

**COMMONWEALTH OF VIRGINIA
STATE WATER CONTROL BOARD**

FACT SHEET

**REISSUANCE OF A GENERAL VPDES PERMIT TO DISCHARGE TO STATE WATERS AND
STATE CERTIFICATION UNDER THE STATE WATER CONTROL LAW**

Reissuance Year: 2011

The State Water Control Board (Board) has under consideration the reissuance of a general VPDES permit for point source discharges from domestic sewage treatment works with a design flow of less than or equal to 1,000 gallons per day on a monthly average basis.

Permit Number: VAG40

Name of Permittee: Any owner of a domestic sewage treatment works with a design flow of less than or equal to 1,000 gallons per day on a monthly average basis in the Commonwealth of Virginia agreeing to be regulated under the terms of this general permit.

Facility Location: Commonwealth of Virginia

Receiving Waters: All surface waters within the boundaries of the Commonwealth of Virginia, except those waters specifically named in other Board regulations which prohibit such discharges.

Restrictions: An owner is not eligible to discharge under this general permit if the owner is required to obtain an individual permit; if the owner is proposing to discharge to surface waters specifically named in Board regulations which prohibit such discharges; if the owner is proposing to discharge to surface waters in an area where there are central sewage facilities reasonably available, as determined by the Board; if the owner has applied to the Virginia Department of Health (VDH) for an onsite sewage disposal system permit, and the VDH has determined that an onsite system is available to serve that parcel of land; if the discharge would violate the Virginia Water Quality Standards antidegradation policy; or if a Total Maximum Daily Load (TMDL) contains an individual waste load allocation for the facility, unless the general permit specifically address the TMDL pollutant of concern and the permit limits are at least as stringent as those required by the TMDL waste load allocation.

On the basis of preliminary review and application of lawful standards and regulations, the Board proposes to reissue the general permit subject to certain conditions and has prepared a draft permit. The Board has determined that this category of discharges is appropriately controlled under a general permit. The category of discharges to be included involves facilities with the same or similar types of operations and which discharge the same or similar types of wastewater. The draft general permit requires that all covered facilities meet standardized effluent limitations, conditions and monitoring requirements. This permit will maintain the water quality standards adopted by the Board. This general permit will replace the general permit VAG40 which expires on August 1, 2011.

All pertinent information is on file and may be inspected, and arrangements made for copying, by contacting George Cosby at:

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Activities Covered by this Permit

This general permit covers discharges to surface waters from domestic sewage wastewater treatment works with a design flow of less than or equal to 1,000 gallons per day on a monthly average basis.

Individual single family dwellings covered under this permit are also subject to the Alternative Discharging Sewage Treatment Regulations for Individual Single Family Dwellings (12 VAC 5-640) of the Virginia Department of Health (VDH).

Non-single family dwellings covered under this permit are also subject to the Sewage Collection and Treatment Regulations (9 VAC 25-790) adopted by the State Water Control Board.

Summary of Significant Changes From the 2006 General Permit

This general permit replaces the 2006 Domestic Sewage Discharges General Permit which was issued for a five-year term on August 2, 2006. Following is a list of significant changes included in the general permit regulation as compared to the 2006 regulation:

Section 60 - Authorization to Discharge.

- Added two reasons why the Board would deny coverage under the general permit:
 - (1) the discharge would violate the antidegradation policy stated in 9 VAC 25-260-30 of the Virginia Water Quality Standards; and
 - (2) a TMDL (Board adopted, EPA approved or EPA imposed) contains an individual waste load allocation (WLA) for the facility, unless this general permit specifically addresses the TMDL pollutant of concern and the permit limits are at least as stringent as those required by the TMDL WLA.

Section 70 - Registration Statement

- Added a provision that allows owners of treatment works that were authorized under the expiring general permit, and who intent to continue coverage under this general permit, to be automatically covered without requiring the owner to submit a new Registration Statement, provided:
 - (1) the ownership of the treatment works has not changed since the registration statement for coverage under the 2006 general permit was submitted, or, if the ownership has changed, a new registration statement or VPDES Change of Ownership form was submitted to the Department at the time of the title transfer;
 - (2) there has been no change in the design or operation of the treatment works since the registration statement for coverage under the 2006 general permit was submitted;
 - (3) for treatment works serving individual single family dwellings, the VDH has no objection to the automatic permit coverage renewal for this treatment works based on system performance issues, enforcement issues, or other issues sufficient to the Board. If the VDH objects to the automatic renewal for this treatment works, the owner will be notified by the Board in writing; and
 - (4) for treatment works serving non-single family dwellings, the Board has no objection to the automatic permit coverage renewal for this treatment works based on system performance issues, or enforcement issues. If the Board objects to the automatic renewal for this treatment works, the owner will be notified in writing.
- Maintenance Contract - for individual single family dwellings, clarified that the VDH regulations at 12 VAC 5-640-500 require maintenance contracts. Owners must indicate if they have a valid maintenance contract, or a variance from the requirement from the VDH.

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 3

Also clarified that the VDH regulations at 12 VAC 5-640-490 require monitoring contracts. Owners must indicate if they have obtained a monitoring contract, or a waiver from the requirement from the VDH, or if the monitoring requirements are included in the maintenance contract.

Section 80 - General Permit

Part I - Effluent Limitations and Monitoring Requirements

- Identified the two effluent limitation sections and tables as: Part I.A (Receiving waters where the 7Q10 flows are < 0.2 MGD); and Part I.B (Receiving waters where the 7Q10 flows are \geq 0.2 MGD), and changed the Special Conditions section to Part I.C.
- In the proposed permit that was taken to public comment, the bacteria effluent limits were lowered to the monthly geometric mean value to address recent changes to the Virginia Water Quality Standards (9 VAC 25-260-170). However, the permit only requires one annual effluent sample to be taken of the discharge. Therefore, for the final draft of the permit, the limits were set to the value in the Standards for cases where there are insufficient data to calculate a monthly geometric mean. This is set as a single sample maximum value, and it is believed that this is a conservative approach that will protect water quality, since any and all bacteria samples taken will need to meet the limit, and no averaging of multiple samples will be allowed to let the discharge meet the limit.
- Added clarifications to the effluent limits table footnotes explaining where to find the classes of water and boundary designations in the Virginia Water Quality Standards, and the description of what are shellfish waters.
- Special Conditions:
 - 2. Schedule of Compliance - Deleted this condition as it is no longer used or needed.
 - 2. (old #3) Maintenance Contract - Clarified that for individual single family dwellings, maintenance contracts are required by the VDH regulations at 12 VAC 5-640-500. Added maintenance contract requirements for both new and proposed treatment works serving individual single family dwellings; modified the previous permit special condition to clarify that it applies to treatment works serving non-single family dwellings.
 - 3. (old #4) Operation and Maintenance Plan - Clarified that this requirement applies to treatment works serving non-single family dwellings. Added a requirement that the results of all testing and sampling must be kept with the maintenance log.
 - 4. (new) Compliance Recordkeeping - Added this special condition containing compliance recordkeeping instructions for the permittee regarding quantification levels (QLs) and significant digits.
 - 5. (new) Water Quality Standards - Added this special condition requiring discharges authorized by this permit to meet water quality standards. While it is not expected that these facilities will discharge parameters other than those that are limited in the permit, it is a good reminder to the permittee that other pollutants should not be discharged.

Part II - Conditions Applicable To All VPDES Permits

- M. Duty to Reapply - Modified this section to indicate that permittees that are required to submit a new registration statement to reapply for permit coverage must submit the new registration statement at least 60 days prior to the expiration date of the permit. Also added clarification explaining automatic permit coverage renewal and how a facility qualifies.

Fact Sheet**General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd****Page 4**

- Y. Transfer of Permits - Clarified that the automatic transfer provision applies when the current permittee notifies the Department within 30 days of the transfer of property title (previously it was 30 days prior to transfer of property title).

Effluent Limitations and Monitoring Requirements (all apply to final effluent unless indicated otherwise)

Subcategory I - Discharges to receiving waters where the 7-day/10-year low flows (7Q10 flows) are less than 0.2 million gallons per day (MGD)

<u>Parameter</u>	<u>Limitation</u>
BOD ₅	30 mg/l - maximum
Total Suspended Solids	30 mg/l - maximum
pH (standard units)	6.0 -minimum to 9.0 maximum
Dissolved Oxygen	5.0 mg/l - minimum
Total Residual Chlorine ⁽¹⁾	
After contact tank	1.0 mg/l - minimum
Final effluent	0.016 mg/l - maximum
E. coli ⁽²⁾	235/100 ml - maximum
enterococci ⁽³⁾	104/100 ml - maximum
Fecal Coliform Bacteria ⁽⁴⁾	200/100 ml - maximum

Subcategory II - Discharges to receiving waters where the 7Q10 flows are equal to or greater than 0.2 MGD.

<u>Parameter</u>	<u>Limitation</u>
BOD ₅	30 mg/l - maximum
Total Suspended Solids	30 mg/l - maximum
pH (standard units)	6.0 -minimum to 9.0 maximum
Total Residual Chlorine ⁽¹⁾	
Final effluent	1.0 mg/l - min., 2.0 mg/l - max.
E. coli ⁽²⁾	235/100 ml - maximum
enterococci ⁽³⁾	104/100 ml - maximum
Fecal Coliform Bacteria ⁽⁴⁾	200/100 ml - maximum

- ⁽¹⁾ Applies only when chlorine is used for disinfection and the discharge is into freshwater (see 9 VAC 25-260-140.C for the classes of waters and boundary designations).
- ⁽²⁾ Applies only when methods other than chlorine are used for disinfection and the discharge is into freshwater (see 9 VAC 25-260-140.C for the classes of waters and boundary designations).
- ⁽³⁾ Applies only when the discharge is into saltwater or the transition zone, regardless of the disinfection methods (see 9 VAC 25-260-140.C for the classes of waters and boundary designations).
- ⁽⁴⁾ Applies only when the discharge is into shellfish waters (see 9 VAC 25-260-160 for the description of what are shellfish waters).

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 5

Monitoring is required annually by grab sample. Reporting is not required to DEQ; however, the monitoring results must be made available to the Department personnel upon request. Monitoring results for treatment works serving individual single family dwellings must be submitted to the VDH in accordance with 12VAC5-640.

Basis for Effluent Limitations and Monitoring Requirements

Flow must be estimated each time effluent samples are taken. The design flow of the treatment works must be less than or equal to 1,000 gallons per day on a monthly average basis.

The general permit recognizes two subcategories within this discharge category. Subcategory I includes discharges to receiving waters where the 7Q10 flows are less than 0.2 MGD. The 7Q10 flow is the lowest mean stream flow averaged over 7 consecutive days which, on a statistical basis, can be expected to occur once every 10 climatic years (the climatic year begins on April 1st and ends on March 31st). These receiving waters provide low to moderate dilution of effluent discharges. Subcategory II includes discharges to waters where the 7Q10 flows are equal to or greater than 0.2 MGD. Discharges in this subcategory receive ample dilution.

The effluent limitations for BOD₅, TSS, and pH in both subcategories are based on federal requirements for secondary treatment (40 CFR Part 133). BOD₅ and TSS concentrations of 30 mg/l are listed as 30-day averages in the federal regulation, but because of the annual sampling frequency here proposed, they are applied as instantaneous maximums in the general permit. These effluent concentrations are consistently achievable through proper operation and maintenance of treatment works typically installed to treat very small domestic sewage flows. The treatment works installed by the owners whose discharges are covered under this general permit are also expected to attain no less than 85 percent removal of the 30-day average influent BOD₅ and total suspended solids as anticipated by the federal requirements for secondary treatment (40 CFR Part 133).

The discharges from these treatment works are usually intermittent and vary according to the water use pattern in the home or business being served. The flow of 1,000 gallons per day is less than 1 gallon per minute on a continuous basis. When it stops and starts it roughly equates to a 5-gallon bucket of water every 7 minutes or a large trash can (45 gallons) every hour. Most treatment works of this type actually discharge in the range of 500 to 600 gallons per day. When they discharge, the effluent may infiltrate into the soil immediately below the discharge point, or it may persist in the receiving water course for a very short distance, typically less than 100 yards, except during wet weather. The validity of modeling the water quality impacts of discharges under these conditions is very suspect. The basic assumptions under which the economically feasible water quality models were formulated cannot be applied to these discharges. Steady state models are not applicable to a situation where the stream or the discharge is intermittent. When the receiving stream is of sufficient size to make water quality modeling a reasonable undertaking, a 1,000 gallon per day discharge is diluted by the stream to the point that meaningful results for parameters like BOD₅ are difficult to measure. It is rare that fish kills, water quality standards violations, pollution events or other significant environmental harm is caused by small ($\leq 1,000$ gpd) individual dischargers. Therefore, the general permit is drafted with secondary treatment limits for BOD₅ and TSS which are believed to provide adequate water quality protection. In the low to moderate dilution situations of Subcategory I, a minimum dissolved oxygen limitation of 5.0 mg/l is also included to reduce the potential for oxygen depletion in the receiving waters.

The general permit also imposes limitations to assure adequate disinfection of the wastewater prior to discharge. In the proposed permit that was taken to public comment, the bacteria effluent limits were lowered to the monthly geometric mean value to address recent changes to the Virginia Water Quality Standards (9 VAC 25-260-170). The draft permit requires sampling to be conducted annually; however, the Water Quality Standards now require that a minimum of four weekly bacteria samples be collected in a calendar month in order to calculate a geometric mean. If there are insufficient data to calculate

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 6

monthly geometric means, the standards allow that no more than 10% of the total samples in the assessment period shall exceed the freshwater value of 235 E.coli CFU/100 ml or the transition and saltwater value of 104 enterococci CFU/100 ml. To be conservative, these bacteria values from the Water Quality Standards are proposed for the permit limit as a single sample maximum limit for both E. coli (235 CFU/100 ml) and enterococci (104 CFU/100 ml). Since these are maximum values, it is believed that this approach will be more protective of water quality, since any and all bacteria samples taken will need to meet the limit, and averaging of multiple samples will not be allowed to let the discharge meet the limit.

The chlorine limitations in the permit vary according to subcategory. For discharges in Subcategory I, there will be limited to moderate dilution of the wastewater from the treatment works and the limitations that deal with disinfection for human health protection are more stringent as a result. When chlorine is used for disinfection and the discharge is in freshwater, the total residual chlorine limitation for final effluents is 0.016 mg/l, which was derived in accordance with the guidance on the development of limits for toxic pollutants (Guidance Memo #00-2011, dated August 24, 2000). A printout of the STATS program output is included at the end of this document. In order to assure adequate disinfection, the permit requires a minimum 1.0 mg/l chlorine residual at the end of the chlorine contact tank. This chlorine residual level is expected to reduce E. coli bacteria to at least an order of magnitude below the standard.

For discharges in Subcategory II, the chlorine limits are less stringent. The discharge of up to 1,000 gallons per day into a 7Q10 flow of 0.2 MGD (200,000 gallons per day) receiving stream represents at least a 200:1 dilution ratio. It is unlikely that residual chlorine from a small domestic sewage treatment works would be detectable after the stream flow and wastewater discharge mix. Even if the wastewater discharge contained the maximum chlorine limit of 2.0 mg/l, it would be diluted to 0.01 mg/l of chlorine under this scenario, well below the quantification level of 0.1 mg/l. In these cases, the general permit would not require dechlorination of the effluent. The dissolved oxygen limitation is unnecessary in this subcategory because any oxygen demand exerted by such a small wastewater discharge on a stream of 0.2 MGD or greater is un-measurable.

If disinfection is achieved by means other than chlorination, the permit imposes the E. coli limit for discharges into freshwater to assure compliance with the water quality standards. For discharges into saltwater and the transition zone, the permit imposes the enterococci limit, regardless of the methods of disinfection used. For discharges into shellfish waters, in addition to the appropriate chlorine, E. coli or enterococci limits, the general permit will continue to limit fecal coliform with an effluent limit of 200/100 ml. Although the Water Quality Standards have been amended to remove the reference to this criteria in shellfish waters, the Virginia Department of Health, Bureau of Shellfish Sanitation still uses fecal coliform as an indicator for determining the quality of shellfish waters, and the limit is necessary to ensure discharges meet this level.

Special Conditions and Their Basis

1. Restriction of discharges containing floating solids or visible foam.

This condition is required to comply with the general water quality standards (9 VAC 25-260-20).

2. *Schedule of Compliance.* (Deleted)

This condition was removed as it was no longer used or needed.

2. Maintenance Contract. (*old #3*)

For treatment works serving individual single family dwellings, the general permit clarifies that a maintenance contract is required by the VDH regulations at 12 VAC 5-640-500, unless the permittee has been granted a variance by the VDH. The VDH requires this to ensure that the treatment works is

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 7

properly operated and maintained. For a proposed treatment works, prior to start-up the permittee must submit a copy of a valid maintenance contract, with a minimum of two years coverage, to both the DEQ and the VDH. If the permittee is required to have a maintenance contract, the contract must be kept in force throughout the permit term, and the permittee is responsible for ensuring that the local health department has a current copy of a valid maintenance agreement in accordance with 12VAC5-640-500 B.

For treatment works serving non-single family dwellings, the general permit requires the permittee to obtain a maintenance contract, unless an exception to the maintenance contract requirement has been requested and granted by the Board. For proposed treatment works, prior to start-up the permittee must submit a copy of a valid maintenance contract, with a minimum of two years coverage, to the DEQ, unless an exception to the maintenance contract requirement has been requested and granted by the Board. If the permittee is required to have a maintenance contract, the contract must be kept in force throughout the permit term.

3. Operation and Maintenance Plan. (*old #4*)

For treatment works serving non-single family dwellings, in lieu of obtaining a maintenance contract, the permittee may choose to submit an Operation and Maintenance Plan to the Board for review and approval. Should the permittee fail to implement the approved Operation and Maintenance Plan, or if violations of effluent limitations occur, the Board reserves the right to require the permittee to obtain a maintenance contract.

The general permit does not anticipate that the covered treatment works will be treating sewage from other users or indirect dischargers. Therefore, the permit contains no conditions applicable to such users.

4. (*new*) Compliance Recordkeeping Under Part I A and Part I B

This special condition contains compliance recordkeeping instructions for the permittee regarding quantification levels (QLs) and significant digits. This language is routinely placed in individual permits so that permittees use a QL close to their effluent limit, and treat consistently any results < QL, and the rounding of recorded data. It was determined that would be a good requirement for general permits as well.

5. (*new*) Water Quality Standards

This special condition is a general requirement for discharges authorized by this permit to meet water quality standards. While it is not expected that these treatment works will discharge water quality parameters other than those that are limited in the permit, it is a good reminder to the permittee that other pollutants should not be discharged.

General Permit Coverage

This general permit will have a fixed term of five (5) years. Every authorization to discharge under this general permit will expire at the same time and all authorizations to discharge will be renewed on the same date. However, an owner is allowed to continue to discharge under the terms of their previous permit until the Board either issues coverage to the owner under this permit, or notifies the owner that coverage under this permit is denied, provided the owner has submitted a complete registration statement (if the owner is required to submit a registration statement - see below) before the expiration date of the existing permit. This is also known as an administrative continuance.

All persons desiring to be covered by this general permit must either register with the DEQ by submitting a complete registration statement, or qualify for automatic permit coverage renewal. Facilities that DO NOT qualify for automatic permit coverage renewal will be notified by the Board in writing.

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 8

For new facilities, a registration statement must be submitted at least 60 days prior to the date planned for commencing operation of the treatment works. A notification of permit coverage must be issued prior to any discharges occurring at the treatment works to be covered under the permit.

Any owner of a treatment works covered by an individual permit who wishes to be covered under this general permit may request that the individual permit be terminated and register for coverage under this general permit. Discharges covered by an individual VPDES permit will not be covered under this general permit until the individual permit has expired or has been terminated or revoked. Any owner of an existing treatment works covered by an individual VPDES permit who is proposing to be covered by this general permit must notify the Department and submit a complete registration statement at least 240 days prior to the expiration date of the individual VPDES permit.

Any owner of a treatment works that was authorized to discharge under the general permit issued in 2006, and who intends to continue coverage under this general permit, is automatically covered under this general permit and is not required to submit a registration statement if:

- (1) The ownership of the treatment works has not changed since the registration statement for coverage under the 2006 general permit was submitted, or, if the ownership has changed, a new registration statement or VPDES Change of Ownership form was submitted to the Department at the time of the title transfer;
- (2) There has been no change in the design or operation of the treatment works since the registration statement for coverage under the 2006 general permit was submitted;
- (3) For treatment works serving individual single family dwellings, the VDH has no objection to the automatic permit coverage renewal for this treatment works based on system performance issues, enforcement issues, or other issues sufficient to the Board. If the VDH objects to the automatic renewal for this treatment works, the owner will be notified by the Board in writing; and
- (4) For treatment works serving non-single family dwellings, the Board has no objection to the automatic permit coverage renewal for this treatment works based on system performance issues, or enforcement issues. If the Board objects to the automatic renewal for this treatment works, the owner will be notified in writing.

Any owner of a treatment works not wishing to be covered or limited by this general permit may make application for an individual VPDES permit in accordance with the VPDES Permit Regulation (9 VAC 25-31) procedures.

This general permit does not apply to any discharge that will result in significant impacts to state waters. The determination of no significant impact is made in accordance with the Board's Antidegradation Policy contained in the Water Quality Standards (9 VAC 25-260).

All treatment works that the Board believes are eligible for coverage under this general permit will be authorized to discharge under the terms and conditions of the permit after a complete registration statement is submitted (if the owner is required to submit a Registration Statement). If this general permit is inappropriate, the applicant will be so notified and the requirement that an individual permit is needed will remain in effect.

Fact Sheet

General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal To 1,000 gpd

Page 9

STATS Program Output

8/23/04 11:39:37 AM

Facility = Domestic sewage discharges of less than or equal to 1,000 gpd

Chemical = Total Residual Chlorine

Chronic averaging period = 4

WLAa = 0.019

WLAc = 0.011

Q.L. = 0.1

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = .1

Variance = .0036

C.V. = 0.6

97th percentile daily values = .243341

97th percentile 4 day average = .166379

97th percentile 30 day average = .120605

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 1.60883226245856E-02

Average Weekly limit = 1.60883226245856E-02

Average Monthly Limit = 1.60883226245856E-02

The data are:

0.1