**Potential Regulatory Actions for Groundwater Recharge**

January 2012

**1. New Regulation or Amendments for Groundwater Recharge**

**Existing Language**

Not Applicable

**Comments**

Water Division regulations typically fall into three categories: technical (e.g., SCAT Regulations), permit (e.g., VPDES Permit regulation, VPA Permit Regulation, Ground Water Withdrawal Regulation), and standards (State Water Quality Standards, Ground Water Standards). The Water Division has chosen to do this rather than have each new regulation include technical, permitting, and standards requirements to avoid:

1. Circumstances where a change to technical, permitting and/or standard requirements in one regulation could require the same change(s) to be made in several other regulations as part of the same regulation action to ensure consistency.
2. Regulations that are redundant of each other and unnecessarily large and cumbersome.

Instead, a regulation typically incorporates by reference the applicable sections of another regulation that specifically addresses technical issues, permitting, or standards that it would otherwise lack. Consistent with this approach, the Water Division anticipates that the regulation for groundwater recharge will be a permit regulation that incorporates by references the Ground Water Standards, the SCAT Regulations and possibly other technical and standards regulations or design documents.

The issuance of a Groundwater Recharge permit by DEQ must be contingent upon the owner of the project obtaining a rule authorization from the EPA UIC Program. Where the EPA chooses to issue a permit for a groundwater recharge project where there is “potential for endangerment”, should a permit from DEQ also be required for the same activity?

Consider using this regulation to cover both GW recharge and withdrawal under one permit for projects that will involve both activities under common ownership or management. Could this apply to GW recharge outside of Groundwater Management Areas (GMAs)? Could this be combined with the existing Ground Water Withdrawal Regulation (9VAC25-610)? ***[See further discussion under #2.]***

This regulation should require that any use of reclaimed, reused or recycled water to augment a public water supply proposed in a groundwater withdrawal permit application, must be approved by VDH through the issuance of a Waterworks Operation Permit or equivalent (VDH Waterworks Regulations, 12VAC5-590-190). ***[Copied from Groundwater Withdrawal Regulation, 9VAC25-610]***.

This regulation should ensure that groundwater recharge does not result in nutrient loads to surface waters where the two are hydrological connected, particularly where the surface water has TMDLs for nutrients.

**2. Ground Water Withdrawal Regulations (9VAC25-610)**

**Existing Language**

**9VAC25-610-90. Application for a permit.**

C. Persons wishing to initiate a new withdrawal or expand an existing withdrawal in any ground water management area and not excluded from requirements of this chapter by 9VAC25-610-50 shall apply for a permit.

3. In addition to requirements contained in subdivision 2 of this subsection, the board may require any or all of the following information prior to considering an application complete.

d. Other information that the board believes is necessary to evaluate the application.

**9VAC25-610-100. Water conservation and management plans.**

A. Any application to initiate a new withdrawal or expand an existing withdrawal in any ground water management area or the reapplication at the end of a permit cycle for all permits shall require a water conservation and management plan before the application or reapplication is considered complete.

B. A water conservation and management plan shall include:

4. An evaluation of potential water reuse options;

**9VAC25-610-110. Criteria for issuance of permits.**

D. The board shall issue ground water withdrawal permits to persons wishing to initiate a new withdrawal or expand an existing withdrawal in any ground water management area who have submitted complete applications and are not excluded from requirements of this chapter by 9VAC25-610-50 based on the following criteria:

3. The board shall issue a ground water withdrawal permit when it is demonstrated, by a complete application and the board's technical evaluation, to the board's satisfaction that the maximum safe supply of ground water will be preserved and protected for all other beneficial uses and that the applicant's proposed withdrawal will have no significant unmitigated impact on existing ground water users or the ground-water resource. In order to assure that the applicant's proposed withdrawal complies with the above stated requirements, the demonstration shall include, but not be limited to, compliance with the following criteria:

a. The applicant demonstrates that no other sources of water supply, including reclaimed water, are viable.

4. The board may also take the following factors into consideration when evaluating a ground water withdrawal permit application or special conditions associated with a ground water withdrawal permit:

b. The proposed use of innovative approaches such as aquifer storage and recovery systems, surface and ground water conjunctive use systems, multiple well systems that blend withdrawals from aquifers that contain different quality ground water in order to produce potable water, and desalinization of brackish ground water;

**9VAC25-610-120. Public water supplies.**

The board shall evaluate all applications for ground water withdrawals for public water supplies as described in 9VAC25-610-110. The board shall make a preliminary decision on the application and prepare a draft ground water withdrawal permit and forward the draft permit to the Virginia Department of Health. The board shall not issue a final ground water withdrawal permit until such time as the Virginia Department of Health issues a waterworks operation permit, or equivalent. The board shall establish withdrawal limits for such permits as described in 9VAC25-610-140 A 3 and 4. Under the Virginia Department of Health's Waterworks Regulation any proposed use of reclaimed, reused, or recycled water contained in a ground water withdrawal application to support a public water supply is required to be approved by the Virginia Department of Health.

**9VAC25-610-140. Establishing applicable standards, limitations or other permit conditions.**

C. In addition to conditions described in 9VAC25-610-130 and subsections A and B of this section, the board may issue any permit with any terms, conditions and limitations necessary to protect the public welfare, safety and health.

**Comments**

The Ground Water Withdrawal Regulations typically authorize withdrawals of groundwater greater than 300,000 gallons per month where they occur within a Groundwater Management Area.

Per 9VAC25-610-110.D.4.b of the Ground Water Withdrawal Regulation, it is possible to issue a Ground Water Withdrawal permit for a ground water withdrawal that proposes an associated aquifer storage and recovery system. This provision does not restrict the type of water to be used for aquifer storage and recovery and would, thereby, allow the use of reclaimed water, stormwater, surface water, etc. for this purpose. This provision, however, does not address ground recharge for reuses that do not involve subsequent recovery or withdrawal of the reclaimed water, such as, but not limited to, creating a saltwater intrusion barrier or subsidence control.

The Groundwater Withdrawal Regulations do not currently contain specific application information requirements for groundwater recharge that occurs in conjunction with a groundwater withdrawal. However, 9VAC25-610-90.C allows DEQ to request other information regarding an application for a new withdrawal or expansion of an existing withdrawal when necessary to evaluate the project. This may include information regarding an aquifer storage and recovery system.

In addition, 9VAC25-610-100 requires that all permit applications to initiate a new or expanded withdrawal in any ground water management area, or to reissue an existing withdrawal permit to include a water conservation and management plan. An approvable water conservation and management plan must contain, among other things, an evaluation of potential water reuse options and assurances that water will be reused in all instances where reuse is feasible. This could include groundwater recharge with reclaimed and other sources of water.

Any proposed use of reclaimed, reused or recycled water contained in a groundwater withdrawal application to support a public water supply must be approved by VDH in accordance with 9VAC25-610-120 and the Virginia Department of Health (VDH) Waterworks Regulations (12VAC5-590-190). DEQ cannot issue a final Groundwater Withdrawal Permit for the project until VDH issues a Waterworks Operation Permit or equivalent.

Ground Water Withdrawal permits for proposals to recharge groundwater with reclaimed water may contain conditions and limitations, in addition to those already specified in the regulations, to protect the public welfare, safety and health in accordance with 9VAC25-610-140.C.

Per comments of the Groundwater Recharge SAG on 12/1/11, portions of other regulations affecting or pertaining to groundwater recharge should be relocated into one regulation specifically addressing groundwater recharge. However, the Groundwater Withdrawal Regulations have considerable existing language that could apply to both groundwater withdrawal and recharge, and could be either copied into a new regulation for groundwater recharge or amended to incorporate provisions more specific to ground water recharge. If the latter were to be implemented, the Groundwater Withdrawal Regulations could be amended to:

* Allow groundwater recharge within and outside the boundaries of GMAs,
* Allow ground water recharge with or without an associated withdrawal where the recharge is not disposal; and
* Authorize projects that involve both groundwater recharge and groundwater withdrawal under a single permit.

There are currently proposed amendments to the Groundwater Withdrawal Regulations. The current amendments do not contain any changes pertaining to groundwater recharge.

**3. Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32)**

**Existing Language**

**9VAC25-32-30. Requirements and prohibitions.**

B. 1. Except in compliance with a VPA permit, or another permit issued by the board, it shall be unlawful for any person to:

a. Discharge into, or adjacent to, state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

b. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses.

C. VPA permits may be utilized to authorize pollutant management activities including, but not limited to, animal feeding operations, storage or land application of sewage, sludge, industrial waste or other waste; or the complete reuse or recycle of wastewater. Point source discharges of pollutants to surface waters may be authorized by a VPDES permit (See [9VAC25-31-10](http://lis.virginia.gov/cgi-bin/legp604.exe?000+reg+9VAC25-31-10) et seq., VPDES Permit Regulation).

**9VAC25-32-40. Exclusions.**

The following do not require a VPA permit:

1. The introduction of sewage, industrial waste or other pollutants into publicly owned treatment works by indirect dischargers. Plans or agreements to switch to this method of disposal in the future do not relieve dischargers of the obligation to have and comply with VPA permits until all discharges of pollutants to state waters are eliminated;

2. Any introduction of pollutants from nonpoint source agricultural or silvicultural activities, including runoff from orchards, cultivated crops, pastures, range lands, and forest lands, except that this exclusion shall not apply to concentrated confined animal feeding operations;

3. Return flows from irrigated agricultural land;

4. Land disposal activity, including sewage sludge use or disposal or onsite waste treatment, when this activity is otherwise authorized by the Department of Environmental Quality; and

5. Discharges authorized by EPA under the Safe Drinking Water Act Underground Injection Control Program (UIC), 40 CFR Part 144, and approved, in writing, by the board.

**Comments**

DEQ issues permits in accordance with the VPA Permit Regulation (9VAC25-32) for pollutant management activities that do not have a discharge to surface waters. These have most commonly included land treatment of municipal and industrial wastewater, and land application of biosolids, animal waste, industrial residuals or sludges, and stabilized septage.

However, DEQ may also issue a VPA Permit to authorize discharges to groundwater based on the very non-specific language contained in 9AC25-32-30 of the regulation.

Per comments of the Groundwater Recharge SAG on 12/1/11, portions of other regulations affecting or pertaining to groundwater recharge should be relocated into one regulation specifically addressing groundwater recharge. Provisions of the VPA Permit Regulation that currently allow it to authorize groundwater recharge projects may be minimally modified to transfer permitting of such projects from the VPA Permit Regulation to another Water Division regulation, new or (see #1).

**4. Sewage Collection and Treatment Regulations (9VAC25-790)**

**Existing Language**

(See Attachment B for only 9VAC25-790-880 – Land Treatment.)

**9VAC25-790-880. Land Treatment.**

D. Land treatment methods. The following methods, or combinations thereof, as regulated by the appropriate permit or certificate, are considered conventional technology in accordance with this chapter:

2. Rapid infiltration. Wastewater may be applied by spreading and spraying. The system shall be designed to meet all certificate/permit requirements and groundwater standards.

G. Design loadings …

1. An overall water balance shall be investigated in accordance with one of the following equations based on design criteria:

1. Irrigation or infiltration

design precipitation + effluent applied = evapotranspiration + hydraulic conductivity.

H. Field area design …

2. The field area shall be divided into smaller sections for application to allow for rotational use of these sections. Rotational operation shall be designed to provide the maximum resting periods for field areas. The distribution system shall be designed to meet the requirement for alternating application to the field area sections. Minimum resting periods shall be two days, one day and two weeks for irrigation, overland flow and infiltration-percolation, respectively. Maximum wetting period shall not exceed five days, one week, and one day respectively for irrigation, infiltration-percolation, and overland flow, respectively. Resting and wetting periods depend on soil types, climatic conditions, harvesting requirements, etc.

J. Rapid infiltration. This form of treatment requires the least amount of land. Renovation is achieved by natural, physical, chemical, and biological processes as the applied effluent moves through the soil. Effluent is allowed to infiltrate the soil at a relatively high rate, requiring a field area with coarse grained soils. This system is designed for three main purposes (i) ground water recharge; (ii) recovery of renovated water using wells or underdrains with subsequent reuse, or (iii) discharge and recharge of surface streams by interception of ground water.

1. Five feet of sand or loamy sand is preferred. Soil grain size should be greater than.05 mm in size. The hydraulic conductivity should be greater than two inches/hour.

2. The permanent ground water table shall be a minimum of 15 feet below the land surface. With this method, a recharge mound is not uncommon and shall be properly evaluated by the consultant. A minimum distance of 10 feet should be maintained between the land surface and the apex of the recharge mound (during a worse-case situation). Lesser depths may be acceptable where under drainage is provided.

3. Spreading and spraying are the two main application techniques that are suitable for infiltration-percolation.

4. Design application rates will vary according to the site area, soil, geology, and hydrology characteristics.

5. The buffer distances from extremities of field areas to private wells should be at least 400 feet.

**Comments**

Section 9VAC25-790-880 of the SCAT Regulations specifies design and operation requirements for land-treatment systems of sewage that include, among others, rapid infiltration basins (RIBs), and requires that all such systems to be designed to meet the Groundwater Standards.

Per the SCAT Regulations, RIBs must be designed, in part, to recover “renovated water using wells or under drains” for “subsequent reuse”. Other functions of RIBs identified in the SCAT Regulations include groundwater recharge and recharge of surface streams by interception of ground water.

The SCAT Regulations apply to only treatment facilities of sewage. RIBs are also being used in Virginia to treat and manage stormwater. Recommended designs for such systems are provided in the Virginia Stormwater Management Handbook (DCR, 1999). Regulations for groundwater recharge could refer to the SCAT Regulations and the Virginia Stormwater Management Handbook for the appropriate design requirements of RIBs for sewage and stormwater, respectively.

There are no similar technical references for the design of RIBs used to treat and manage other wastewaters, such as, but not limited to, gray water and industrial wastewater. The new regulations could include a statement that design of such RIBs “shall be determined on a case-by-case basis relative to the contaminants present in the wastewater to be introduced to the basin and the groundwater standards that apply”. Contaminants in industrial wastewaters can vary widely depending on the nature of the industry from which they are generated. The inclusion of specific design requirements for the treatment each of the various industrial wastewaters that could be used for groundwater recharge could make the regulation cumbersome and inflexible.

While it may be appropriate to maintain design requirements for RIBs that receive treated sewage in the SCAT Regulations, it may be more useful to create a new subsection in the SCAT Regulation containing design requirements for all methods of groundwater recharge using treated water derived from sewage, including reclaimed water. RIBs could be moved to the new subsection as a method of groundwater recharge. Land treatment could be differentiated from groundwater recharge in that it may result in some groundwater recharge, but it would be “incidental” to uptake by the vegetation on the treatment site and evaporation.

**5. Water Reclamation and Reuse Regulation (9VAC25-740)**

**Existing Language**

**9VAC25-740-10. Definitions.**

"Indirect potable reuse" means the discharge of reclaimed water to a receiving surface water for the purpose of intentionally augmenting a water supply source, with subsequent withdrawal after mixing with the ambient surface water and transport to the withdrawal location, followed by treatment and distribution for drinking water and other potable water purposes.

**9VAC25-740-50. Exclusions and prohibitions.**

A. Exclusions. The following are excluded from the requirements of this chapter:

6. Land treatment systems defined in the Sewage Collection and Treatment Regulations (9VAC25-790). Such use of wastewater effluent, either existing or proposed, must be authorized by a VPA or VPDES permit and must be on land owned or under the direct long-term control of the permittee.

9. Direct injection of reclaimed water into any underground aquifer authorized by EPA under the Safe Drinking Water Act, Underground Injection Control Program (UIC), 40 CFR Part 144; or other applicable federal and state laws and regulations.

**Comments**

Per the Water Reclamation and Reuse Regulation, recharge of potable groundwater supplies with reclaimed water is not considered indirect potable reuse (or IPR). This is due to the fact that IPR, as defined in 9VAC25-740-10, does not recognize groundwater recharge as a means of “intentionally augmenting a water supply source”.

According to State Water Control Law, specifically § 62.1-44.15(15) of the Code of Virginia, groundwater recharge with reclaimed water may not be considered a reuse determined by the method of groundwater recharge. Per this statute, the State Water Control Board has the duty and authority to “establish requirements for the reclamation and reuse of wastewater that are protective of state waters and public health as an alternative to directly discharging pollutants into waters of the state.” This suggests that reclamation and reuse of wastewater must be an alternative that does not directly discharge pollutants into waters of the state. Waters of the state include both surface and ground waters. Therefore, it would appear that groundwater recharge with reclaimed water that involves a direct discharge (i.e., direct injection) of reclaimed water containing any pollutants, was not intended to consider reuse of wastewater. However, this might be further interpreted to mean the following:

1. The word “directly” is significant. Other methods of groundwater recharge not involving direct injection (i.e., vadose zone wells, rapid infiltration basins, etc.) with reclaimed water are reuse, or

2. Groundwater recharge by direction injection with reclaimed water containing no pollutants is reuse.

Provisions of the Water Reclamation and Reclamation and Reuse Regulation under 9VAC25-740-50.A may also exclude groundwater recharge with reclaimed water as a reuse, again determined by the method of recharge proposed for the project. Land treatment as described in 9VAC25-790-880 of the Sewage Collection and Treatment (SCAT) Regulations, is specifically excluded by 9VAC25-740-50.A.6. Per the SCAT Regulations, land treatment includes rapid infiltration basins that are also used for groundwater recharge. Direct injection of reclaimed water into an aquifer that is authorized by the EPA UIC Program or other federal and state laws and regulations is also excluded by 9VAC25-740-50.A. 9. Because all projects that propose groundwater recharge with reclaimed water must be authorized by the EPA UIC Program, this exclusion applies to all direct injection of reclaimed water in Virginia. Groundwater recharge with reclaimed water by methods other than rapid infiltration basins and direct injection wells (e.g., vadose zone wells) remain subject to the requirements of the Water Reclamation and Reuse Regulation.

**6. Groundwater Standards (9VAC25-280)**

**Existing Language**

(See Attachment B for the complete regulation.)

**Comments**

All groundwater recharge projects must comply, at a minimum, with the Groundwater Standards (9VAC25-280), which include narrative and numerical standards for the protection of groundwater quality. If DEQ does not issue a permit for groundwater recharge, deferring, instead, to the EPA UIC program to regulate such proposals, how will DEQ’s Groundwater Standards be enforced?

Due to leakiness of aquifers in the Coastal Plain, do we continue to presume that all GW is of drinking water quality or do we need a classification system for GW? Do we need bacteria standards? Should the standards incorporate by reference the SDWA MCLs?

**7. Water Resources Policy (9VAC25-390)**

**Existing Language**

**9VAC25-390-30. Policies.**

Governed by these precepts and in order to fulfill its statutory responsibilities in the development of the Water Resources Policy, the board will observe the following specific policies in preparing Water Resource Management Plans, advising on the adequacy and desirability of water resource projects, and authorizing specific water resource projects or in commenting on projects which affect water resources.

4. Pollution and wasteful use.

e. The discharge of pollutants into ground water aquifers shall be contrary to board policy except that brine derived from naturally saline aquifers may be returned to these aquifers and chemicals and water may be used in connection with the exploration for and development of water, brines, oil and natural gas to the extent that such uses do not result in pollution of groundwater.

5. Water supply and storage.

e. Subsurface storage and groundwater recharge should be encouraged subject to the provisions that such practices do not cause pollution of underground water resources.

**Comments**

Policy 9VAC25-390-30.5.e can allow the discharge of “pollutants” to groundwater up to but not causing “pollution” of groundwater, while policy 9VAC25-390-30.4.e would not allow the addition of any “pollutants” to groundwater resulting from, for example, groundwater recharge with reclaimed water. Because these two policies appear to be inconsistent on acceptable pollutant loads to groundwater, the Water Resources Policy does not provide distinctive direction regarding groundwater recharge with reclaimed water.

**8. Fees for Permits and Certificates Regulation (9VAC25-20)**

**Existing Language**

(See Attachment C for complete regulation.)

**Comments**

Fees are recommended to recover the expense of processing applications and permits for activities authorized by the DEQ Water Division. These fees should also be sufficient to cover the cost of any groundwater modeling that may be performed by DEQ as part of the application review for a groundwater recharge project.

If a new permit regulation for groundwater recharge is created, it will likely be necessary to address fees for GW recharge in the Fees for Permits and Certificates Regulation (9VAC25-20). If an existing permit regulation is used to authorize a GW recharge project, the existing fees for that permit may be used or amended to recover primarily GW modeling costs to the agency.

**Attachment A**

**Sewage Collection and Treatment Regulations (9VAC25-790-880)**

**9VAC25-790-880. Land treatment**

A. Site specific information shall be submitted with the preliminary proposal in accordance with this chapter and standards contained in this chapter.

Land treatment systems shall have adequate land for pretreatment facilities, storage reservoirs, administrative and laboratory buildings, and buffer zones, as well as the application sites (field area). The availability of this land should be determined prior to any detailed site evaluation. Site availability information should be obtained concerning:

1. Availability for acquisition or acceptable control.

2. Present and future land use.

3. Public acceptance.

B. Site design. Conformance to local land use zoning and planning should be resolved between the local government and the owner. Adjacent owners should be contacted by the applicant to establish whether significant opposition to the proposed location, or locations, exists. Concerns of adjacent landowners will be considered in the evaluation of site suitability. Public meetings may be scheduled either during or after the evaluation of final design documents so that the department can discuss the technical issues concerning the system design through public participation procedures. Public hearings may be held as part of the certificate/permit issuance procedures.

1. The estimated established site size should be calculated using a typical maximum annual loading depth of 36 inches for slow rate systems and a maximum depth of 72 inches per year for high rate systems to compute the field area size. In addition, the buffer zone area should be estimated using a typical distance of 200 feet from the extremities of the field areas to adjacent property lines. This total estimated site area should be available and permission obtained to gain access to the site for field investigations.

2. When investigating a potential site for application of wastewater, there are some limiting factors, including topography, soils, and vegetative growth (crop), which shall be evaluated early to determine site suitability for a land treatment system. This evaluation should be made in two phases: a preliminary phase and a field investigation phase.

3. The preliminary phase of site evaluations should include the identification of the proposed location of the land treatment system on a recent U.S.G.S. topographic map (7.5 minute quadrangle) or acceptable reproduction or facsimile thereof. A property line survey map should also be available for use in identifying the site location or locations.

4. The 100-year flood elevation should be identified and the proposed pretreatment unit processes should be roughly located in relation to elevation.

5. Preliminary soils information should include a soil site suitability map and include information to identify soil textures, grades, drainage, erosion potential, suitability for certain crops, etc. Information on soil characteristics may be available from either the National Resources Conservation Service (NRS) Office, the local Cooperative Extension Service Agent, or the Soil and Water Conservation Nutrient Management Specialist.

6. The field area available for effluent application may be estimated using typical criteria based on topography and soil characteristics. Field areas should be delineated on topographic maps of the proposed land treatment site.

7. The land treatment system design consultant should arrange a Preliminary Engineering Conference (PEC), as described in this chapter, as a final step in the preliminary phase of the site evaluation. The requirements for soil borings and backhoe pits as needed to study soils should be established at the PEC. A site visit should be scheduled at the PEC that involves the appropriate regulatory personnel and the owner and design consultant.

8. The land treatment system design consultant may not wish to conduct detailed field investigations of site topography, hydrology and soil characteristics prior to the site visit by regulatory personnel and their advisors. However, the proposed locations of field areas and pretreatment units should be established and identified during the site visit. The location of any existing soil borings, backhoe pits, springs, wells, etc., should also be identified during the site visit. Soil borings and backhoe pits may be excavated prior to, during and following the site visit as required. The requirements for soil permeability and hydraulic conductivity testing should be developed either during or shortly after the site visit.

9. Applicants for development of all land treatment systems shall be required to submit at least the minimum required information as required for the appropriate certificate/permit to be issued.

C. Site features. The soil at a potential site should be identified in terms of its absorption capacity and crop production classification, which is a function of physical and chemical characteristics. Important physical characteristics include texture, structure and soil depth. Chemical characteristics that may be important include pH, ion exchange capacity, nutrient levels, and organic fraction. The absorption capacity of a soil may be directly related to soil texture and structure. Soil color may provide an indication of the movement of moisture through soil. Hydraulic conductivity may be estimated from in-field tests using acceptable infiltrometer devices. In addition, the absorption characteristics of a soil may be related to its hydraulic conductivity as measured by both in situ and laboratory tests using acceptable procedures (Table 9). The conductivity tests should be conducted in the most restrictive layer within the depth affected by the land application system. Soil productivity and nutrient management characteristics are discussed in the Virginia Pollution Abatement Permit Regulation (9VAC25-32).

1. Soil evaluation for a land treatment system should follow a systematic approach of selecting proper locations for borings or excavations based on topographic position, slopes and drainage. The physical characteristics of site soils should then be verified by an acceptable number of recorded observations that include soil depth to horizon changes, restrictive layers and parent material, color, texture and structure, for borings or excavations to a minimum depth of five feet.

2. If the soil characteristics differ substantially between borings or excavations, without a logical technical reason for the variation, then additional boring and excavation locations should be studied to identify the nature and extent of the changes in soil patterns throughout the proposed site.

3. The soil characteristics of the proposed site should be described by a qualified technical specialist knowledgeable in the principles of soil science, agronomy, and nutrient management. The long-term impact of land application of the treated effluent on site soils and vegetation or crops must be evaluated by the land treatment system design consultant. Certain minimum soil depths are required for approval of a land application site. The minimum required depth for field areas will depend on the type of land application system as well as the soil characteristics.

4. Representative soil samples shall be collected for each major soil type identified by the field investigation and analyzed for certain parameters in accordance with this chapter.

5. Detailed information on the geologic conditions of the proposed site shall be provided by a geologist or other technical specialist, or specialists, knowledgeable in geohydrologic principles.

a. Detailed information on the site hydrology and groundwater shall be provided by a geologist, hydrologist or other technical specialist, or specialists, knowledgeable in hydrologic principles and ground water hydrology.

b. The depth to the permanent ground water table below the site shall be determined. The location, depth and extent of perched water tables as well as the estimated seasonal fluctuations shall be established. The effect of the permanent and seasonal water tables on performance of the particular land treatment system shall be evaluated by the design consultant.

c. The characteristics of ground water movement under the proposed site should be established and evaluated using piezometer installations or other acceptable methods. The potential impact of the land treatment system on aquifer hydraulics and water quality shall be predicted through the use of modeling and appropriate monitoring devices.

d. The present and planned uses of the aquifer(s) identified as affected by the land treatment system should be determined by the consultant.

D. Land treatment methods. The following methods, or combinations thereof, as regulated by the appropriate permit or certificate, are considered conventional technology in accordance with this chapter:

1. Irrigation - slow rate. Wastewater may be applied by spraying, flooding, or ridge and furrow methods. Irrigation methods are designed not to discharge to surface waters.

2. Rapid infiltration. Wastewater may be applied by spreading and spraying. The system shall be designed to meet all certificate/permit requirements and groundwater standards.

3. Overland flow. This method of wastewater renovation is best suited for soils with low permeability. Generally, a permit or certificate for a discharge to surface waters must be issued.

E. Other alternatives. Natural treatment systems such as aquatic ponds, constructed wetlands and biological/plant filters and other aquatic plant systems are somewhat related to land treatment technology. Natural treatment involves the use of plants in a constructed but relatively natural environment for the purpose of achieving treatment objectives. The major difference between nonconventional natural and conventional treatment systems is that conventional systems typically use a highly managed and controlled environment for the rapid treatment of the wastewater. In contrast, nonconventional natural systems use a comparatively unmanaged environment in which treatment occurs at a slower rate.

1. The use of natural treatment as a part of a land treatment system may take several forms including ponds called "Aquatic Processing Units" (APU). Floating plants such as water hyacinths and duckweed are often used in APU treatment.

2. Constructed wetlands are defined as areas where the wastewater surface is controlled near (subsurface flow) or above (free water surface) a soil or media surface for long enough each year to maintain saturated conditions and the growth of related vegetation such as cattails, rushes, and reeds.

3. Constructed wetlands must provide for groundwater protection and may be used to provide additional treatment to primary, secondary, or highly treated effluents prior to final discharge.

4. Natural (existing) wetlands are considered as state waters and any discharge to them shall be regulated in accordance with an issued discharge permit or certificate.

F. Features. Biological treatment that will produce an effluent either with a maximum BOD5 of 60 mg/l or less, or be of such quality that can be adequately disinfected, if necessary, shall be provided prior to natural treatment, including use of conventional unit operations prior to the land application of treated effluent and advanced treatment prior to reuse.

Disinfection may be required following or prior to land application and other natural treatment. If spray irrigation equipment is utilized, adequate aerosol management including pre-disinfection shall be provided.

Buffer zones around field areas shall be provided in accordance with the monitored maximum microbiological content of the applied effluent as follows, with no reduction in required minimum distances to water sources and channels:

|  |  |
| --- | --- |
| Fecal Coliform Count (1) | Minimum Buffer Distance, Feet |
| (No./100 mls) |  |
| 200 or less | 200 (2) |
| 23 or less | 50 (3) |
| 2.2 or less | None, but no application during occupation of field area (3) |

Notes:

(1) Exceeded by no more than 10% or less of samples tested.

(2) No public use of field areas.

(3) Transient public use may occur after a three-hour drying period following application.

1. The owner shall provide sufficient holding time to store all flow during periods either when crop nutrient uptake is limited or nonexistent, the ground is frozen, surface saturation occurs during wet weather, the ground is covered with snow, or the irrigation site or field areas cannot otherwise be operated. The total volume of holding required shall be based on the storage necessary to provide for climatic conditions and the nutrient management requirements of the field area crop. Operational storage necessary for system maintenance shall be provided. Climatic holding periods shall be based on the most adverse conditions of freezing and precipitation, as taken from accurate recorded historical data that are available for the local area (in no case less than 25 years). The storage volume shall be sufficient to prevent any unpermitted discharges to state waters.

2. A minimum holding period of 120 days shall be required when climatic data is not available. System backup storage shall be determined by the complexity of the entire treatment system. An increase or reduction of minimum storage may be considered on a case-by-case basis based on adequate documentation of agronomic crop production and nutrient utilization.

3. The depth of the volume containment for total storage requirements shall be measured above any minimum depth requirements for maintenance.

4. The owner shall provide a minimum reserve area equivalent in size to 25% of the design field area. Additional reserve area may be required as evaluated by the division, if the general conditions of the field area are deemed marginal or in proximity of critical areas or waters. The reserve area shall be capable of being used as a functional area within 30 days of notice.

5. Some allowance for a reduced reserve shall be allowed if additional storage is provided or if there is an alternate treatment mode (e.g., discharge) that can be utilized by the facility.

6. Design criteria for treatment or storage ponds shall be in accordance with this chapter and standards contained in this chapter. In addition, the following requirements shall be met:

a. A minimum operational water depth shall be maintained.

b. Provisions shall be made to allow complete drainage of the pond for maintenance.

c. Duplicate pumps shall be provided if necessary to transport pond flows, with the capacity of each pump sized to handle the maximum rate of flow plus an allowance to deplete stored volumes.

d. Disinfection may be provided either upstream from ponds, or the pond effluent may require disinfection.

e. When chlorination is utilized to disinfect pumped flows, the detention time of the holding pond chlorination facilities shall provide a minimum of 30 minutes of contact time, based on the maximum design pumping rate in accordance with this chapter and standards contained in this chapter.

G. Design loadings. Loading rates shall be based on the most critical value as determined by the liquid and nutrient application rates, or total application amounts for other constituents (such as boron, salts, pH-alkalinity, copper or sodium, etc.), present in such concentrations as could produce pollution of either the soil, cover crop, or water quality. Total weekly application (precipitation plus liquid loading rate) shall not exceed two times the design loading rate. This higher than conventional loading rate shall be used only to balance seasonal water deficits, and groundwater quality standards shall not be exceeded unless a variance to the violated standard has been approved by the State Water Control Board.

1. An overall water balance shall be investigated in accordance with one of the following equations based on design criteria:

1. Irrigation or infiltration

design precipitation + effluent applied = evapotranspiration + hydraulic conductivity.

b. Overland flow

design precipitation + effluent applied = evapotranspiration + hydraulic conductivity + runoff.

2. Design precipitation shall be the wettest year for a 10-year period (return frequency of one year in 10). Minimum time period for this analysis should be 25 years. Average monthly distribution (average percentage of the total annual precipitation that occurs in each month) shall be assumed.

3. Design evapotranspiration (monthly) shall be 75% of average monthly pan evaporation values collected at official weather stations within or contiguous to the Commonwealth of Virginia and should be representative (similar geographically and climatological) of the proposed site.

4. Design hydraulic conductivity shall be a given percentage (see Table 9) of respective laboratory and field measurements that yield the rate at which water passes through the soil under presoaked conditions.

The test methodology should be in accordance with current published procedures made available to the department.

TABLE 9.

DESIGN HYDRAULIC CONDUCTIVITY

|  |  |
| --- | --- |
| Type of Test | Percent of minimum measuredvalue to be used in design |
| i. Saturated Vertical Hydraulic Conductivity | 7 |
| ii. Basin Infiltration | 12.5 |
| iii. Cylinder Infiltrometers | 3 |
| iv. Air Entry Permeameter | 3 |
| v. (Other – to be evaluated by the department) |  |

5. During periods of application, the applied nitrogen shall be accounted for through (i) crop uptake and harvest; (ii) denitrification; (iii) addition to surface water and ground water, or storage in soil. In winter, site loadings for slow rate systems shall not exceed the hydraulic design for those particular months. Winter application of treated effluent may be provided only (i) to cool season grasses (ii) following three consecutive days of minimum daily temperatures in excess of 25°F and maximum in excess of 40°F.

6. The annual liquid loading depth for plant nitrogen requirements shall be determined by the following equation:

L = N/2.7C

Where:

N = Crop nitrogen uptake, lb/acre/yr.

C = Total nitrogen concentration, mg/l

C = TKN + NO2-N + NO3-N

L = Annual liquid loadings depth, ft/yr.

TKN = Total KJELDAHL nitrogen = organic N + NH3 - N

7. The monthly nitrogen loading rate design should be distributed over the growth cycle of the particular crop, as much as practicable.

8. If other nutrients, organics, or trace elements are present in concentrations critical to either crops, soil, or water quality, then a total mass balance similar to that for nitrogen shall be investigated for each critical element or compound.

9. The land application design average rate shall be determined by the climatic conditions, selected crops, and soil characteristics. However, the maximum application rates in terms of depth of effluent applied to the field area shall be as follows:

a. One-fourth inch per hour.

b. One inch per day.

c. Two inches per week (one inch per week in forest field areas used for year round application).

H. Field area design. Field area is defined as the area of land where renovation of wastewater takes place (area under actual spray or distribution pattern). The field area shall be designed to satisfy the most critical loading parameter (i.e., annual liquid loading depth) according to the following equation:

Field Area (acres) = Q/D\*365/(365-S)

Where:

Q = Wastewater flow in (acre-inches/week)

D = Applied depth in inches/week

S = Minimum required storage capacity + annual resting periods

during the application season when no waste can be land

applied.

1. The minimum storage capacity shall be the average design volume of flow accumulated over a period of 60 days, unless other storage periods are justified by climatic data. It should be noted that the field area equation does not take into consideration the area needed for reserve capacity or future expansion (no less than 25% of design field area).

2. The field area shall be divided into smaller sections for application to allow for rotational use of these sections. Rotational operation shall be designed to provide the maximum resting periods for field areas. The distribution system shall be designed to meet the requirement for alternating application to the field area sections. Minimum resting periods shall be two days, one day and two weeks for irrigation, overland flow and infiltration-percolation, respectively. Maximum wetting period shall not exceed five days, one week, and one day respectively for irrigation, infiltration-percolation, and overland flow, respectively. Resting and wetting periods depend on soil types, climatic conditions, harvesting requirements, etc.

3. The field area or areas shall be adequately enclosed with suitable fencing to prevent access to livestock and the public where necessary. Signs shall be posted at sufficient intervals (100 to 300 feet) around the entire perimeter of field areas to identify the land treatment operation and specify access precautions.

4. A groundwater monitoring system shall be provided in accordance with the permit or certificate requirements. A minimum of one upgradient and two downgradient monitoring wells shall be provided. The well locations, along with typical well construction specifications, shall be submitted with the proposal. Upon installation, the driller's log shall be submitted. Additional monitoring well locations may be required if deemed necessary upon evaluation of monitoring data. The results of any required sampling and testing of groundwater shall be submitted to the department for evaluation in accordance with the operating permit.

5. Representative agriculturally related soil tests are required on crop dependent systems to ensure adequate vegetative cover. The growing and maintaining of a vegetative cover on application sites is a very integral part of the system. The plants prevent soil erosion and utilize nutrients and water. The system design should provide for a proper balance between applied amounts of water and nutrients. The designer may wish to consult with both agronomic and nutrient management specialists on these matters. The design shall address crop and nutrient management.

6. The wastewater application schedule should be worked around the plans for harvesting. A minimum of 30 days shall be required between the last day of application and utilization of all crops. Crops that will be consumed raw by man shall not be grown in land application field areas.

7. Information on the proposed crops and their intended use may be forwarded to the Virginia Department of Agriculture and Consumer Services for evaluation.

I. Low intensity design. The low intensity application or irrigation field area should be as flat as possible with maximum slopes of 5.0% or less. The design of low intensity irrigation of treated effluent shall provide for nutrient management control. When it is necessary to locate field areas on slopes of eight to 12%, special precautions shall be taken to prevent seepage or runoff of sewage effluent to nearby streams. Dikes or terraces can be provided for field areas, together with runoff collection and return pumping equipment. The maximum field area slope should be 12%. The irrigation field area shall be located a minimum distance of 50 feet from all surface waters.

1. Five feet of well-drained loamy soils are preferred. The minimum soil depth to unconsolidated rock should be three feet. The hydraulic conductivity should be between 0.2-6 inches/hour.

2. The minimum depth to the permanent water table should be five feet. The minimum depth to the seasonal water table should be three feet. Where the permanent water table is less than five feet and the seasonal water table is less than three feet, the field area application rate shall be designed to prevent surface saturation. In addition, underdrain and groundwater pumping equipment may be required.

3. The method of applying the liquid to the field shall be designed to best suit prevailing topographic, climatic, and soil conditions. Two methods of application are:

a. Sprinkler systems with low trajectory nozzles or sprinkler heads to uniformly distribute the applied effluent across a specified portion of the field area. Application is to be restricted in high winds that adversely affect the efficiency of distribution and spread aerosol mists beyond the field areas.

b. Ditch irrigation systems that utilize gravity flow of effluent through ditches or furrows, from which effluent percolates into the soil. For uniformity of distribution, the slope of the field area is to be uniform and constant.

4. The height of spray nozzles, pressure at the spray nozzles and spacing of the laterals shall be adequate to provide uniform distribution of the effluent over the field area. The design height and pressure of the spray nozzles shall avoid damage to vegetation and soil.

5. Adequate provisions shall be made to prevent freezing and corrosion of spray nozzles and distribution lines when the system or a section of the system is not in operation.

6. Appropriate vegetation shall be maintained uniformly on all field areas. Usually water tolerant grasses with high nitrogen uptakes are used. Over seeding with cool season grasses may be necessary during the fall season, prior to October 15 of each year. Silviculture sites and reuse irrigation sites may also be used with this type of land treatment.

J. Rapid infiltration. This form of treatment requires the least amount of land. Renovation is achieved by natural, physical, chemical, and biological processes as the applied effluent moves through the soil. Effluent is allowed to infiltrate the soil at a relatively high rate, requiring a field area with coarse grained soils. This system is designed for three main purposes (i) ground water recharge; (ii) recovery of renovated water using wells or underdrains with subsequent reuse, or (iii) discharge and recharge of surface streams by interception of ground water.

1. Five feet of sand or loamy sand is preferred. Soil grain size should be greater than.05 mm in size. The hydraulic conductivity should be greater than two inches/hour.

2. The permanent ground water table shall be a minimum of 15 feet below the land surface. With this method, a recharge mound is not uncommon and shall be properly evaluated by the consultant. A minimum distance of 10 feet should be maintained between the land surface and the apex of the recharge mound (during a worse-case situation). Lesser depths may be acceptable where under drainage is provided.

3. Spreading and spraying are the two main application techniques that are suitable for infiltration-percolation.

4. Design application rates will vary according to the site area, soil, geology, and hydrology characteristics.

5. The buffer distances from extremities of field areas to private wells should be at least 400 feet.

K. Overland flow. Renovation of wastewater is accomplished by physical, chemical, and biological means as applied effluent flows through vegetation on a relatively impermeable sloped surface. Wastewater is sprayed or flooded over the upper reaches of the slope and a percentage of the treated water is collected as runoff at the bottom of the slope, with the remainder lost to evapotranspiration and percolation. Overland systems should be capable of producing effluent at or below secondary level; however, additional treatment units may be needed to achieve the permitted effluent limitations.

1. Soils should have minimal infiltration capacity, such as heavy clays, clay loams or soils underlain by impermeable lenses. The restrictive layers in the soil should be between one to two feet from the surface to maintain adequate vegetation. The hydraulic conductivity should be less than 0.2 inches/hour. Field area slopes shall be less than 8.0%. Monitoring wells shall be provided.

2. Renovated water shall be collected at the toe of the slope in cut off ditches or by similar means and channeled to a monitoring point and disinfected as required.

3. The effluent application method should achieve a sheet flow pattern that will produce maximum contact between the applied wastewater and the soil medium. This can be accomplished by lateral distribution methods, low pressure sprays and moderate to high pressure impact sprinklers discharging onto porous pads or aprons designed to distribute the applied flow while preventing erosion. Maximum application rates in terms of depth of effluent should be less than 10 inches per week.

4. Perennial field area vegetation shall be required. Hydrophilic or water tolerant grasses are usually grown with this type of system.

L. Alternative design. Information submitted for approval of other natural treatment systems and reuse alternatives shall include performance data obtained from either full-scale systems similar to the proposed design, or pilot studies conducted over a testing period exceeding one year, to a period of two years, based on test results. Special consideration should be given to the following factors in planning and design of natural systems:

1. Many aquatic plants are sensitive to cold temperatures and may require the use of a protected environment or operation on a seasonal basis. Some plants may be considered unacceptable for use and their growth must be controlled.

2. Control of insects, particularly mosquitoes, is normally required for constructed wetlands and aquatic plant systems. The use of mosquito-eating fish and water depth adjustments are recommended.

3. Some constituents which may be present in wastewaters, particularly those having high industrial loads, are toxic to many aquatic plants. Therefore, tests should be conducted to identify possible toxics prior to selection of the aquatic plant species.

4. Natural systems utilize a higher life form of less diversity than found in more conventional biological treatment systems. This lack of biological diversity may reduce treatment performance. Constructed wetland and aquatic plant systems could be more susceptible to long term process upsets. Therefore, the effects of fluctuations in climate and wastewater characteristics is extremely important in the design of natural systems.

5. Some aquatic plant and animal species have the potential to create a nuisance condition if inadvertently released to natural waterways. Federal, state and local restrictions on the use of certain aquatic plants and animals shall be considered.

6. Harvesting and the use or disposal of aquatic plants should result in removal of organics, solids and nutrients such as nitrogen and phosphorous from the APU effluent. Management of residual matter shall be in accordance with this chapter and standards contained in this chapter.

**Attachment B**

**Ground Water Standards (9VAC25-280)**

**9VAC25-280-10. Definitions.**

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

"Board" means State Water Control Board.

"Criteria" means elements of the board's ground water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, ground water quality will generally protect the designated use.

"Ground water quality standards" means provisions of state law that consist of a designated use or uses for the waters of the Commonwealth and water quality criteria for such waters based upon such uses. Ground water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the State Water Control Law (§ 62.1-44.2 et seq. of the Code of Virginia).

**9VAC25-280-20. Ground water standards; general requirements.**

Except where otherwise specified, ground water quality standards shall apply statewide and shall apply to all ground water occurring at and below the uppermost seasonal limits of the water table. In order to prevent the entry of pollutants into ground water occurring in any aquifer, a soil zone or alternate protective measure or device sufficient to preserve and protect present and anticipated uses of ground water shall be maintained at all times. Zones for mixing wastes with ground water may be allowed, upon request, but shall be determined on a case-by-case basis and shall be kept as small as possible. It is recognized that natural ground water quality varies from area to area. Virginia is divided into four physiographic provinces, namely the Coastal Plain, Piedmont and Blue Ridge, Valley and Ridge, and Cumberland Plateau. See Figure 1. Accordingly, the board has established certain ground water standards specific to each individual physiographic province.

**9VAC25-280-30. Antidegradation policy for ground water.**

If the concentration of any constituent in ground water is less than the limit set forth by ground water standards, the natural quality for the constituent shall be maintained; natural quality shall also be maintained for all constituents, including temperature, not set forth in ground water standards. If the concentration of any constituent in ground water exceeds the limit in the standard for that constituent, no addition of that constituent to the naturally occurring concentration shall be made. Variance to this policy shall not be made unless it has been affirmatively demonstrated that a change is justifiable to provide necessary economic or social development, that the degree of waste treatment necessary to preserve the existing quality cannot be economically or socially justified, and that the present and anticipated uses of such water will be preserved and protected.

**9VAC25-280-40. Ground water standards applicable statewide.**

|  |  |
| --- | --- |
| CONSTITUENT | CONCENTRATION |
| Sodium | 270 mg/l |
| Foaming Agents as methylene blue active substances | 0.05 mg/l |
| Petroleum hydrocarbons | 1 mg/l |
| Arsenic | 0.05 mg/l |
| Barium | 1.0 mg/l |
| Cadmium | 0.0004 mg/l |
| Chromium | 0.05 mg/l |
| Copper | 1.0 mg/l |
| Cyanide | 0.005 mg/l |
| Lead | 0.05 mg/l |
| Mercury | 0.00005 mg/l |
| Phenols | 0.001 mg/l |
| Selenium | 0.01 mg/l |
| Silver | None |
| Zinc  | 0.05 mg/l |
| Chlorinated Hydrocarbon Insecticides |   |
|   | Aldrin/Dieldrin | 0.003 μg/l |
|   | Chlordane | 0.01 μg/l |
|   | DDT | 0.001 μg/l |
|   | Endrin | 0.004 μg/l |
|   | Heptachlor | 0.001 μg/l |
|   | Heptachlor Epoxide | 0.001 μg/l |
|   | Kepone | None |
|   | Lindane | 0.01 μg/l |
|   | Methoxychlor | 0.03 μg/l |
|   | Mirex | None |
|   | Toxaphene | None |
| Chlorophenoxy Herbicides |   |
|   | 2,4‑D | 0.1 mg/l |
|   | Silvex  | 0.01 mg/l |
| Radioactivity |   |
|   | Total Radium (Ra‑226 & Ra‑228) | 5 pCi/1 |
|   | Radium 226 | 3 pCi/1 |
|   | Gross Beta Activity\* | 50 pCi/1 |
| Gross Alpha Activity (excluding Radon & Uranium) | 15 pCi/1 |
| Tritium | 20,000 pCi/l |
| Strontium‑90  | 8 pCi/l |
| Manmade Radioactivity ‑ Total Dose Equiv.\*\*  | 4 mrem/yr |
| pCi/l = picoCurie per liter  | mrem/yr = millirems per year |

\*The gross beta value shall be used as a screening value only. If exceeded, the water must be analyzed to determine the presence and quantity of radionuclides to determine compliance with the tritium, strontium, and manmade radioactivity standards.

\*\*Combination of all sources should not exceed total dose equivalent of 4 mrem/year.

**9VAC25-280-50. Ground water standards applicable by physiographic province.**

|  |  |
| --- | --- |
| CONSTITUENT | CONCENTRATION |
| Coastal Plain | Piedmont & Blue Ridge | Valley & Ridge | Cumberland Plateau |
| pH | 6.5-9 | 5.5-8.5 | 6-9 | 5-8.5 |
| Ammonia Nitrogen | 0.025 mg/l | 0.025 mg/l | 0.025 mg/l | 0.025 mg/l |
| Nitrite Nitrogen | 0.025 mg/l | 0.025 mg/l | 0.025 mg/l | 0.025 mg/l |
| Nitrate Nitrogen | 5 mg/l | 5 mg/l | 5 mg/l | 0.5 mg/l |

**9VAC25-280-60. Ground water criteria; general requirements.**

These ground water quality criteria apply primarily to ground water constituents that occur naturally. Since natural ground water quality can vary greatly from area to area for these constituents, enforceable standards were not adopted. These criteria are intended to provide guidance in preventing ground water pollution. Ground water criteria are not mandatory.

**9VAC25-280-70. Ground water criteria.**

|  |  |
| --- | --- |
| CONSTITUENT (mg/l) | GROUND WATER CRITERIA BY PHYSIOGRAPHIC PROVINCE\*\*\* |
| Coastal Plain | Piedmont & Blue Ridge | Valley & Ridge | Cumberland Plateau |
| Alkalinity | 30-500 | 10-200 | 30-500 | 30‑200 |
| Total Diss. Solids | 1000 | 250 | 500 | 500 |
| Chloride | 50\* | 25 | 25 | 25 |
| Sulfate | 50 | 25 | 100 | 150 |
| Total Organic Carbon | 10 | 10 | 10 | 10 |
| Color units | 15 | 15 | 15 | 15 |
| Iron | 0.3 | 0.3 | 0.3 | 0.01-10 |
| Manganese | 0.05 | 0.05 | 0.05 | 0.01-0.5 |
| Sodium | 100\* | 25 | 25 | 100 |
| Fluoride | 1.4\*\* | 1.4 | 1.4 | 1.4 |
| Hardness | 120 | 120 | 300 | 180 |

\*It is recognized that naturally occurring concentrations will exceed this limit in the eastern part of the Coastal Plain, especially toward the shoreline and with increased depth.

\*\*Except within the cretaceous aquifer: concentration up to 5 mg/l and higher.

\*\*\*See Figure 1 for delineation of physiographic provinces.

Figure 1

**9VAC25-280-80. Modification, amendment, and cancellation of standards.**

A. Under the authority of § 62.1-44.15(3)(b) of the State Water Control Law, the board reserves the right at any time to modify, amend, or cancel any of the rules, policies, or standards set forth here.

B. Within three years after the effective date of this chapter, the department shall perform an analysis on this chapter and provide the board with a report on the results. The analysis shall include (i) the purpose and need for the chapter; (ii) alternatives that would achieve the stated purpose of this chapter in a less burdensome and less intrusive manner; (iii) an assessment of the effectiveness of this chapter; (iv) the results of a review of current state and federal statutory and regulatory requirements, including identification and justification of requirements of this chapter that are more stringent than federal requirements; and (v) the results of a review as to whether this chapter is clearly written and easily understandable by affected entities.

Upon review of the department's analysis, the board shall confirm the need to (i) continue this chapter without amendment; (ii) repeal this chapter; or (iii) amend this chapter. If the board's decision is to repeal or amend this chapter, the board shall authorize the department to initiate the applicable regulatory process to carry out the decision of the board.

**9VAC25-280-90. Designations of authority.**

The director or his designee may perform any act of the board provided under this chapter, except as limited by § 62.1-44.14 of the Code of Virginia.

**Attachment C**

**Attachment C**

**Fees for Permits and Certificates Regulation (9VAC25-20)**

Part I
General

**9VAC25-20-10. Definitions.**

Unless otherwise defined in this chapter or unless the context clearly indicates otherwise, the terms used in this regulation shall have the meanings ascribed to them by the State Water Control Law, § 62.1-44.3; the board's Virginia Pollutant Discharge Elimination System Permit Regulation, 9VAC25-31-10; the board's Virginia Pollution Abatement Permit Regulation, 9VAC25-32-10; the board's Virginia Water Protection Permit Program Regulation, 9VAC25-210-10; the board's Surface Water Management Area Regulation, 9VAC25-220-10; and the board's Ground Water Withdrawal Regulations, 9VAC25-610-10, including any general permits issued thereunder.

"Applicant" means for the purposes of this chapter any person filing an application for issuance, reissuance, or modification, except as exempted by 9VAC25-20-50, of a permit, certificate or special exception or filing a registration statement or application for coverage under a general permit issued in response to Chapters 3.1 (§ 62.1-44.2 et seq.), 24 (§ 62.1-242 et seq.), and 25 (§ 62.1-254 et seq.) of Title 62.1 of the Code of Virginia.

"Application" means for the purposes of this chapter the forms approved by the State Water Control Board for applying for issuance or reissuance of a permit, certificate or special exception or for filing a registration statement or application for coverage under a general permit issued in response to Chapters 3.1, 24, and 25 of Title 62.1 of the Code of Virginia. In the case of modifications to an existing permit, permit authorization, certificate or special exception requested by the permit, permit authorization, certificate or special exception holder and not exempted by 9VAC25-20-50, the application shall consist of the formal written request and any accompanying documentation submitted by the permit, permit authorization, certificate or special exception holder to initiate the modification.

"Biosolids" means a sewage sludge that has received an established treatment for required pathogen control and is treated or managed to reduce vector attraction to a satisfactory level and contains acceptable levels of pollutants, such that it is acceptable for use for land application, marketing or distribution in accordance with 9VAC25-31 or 9VAC25-32.

"Dry tons" means dry weight established as representative of land applied biosolids and expressed in units of English tons.

"Existing permit" means for the purposes of this chapter a permit, permit authorization, certificate or special exception issued by the board and currently held by an applicant.

"Established fees" means a fee established by the department per dry ton of biosolids managed by land appliers.

"Land application" means the distribution of either treated wastewater of acceptable quality, referred to as effluent, or stabilized sewage sludge of acceptable quality, referred to as biosolids, upon, or insertion into, the land with a uniform application rate for the purpose of utilization, or assimilation. Bulk disposal of stabilized sludge in a confined area, such as in landfills, is not land application. Sites approved for land application of biosolids in accordance with 9VAC25-31 or 9VAC25-32 are not to be considered to be treatment works.

"Land applier" means someone who land applies biosolids pursuant to a valid permit from the department as set forth in 9VAC25-31 or 9VAC25-32.

"Local monitor" means a person or persons employed by local government to perform the duties of monitoring the operations of land appliers pursuant to a local ordinance.

"Major modification" means for the purposes of this chapter modification or amendment of an existing permit, permit authorization, certificate or special exception before its expiration which is not a minor modification as defined in this regulation.

"Major reservoir" means for the purposes of this chapter any new or expanded reservoir with greater than or equal to 17 acres of total surface water impacts (stream and wetlands), or a water withdrawal of greater than or equal to 3,000,000 gallons in any one day.

"Minor modification" means for the purposes of this chapter minor modification or amendment of an existing permit, permit authorization, certificate or special exception before its expiration as specified in 9VAC25-31-400, 9VAC25-32-240, 9VAC25-210-210, 9VAC25-220-230, or in 9VAC25-610-330. Minor modification for the purposes of this chapter also means other modifications and amendments not requiring extensive review and evaluation including, but not limited to, changes in EPA promulgated test protocols, increasing monitoring frequency requirements, changes in sampling locations, and changes to compliance dates within the overall compliance schedules. A minor permit modification or amendment does not substantially alter permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

"Minor reservoir" means for the purposes of this chapter any new or expanded reservoir with less than 17 acres of total surface water impacts (stream and wetlands), or a water withdrawal of less than 3,000,000 gallons in any one day.

"New permit" means for the purposes of this chapter a permit, permit authorization, certificate or special exception issued by the board to an applicant that does not currently hold and has never held a permit, permit authorization, certificate or special exception of that type, for that activity, at that location.

"Reimbursement application" means forms approved by the department to be used to apply for reimbursement of local monitoring costs for land application of biosolids in accordance with the provisions of this regulation. The application shall consist of a formal written request and any accompanying documentation submitted by a local government in accordance with a local ordinance.

"Revoked permit" means for the purposes of this chapter an existing permit, permit authorization, certificate or special exception which is terminated by the board before its expiration.

"Single jurisdiction" means for the purposes of this chapter a single county or city. The term county includes incorporated towns which are part of the county.

**9VAC25-20-20. Purpose.**

Section 62.1-44.15:6 of the Code of Virginia requires the promulgation of regulations establishing a fee assessment and collection system to recover a portion of the State Water Control Board's, Department of Game and Inland Fisheries', and the Department of Conservation and Recreation's direct and indirect costs associated with the processing of an application to issue, reissue, or modify any permit, permit authorization or certificate which the board has the authority to issue from the applicant for such permit, permit authorization or certificate. Section 62.1-44.19:3 of the Code of Virginia requires the promulgation of regulations establishing a fee to be charged to all permit holders and persons applying for permits and permit modifications associated with land application of sewage sludge. Section 62.1-44.19:3 of the Code of Virginia also requires the promulgation of regulations requiring the payment of a fee by persons land applying sewage sludge. These regulations establish the required fee assessment and collection system.

**9VAC25-20-30. (Repealed.)**

**9VAC25-20-40. Applicability.**

A. This chapter applies to:

1. All applicants for issuance of a new permit, permit authorization or certificate, or reissuance of an existing permit, permit authorization or certificate, except as specifically exempt under 9VAC25-20-50 A. The fee due shall be as specified under 9VAC25-20-110 or 9VAC25-20-130.

2. All permit, permit authorization or certificate holders who request that an existing permit, permit authorization or certificate be modified, except as specifically exempt under 9VAC25-20-50 A 3 or 9VAC25-20-50 A 6. The fee due shall be as specified under 9VAC25-20-120.

3. All land appliers land applying biosolids on permitted sites in the Commonwealth of Virginia, except as specifically exempt under 9VAC25-20-50 C. The fee due shall be as specified under 9VAC25-20-146.

B. An applicant for a permit, permit authorization or certificate involving a permit that is to be revoked and reissued shall be considered an applicant for a new permit. The fee due shall be as specified under 9VAC25-20-110.

C. Permit maintenance fees apply to each Virginia Pollutant Discharge Elimination System (VPDES) permit holder and each Virginia Pollution Abatement (VPA) permit holder, except those specifically exempt under 9VAC25-20-50 B of this chapter. The fee due shall be as specified under 9VAC25-20-142.

D. Virginia Water Protection (VWP) Individual/Minimum Instream Flow permit fees apply to any permit for the construction of an intake on a stream or river, or to any permit for the construction of a new intake on an existing reservoir. The fee due shall be as specified under 9VAC25-20-110 or 9VAC25-20-120, as applicable.

E. VWP Individual/Reservoir permit fees apply to any permit for the construction of a new reservoir, or the expansion of an existing reservoir in which one of the purposes of the reservoir is for water supply. The fee due shall be as specified under 9VAC25-20-110 or 9VAC25-20-120, as applicable. VWP Individual/Reservoir permit fees do not apply to the construction of any impoundment, pond or lake in which water supply is not part of the project's purpose.

**9VAC25-20-50. Exemptions.**

A. No permit application fees will be assessed to:

1. An applicant for a permit, permit authorization, certificate or special exception pertaining to a farming operation engaged in production for market.

2. An applicant for a permit, permit authorization, or certificate pertaining to maintenance dredging for federal navigation channels or other U.S. Army Corps of Engineers-sponsored or Department of the Navy-sponsored dredging projects.

3. Permit holders who request minor modifications or minor amendments to permits, permit authorizations or certificates as defined in 9VAC25-20-10.

4. Permit, permit authorization or certificate holders whose permits, permit authorizations or certificates are modified or amended at the initiative of the board.

5. VPDES permit holders or VPA permit holders for the regularly scheduled renewal of an individual permit for an existing facility, except VPDES and VPA permit holders whose permits expire on or before December 27, 2004.

6. An applicant for a permit, permit authorization, permit modification, or certificate pertaining solely to biosolids research.

B. No permit maintenance fees will be assessed to:

1. VPDES and VPA facilities operating under a general permit.

2. Permits pertaining to a farming operation engaged in production for market.

3. Virginia Water Protection (VWP), Surface Water Withdrawal (SWW), and Ground Water Withdrawal (GWW) permits, permit authorizations, certificates and special exceptions.

4. Permits pertaining solely to biosolids research.

C. No fee shall be imposed on the land application of materials classified as "exceptional quality biosolids" or the equivalent thereof, as defined by 9VAC25-32.

Part II
Payment, Deposits and Use of Fees

**9VAC25-20-60. Due dates.**

A. Virginia Pollutant Discharge Elimination System (VPDES) and Virginia Pollution Abatement (VPA) permits.

1. Application fees for all new permit applications are due on the day an application is submitted and shall be paid in accordance with 9VAC25-20-70 A. Applications will not be processed without payment of the required fee.

2. For reissuance of permits that expire on or before December 27, 2004, the application fee for new permit applications as set forth in this regulation is due on the day the application is submitted.

3. An application fee is due on the day an application is submitted for either a major modification or a permit reissuance that occurs (and becomes effective) before the stated permit expiration date. There is no application fee for a regularly scheduled renewal of an individual permit for an existing facility, unless the permit for the facility expires on or before December 27, 2004. There is no application fee for a major modification or amendment that is made at the board's initiative.

4. Permit maintenance fees shall be paid to the board by October 1 of each year. Additional permit maintenance fees for facilities in a toxics management program, and for facilities that have more than five process wastewater discharge outfalls at a single facility (not including "internal" outfalls) shall also be paid to the board by October 1 of each year. No permit will be reissued or automatically continued without payment of the required fee.

a. Existing individual permit holders with an effective permit as of July 1, 2004, (including permits that have been administratively continued) shall pay the permit maintenance fee or fees to the board by October 1, 2004, unless one of the following conditions apply:

(1) The permit is terminated prior to October 1, 2004; or

(2) The permit holder applied or reapplied for a municipal minor VPDES permit with a design flow of 10,000 gallons per day or less between July 1, 2003, and July 1, 2004, and paid the applicable permit application fee.

b. Effective April 1, 2005, any permit holder whose permit is effective as of April 1 of a given year (including permits that have been administratively continued) shall pay the permit maintenance fee or fees to the board by October 1 of that same year.

B. Surface Water Withdrawal (SWW), and Ground Water Withdrawal (GWW) permits.

1. All permit application fees are due on the day an application is submitted and shall be paid in accordance with 9VAC25-20-70 A. Applications will not be processed without payment of the required fee. No permit will be automatically continued without payment of the required fee.

2. For reissuance of GWW permits that expire on or before March 27, 2005, the application fee for new permit applications as set forth in this regulation is due on the day the application is submitted.

3. Application fees for major modifications or amendments are due on the day an application is submitted. Applications will not be processed without payment of the required fee. There is no fee for a major modification or amendment that is made at the board's initiative.

C. Virginia Water Protection (VWP) permits.

1. VWP permit application fees shall be paid in accordance with 9VAC25-20-70 A. Review of applications may be initiated before the fee is received; however, draft permits or authorizations shall not be issued prior to payment of the required fee. No permit or permit authorization shall be automatically continued without payment of the required fee.

2. VWP application fees for major modifications shall be paid in accordance with 9VAC25-20-70 A. Review of applications may be initiated before the fee is received; however, major modifications shall not be issued prior to payment of the required fee. There is no application fee for a major modification that is made at the board's initiative.

D. Sewage sludge land application fees. Except as specified in this regulation, all fees are due on the day specified by the department. Payment of the fee shall be made by land appliers following notification by the department of the fee due. No permit or modification of an existing permit will be approved in the jurisdiction where payment of the established fee by the land applier has not been received by the due date, until such time that the fees are paid in full. Existing permits may be revoked or approved sources may be reclassified as unapproved unless the required fee is paid within 60 days of the notification by the department of the fee due.

**9VAC25-20-70. Method of payment.**

A. Fees shall be paid by check, draft or postal money order payable to the Treasurer of Virginia, or submitted electronically (if available), and must be in U.S. currency, except that agencies and institutions of the Commonwealth of Virginia may submit Interagency Transfers for the amount of the fee. All fees shall be sent to the following address (or submitted electronically, if available): Department of Environmental Quality, Receipts Control, P.O. Box 10150, Richmond, Virginia 23240.

B. Required information. All applicants for new permit issuance, permit reissuance or permit modification shall submit the following information along with the fee payment:

1. Applicant name, address and daytime phone number.

2. Applicant Federal Identification Number (FIN).

3. The name of the facility/activity, and the facility/activity location.

4. The type of permit applied for.

5. Whether the application is for a new permit issuance, permit reissuance or permit modification.

6. The amount of fee submitted.

7. The existing permit number, if applicable.

**9VAC25-20-80. Incomplete payments and late payments.**

All incomplete payments will be deemed as nonpayments.

Interest may be charged for late payments at the underpayment rate set out by the U.S. Internal Revenue Service established pursuant to § 6621(a)(2) of the Internal Revenue Code. This rate is prescribed in § 58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate.

A 10% late payment fee may be charged to any delinquent (over 90 days past due) account.

The Department of Environmental Quality is entitled to all remedies available under the Code of Virginia in collecting any past due amount and may recover any attorney's fees and other administrative costs incurred in pursuing and collecting any past due amount.

**9VAC25-20-90. Deposit and use of fees.**

A. Sludge Management Fund. All sewage sludge land application fees collected from permit holders who land apply sewage sludge in the Commonwealth of Virginia, and fees collected from permit holders and persons applying for permits and permit modifications pursuant to § 62.1-44.19:3 of the Code of Virginia shall be deposited into the Sludge Management Fund established by, and used and accounted for as specified in § 62.1-44.19:3 of the Code of Virginia. Payments to the Department of Conservation and Recreation for their costs related to implementation of the sewage sludge land application program and to localities with duly adopted ordinances providing for the testing and monitoring of the land application of sewage sludge will be made from this fund. Fees collected shall be exempt from statewide indirect costs charged and collected by the Department of Accounts and shall not supplant or reduce the general fund appropriation to the department.

B. State Water Control Board Permit Program Fund. All fees collected in response to this chapter and not deposited into the Sludge Management Fund shall be deposited into the State Water Control Board Permit Program Fund established by, and used and accounted for as specified in § 62.1-44.15:7 of the Code of Virginia. Payment to the Departments of Conservation and Recreation and Game and Inland Fisheries for permit applications they are required under state law to review will be made from this fund. Fees collected shall be exempt from statewide indirect costs charged and collected by the Department of Accounts.

Part III
Determination of Fee Amount

**9VAC25-20-100. General.**

Each application for a new permit, permit authorization or certificate, each application for reissuance of a permit, permit authorization or certificate, each application for major modification of a permit, permit authorization or certificate, each revocation and reissuance of a permit, permit authorization or certificate, and each application of a dry ton of sewage sludge is a separate action and shall be assessed a separate fee, as applicable. The fees for each type of permit, permit authorization or certificate that the board has the authority to issue, reissue or modify will be as specified in this part.

**9VAC25-20-110. Fee schedules for individual VPDES and VPA new permit issuance, and individual VWP, SWW and GWW new permit issuance and existing permit reissuance.**

A. Virginia Pollutant Discharge Elimination System (VPDES) permits. The following fee schedules apply to applications for issuance of a new individual VPDES permit or certificate. (Note: All flows listed in the table below are facility "design" flows.)

|  |  |  |
| --- | --- | --- |
|   | VPDES Industrial Major | $24,000 |
| VPDES Municipal Major | $21,300 |
| VPDES Municipal Major Stormwater/MS4 | $21,300 |
| VPDES Industrial Minor/No Standard Limits | $10,200 |
| VPDES Industrial Minor/Standard Limits | $3,300 |
| VPDES Industrial Stormwater | $7,200 |
| VPDES Municipal Minor/Greater Than 100,000 GPD  | $7,500 |
| VPDES Municipal Minor/10,001 GPD- 100,000 GPD | $6,000 |
| VPDES Municipal Minor/1,001 GPD-10,000 GPD  | $5,400 |
| VPDES Municipal Minor/1,000 GPD or less | $2,000 |
| VPDES Municipal Minor/1,000 GPD or less that includes authorization for land application or land disposal of sewage sludge | $5,000 |
| VPDES Municipal Minor Stormwater/MS4 | $2,000 |

For a new VPDES permit that includes authorization for land application or land disposal of sewage sludge, $5,000 of the fee will be deposited into the Sludge Management Fund.

B. Virginia Pollution Abatement (VPA) permits. The following fee schedules apply to applications for issuance of a new individual VPA permit or certificate. (Note: Land application rates listed in the table below are facility "design" rates.)

|  |  |  |
| --- | --- | --- |
|   | VPA Concentrated Animal Feeding Operation | (Reserved) |
| VPA Intensified Animal Feeding Operation | (Reserved) |
| VPA Industrial Wastewater Operation/Land Application of 10 or More Inches Per Year | $15,000 |
| VPA Industrial Wastewater Operation/Land Application of Less Than 10 Inches Per Year | $10,500 |
| VPA Industrial Sludge Operation | $7,500 |
| VPA Municipal Wastewater Operation | $13,500 |
| VPA Municipal Sludge Operation | $5,000 |
| All other operations not specified above | $750 |

C. Virginia Water Protection (VWP) permits. The following fee schedules apply to applications for issuance of a new individual and reissuance of an existing individual VWP permit or certificate. Only one permit application fee shall be assessed per application; for a permit application involving more than one of the operations described below, the governing fee shall be based upon the primary purpose of the proposed activity. (Note: Withdrawal amounts shown in the table below are maximum daily withdrawals.)

|  |  |  |
| --- | --- | --- |
|   | VWP Individual/Surface Water Impacts (Wetlands, Streams and/or Open Water) | $2,400 plus $220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) ($60,000 maximum) |
| VWP Individual/Minimum Instream Flow - Withdrawals equal to or greater than 3,000,000 gallons on any day | $25,000 |
| VWP Individual/Minimum Instream Flow - Withdrawals between 2,000,000 and 2,999,999 gallons on any day | $20,000 |
| VWP Individual/Minimum Instream Flow - Withdrawals between 1,000,000 and 1,999,999 gallons on any day | $15,000 |
| VWP Individual/Minimum Instream Flow - Withdrawals less than 1,000,000 gallons on any day that do not otherwise qualify for a general VWP permit for water withdrawals | $10,000 |
| VWP Individual/Reservoir - Major | $35,000 |
| VWP Individual/Reservoir - Minor | $25,000 |
| VWP Individual/Nonmetallic Mineral Mining | $2,400 plus $220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) ($7,500 maximum) |

D. Surface Water Withdrawal (SWW) permits or certificates issued in response to Chapter 24 (§ 62.1-242 et seq.) of Title 62.1 of the Code of Virginia. The following fee schedules apply to applications for issuance of a new individual, and reissuance of an existing individual SWW permit or certificate.

|  |  |  |
| --- | --- | --- |
|   | Agricultural withdrawal not exceeding 150 million gallons in any single month | (Reserved) |
| Agricultural withdrawal greater than 150 million gallons but less than 300 million gallons in any single month  | (Reserved) |
| Agricultural withdrawal of 300 million gallons or greater in any single month | (Reserved) |
| Surface Water Withdrawal | $12,000 |

E. Ground Water Withdrawal (GWW) Permits issued in response to Chapter 25 (§ 62.1-254 et seq.) of Title 62.1 of the Code of Virginia. The following fee schedules apply to applications for issuance of a new individual, and reissuance of an existing individual GWW permit or certificate.

|  |  |  |
| --- | --- | --- |
|   | Agricultural withdrawal not exceeding 150 million gallons in any single month  | (Reserved) |
| Agricultural withdrawal greater than 150 million gallons but less than 300 million gallons in any single month  | (Reserved) |
| Agricultural withdrawal of 300 million gallons or greater in any single month | (Reserved) |
| Ground Water Withdrawal/Initial Permit for an Existing Withdrawal Based Solely on Historic Withdrawals | $1,200 |
| Ground Water Withdrawal | $6,000 |

**9VAC25-20-120. Fee schedules for major modification of individual permits or certificates requested by the permit or certificate holder.**

The following fee schedules apply to applications for major modification of an individual permit or certificate requested by the permit or certificate holder:

1. Virginia Pollutant Discharge Elimination System (VPDES) permits. The application fees listed in the table below apply to a major modification that occurs (and becomes effective) before the stated permit expiration date. (Note: All flows listed in the table below are facility "design" flows.)

|  |  |  |
| --- | --- | --- |
|   | VPDES Industrial Major | $12,000 |
| VPDES Municipal Major | $10,650 |
| VPDES Municipal Major Stormwater/MS4 | $5,150 |
| VPDES Industrial Minor/No Standard Limits | $5,100 |
| VPDES Industrial Minor/Standard Limits | $3,300 |
| VPDES Industrial Stormwater | $3,600 |
| VPDES Municipal Minor/Greater Than 100,000 GPD | $3,750 |
| VPDES Municipal Minor/10,001 GPD - 100,000 GPD | $3,000 |
| VPDES Municipal Minor/1,001 GPD - 10,000 GPD | $2,700 |
| VPDES Municipal Minor/1,000 GPD or Less | $1,000 |
| VPDES Municipal Minor Stormwater/MS4 | $1,000 |

The fee for modification of a VPDES permit due to changes relating to authorization for land application or land disposal of sewage sludge shall be $1,000.

2. Virginia Pollution Abatement (VPA) permits. The application fees listed in the table below apply to a major modification that occurs (and becomes effective) before the stated permit expiration date. (Note: Land application rates listed in the table below are facility "design" rates.)

|  |  |  |
| --- | --- | --- |
|   | VPA Concentrated Animal Feeding Operation | (Reserved) |
| VPA Intensified Animal Feeding Operation | (Reserved) |
| VPA Industrial Wastewater Operation/Land Application of 10 or More Inches Per Year | $7,500 |
| VPA Industrial Wastewater Operation/Land Application of Less Than 10 Inches Per Year | $5,250 |
| VPA Industrial Sludge Operation | $3,750 |
| VPA Municipal Wastewater Operation | $6,750 |
| VPA Municipal Sludge Operation | $1,000 |
| All other operations not specified above | $375 |

3. Virginia Water Protection (VWP) permits. (Note: Only one permit application fee shall be assessed per application; for a permit application involving more than one of the operations described below, the governing fee shall be based upon the primary purpose of the proposed activity.)

|  |  |  |
| --- | --- | --- |
|   | VWP Individual/Surface Water Impacts (Wetlands, Streams and/or Open Water) | $1,200 plus $110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) ($30,000 maximum) |
| VWP Individual/Minimum Instream Flow | $5,000 |
| VWP Individual/Reservoir (Major or Minor) | $12,500 |
| VWP Individual/Nonmetallic Mineral Mining | $1,200 plus $110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) ($3,750 maximum) |

4. Surface Water Withdrawal (SWW) permits or certificates issued in response to Chapter 24 (§ 62.1-242 et seq.) of Title 62.1 of the Code of Virginia.

|  |  |  |
| --- | --- | --- |
|   | Agricultural withdrawal not exceeding 150 million gallons in any single month | (Reserved) |
| Agricultural withdrawal greater than 150 million gallons but less than 300 million gallons in any single month | (Reserved) |
| Agricultural withdrawal of 300 million gallons or greater in any single month | (Reserved) |
| Surface Water Withdrawal | $6,000 |

5. Ground Water Withdrawal (GWW) Permits issued in response to Chapter 25 (§ 62.1-254 et seq.) of Title 62.1 of the Code of Virginia.

|  |  |  |
| --- | --- | --- |
|   | Agricultural withdrawal not exceeding 150 million gallons in any single month | (Reserved) |
| Agricultural withdrawal greater than 150 million gallons but less than 300 million gallons in any single month | (Reserved) |
| Agricultural withdrawal of 300 million gallons or greater in any single month | (Reserved) |
| Ground Water Withdrawal/Initial Permit for an Existing Withdrawal Based Solely on Historic Withdrawals | $600 |
| Ground Water Withdrawal | $3,000 |

**9VAC25-20-130. Fees for filing registration statements or applications for general permits issued by the board.**

The following fees apply to filing of applications or registration statements for all general permits issued by the board, except:

1. The fee for filing a registration statement for coverage under 9VAC25-110 (General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal to 1,000 GPD) is $0.

2. The fee for filing a registration statement for coverage under 9VAC25-120 (General VPDES Permit Regulation for Discharges From Petroleum Contaminated Sites) is $0.

3. The fee for filing an application or registration statement for coverage under a VWP General Permit issued by the board shall be:

|  |  |  |
| --- | --- | --- |
|   | VWP General/Less Than 4,356 sq. ft. (1/10 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water) | $0 |
|   | VWP General/4,356 sq. ft. to 21,780 sq. ft. (1/10 acre to 1/2 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water) | $600 |
|   | VWP General/21,781 sq. ft. to 43,560 sq. ft. (greater than 1/2 acre to one acre) of Surface Water Impact (Wetlands, Streams and/or Open Water) | $1,200 |
|   | VWP General/43,561 sq. ft. to 87,120 sq. ft. (greater than one acre to two acres) of Surface Water Impact (Wetlands, Streams and/or Open Water) | $1,200 plus $120 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 43,560 sq. ft. (one acre) ($2,400 maximum) |
|   | VWP General/Minimum Instream Flow/Reservoir - Water withdrawals and/or pond construction | $2,400 |

4. VPDES Storm Water General Permits.

a. Except as specified in subdivision 4 b of this section, the fee for filing a registration statement for coverage under a VPDES storm water general permit issued by the board shall be:

|  |  |  |
| --- | --- | --- |
|   | VPDES General/Industrial Storm Water Management | $500 |
|   | VPDES General/Storm Water Management - Phase I Land Clearing (Large Construction Activity - Sites or common plans of development equal to or greater than 5 acres) | $500 |
|   | VPDES General/Storm Water Management - Phase II Land Clearing (Small Construction Activity - Sites or common plans of development less than 5 acres) | $300 |

b. Owners of facilities that are covered under the Industrial Activity (VAR5) and Construction Site (VAR10) storm water general permits that expire on June 30, 2004, and who are reapplying for coverage under the new general permits that are effective on July 1, 2004, must submit an application fee of $600 to reapply.

5. Except as specified in subdivisions 1, 2, 3 and 4 of this section, the fee for filing an application or registration statement for coverage under any general permit issued by the board shall be $600.

**9VAC25-20-140. [Repealed]**

**9VAC25-20-142. Permit maintenance fees.**

A. The following annual permit maintenance fees apply to each individual VPDES and VPA permit, including expired permits that have been administratively continued, except those exempted by 9VAC25-20-50 B or 9VAC25-20-60 A 4:

1. Base fee rate for Virginia Pollutant Discharge Elimination System (VPDES) permitted facilities. (Note: All flows listed in the table below are facility "design" flows.)

|  |  |  |
| --- | --- | --- |
|   | VPDES Industrial Major | $7,876 |
|   | VPDES Municipal Major/Greater Than 10 MGD | $7,794 |
|   | VPDES Municipal Major/2 MGD - 10 MGD | $7,138 |
|   | VPDES Municipal Major/Less Than 2 MGD | $6,317 |
|   | VPDES Municipal Major Stormwater/MS4 | $6,235 |
|   | VPDES Industrial Minor/No Standard Limits | $3,347 |
|   | VPDES Industrial Minor/Standard Limits | $1,969 |
|   | VPDES Industrial Minor/Water Treatment System | $1,969 |
|   | VPDES Industrial Stormwater | $2,363 |
|   | VPDES Municipal Minor/Greater Than 100,000 GPD | $2,461 |
|   | VPDES Municipal Minor/10,001 GPD - 100,000 GPD | $1,969 |
|   | VPDES Municipal Minor/1,001 GPD - 10,000 GPD | $1,772 |
|   | VPDES Municipal Minor/1,000 GPD or Less | $656 |
|   | VPDES Municipal Minor Stormwater/MS4 | $656 |

2. Base fee rate for Virginia Pollution Abatement (VPA) permits. (Note: Land application rates listed in the table below are facility "design" rates.)

|  |  |  |
| --- | --- | --- |
|   | VPA Industrial Wastewater Operation/Land Application of 10 or More Inches Per Year | $2,461 |
|   | VPA Industrial Wastewater Operation/Land Application of Less Than 10 Inches Per Year | $1,723 |
|   | VPA Industrial Sludge Operation | $1,231 |
|   | VPA Municipal Wastewater Operation | $2,215 |
|   | VPA Municipal Sludge Operation | $1,231 |
|   | VPA Concentrated Animal Feeding Operation | (Reserved) |
|   | VPA Intensified Animal Feeding Operation | (Reserved) |
|   | All other operations not specified above | $123 |

3. The amount of the annual permit maintenance fee due from the owner for VPDES and VPA permits for a specified year as required by 9VAC25-20-40 C shall be calculated according to the following formulae:

|  |  |  |
| --- | --- | --- |
|   | F =  | B x C |
|   | C =  | 1 + ∆CPI |
|   | ∆CPI = | CPI - 215.15 |
| 215.15 |

where:

F = the permit maintenance fee amount due for the specified calendar year, expressed in dollars.

B = the base fee rate for the type of VPDES or VPA permit from subdivisions 1 or 2 of this subsection, expressed in dollars.

C = the Consumer Price Index adjustment factor.

∆CPI = the difference between CPI and 215.15 (the average of the Consumer Price Index values for all-urban consumers for the 12-month period ending on April 30, 2009), expressed as a proportion of 215.15.

CPI = the average of the Consumer Price Index values for all-urban consumers for the 12-month period ending on April 30 of the calendar year before the specified year for which the permit maintenance fee is due. (The Consumer Price Index for all-urban consumers is published by the U.S. Department of Labor, Bureau of Labor Statistics, U.S. All items, CUUR0000SA0).

For example, if calculating the 2010 permit maintenance fee (F) for a VPDES Industrial Major source:

CPI = 215.15 (the average of CPI values from May 1, 2008, to April 30, 2009, inclusive would be used for the 2010 permit maintenance fee calculation).

∆CPI = zero for the 2010 permit maintenance fee calculation (i.e., (CPI - 215.15)/215.15 = (215.15 - 215.15)/215.15 = 0). (Note: ∆CPI for other years would not be zero.)

C = 1.0 for the 2010 permit maintenance fee calculation (i.e., 1 + ∆CPI = 1 + 0 = 1.0).

B = $7,876 (i.e. the value for a VPDES Industrial Major source, taken from subdivision 1 of this subsection).

F = $7,876 for the 2010 permit maintenance fee calculation for this VPDES Industrial Major source (i.e., $7,876 x 1.0 = $7,876).

4. Permit maintenance fees (F) calculated for each facility shall be rounded to the nearest dollar.

5. The total amount of permit fees collected by the board (permit maintenance fees plus permit application fees) shall not exceed 50% of direct costs for administration, compliance, and enforcement of VPDES and VPA permits. The director shall take whatever action is necessary to ensure that this limit is not exceeded.

B. Additional permit maintenance fees.

1. An additional permit maintenance fee of $1,000 shall be paid annually by permittees in a toxics management program. Any facility that performs acute or chronic biological testing for compliance with a limit or special condition requiring monitoring in a VPDES permit is included in the toxics management program.

2. An additional permit maintenance fee of $1,000 shall be paid annually by permittees that have more than five process wastewater discharge outfalls at a single facility (not including "internal" outfalls).

3. For a local government or public service authority with permits for multiple facilities in a single jurisdiction, the total permit maintenance fees for all permits held as of April 1, 2004, shall not exceed $32,818 per year.

C. If the category of a facility (as described in 9VAC25-20-142 A 1 or 2) changes as the result of a permit modification, the permit maintenance fee based upon the permit category as of April 1 shall be submitted by October 1.

D. Annual permit maintenance fees may be discounted for participants in the Environmental Excellence Program as described in 9VAC25-20-145.

**9VAC25-20-145. Discounted permit maintenance fees for Environmental Excellence Program participants.**

A. The term "Virginia Environmental Excellence Program" (VEEP) means a voluntary program established by the department to provide public recognition and regulatory incentives to encourage higher levels of environmental performance for program participants that develop and implement Environmental Management Systems (EMS). The program is based on the use of EMSs that improve compliance, prevent pollution, and utilize other measures to improve environmental performance.

B. Participants in the VEEP shall be eligible for reduced annual permit maintenance fees. The VEEP includes the Environmental Enterprise (E2) level of participation and the Exemplary Environmental Enterprise (E3) level of participation.

C. Annual permit maintenance fee discounts will not become effective until 2005. The availability of discounts to the annual permit maintenance fees will be dependent upon acceptance and continued participation in the VEEP.

D. Eligibility for reduced annual permit maintenance fees shall be based upon the department's review of the annual report that is required to be submitted by the VEEP. The department shall review annual reports to verify that facilities continue to meet VEEP criteria prior to offering discounted annual permit maintenance fees.

1. The participant's annual report must reflect activities occurring through December 31 and must satisfy all reporting requirements established in the VEEP.

2. Annual reports must be received at the department's central office by April 1 of the following year to be eligible for a reduction of the annual permit maintenance fees.

3. The annual report must list all regulated and permitted activities included within the scope of the facility's Environmental Management System.

4. A participant's level of participation will be evaluated as of December 31 of each calendar year.

E. If a facility participated in the VEEP but participation in the program was terminated, discounted fees will not be available to participants until they have been reaccepted into the VEEP.

F. Participants at the E2 level of participation will be eligible to receive a discount to annual permit maintenance fees for up to a maximum of three years.

G. Prior to distributing bills for annual permit maintenance fees, the department shall calculate the discounted annual permit maintenance fees. The total amount of all facilities' discounts to water annual permit maintenance fees shall not exceed $64,000 annually.

1. The total of a 5.0% discount for each participant at the E3 level of participation and a 2.0% discount for each participant at the E2 level of participation shall be calculated.

2. If the calculated total of the discounts to annual permit maintenance fees would exceed $64,000, annual permit maintenance fees for participants at the E3 level of participation shall be discounted 2.0%, additional discounts of annual permit maintenance fees for participants at the E3 level of participation shall not be available, and annual permit maintenance fees for participants at the E2 level of participation shall not be discounted.

3. If the calculated total of the discounts to annual permit maintenance fees would not exceed $64,000, annual permit maintenance fees for participants at the E3 level of participation shall be discounted 5.0%, annual permit maintenance fees for participants at the E2 level of participation shall be discounted 2.0%, and a larger discount may be provided for participants at the E3 level of participation, based upon direct program costs and program revenues, not to exceed a total discount of 20%. The total of all discounts shall not exceed $64,000. Any additional discounted fees will be calculated as follows:

(Total program revenues in the previous fiscal year minus direct program costs for the previous fiscal year) multiplied by 0.75 equals the additional discounts to be distributed to program participants. Additional discounts will be distributed to participants at the E3 level of participation in equal whole percentages.

4. If the calculated total of all facilities' discounts to annual fees exceeds $64,000, the department shall reevaluate the discounts offered to VEEP participants and shall begin the regulatory process to revise the discounts offered to VEEP participants.

Part IV
Sewage Sludge Fees and Reimbursable Costs

**9VAC25-20-146. Established fees.**

A. Land appliers shall remit the established fees to the department as specified in this regulation. The land appliers shall collect the required fees from the owners of the sewage treatment works and facilities that generate the biosolids. Such works and facilities shall be approved sources of biosolids in accordance with this regulation. Land application shall only include biosolids from approved sources as listed in the land application permit. The established fee shall be imposed on each dry ton of biosolids that is land applied in the Commonwealth of Virginia in accordance with 9VAC25-31 or 9VAC25-32.

B. The amount of the established fee and disbursement are as follows:

1. The fee shall be $7.50 per dry ton of biosolids land applied in the Commonwealth of Virginia.

2. Disbursement of the established fees collected by the department shall be made to reimburse or partially reimburse those counties, cities and towns with duly adopted local ordinances that submit documentation of reimbursable expenses acceptable to the department as provided for in this regulation.

3. Disbursement of the established fees collected by the department shall be made to reimburse the Department of Conservation and Recreation's costs for implementation of the sewage sludge application program.

**9VAC25-20-147. Records and reports.**

A. Records. Permittees shall maintain complete records of the land application activities and amounts of biosolids that they land apply in the Commonwealth of Virginia. Such records shall be maintained by the permittee in a form that is available for inspection by the department for five years after the date of the activity. Records of land application activities shall include the following minimum information:

1. Name of permittee, DEQ permit number and dates of activity.

2. Identification of land application site, including the county where taxes are remitted and permitted site identification name, letters and numbers, as appropriate.

3. The source of biosolids and approximate field area receiving those biosolids.

4. The amount of biosolids applied in dry tons and the method and calculations used to determine the reported value.

5. Dates and type of any interactions with local monitors and names of individuals involved in the interactions.

6. Name of responsible representative of permittee and a statement signed and dated by that representative indicating that the information submitted has been verified by that representative as correctly reported in accordance with this regulation.

B. Reports and notification. The permittee shall submit a monthly report by the 15th day of the month unless another date is specified in the permit in accordance with 9VAC25-32-80 I 4, following the month that land application occurs. That report shall include the recorded information listed in subsection A of this section and present a calculation of the total fee that is required in accordance with this regulation. The submitted report shall include a summary list of the total amount of biosolids applied and the calculated fee based on the land-applied biosolids for each county in which land application occurred in alphabetical order by county.

**9VAC25-20-148. Reimbursable local monitoring costs.**

The following describes the kinds of activities for which expenses may, if reasonable, be submitted for reimbursement:

1. Charges for reviewing the permit to identify potential health and environmental protection issues upon notification by the permittee that operations will be initiated on permitted sites.

2. Charges and expenses, including local travel for site monitoring, inspections, collection and delivery of samples to a nearby laboratory and examination of records.

3. Charges for recordkeeping.

4. Charges for complaint and incident response.

5. Charges for biosolids and soil sample testing costs.

6. Charges for the training of local monitors.

**9VAC25-20-149. Reimbursement of local monitoring costs.**

Reimbursement of local monitoring costs deemed reasonable by the department will be made in order of receipt of an acceptable invoice. Such invoices will be reimbursed for reasonable costs up to $2.50, as adjusted, per dry ton of biosolids land applied in a county during the period of time specified in the submitted invoice. If sufficient revenue exists from the fees collected monthly, then invoiced claims exceeding $2.50, as adjusted, per dry ton of biosolids land applied in that county, during the period of time specified in the submitted invoice, may be released for reimbursement of up to $4.00 per dry ton of biosolids land applied in that county during the month that the reimbursable costs were incurred, based on the order of receipt of the invoice.

A. Application. Local government must submit a reimbursement application to request reimbursement from the department. All information is to be clearly typed or printed and all required or supporting documents must be attached. The county administrator or designated local biosolids monitor shall sign and date the application where indicated. The original signed application with one copy of each of the supporting documents is to be forwarded to the department. Applications may not be submitted by facsimile or through electronic means. A reimbursement invoice form as described in this regulation must be completed before a reimbursement application can be submitted. The invoice form must include all expenses for which reimbursement is requested during the designated time period.

B. Application forms and submittal. The application for reimbursement must be submitted within 30 days of the last day of the month in which the reimbursable activity occurred. All applications received after this time frame will be ineligible for reimbursement. The following is a description of the application forms and an explanation of their use. The application forms and detailed instructions can be obtained from the department.

1. Form 1 - Reimbursement Application. An invoice form shall be submitted with each application for reimbursement. The invoice form should list all reimbursable charges. To be reimbursed for eligible expenses, an applicant must provide documentation to demonstrate that the expenses were incurred. Invoices are acceptable proof of incurred expenses. Include legible copies of invoices signed by the local biosolids monitor or agent who performed or managed the monitoring activities. All invoices are to include the following:

a. DEQ permit number and site identification;

b. Number or site address;

c. Biosolids contractor's name;

d. Date and type of activity monitored;

e. Name of biosolids monitor;

f. Number of hours to be reimbursed and charge per hour;

g. List of expenses for which reimbursement is sought;

h. Type of sampling activity performed and associated laboratory expense vouchers.

The application requires the county administrator to certify that the responsible official has read and understands the requirements for reimbursement and that the application submitted is not fraudulent. The local monitor must attest to the accuracy and completeness of the information provided.

2. Form 2 - Multiple Owners Payment Assignment Form. When there are multiple local governments as claimants, a separate, signed and notarized invoice form for each claimant must be filled out and submitted with the application.

Submittal of the original completed reimbursement application, including the application worksheets and the appropriate supporting documentation, should be accomplished by mailing these documents to: Department of Environmental Quality, Receipts Control, P.O. Box 1105, Richmond, VA 23218.

C. Processing applications.

1. If contacted by the department regarding an incomplete reimbursement application, an applicant will have 14 days from the date of the call or letter to submit the information requested and cure any deficiencies. Extensions of the 14-day deadline will not be granted. An application that does not contain all of the required information after the 14-day time frame may be rejected or processed "as is," which can result in complete denial or a partial reimbursement.

2. Only invoices pertaining to the monitoring activity claimed in the current application will be accepted. Costs omitted from previous claims are ineligible for reimbursement in subsequent claims. Likewise, invoices submitted in previous claims will not be eligible documentation for reimbursement of costs in subsequent claims. To reduce the risk of disqualification of costs, costs for different monitoring activities should be invoiced separately. If possible, invoices should be structured so that costs are grouped according to task or activity.

D. Reconsideration process.

1. Claimants may submit a written response indicating why costs denied on the reimbursement decision should be paid.

2. If the claimant disagrees with the decision in the reimbursement payment package, a notice of intent (NOI) to object and a reconsideration claim form must be submitted to the department within the filing deadlines specified in the reconsideration procedure package.

If filing deadlines are not met, the decision in the reimbursement payment package is final. This written objection is to be in the format specified in the reconsideration procedure package and explain the reasons for disagreement with the decisions in the reimbursement payment letter and supply any additional supporting documentation. Upon receipt of this information and at the claimant's request, the department may schedule a reconsideration meeting to reevaluate the denied costs.

3. Claimants will be given an opportunity to contest the reimbursement decisions in accordance with the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

Within the filing deadline, the claimant must submit a written summary of the issues that will be contested using the reconsideration claim form.

4. The reconsideration procedures provide the department the opportunity to correct certain errors. The following types of errors can be corrected:

a. Failure of the reviewer to verify an invoice form that was received prior to completing the verification package for the reimbursement.

b. Errors the reviewer makes in verifying an invoice form.

c. Failure of the claimant to submit all invoices.

5. Notwithstanding the above, some types of errors cannot be corrected. It is the responsibility of the claimant or consultant, or both, to ensure that all application forms (invoice forms, and sampling and testing verification) are completely and accurately filled out. Failure to exercise proper care in preparing an application may result in a denial of costs, which cannot be corrected through the reconsideration process, including:

a. Items omitted from the invoice form will not be eligible for reimbursement.

b. Unverified sampling and testing results will not be eligible for reimbursement.

c. No additions or revisions to the invoice forms will be accepted from the claimant after the reviewer forwards the verification package to the department.

d. Using one invoice in multiple claims. Invoices submitted in an application cannot be used as documentation for reimbursement of costs in subsequent claims.

e. The following are types of errors that cannot be corrected:

(1) Failure to claim performed work on the invoice.

(2) Failure to claim sampling and testing costs as authorized.

(3) Failure to claim all costs in a submitted invoice.

(4) Failure to submit to the reviewer all supporting documentation to demonstrate the necessity of work performed that exceeds expected activities. Such documentation must be submitted before the reviewer forwards the verification package to the department.

Part V
Delegation of Authority

**9VAC25-20-150. Delegation of authority.**

The director, or his designee, may perform any action of the State Water Control Board provided under this chapter, except as limited by § 62.1-44.14 of the Code of Virginia.

FORMS (9VAC25-20)

[DEQ Water Division Permit Application Fee Form Effective January 1, 2008 (rev. 1/10).](http://leg5.state.va.us/reg_agent/frmView.aspx?Viewid=65bac002853~2&typ=40&actno=002853&mime=application/msword)

[Form 1 Biosolids Land Application Local Monitoring Expenses - Reimbursement Invoice (rev. 5/10).](http://leg5.state.va.us/reg_agent/frmView.aspx?Viewid=a5bcc002853~3&typ=40&actno=002853&mime=application/pdf)

[Form 2 Biosolids Land Application Fee - Reimbursement Multiple Owners Payment Assignment (2007).](http://leg5.state.va.us/reg_agent/frmView.aspx?Viewid=7d0b1002853~4&typ=40&actno=002853&mime=application/msword)

[Form 3 Biosolids Land Application Fee - Reimbursement Notice of Intent to Seek Reconsideration (rev. 8/07).](http://leg5.state.va.us/reg_agent/frmView.aspx?Viewid=a8852002853~5&typ=40&actno=002853&mime=application/msword)

Form 4 Biosolids Land Application Fee - Reimbursement Reconsideration Claim Form (rev. 8/07).