitoring requirements noted in this subdivision, effective upon the expiration date of their individual VPDES permit and approval of the owner's registration statement by the SWCB under the General Permit. Upon approval under the General Permit, the owners of such systems need only comply with the monitoring requirements of the General Permit and the monitoring requirements in 12VAC5-640-510, and not 12VAC5-640-490 and 12VAC5-640-500, until (i) a change in ownership or (ii) the discharging system violates the effluent limitations of the General Permit for two consecutive quarters, whichever occurs first. After either event, the owner shall comply with 12VAC5-640-490 and 12VAC5-640-500.
3. All existing discharging sewage treatment systems as described in this subsection that were operating without a valid VPDES permit on July 30, 1992, shall be governed by this chapter after the owner receives registration statement approval from the SWCB under the General Permit.

B. Location criteria contained in this chapter shall not apply to systems legally installed prior to July 30, 1992. When extensive repairs, modifications, or replacement are required to bring a system into compliance with the discharge requirements of the General Permit, a construction permit and temporary operation permit must be obtained by the system owner. The construction permit and temporary operation permit shall be valid for the time specified on its face, at which time the repairs, modifications, or replacement must be completed.

C. Requirements for an operation and maintenance manual contained in this chapter shall only apply to alternative discharging systems with construction applications filed on or after December 16, 2015.

D. The department will not consider issuance of a permit to construct a discharging system, unless all options for conventional and alternative onsite sewage treatment systems have been evaluated and found unsatisfactory in accordance with this section. For the purposes of this section, the consideration of all options means site evaluation(s) conducted by an individual licensed in Virginia to evaluate and design onsite sewage systems such as an onsite soil evaluator or professional engineer indicating that no sewage disposal site exists on that property for the site and soil conditions allowed under the Sewage Handling and Disposal Regulations (12VAC5-610) or its successor including the use of TL-2 and TL-3 effluent to reduce footprint area as allowed under 12VAC5-613 or its successor. All evaluations must be completed in accordance with the methods and requirements of 12VAC5-610 and 12VAC5-613.

E. Pursuant to § 32.1-163.6 of the Code of Virginia, this chapter establishes performance requirements and horizontal setbacks for alternative discharging systems that are necessary to protect public health and the environment.

12VAC5-640-40. Relationship to the Virginia Sewage Handling and Disposal Regulations.

This chapter is supplemental to the Sewage Handling and Disposal Regulations (12VAC5-610) or its successor that govern the treatment and disposal of sewage utilizing onsite systems. The Sewage Handling and Disposal Regulations shall govern the materials and construction practices used to install alternative discharging sewage treatment systems and all appurtenances associated with systems including but not limited to pipes and fittings whenever specifications are not contained in this chapter.

12VAC5-640-50. (Repealed.)

12VAC5-640-60. Relationship to the State Water Control Board.

This chapter contains administrative procedures and construction, location, monitoring and maintenance requirements which are supplementary to the State Water Control Board's VPDES General Permit Regulation for domestic sewage discharges less than or equal to 1,000 gallons per day. This chapter applies only to individual single family dwellings with flows less than or equal to 1,000 gallons per day on a monthly average registered under this General Permit. Single family dwellings are a subset of the systems regulated by the State Water Control Board under this General Permit.

12VAC5-640-70. Relationship to the Uniform Statewide Building Code.

This chapter is independent of, and in addition to, the requirements of the Virginia Uniform Statewide Building Code (13VAC5-63). All persons having obtained a construction permit under this chapter shall furnish a copy of the permit to the local building official, upon request, when making application for a building permit. Prior to obtaining an occupancy permit, an applicant shall furnish the local building official with a copy of the operation permit demonstrating the system has been inspected and approved by the department.

12VAC5-640-80. Administration of regulations.

This chapter is administered by the following:

1. The State Board of Health has the responsibility to promulgate, amend, and repeal regulations necessary to ensure the proper construction, location, and operation of alternative discharging systems.
2. The commissioner is the chief executive officer of the Virginia Department of Health. The commissioner has the authority to act, within the scope of regulations promulgated by the board, and for the board when it is not in session. The commissioner may delegate his powers under this chapter to any subordinate, with the exception of (i) his power to issue variances under § 32.1-12 of the Code of Virginia and 12VAC5-640-170 and (ii)

his power to issue orders under § 32.1-26 of the Code of Virginia and 12VAC5-640-140 and 12VAC5-640-150. The commissioner has final authority to adjudicate contested case decisions of subordinates delegated powers under this section prior to appeal of such case decisions to the circuit court.

3. The Virginia Department of Health is designated as the primary agent of the commissioner for the purpose of administering this chapter.
4. The district or local health departments are responsible for implementing and enforcing the requirements of this chapter.

12VAC5-640-90. Right of entry and inspections.

In accordance with the provisions of §§ 32.1-25 and 32.1-164 of the Code of Virginia, the commissioner or his designee shall have the right to enter any property to ensure compliance with this chapter.

12VAC5-640-100. (Repealed.)

Part II

Procedures

12VAC5-640-110. Compliance with the Administrative Process Act.

The provisions of the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia) shall govern the promulgation and administration of this chapter and shall govern the procedures pertaining to the decisions of cases under this chapter.

12VAC5-640-120. Powers and procedures of regulations not exclusive.

The commissioner may enforce this chapter through any means lawfully available.

12VAC5-640-130. (Repealed.)

12VAC5-640-140. Emergency order.

If an emergency exists the commissioner may issue an emergency order as is necessary for preservation of public health, safety, and welfare or to protect environmental resources. The

emergency order shall state the reasons and precise factual basis upon which the emergency order is issued. The emergency order shall state the time period for which it is effective. Emergency orders will be publicized in a manner deemed appropriate by the commissioner. The provisions of 12VAC5-640-150 shall not apply to emergency orders issued pursuant to this section.

12VAC5-640-150. Enforcement of regulations.

A. Whenever the commissioner or the department notifies a named party of an alleged violation of this chapter, the procedures and content of such notice shall be as follows:

1. Any notice of alleged violation shall be made in writing and shall be delivered personally or sent by certified mail to the named party.
2. The notice shall cite the regulation or regulations that are applicable to the situation.
3. The notice shall state the factual basis for the issuance of the notice.
4. The notice shall include a request for a specific action by the recipient by a specified time.
5. The notice shall include information on the process for obtaining an informal fact finding conference to determine whether or not a violation has occurred.

The issuance of a notice of alleged violation by the commissioner or the department shall not be considered a case decision as defined in § 2.2-4001 of the Code of Virginia. When the commissioner deems it necessary, he may initiate criminal prosecution or seek civil relief through mandamus or injunction prior to giving notice.

B. The commissioner may issue orders in accordance with Title 32.1 (§ 32.1-1 et seq.) of the Code of Virginia to require any owner, or other person, to comply with the provisions of this chapter. The order shall be signed by the commissioner and may require:

1. The immediate cessation and correction of the violation;
2. Appropriate remedial action to ensure that the violation does not recur;

3. The submission of a plan to prevent future violation to the commissioner for review and approval;
4. The submission of an application for a variance; or
5. Any other corrective action deemed necessary for proper compliance with the chapter.

12VAC5-640-160. Suspension of regulations during disasters.

If, in the case of a man-made or natural disaster, the commissioner finds that certain regulations cannot be complied with and that the public health is better served by not fully complying with this chapter, he may authorize the suspension of the application of this chapter for specifically affected localities and institute a provisional regulatory plan until the disaster is abated.

12VAC5-640-170. Variances.

Only the commissioner or the deputy commissioners may grant a variance to this chapter. (See §§ 32.1-12 and 32.1-22 of the Code of Virginia and subdivision 2 of 12VAC5-640-80.) The commissioner or the deputy commissioners shall follow the appropriate procedures set forth in this section in granting a variance.

1. The commissioner may grant a variance if a thorough investigation reveals that the hardship imposed by this chapter outweighs the benefits that may be received by the public. Further, the granting of such a variance shall not subject the public to unreasonable health risks or jeopardize environmental resources.
2. Any owner who seeks a variance shall apply in writing within the time period specified in 12VAC5-640-210 C. The application shall be signed by the owner. The application shall include:
 - a. A citation to the regulation from which a variance is requested;
 - b. The nature and duration of the variance requested;

- c. Any relevant analytical results including results of relevant tests conducted pursuant to the requirements of this chapter;
 - d. Statements or evidence why the public health and welfare and environmental resources would not be degraded if the variance were granted;
 - e. Suggested conditions that might be imposed on the granting of a variance that would limit the detrimental impact on the public health and welfare or environmental resources;
 - f. Other information, if any, believed pertinent by the applicant; and
 - g. Such other information as the department or commissioner may require.
3. In the evaluation of a variance application, the commissioner shall consider the following factors:
- a. The effect that such a variance would have on the construction, location, or operation of the discharging system;
 - b. The cost and other economic considerations imposed by this requirement;
 - c. The effect that such a variance would have on protection of the public health;
 - d. The effect that such a variance would have on protection of environmental resources; and
 - e. Such other factors as the commissioner may deem appropriate.
4. The commissioner may grant or deny a variance request in accordance with the requirements of this subdivision.
- a. The commissioner may deny any application for a variance by sending a denial notice to the applicant by certified mail. The notice shall be in writing and shall state the reasons for the denial.
 - b. If the commissioner proposes to grant a variance request submitted pursuant to subdivision 2 of this section, the applicant shall be notified in writing of this decision.

Such notice shall identify the variance and the discharging system covered, and shall specify the period of time for which the variance will be effective. The effective date of a variance shall be as stated in the variance.

- c. No owner may challenge the terms or conditions set forth in the variance after 30 calendar days have elapsed from the effective date of the variance.
5. All variances granted to any discharging sewage treatment system are transferable from owner to owner unless otherwise stated. Each variance shall be attached to the permit to which it is granted. Each variance is revoked when the permit to which it is attached is revoked.
6. Subject to the time limitations specified in 12VAC5-640-210, informal conference or consultation proceedings or hearings on denials of an application for a variance or on challenges to the terms and conditions of a granted variance may be held pursuant to 12VAC5-640-180 A or B, except that informal conference or consultation proceedings under 12VAC5-640-180 A shall be held before the commissioner or his designee.

12VAC5-640-180. Informal conferences and formal hearings.

A. An informal conference or consultation proceeding is a meeting held in conformance with § 2.2-4019 of the Code of Virginia. The department shall ascertain the fact basis for its decisions of cases through informal conference or consultation proceedings unless the named party and the department consent to waive such a conference or proceeding to go directly to a formal hearing.

B. The adjudicatory hearing is a formal, public adjudicatory proceeding held in conformance with § 2.2-4020 of the Code of Virginia. The commissioner may afford opportunity for an adjudicatory hearing in any case to the extent that informal procedures under § 2.2-4019 and subsection A of this section have failed to dispose of a case by consent.

12VAC5-640-190. (Repealed.)

12VAC5-640-200. (Repealed.)

12VAC5-640-210. Appeals.

A. Any appeal from a denial of a construction or operation permit for a discharging system must be made in writing and received by the department within 30 days of the date of the denial.

B. Any appeal from the denial of an application for a variance pursuant to subdivision 4 a of 12VAC5-640-170 must be made in writing and received within 30 days of receipt of the denial notice.

C. Any request for a variance must be made in writing and received by the department prior to the denial of the discharging system permit, or within 30 days after such denial.

D. In the event a person applies for a variance within the 30-day period provided by subsection C of this section, the date for appealing the denial of the permit, pursuant to subsection A of this section, shall commence from the date on which the department acts on the request for a variance.

E. Pursuant to the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia) an aggrieved owner may appeal a final decision of the commissioner to an appropriate circuit court.

12VAC5-640-220. Permits; general.

A. No person shall construct, alter, rehabilitate, modify, or extend a discharging system or allow the construction, alteration, rehabilitation, or extension of a discharging system, without a written construction permit from the commissioner or the department. Conditions may be imposed on the issuance of any construction permit and no discharging system shall be constructed in violation of those conditions.

B. Except as provided in 12VAC5-640-30, 12VAC5-640-280, and 12VAC5-640-290, construction permits for a discharging system shall be deemed valid for a period of 60 months from the date of issuance or until the expiration of the General Permit, whichever comes first.

The permit to construct may be renewed one time for an additional 18 months if the building permit has been obtained or building construction commenced, the General Permit is reissued, and the effluent requirements of the General Permit are unchanged.

C. Except as provided in 12VAC5-640-30 A 2 and 12VAC5-640-266, no person shall place a discharging system in operation, or cause or allow a discharging system to be placed in operation, without obtaining a written operation permit. Conditions may be imposed on the issuance of any operation permit, and no discharging system shall be operated in violation of those conditions.

D. Except as provided for in 12VAC5-640-280 and 12VAC5-640-290, operation permits shall be valid for a period of time not longer than the General Permit. The operation permit shall remain valid when continued reporting of operation, maintenance, and monitoring occurs in accordance with 12VAC5-640-490, 12VAC5-640-500, and 12VAC5-640-510, provided the facility is otherwise in compliance with this chapter.

E. Construction and operation permits for discharging systems shall not be transferable except as provided in this subsection:

1. A construction permit for a specific discharging system will be issued to a new owner if the new owner (i) applies for the permit transfer on a form approved by the department, (ii) pays the applicable fee, (iii) provides the department with change of ownership documentation in accordance with the General Permit, and (iv) provides written certification that there are no new site conditions that will adversely impact the existing approved construction permit and documents or the original construction application.
2. An operation permit for a specific discharging system will be issued to a new owner if the new owner (i) applies for the permit transfer on a form approved by the department, (ii) pays the applicable fee, and (iii) provides the department with change of ownership documentation in accordance with the General Permit.

3. The expiration date of the transferred operation or construction permit shall not change.

12VAC5-640-230. Application process for obtaining a Department of Environmental Quality General Permit using the Combined Application.

A. The process for obtaining a General Permit consists of (i) filing a Combined Application with fee to determine the suitability of a discharge point, (ii) obtaining confirmation of a suitable discharge point from the department, and (iii) obtaining coverage under the Department of Environmental Quality's General Permit. Once a General Permit registration has been received, the owner shall file an application for a construction permit as described in 12VAC5-640-240 and shall apply for an operation permit in accordance with 12VAC5-640-266 before a discharge is authorized.

B. All requests for review of a suitable discharge point for discharging systems shall be by written application on the Combined Application, signed by the owner or his agent, and shall be directed to the department.

C. An application shall be deemed complete upon receipt by the department of a signed and dated application and the appropriate fee, containing the following information:

1. The property owner's name, address, and telephone number;
2. The applicant's name, address, and phone number (if different from subdivision 1 of this subsection);
3. A statement signed by the property owner, or his agent, granting the department access to the site for the purposes of evaluating the suitability of the site for a discharging system and allowing the department access to inspect the construction, maintenance and operation of the discharging system after it is installed. The applicant must secure and produce written permission for the department to enter on any property necessary to evaluate the application;

4. A site sketch on a survey plat showing the locations of and setback distances from the proposed discharge point and discharging system components to the following:

- a. Location of existing or proposed houses and other structures;
- b. Property boundaries;
- c. Location of proposed discharge point;
- d. Existing and proposed wells, springs, cisterns, or other sources of potable water within 200 feet upslope or 1,600 feet downslope of the proposed discharge point;
- e. Actual or proposed discharging systems within 600 feet of the proposed discharge point;
- f. Recorded and proposed easements;
- g. Existing and proposed overhead and buried utilities such as water lines, electrical lines, phone lines, gas lines, etc.;
- h. Sink holes located within 1,600 feet downslope of the proposed discharge point;
- i. Other topographical features such as wetlands, lakes, ponds, rivers, streams, drainage ways, and swales, within 200 feet upslope and 600 feet downslope of the proposed discharge point;
- j. Slope and side slope of any proposed dry ditch channels;
- k. Public water supply intakes; and
- l. Swimming or recreational water use areas within one mile upstream or five miles downstream of the proposed discharge point shown on a United States Geological Survey 7.5 minute topographic map or surveyed plat.

The site sketch should be to scale and accompanied by a United States Geological Survey 7.5 minute topographic map to provide information relevant to offsite setbacks;

5. Copies of all easements required by subdivision 2 of 12VAC5-640-450; however, at the discretion of the department, the submission of easements may be postponed until

submission of the construction plan if the property owner submits the name, address, and property location of each person that must grant an easement to the owner;

6. If the discharge is to a wetlands, the application must contain a wetland delineation map of the geographic area for wetlands, stream, and open water on site and any other correspondence, approval, or certifications from the U.S. Army Corps of Engineers or the Department of Environmental Quality that wetlands were properly identified and delineated;

7. A letter of denial from the department or a certified site and soil evaluation report from a qualified person showing that the requirements of 12VAC5-640-30 D have been satisfied; and

8. Other information that the department deems necessary to comply with the intent of this chapter.

D. Upon receipt of a completed Combined Application the department will conduct a site review to determine if the site meets the minimum criteria contained in Part III (12VAC5-640-390 et seq.) of this chapter. The owner may opt to have a licensed professional engineer conduct the site review and submit appropriate documentation with the application for review by the department. The department may opt to conduct a site review to verify an application submitted by a licensed professional engineer. Upon conducting the site evaluation or upon reviewing the site evaluation conducted by a licensed professional engineer, the department will advise the owner in writing of the results of the evaluation.

1. When a satisfactory site is found for a discharging system, the written notice to the applicant shall include the type of discharge point found (i.e., wetland, all weather stream, intermittent stream, or dry ditch). The completed Combined Application and a copy of the documentation pursuant to 12VAC5-640-30 D shall be forwarded to the Department of Environmental Quality to complete the application process for a General Permit.

2. When no satisfactory discharge point site is found the department shall deny the application in accordance with 12VAC5-640-270. The department shall send a copy of the denial to the Department of Environmental Quality.

12VAC5-640-240. Application for a construction permit.

A. After a satisfactory site for a discharging system has been found and a General Permit has been obtained from the Department of Environmental Quality, the applicant shall submit an application, the appropriate fee, construction plans, specifications, design criteria and calculations, and documentation that coverage under the General Permit has been obtained. The documentation shall include the cover letter and copy of the General Permit issued by the Department of Environmental Quality. If the discharge is to a wetland, the construction submittal must include documentation that a Virginia Water Protection Permit from the Department of Environmental Quality or a permit under the U.S. Army Corps of Engineers has been obtained as needed. The purpose of the construction submittal is to demonstrate how the effluent limitations established by the SWCB and the construction, location, and performance requirements of this chapter can be met.

B. All plans for alternative discharging systems shall bear a suitable title showing the name of the owner and shall show the scale in feet, a graphical scale, the north point, date, revision dates (when applicable), and the name of the licensed professional engineer by or under whom prepared. The cover sheet and each plan sheet shall bear the same general title identifying the overall sewage disposal project and each shall be numbered. Appropriate subtitles shall be included on the individual sheets.

The plans shall be clear and legible. Plans shall be drawn to a scale that permits all necessary information to be plainly shown. The size of the plans shall be no larger than 30 inches by 48 inches. Data used should be indicated. The precise location of the proposed system shall be shown on the plans. Detailed plans shall consist of plan views, elevations, sections, and supplementary views that together with the specifications and general layouts provide the

working information for the contract and construction of the work, including dimensions and relative elevations of structures, the location and outline form of equipment and components to be installed, the location and size of piping, water levels, ground elevations, and erosion control abatement facilities.

C. Complete technical specifications for the construction of the alternative discharging system and all appurtenances shall accompany the plans. The specifications accompanying construction drawings shall include, but not be limited to, all construction information not shown on the drawings, necessary to provide the installer with all detail of the design requirements as to the quality of material workmanship and fabrication of the project; type, size, strength, operating characteristics, and rating of equipment; allowable infiltration, machinery, valves, piping, and jointing of pipe; electrical apparatus, wiring, and meters; operating tools and construction materials; special filter materials such as stone, sand, gravel, or slag; miscellaneous appurtenances; chemicals when used; instructions for testing materials and equipment deemed necessary to meet design standards; and operational testing for the complete works and component units.

D. At a minimum, the construction submittal must show the following:

1. Information gathered in the site review evaluation;
2. For each system component, the plan shall note the type of component and, where applicable, the manufacturer, model number, approval, status in accordance with 12VAC5-640-432, hydraulic capacity, and treatment capacity;
3. The specific location of the property including the county tax map number (where available), a copy of the United States Geological Survey 7.5 minute topographic map showing the discharge point and downstream for one mile, and directions to the property;
4. The elevation of the house sewer line where it exits the house and the elevation of the inlet and outlet ports or tees on all treatment units. Where discharges are to dry ditches or intermittent streams the site plan shall show the elevation of the discharge point, the point

500' downgrade from the discharge point and points every 50 feet between the discharge point and 500' downstream. This requirement may be met by drawing a flow diagram showing all elements listed in this section;

5. The distance between all elevation points required by 12VAC5-640-240 D 4 so that the grade and setback distances can be established;
6. If a pump is proposed, specifications must be provided that include the manufacturer, model number, and a pump curve with a system curve overlain on the pump curve;
7. The location of the 100-year flood plain. All portions of a discharging system, except for the discharge pipe and step type post aeration, if required, shall be located above the 100-year flood plain;
8. Compliance with 12VAC5-640-430 through 12VAC5-640-470; and
9. Other information as deemed appropriate by the department to verify the design.

12VAC5-640-250. Issuance of the construction permit.

A construction permit shall be issued to the owner by the commissioner or the department after receipt and review of a complete application submitted under 12VAC5-640-240, a satisfactory site and construction plan review, and verification of issuance of a General Permit from the Department of Environmental Quality. The construction permit shall note whether the permitted system has general approval or is not in accordance with 12VAC5-640-432.

12VAC5-640-260. Exception for failing onsite sewage disposal systems.

When a failing onsite sewage disposal system is identified and the site location criteria in 12VAC5-640-400, 12VAC5-640-410, 12VAC5-640-420, and 12VAC5-640-470 H, and the dimensions of the easement specified in subdivision 2 of 12VAC5-640-450 cannot be met, the department may issue a written waiver that specifies the criteria that are being waived and the rationale for the waiver. In order to obtain this waiver, the owner must provide a written request for the waiver that includes justification and specifies any mitigating measures used to offset the

reduced site conditions. The following conditions must apply in order for the waiver to be considered:

1. The issuance of a discharging system permit will reduce an existing health hazard or will improve or negate environmental impacts associated with the existing discharge. This determination shall be made by the department.
2. There will be no increase in the waste load generated by any additions to the dwelling except when necessary to provide for minimum facilities necessary for good sanitation. The minimum facilities for a single family dwelling are: a water closet, a bathroom sink, a bathtub or shower or both, and a kitchen sink. More than one bathroom may be added to a dwelling provided the potential occupancy of the structure is not increased.
3. Where a failing onsite sewage disposal system already has more than the minimum facilities described in subdivision 2 of this section, the discharging system may be designed and permitted to accommodate the entire existing sewage flow. In no event shall the system designed and permitted exceed the existing sewage flow unless all conditions and criteria of this chapter are met.

12VAC5-640-262. Statements required upon completion of construction.

A. Upon completion of the construction, alteration, or rehabilitation of a discharging system, the owner or agent shall submit to the department a completion statement signed by the contractor responsible for the construction and a completion statement signed by the licensed professional engineer responsible for the design, upon forms approved by the department, that the system was installed and constructed in accordance with the construction permit and complies with all applicable state and local regulations, ordinances, and laws. These completion statements shall be based upon inspections of the treatment works during and after construction or modification that are adequate to ensure the truth of the statements. Should the treatment works be modified from the approved construction plan, the licensed professional engineer shall submit "as built" drawings documenting the changes. The licensed professional engineer's

completion statement shall certify that the treatment works as modified will comply with all applicable state and local regulations, ordinances, and laws.

B. No discharging system shall be placed in operation, except for the purposes of testing the mechanical soundness of the system, until an operation permit is issued by the department in accordance with 12VAC5-640-266.

12VAC5-640-264. Operation and maintenance manual.

A. Prior to issuance of the operation permit, the owner shall submit an operation and maintenance (O&M) manual for the discharging system. The general purpose of the manual is to present both technical guidance and regulatory requirements to facilitate operation and maintenance of the discharging system for both normal conditions and generally anticipated adverse conditions. The manual shall be designed as a reference document, being as brief as possible while presenting the information in a readily accessible manner. The manual shall be tailored to the specific system. The manual must state the minimum required frequencies for routine maintenance, operation, sampling, and monitoring frequencies in this chapter, but additional maintenance visits, sampling, and monitoring may be added as needed, depending on the design of the system. The manual should reflect the minimum operation and maintenance activities required to properly maintain the system and ensure compliance with the General Permit requirements.

B. The manual shall include the following minimum items:

1. Basic information relevant to the discharging system design including treatment unit capacities, pump operating conditions, a list of the components comprising the discharging system, a dimensioned site drawing, sampling locations, and contact information for replacement parts and chemicals for each unit process;
2. Safety considerations;
3. A list of all control functions and how to use them;

4. All operation, maintenance, sampling, and inspection schedules for the discharging system including any requirements that exceed the minimum requirements of this chapter;
5. The General Permit effluent sampling and reporting schedule;
6. The sampling location for each of the required General Permit parameters and for informal (process control) testing parameters;
7. The expected ranges of any recommended informal (process control) tests;
8. The limits of the discharging system and how to operate the system within those design limits; and
9. Other information deemed necessary or appropriate by the designer.

12VAC5-640-266. Issuance of the operation permit.

A. Prior to issuance of the operation permit, the department may inspect the discharging system to determine if the installation is in substantial compliance with the construction permit and the requirements of this chapter. Minor deviations from the permit or proposed plans and specifications, excluding the manufacturer's design and installation specification, that do not affect the quality of the sewage treatment process or endanger public health or the environment may be approved by the department.

B. Before receipt of an operation permit, the owner shall:

1. Submit the completion statements and "as built" drawings as required under 12VAC5-640-262; and
2. Submit the operation and maintenance manual as required under 12VAC5-640-264.

C. Upon the owner's satisfactory completion of the requirements in subsection B of this section, the commissioner or department shall issue an operation permit to the owner. The issuance of an operation permit does not denote or imply any warranty or guarantee by the commissioner or department that the discharging system will function for any specified period of

time. The operation permit shall note whether the permitted system has general or nongeneral approval.

12VAC5-640-270. Denial of a construction or operation permit.

A. If the commissioner or department determines that the proposed site does not comply with this chapter or that the design of the system would preclude the safe and proper operation of a discharging system, the installation and operation of the system would create an actual or potential health hazard, or the proposed design would adversely impact the environment, the permit shall be denied and the owner shall be notified in writing, by certified mail, of the basis for the denial, and a copy shall be sent to the Department of Environmental Quality.

B. In addition to the grounds set forth in subsection A of this section, the operation permit shall be denied if the discharging system is not constructed in accordance with the construction permit or the owner has failed to provide the completion statements required by 12VAC5-640-262 or the operation and maintenance manual required by 12VAC5-640-264. The owner shall be notified in writing, by certified mail, of the basis for the denial, and a copy of the denial shall be sent to the Department of Environmental Quality.

12VAC5-640-280. Revocation of construction permits and operation permits.

After providing the owner with the notice and the opportunity to participate in an informal conference or consultation proceeding in accordance with § 2.2-4019 of the Code of Virginia and 12VAC5-640-180, the commissioner may revoke a construction permit or operation permit for any of the following reasons:

1. Failure to comply with the conditions of the permit including, but not limited to, the monitoring and maintenance requirements in Article 4 (12VAC5-640-490 et seq.) of Part III of this chapter and the payment of the inspection fee;
2. Violation of any requirement of this chapter for which no variance has been issued;

3. Facts become known which reveal that an actual or potential health hazard has been or would be created or that the environmental resources may be adversely affected by allowing the proposed discharging system to be installed or operated; or
4. Failure to comply with the effluent limitations set forth by the SWCB in the General Permit as determined by the monitoring required by Article 4 of Part III.

12VAC5-640-290. Voidance of construction or operation permits.

After providing the owner with the notice and the opportunity to participate in an informal conference or consultation proceeding in accordance with § 2.2-4019 of the Code of Virginia and 12VAC5-640-180, the commissioner or the department may declare a discharging system's construction or operation permit null and void when any of the following conditions occur:

1. Conditions such as house location, well location, discharging system location, discharge point, discharge system design, topography, drainage ways, or other site conditions are changed from those shown on the application or site plan;
2. Conditions are changed from those shown on the construction permit;
3. More than 60 months elapse from the date the permit was issued; or
4. The revocation or expiration of the General Permit or of the owner's approved registration by the SWCB.

12VAC5-640-300. (Repealed.)

12VAC5-640-310. (Repealed.)

12VAC5-640-320. (Repealed.)

12VAC5-640-330. (Repealed.)

12VAC5-640-340. (Repealed.)

12VAC5-640-350. (Repealed.)

12VAC5-640-360. (Repealed.)

12VAC5-640-370. (Repealed.)

12VAC5-640-380. (Repealed.)

Part III

Location, Design, Construction, Operation and Maintenance Criteria

Article 1

Site Requirements

12VAC5-640-390. General.

All discharging systems shall be located so that the treatment system, the point of discharge, all appurtenances, and the effluent leaving the system are sited in a manner that protects public health and minimizes environmental impacts.

12VAC5-640-400. Classifications of discharge points.

The nature of the discharge point will determine what precautions must be taken to protect public health and environmental resources.

1. Where an all weather stream is available, it shall be used rather than discharging to an intermittent stream, dry ditch, or wetland. An all weather stream can readily dilute the effluent at least 10:1 at the seven consecutive day average of a 10-year low flow (7-Q-10) and thereby minimize public health and water quality impacts.

2. An all weather stream is represented by a solid blue line on the most recently published 7.5 minute United States Geologic Survey topographic map and has a 7-Q-10 flow that can provide 10:1 dilution of the effluent. Intermittent streams are represented by a dotted and dashed blue line on the most recently published 7.5 minute United States Geologic Survey topographic map. An all weather stream that provides less than 10:1 dilution of the effluent based on 7-Q-10 flow shall be considered an intermittent stream. Intermittent streams and dry ditches have an assigned stream flow 7-Q-10 of zero.
3. An owner may submit to the division additional hydrologic data, including but not limited to stream records and anecdotal evidence of long time residents, to support that a stream can provide a dilution ratio of 10:1. When in the opinion of the division, the evidence warrants a change, the division may determine that a stream is an all weather stream for the purposes of this chapter. The owner may also request site specific stream flow determinations from the Department of Environmental Quality.
4. Discharges into intermittent streams or dry ditches that do not have the dilution capability cited in subdivision 1 of this section shall be located entirely within the owner's property, or within a recorded easement as described in subdivision 2 of 12VAC5-640-450.
 - a. The average slope for any intermittent stream or dry ditch discharge receiving effluent from a discharging system shall be a minimum of 2.0% for the first 500 feet from the point of discharge. The intermittent stream or dry ditch shall be protected from erosion by the discharge as needed.
 - b. In order to prevent ponding, the minimum slope shall not be less than 1.0% at any point.
 - c. All slope measurements described in subdivisions 1 and 2 of this section shall be made prior to initiating any grading and are intended to reflect naturally occurring swales and drainage ways. Nothing contained herein however, is intended to prohibit

a property owner from making minor grading improvements to prevent ponding in areas with minimal slopes. Naturally occurring swales and drainage ways may be extended with an engineered channel on a case-by-case basis, but any engineered channel must tie into the existing natural swale or drainage.

5. Wetlands shall be confirmed by the U.S. Army Corps of Engineers or the Department of Environmental Quality, as appropriate, based on the type of wetland. Confirmation of delineated wetlands shall be provided and include a wetland delineation map, wetland field data sheets, and any other documentation from the U.S. Army Corps of Engineers or the Department of Environmental Quality indicating their approval of the wetland boundary. 7-Q-10 flows cannot be calculated for wetlands and therefore the assigned 7-Q-10 flow value is zero. Discharges to wetlands shall be located entirely within the owner's property, or within a recorded easement as described in subdivision 2 of 12VAC5-640-450.

12VAC5-640-410. Subdivisions.

Discharging systems may be permitted in existing subdivisions in accordance with this chapter.

No discharging system shall be permitted in any subdivision created after July 30, 1992, when a central sewer system is available or may be permitted to serve the subdivision. If the SWCB determines that no central sewage facilities are reasonably available or may be permitted, and each proposed site is eligible for registration under the General Permit, then the locality, in which the proposed subdivision is located, may request that the department review the plan for compliance with this chapter. When subdivisions are proposed utilizing individual discharging systems and dry ditch discharges, the use of easements shall be prohibited for multiple systems discharging to a single dry ditch or intermittent stream unless the owner(s) take necessary action to prevent access by children, animals, or other vectors.

12VAC5-640-420. Setback distances from discharge points and downstream channels for the protection of public health.

A. Discharges proposed within one mile (upstream or up channel) of any public water intake shall not be permitted.

B. Discharges proposed within one mile upstream or up channel of any area explicitly designated for public swimming shall not be permitted.

C. When any river, stream, or other potential discharge area appears to receive significant primary contact use, such as, but not limited to, swimming, water skiing, tubing, or wet-wading, so that the discharge will pose a significant threat to public health, the district health director may require a higher level of treatment and reliability class for the permitted discharge facility.

D. The district health director, in consultation with the local governing authority and the department, may prohibit discharges into specified portions of the river, stream, or other potential discharge area. Prior to taking such action, the health director shall take the following steps:

1. Publish a notice announcing the department's intention to consider areas for restricting the use of discharging systems, establishing the date, time and location or locations of the public meeting or meetings, and soliciting public comment on the proposed area or areas being reviewed;

2. Request the opinion of the local governing body and other appropriate government agencies concerning proposed restrictions to be submitted before the close of the public comment period;

3. Have a public comment period on the proposal of not less than 30 days;

4. Hold at least one public meeting, 30 days or more after publication of the notice specified in subdivision 1 of this subsection; and

5. Evaluate the public comments received and staff evaluations regarding the use of the proposed area or areas for primary contact uses.

When in the best professional opinion of the health director the area or areas under consideration receives, for 30 days or more per year, significant primary contact uses, such that the discharge will pose a significant threat to public health, the director may designate areas where discharge systems are prohibited. Prohibited discharge areas may include areas upstream in the main channel and tributaries, from the area under review, for distances up to one mile if warranted by the evidence. Prohibited discharge areas shall be clearly defined in writing and delineated on a United States Geological Survey 7.5 minute topographic map. The prohibition on discharges, if any are found necessary, shall be effective upon notice after completion of the elements contained in this section.

E. The wastewater treatment system (tankage and components), shall be a minimum of 50 feet from private and public water wells and private cisterns. The discharge point and the channel of treated effluent flow shall be located in accordance with the distances given in Table 3.1 from private and public water wells and cisterns. Where the bottom elevation of a cistern is located above the elevation of the discharge point, the setback distances shall not apply. The setback distances between the water well or cistern and the downstream channel established in Table 3.1 shall apply for 50 feet downstream of the discharge point for all weather streams and 500 feet downstream for intermittent stream or dry ditch discharges. For wetlands where the flow path can be established, generally where the slope is 10% or greater, the setback distances between the water well or the cistern and the "downstream channel" shall apply for 250 feet downstream of the discharge point. For wetlands where the flow path cannot be established, generally where the slope is less than 10%, then the distance shall be measured radially for 250 feet from the point of discharge.

F. Setback distances to other wells not covered in Table 3.1 of this section, such as geothermal and gas wells, will be determined on a case-by-case basis.

G. No discharging system or any portion of the channel carrying the treated effluent flow shall be within 100 feet of a spring. Further, no discharging system shall discharge within 1,500 feet upstream or 100 feet downstream of any spring used for human consumption.

H. Discharging systems are prohibited from discharging directly into sink holes or into dry ditches, intermittent streams, wetlands, streams, or other waterways that flow into sink holes within 1,500 feet from the point of discharge.

I. Dry ditch discharges shall not have limestone outcrops within the dry ditch channel. This provision shall apply for a distance of 50 feet along the channel.

J. Except as noted below, the department will not approve discharging systems except where discharge points will be at least 500 feet apart. The separation distance may be reduced to 250 feet between discharge points in accordance with the following:

1. For discharges to an all weather stream, the distance may be reduced to 250 feet by providing a Reliability Class II facility.
2. For discharges to a dry ditch or intermittent stream, the distance may be reduced to 250 feet by providing a Reliability Class I system that produces a TL-3 effluent and a fecal coliform concentration of 100 col/100 ml or less.
3. No reduction in the distance between discharge points is allowed for discharges to wetlands.

K. No discharge shall be permitted under this chapter which will result in the condemnation of shellfish waters or the continued condemnation of shellfish waters closed only because of inadequate water quality.

**TABLE 3.1 SETBACK DISTANCES FROM PRIVATE AND PUBLIC WATER WELLS
AND CISTERNS**
(All distances are in feet)

Type of Water Supply	Distance from Point of Discharge	Distance from Downstream Channel	
		Discharge to All Weather Stream	Discharge to Wetland ² , Intermittent Stream, or Dry Ditch
Class I ¹ Well	100	100	100
Class II ¹ Well	100	100	100
Class IIIA Well	50	50	50
Class IIIB Well	50	50	50
Class IIIC Well	100	50	100
Class IV Well	100	50	100
Cistern	100	50	100

¹Class I and II well specifications are found in the Waterworks Regulations (12VAC5-590). All other well specifications may be found in the Private Well Regulations (12VAC5-630).

²The downstream "channel" of a wetland where the flow path can be established shall be a minimum of 25 feet wide and approximately centered on the flow path. Where the flow path cannot be established in a wetland, then the distance shall be measured radially from the point of discharge.

Article 2

Design Requirements

12VAC5-640-430. Performance requirements.

A. All systems operated under this chapter shall meet the effluent limitations set forth by the State Water Control Board in the General Permit. All systems operated under this chapter shall maintain the treatment system in accordance with the approved construction permit or as modified by the final construction permit in accordance with the operation permit, "as built" plans, and the operation and maintenance manual.

B. No system shall be approved for use which provides a bypass pipe, or otherwise allows untreated or partially treated effluent to discharge in the event of a system failure.

12VAC5-640-432. Treatment unit and additional system component classifications.

A. Biological treatment units will be classified by the division according to the data available to demonstrate the performance limits and reliability of those treatment units. The division may classify treatment units as generally approved or not generally approved. The type and frequency of testing for each approval class is designed to reflect the certainty with which the system has demonstrated its ability to meet the limits of the General Permit or the performance requirements of this chapter.

1. General approval may be issued by the division for both TL-2 and TL-3 treatment units in accordance with the current policies of the division. Generally approved units shall be listed on the division's website.
2. Nongenerally approved biological treatment unit designs shall be properly supported with design calculations and one or more of the following:
 - a. Documentation from applicable engineering standards, texts, or other publications;
 - b. Relevant peer-reviewed research;
 - c. Technical guidance from other states (may be considered on a case-by-case basis);
or
 - d. Technical guidance from the U.S. Environmental Protection Agency.

Scale drawings of the treatment unit, appropriate design calculations, and control system details shall be provided that demonstrate the ability of the unit to meet the required effluent limits and reliability standards at the proposed design flow.

B. Additional system components for discharging systems will be classified by the division as generally approved or not generally approved.

1. The division shall consider additional system components such as post-filtration, disinfection, dechlorination, and post-aeration to be generally approved if the unit has been tested and approved under a National Sanitation Foundation (NSF) or other

recognized protocol for the proposed wastewater use or if the design complies with the design standards in 12VAC5-640-460.

2. Nongenerally approved system component designs shall be properly supported with design calculations and one or more of the following:

- a. Documentation from applicable engineering standards, texts, or other publications;
- b. Relevant peer-reviewed research;
- c. Technical guidance from other states (may be considered on a case-by-case basis);
or
- d. Technical guidance from the U.S. Environmental Protection Agency.

Scale drawings of the treatment unit, appropriate design calculations, and control system details shall be provided that demonstrate the ability of the unit to meet the required effluent limits and reliability standards at the proposed design flow.

C. Discharging systems that are comprised entirely of generally approved biological treatment units and system components as described in this section are considered generally approved treatment systems.

12VAC5-640-434. Reliability.

A. Reliability is a measure of the ability of a component or system to perform its designated function without failure or interruption of service. Overflow criteria, such as the allowable period of noncompliant discharge, are utilized solely for the establishment of reliability classification for design purposes and are not to be construed as authorization for, or defense of, an unpermitted discharge to state waters. The reliability classification shall be based on the water quality and public health and welfare consequences of a component or system failure.

B. Reliability Class I is required for dry ditch and intermittent stream discharges with 250 feet of easement available and wetland discharges with 100 feet of easement available.

1. For biological treatment processes, Reliability Class I shall be met by providing one of the following:

- a. A passive, backup biological treatment system (e.g., an intermittent sand, peat, or media filter or a constructed wetlands);
 - b. A generator for the treatment system with automatic transfer switch;
 - c. A 24-hour holding tank for raw wastewater with telemetry system to immediately notify the operator of system failure; or
 - d. Any alternative means that limits the discharge of a noncompliant effluent to a maximum of 24 hours.
2. For disinfection, a Reliability Class I design shall ensure that the effluent is continually disinfected by providing electronic or mechanical means of monitoring the process such that failure of disinfection systems may be corrected within 24 hours.

C. Reliability Class II is required for dry ditch and intermittent stream discharges with 500 feet of easement available and wetland discharges with 250 feet of easement available. Reliability Class II is also required for the reduction of the distance between discharge points to 250 feet on an all weather stream.

1. For biological treatment processes, Reliability Class II shall be met by providing:

- a. A fixed film biological treatment process such as an intermittent sand filter, recirculating media filter, or a peat filter;
- b. A suspended growth biological system followed by post-filtration;
- c. Telemetry to relay alarm conditions to the operator; or
- d. Any alternative means that limits the discharge of a noncompliant effluent to a maximum of 36 hours.

2. For disinfection, a Reliability Class II design shall ensure that the effluent is continually disinfected by providing electronic or mechanical means of monitoring the process such that failure of disinfection systems may be corrected within 36 hours.

D. Reliability Class III is required for all weather stream discharges with a separation distance between discharge points of 500 feet or greater. For the purposes of this chapter, noncompliant discharges must be limited to a maximum of 48 hours.

12VAC5-640-440. Special factors affecting system design.

Each type of discharging system has its own unique advantages and disadvantages. These unique characteristics define the situations where a system may be used to advantage. The design of the system must be appropriate for the intended use and the site conditions where the system is to be installed. Subdivisions 1 through 6 of this section contain a list of factors that will require special design consideration. This list should not be considered all encompassing. There may be other design factors that require special consideration. A preliminary engineering conference may be scheduled with the department to discuss such factors prior to submitting designs for department review.

1. When a discharge is proposed to a wetland, dry ditch, or intermittent stream, restricted access to the wetland, dry ditch, or intermittent stream in accordance with 12VAC5-640-450 to protect public health.

2. Intermittent use for the purposes of this chapter constitutes use of the system for less than three consecutive months. Systems serving weekend cottages or other intermittent uses require special design, operation, and maintenance consideration.

3. When a discharging system is proposed to be located in an area subject to infiltration by surface water or shallow groundwater, the department may require additional protection from infiltration, inflow, and flotation, including placement of the system above natural grade.

4. Erosion must be controlled by the owner of the discharging system in accordance with any local erosion control ordinances.
5. All systems shall normally be designed to treat the BOD₅ loading rate of 0.4 lbs/day per bedroom and a flow of 150 gallons per day per bedroom for systems up to three bedrooms. Systems serving single family dwellings having more than three bedrooms shall be permitted and designed to treat the anticipated loading rate based on BOD₅ and be capable of handling anticipated peak loading and flow rates. All systems shall be designed to operate over the range of anticipated flow and loading rates. When a system is permitted with a design less than the maximum capacity of the dwelling, the owner shall have the construction permit recorded and indexed in the grantor index under the owner's name in the land records of the clerk of the circuit court having jurisdiction over the site of the discharging system.
6. All system designs must include protection of the components from freezing or other adverse weather conditions and ensure that the system will function properly year round.

12VAC5-640-450. Design criteria for the use of intermittent streams, dry ditches, or wetlands.

All owners of systems discharging to an intermittent stream, dry ditch, or wetland shall ensure the following conditions are met:

1. Direct contact between minimally diluted effluent and insects, animals, and humans must be restricted for the life of the system. This will be achieved by reducing the chance of ponding and run-off and limiting access to the effluent. The department shall require fencing, rip-rap, or other barriers to restrict access to effluent discharging to a dry ditch, intermittent stream, or wetland as deemed necessary to protect public health. This determination shall be made by the department on a case-by-case basis.
 - a. For dry ditch and intermittent stream discharges, the restricted access area shall begin at the point where the effluent is discharged and continue for 500 feet, until the

effluent discharges into an all weather stream or is no longer visible during the wet season. The design shall provide justification for the length of the restricted access channel if less than 500 feet.

- b. For wetland discharges, the restricted access shall extend for a distance of 250 feet along the flow path of the discharge unless a 10:1 dilution with the wetland can be achieved. If the flow path cannot be established and a 10:1 dilution cannot be obtained, then access shall be restricted for 100 feet radially from the point of discharge. For wetland discharges, the access barrier may be a subsurface discharge point, but in no case shall the discharge point and diffuser be greater than 18 inches below the natural wetland surface.
2. When effluent is discharged to a dry ditch, intermittent stream, or wetland, the owner shall own the land or acquire an easement from the downstream or downgradient land owner to discharge on all land below the point of discharge for the distance shown in Table 3.2. To allow for system construction and repair within the restricted access area, and to facilitate maintenance and monitoring, the easement shall be a minimum of 25 feet wide and approximately centered on the low point of the dry ditch or intermittent stream for the entire length of the restricted access area. For wetlands, the easement shall be measured radially from the point of discharge unless flow direction can be established. In those cases where flow direction can be established, the easement shall be a minimum of 25 feet wide and approximately centered on the discharge path and extend for a distance along the flow path as described in Table 3.2. If the slope across the discharge site is equal to or greater than 10%, the flow direction can be determined by observation. For slopes less than 10%, a site specific study must be conducted to document the direction of flow. All easements must be in perpetuity and shall be recorded by the owner with the clerk of the circuit court having jurisdiction over the property prior to issuance of the construction permit. For the purposes of complying with this chapter, written approval to

utilize an easement owned by the Virginia Department of Transportation shall be recorded by the owner with the clerk of the circuit court office having jurisdiction over the property.

3. Each discharging system that discharges to a dry ditch, intermittent stream, or wetland must receive additional treatment beyond that required by the General Permit in order to reduce the increased potential for public health problems which may result when partially treated effluent is not diluted. Such additional treatment shall be capable of producing an effluent with a quality of 10 mg/l of BOD_5 , 10 mg/l of suspended solids and a fecal coliform level of less than or equal to 100 colonies per 100 ml. Treatment units approved as TL-3 are recognized as having the ability to meet this BOD_5 and TSS standard, but have not been tested for compliance with the fecal coliform standard. Therefore, the following reliability classifications in Table 3.2 must be met when designing discharge systems intended to discharge into dry ditches, intermittent streams, or wetlands.

TABLE 3.2
REQUIREMENTS FOR RELIABILITY CLASSIFICATION AND OWNERSHIP OR
EASEMENTS DOWNSTREAM FROM SYSTEMS THAT DISCHARGE TO DRY
DITCHES, INTERMITTENT STREAMS, OR WETLANDS

Reliability Class	Downstream or Down Channel Distance for Dry Ditches or Intermittent Streams (feet)		Wetlands from Discharge Point along Flow Path or Radially from Discharge Point
	No spring below	Spring below	
Reliability Class I	250 ft	1,500 ft	100 ft
Reliability Class II	500 ft	1,500 ft	250 ft

12VAC5-640-460. Design requirements for system components.

- A. All discharging systems shall be equipped with a means of disinfecting the effluent which is acceptable to the division and meets the performance requirements of this chapter.

1. All discharging systems utilizing chlorine as a disinfectant shall be equipped with a chlorinator and contact chamber. Dechlorination is to be supplied if required by the General Permit.

- a. Chlorinator capacity shall be based on the degree of treatment, flow variations, and other variables in the treatment processes. For disinfection, the capacity shall be adequate to maintain a total chlorine residual between 1.0 mg/l and 3.0 mg/l in the effluent after the required contact period. All chlorinators shall be designed to provide the appropriate dose of chlorine and mix the chlorine with the effluent. All chlorine products used to disinfect effluent from a discharging system shall be approved by the U.S. Environmental Protection Agency for use as a sewage disinfectant; products unapproved for wastewater disinfection are not acceptable. Use of unapproved products shall constitute a violation of this chapter.
- b. The chlorine contact chamber shall have a length to width ratio of 20:1 and shall provide a contact time of 30 minutes based on peak hourly flow, or 60 minutes based on peak daily flow. The length to width ratio may be reduced on a case-by-case basis when increased chlorine contact times are utilized.
- c. When required by the General Permit, dechlorination capacity shall be adequate to dechlorinate the maximum chlorine residual anticipated and achieve the required General Permit effluent limits for total residual chlorine by providing at least 1-1/2 parts sulfite salt to one part chlorine. Provisions shall be made to thoroughly mix the dechlorinating agent with the contact tank effluent within a period of approximately one minute.
- d. To meet Reliability Class I or Class II, all chlorination and dechlorination units shall be alarmed to notify the operator when tablets are not present in the dosing chamber or equipped with duplicate units that automatically switch over to the redundant unit if the primary unit is not operating.

2. Disinfection can be achieved through exposure of microorganisms to a sufficient level of ultraviolet light (UV) irradiation at the germicidal wavelength for an adequate period of time.

- a. UV disinfection equipment shall be capable of providing a minimum average calculated dose of 50,000 microwatt-seconds per square centimeter after the UV lamps have been in operation for 7,500 hours or more and at a 65% transmissivity. The dosage may be reduced on a case-by-case basis when sufficient information is provided to demonstrate that the required level of disinfection can be obtained at a lower dose level through test data.
- b. UV lamps shall produce 90% or more of their emitted light output at the germicidal wavelength of 253.7 nanometers.
- c. UV lamp assemblies shall be so located as to provide convenient access for lamp maintenance and removal.
- d. UV lamps should not be viewed in the ambient air without proper eye protection as required by VOSH and other applicable regulations. The system design should prevent exposure of bare skin to UV lamp emission for durations exceeding several minutes.
- e. An elapsed time meter shall be provided to indicate the total operating time of the UV lamps.
- f. UV systems are sensitive to color and suspended solids. Precautions should be taken to protect the UV system from both color and excessive suspended solids.
- g. To meet Reliability Class I or Class II, all UV units shall be equipped with a sensor to detect bulb failure with an alarm or equipped with duplicate units that automatically switchover if the primary unit is not operating.

B. Post-aeration as required by the General Permit shall be provided to ensure that the final effluent complies with the dissolved oxygen effluent limits in the General Permit. Post-aeration

may involve diffused aeration or cascade type aeration. All post-aeration designs shall assume a zero dissolved oxygen concentration in the influent wastewater to the post-aeration unit.

1. Effluent post-aeration may be achieved by the introduction of diffused air into the effluent.
 - a. Diffused aeration basins shall be designed to eliminate short-circuiting and the occurrence of dead spaces. For maximum efficiencies, sufficient detention time shall be provided to allow the air bubbles to rise to the surface of the wastewater prior to discharge from the basin.
 - b. When the detention time in the aeration basin exceeds 30 minutes, consideration shall be given to the oxygen requirements resulting from biological activity in the aeration unit.
 - c. Diffused air aeration systems shall be designed utilizing Fick's Law (the rate of molecular diffusion of a dissolved gas in a liquid) in the determination of oxygen requirements. Supporting experimental data shall be included with the submission of any proposal for the use of diffusers that are considered nonconventional. Such proposals will be evaluated on a case-by-case basis by the division.
 - d. Alternatively, an airflow of one cubic foot per minute at a diffuser submergence of one foot is sufficient to increase the dissolved oxygen of 1000 gallons per day of effluent to greater than five mg/l dissolved oxygen at 25°C.
 - e. If airflow is to be siphoned off the blower for the biological treatment unit, calculations shall be submitted to verify that there is sufficient air for both uses.
2. Effluent post-aeration may be achieved through a turbulent liquid-air interface established by passing the effluent downstream over either a series of constructed steps that produces a similar opportunity for transfer of dissolved oxygen to the effluent, otherwise known as cascade or step aeration.
 - a. The following equation shall be used in the design of cascade/step type aerators:

$$r^n = (C_s - C_a) / (C_s - C_b)$$

where: r	=	Deficit ratio
C_s	=	Dissolved oxygen saturation (mg/l)
C_a	=	Dissolved oxygen concentration above the weir, assumed to be 0.0 mg/l
C_b	=	Dissolved oxygen concentration in the effluent from the last or preceding step
n	=	The number of equal size steps
r	=	$1 + (0.11)(ab)(1 + 0.046T)(h)$
where: T	=	Water temperature ($^{\circ}\text{C}$)
h	=	Height of one step (ft)
a	=	1.0 for effluents (BOD_5 of less than 15 mg/l) or 0.8 for effluents (BOD_5 of 15 mg/l to 30 mg/l)
b	=	1.0 for free fall and 1.3 for step weirs

- b. The equation for determining the number of steps is dependent upon equidistant steps, and if unequal steps are used, transfer efficiencies must be determined for each separate step.
- c. The effluent discharge to a cascade type aerator shall be over a sharp weir to provide for a thin sheet of wastewater. Consideration shall be given to prevention of freezing.
- d. The final step of the cascade type aerator shall be above normal stream flow elevation and the cascade aerator shall be protected from erosion damage due to storm water drainage or flood/wave action.
- e. When pumping is necessary prior to discharge over the cascade aerator, the range of the flow rate to the post-aeration unit must be accounted for in the design.
- f. A step aerator with multiple steps each less than or equal to one foot and a total drop of five feet is sufficient to increase the dissolved oxygen in an effluent at 25°C to greater than five mg/l.

C. Post-filtration may be used to ensure compliance with the reliability standards in 12VAC5-640-434 and generally follow the biological treatment unit and are prior to disinfection in the treatment process. For granular media filters, the media depth shall not be less than 30 inches. Sand media for intermittently dosed and recirculated effluent, shall have an effective size of 0.30 mm to 1.0 mm and 0.8 mm to 1.5 mm, respectively. The uniformity coefficient should not exceed 4.0. No more than 2.0% shall be finer than 0.177 mm (80 mesh sieve) and not more than 1.0% shall be finer than 0.149 mm. No more than 2.0% shall be larger than 4.76 mm (4 mesh sieve). Larger granular media up to five mm in effective size may be considered on a case-by-case basis. The filter shall be equipped with an underdrain. The surface of the filter shall be accessible for maintenance. For the purposes of a filtration unit, the maximum surface hydraulic loading rate is 15 gpd/sf.

D. Constructed wetlands that are used as a passive backup biological treatment unit for the purposes of meeting Reliability Class I requirements of 12VAC5-640-434 B shall be lined with a minimum surface area of 100 square feet, a depth of 18 inches, a length to width ratio of about four to one, and shall have subsurface flow. Wastewater shall be disinfected prior to entering the constructed wetlands and sampling ports shall be provided to allow monitoring of the influent to the wetlands. Effluent dechlorination prior to entering the wetlands may be necessary to protect the plants from toxic levels of chlorine.

Article 3

Construction Requirements

12VAC5-640-470. General construction requirements.

A. No portion of any system may be covered or used until inspected, corrections made if necessary, and approved, by the department or unless expressly authorized in writing by department. All applicable sections contained in the Sewage Handling and Disposal Regulations, 12VAC5-610, shall be used to establish design and construction criteria not contained in this chapter.

B. Gravity sewer lines and lines between components of the system shall be schedule 40 pipe and shall have a minimum grade of 1.25 inches per 10 feet for three-inch and four-inch sewer lines. Discharge lines after primary or secondary treatment units shall have a minimum grade of six inches per 100 feet. Where minimum grades cannot be maintained, detailed pump specifications shall be shown on the site plan in accordance with Article 4 (12VAC5-610-598 et seq.) of Part IV of the Sewage Handling and Disposal Regulations.

C. The treatment unit and all piping and appurtenances shall be located in conformance with the approved plans. All changes in location shall be approved by the local department prior to the installation of the system.

D. All pumps and appurtenances to the pump shall be installed according to the plans and specifications approved by the department and referenced in the permit.

E. All wiring shall be approved by the local building official and shall be weather tight and permanent in nature (hard wired).

F. The control panel for the system shall be located within 15 feet of the treatment unit and shall be provided with a manual override switch. Each pumping station shall be provided with controls for automatically starting and stopping the pumps based on water level. When float type controls are utilized they shall be placed so as to be unaffected by the flow entering the wet well.

G. All mechanical treatment units shall be provided with an alarm system on a separate electrical circuit from the remainder of the treatment unit. The alarm shall be both audio and visual and shall be located in an inhabited portion of the dwelling. Examples of alarm conditions to be monitored include aerator failure, blower failure, and high water level.

H. Except for the discharge pipe, and step type post aeration if used for post-aeration, no portion of the discharging system may be located in the 100-year flood plain.

I. The design must allow for sampling to confirm the efficacy of the treatment process. Sampling ports shall be identified on the construction documents and shall meet the following minimum requirements:

1. All discharging systems utilizing chlorine as a disinfectant shall be equipped with a four inch or larger sampling port connected to an approved effluent collection box at the chlorine contact chamber after the 30-minute or 60-minute contact time (i.e., the sampling port shall be located at the outlet end of the chamber).
2. A separate sampling port shall be required after the dechlorination unit.
3. The sampling location is to be identified and a port provided if needed for sampling the final effluent prior to the effluent entering the discharge channel.
4. Other sampling ports may be required on a case-by-case basis due to the system design.

J. All discharging systems shall have a clean out port, accessible from the surface of the ground within 10 feet of the influent invert of the treatment unit.

K. Positive ventilation shall be provided at pumping stations when personnel are required to enter the station for routine maintenance.

L. Sand filter liners shall be constructed of clay having a permeability of 10^{-6} cm/sec. or less, a 28 mil vinyl or PVC plastic liner, concrete, or other material approved by the division. A watertight seal shall be provided where underdrain piping exits the filter.

M. The owner of each discharging system shall post a permanent sign at the point of discharge with the following notice:

This pipe carries treated sewage effluent and is not suitable for human consumption. This system is owned by (FULL NAME OF PERMIT HOLDER) and is maintained by (NAME AND PHONE NUMBER OF LICENSED OPERATOR WITH OVERSIGHT OF THE SYSTEM).

The sign shall be posted within three feet of the discharge pipe, shall be plainly visible to the public, and shall be constructed of durable material. All lettering shall be at least one-inch high and shall be clearly legible. The sign shall have black letters on a white background (or be

painted in other contrasting colors) and be plainly visible at a distance of 25 feet to a person with normal vision. Failure to maintain this sign shall be grounds for suspending the owner's operation permit.

12VAC5-640-480. (Repealed.)

Article 4

Monitoring, Operation, and Maintenance Requirements

12VAC5-640-490. Monitoring.

A. Discharging systems that discharge improperly treated effluent can endanger public health and threaten environmental resources. All discharging systems shall be routinely inspected and the effluent sampled to determine compliance with the effluent limitations set forth by the State Water Control Board in the General Permit and in accordance with 12VAC5-640-430 and 12VAC5-640-510. All testing requirements contained in this chapter are the responsibility of the system owner to have collected, analyzed, and reported to the department.

B. There are two types of testing recognized by this chapter: formal compliance testing and informal (process control) testing. Formal testing is conducted to determine either compliance or noncompliance with the General Permit. Informal testing is conducted to assess the treatment system's performance and to determine when additional formal compliance testing is necessary. Informal testing may support but shall not be the sole basis for revoking the approval of the system pursuant to 12VAC5-640-280.

C. All treatment systems shall undergo startup testing to assess the ability of the system to comply with the established performance requirements.

1. Treatment systems are considered generally approved for the purposes of establishing startup testing requirements only when all treatment components (i.e., biological treatment unit, disinfection, dechlorination, post-aeration, etc.) of the system are considered generally approved as described in 12VAC5-640-432.

2. All new discharging systems shall undergo formal startup compliance testing for parameters limited by the General Permit. The collection, storage, transportation, and analysis of all formal compliance samples shall be in accordance with the requirements of the General Permit.
 - a. For generally approved systems, the first formal compliance testing event shall occur 45 to 90 days after the system begins discharging. If the formal compliance test data indicate the system is in compliance with the General Permit, then the system will revert to annual formal compliance sampling in accordance with the General Permit. The initial sample may be used to comply with the first annual sampling requirement. If the testing data indicates that any parameter is out of compliance, subsection E of this section shall apply.
 - b. For nongenerally approved systems, the first formal compliance testing event shall occur 45 to 90 days after the system begins discharging. Three additional formal compliance testing events are to occur quarterly and at least 60 days apart. If the four startup compliance test data indicate the system is in compliance with the General Permit, then the system will revert to annual formal compliance sampling in accordance with the General Permit. If the testing data indicates that any parameter is out of compliance, subsection E of this section shall apply.
 3. Informal (process control) testing shall be conducted monthly for at least six consecutive months beginning the second full month after the issuance of the operation permit. After successful startup of the treatment system, informal testing shall be conducted semiannually at a minimum and any time formal testing is conducted. Informal testing shall be in accordance with the approved operation and maintenance manual, which shall include at a minimum the tests listed in Table 3.3. The specific test, sample location, and frequency shall be itemized in the operation and maintenance manual for the treatment system.

D. Both formal and informal routine monitoring is required after a system successfully completes startup testing.

1. After a system successfully completes startup testing, the system formal testing reverts to the General Permit monitoring frequency for the parameters limited by the General Permit. The collection, storage, transportation, and analysis of all formal testing shall be in accordance with the requirements of the General Permit.

2. Informal (process control) testing shall be conducted during routine maintenance visits. The specific test, sample location, and frequency shall be itemized in the operation and maintenance manual for the treatment system. When an operation and maintenance manual is not available, informal testing shall be sufficient to assess the treatment system's performance. Table 3.3 contains the minimum informal testing that must be conducted as appropriate for a given system.

TABLE 3.3
INFORMAL (PROCESS CONTROL) TESTING

Treatment Unit	Informal Tests
Septic tank/trash tank	Sludge depth
Suspended growth biological treatment unit	Dissolved oxygen, settleability, pH, odor
Fixed film biological treatment unit	Dissolved oxygen (effluent from unit), pH, odor
Chlorine disinfection/dechlorination	TRC at end of contact tank (>1.0 mg/l), TRC after dechlorination
Ultraviolet disinfection UV	Turbidity prior to UV
Final effluent	Dissolved oxygen, pH, odor, color

E. The department may require additional formal compliance testing or informal testing, or both, as necessary to protect public health and the environment. Additional testing shall be based on observed problems and shall not be implemented routinely on all discharging systems.

1. Anytime a discharging system is found to be out of compliance with the effluent limitations of the General Permit, follow-up formal compliance testing shall be repeated

between 45 and 90 days after the original samples were collected and the results reported to the local health department. Prior to resampling, the operator should attempt to determine the reason for the noncompliance and take corrective actions.

2. Anytime an informal test reveals a potential problem, additional formal or informal testing may be conducted to review the effectiveness of any repairs or adjustments.

3. Anytime the results of two consecutive formal compliance tests as specified in subdivision C 2 or D 1 of this section result in a violation of the effluent limitations of the General Permit, informal testing shall revert to monthly frequency until satisfactory results are obtained for six consecutive months. Nothing in this section shall preclude requiring the collection of samples for formal compliance testing as described in subdivisions C 2 and D 1 of this section to determine compliance with the effluent limitations set forth in the General Permit.

F. The owner of each system is responsible for ensuring that the collection, analysis, and reporting of all effluent sample tests are completed in a timely fashion and in accordance with this section and 12VAC5-640-510. The department shall conduct an annual inspection and may conduct additional inspections at its discretion. Furthermore, the department may conduct or mandate formal or informal testing as deemed appropriate. If a system is in compliance three consecutive years, the department may reduce the department inspection frequency to a three-year cycle. Annual inspections by the department will resume if the department receives evidence that the system is out of compliance. Compliance for the purposes of this section is compliance with the testing, inspection, effluent limits, and reporting requirements of this chapter. Inspection by the department does not substitute for the required operation, maintenance, testing, and reporting requirements in 12VAC5-640-490, 12VAC5-640-500, and 12VAC5-640-510.

12VAC5-640-500. Operation and maintenance requirements.

A. Due to the potential for degrading surface water and groundwater quality or jeopardizing the public health, or both, routine operation and maintenance of discharging systems is required. In order to assure the treatment system is operated, maintained, monitored, and reported properly, the permit holder shall engage a licensed operator as defined in subsection E of this section. Reporting in accordance with 12VAC5-640-490 and 12VAC5-640-510 is sufficient evidence of an ongoing contract. Owners with existing monitoring waivers that allow the owner to collect formal compliance samples as of December 16, 2015, may be extended, but no new waivers shall be issued. In the event the individual fails to collect three or more of any of the required samples in any five-year period, the department will void the waiver and require evidence of an operation and maintenance contract that includes monitoring.

B. It is the owner's responsibility to do the following:

1. Have the system operated and maintained by a licensed operator;
2. Have an operator visit the system at the frequency required by this chapter (at least semiannually);
3. Have an operator collect and analyze any samples required by this chapter;
4. Provide prompt maintenance and repair of the treatment works. If an owner is notified by the operator of a repair or maintenance need pursuant to subdivision C 4 of this section and the discharge does not comply with the effluent requirements of the General Permit, then the owner shall begin pump and haul of the sewage and take other actions as may be directed by the local health department until the treatment works returns to normal function;
5. Keep a copy of the log provided by the operator on the property where the system is located in electronic or hard copy form, make the log available to the department upon request, and make a reasonable effort to transfer the log to any future owner;

6. Follow the O&M manual (where available) and keep a copy of the O&M manual in electronic or hard copy form for the system on the property where the system is located, make the O&M manual available to the department upon request, and make a reasonable effort to transfer the O&M manual to any future owner; and
7. Comply with the VPDES permit requirements contained in 9VAC25-110.

C. The operator has the following responsibilities:

1. Perform all testing required in either Part I A or Part I B (9VAC25-110-80) of the General Permit, as appropriate, and in this chapter, unless the owner maintains a waiver in accordance with subsection A of this section. Note: The treatment works will be sampled during normal discharging operations or normal discharging conditions (i.e., operations that are normal for that facility). The operator should not force a discharge in order to collect a formal sample, but the informal sampling should be used to identify any operational problems;
2. Whenever an operator performs a visit that is required by this chapter, he shall do so in such a manner as to accomplish the various responsibilities and assessments required by this chapter through visual or other observations and through laboratory and field tests that are required by this chapter or that he deems appropriate;
3. When performing activities pursuant to a visit that is required by this chapter, the operator is responsible for the entire system, and where applicable, the operator shall follow the approved O&M manual;
4. Provide a written or electronic notification to the owner within 24 hours whenever the operator becomes aware that maintenance or repair of the owner's treatment works is necessary; and
5. Document the results of each site visit in the log and report in accordance with 12VAC5-640-510. Each operator shall keep an electronic or hard copy log for each system for which he is responsible. The operator shall provide a copy of the log to the

owner. In addition, the operator shall make the log available to the department upon request. At a minimum, the operator shall record the following items in the log:

- a. Results of all testing and sampling;
- b. A copy of the Discharge Monitoring Report required by the General Permit;
- c. Maintenance, corrective actions, and repair activities that are performed;
- d. Recommendations for repair and replacement of system components;
- e. Sludge or solids removal; and
- f. The date reports were given to the owner.

D. In localities where a public service authority, sanitary district, or other public utility exists which operates and maintains the systems, permitted under this chapter, the requirements for the operation and maintenance contract may be waived by the division provided the owner of the system subscribes to the service and the utility meets the minimum elements described in 12VAC5-640-490, 12VAC5-640-500, and 12VAC5-640-510.

E. In order to competently evaluate system performance, collect samples, interpret sample results, and repair and maintain discharging systems, an individual must be knowledgeable in sewage treatment processes. All individuals who perform maintenance on discharging systems pursuant to 12VAC5-640-500 are required to hold a valid Class IV or higher wastewater works operator license or an alternative onsite sewage system operator license issued by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals.

12VAC5-640-510. Information to be reported electronically.

A. Every owner issued an operation permit for a discharging system is responsible for having the results of all mandated testing and inspections submitted to the department in the form and format acceptable to the department.

B. All formal compliance testing, informal testing, repairs, modifications, alterations, expansions and routine maintenance must be reported.

C. All reports and test results must be submitted by the 15th of the month following the month in which the activity occurred.

D. All reports and test results shall be submitted electronically. When formal testing indicates that a discharge limit established in the General Permit is being exceeded or when informal testing indicates a discharging system may be in violation of the General Permit requirements, the owner shall notify the maintenance provider and the department within 24 hours.

12VAC5-640-520. Failure to submit information.

Failure to conduct mandatory monitoring or to report monitoring results as required in 12VAC5-640-490 and 12VAC5-640-510 may result in the revocation of the owner's operation permit. The department shall notify the Department of Environmental Quality of the revocation of the operation permit.