

# STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
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## **RATIONALE**

Colorado Discharge Permit System (CDPS)  
General Permit  
for Domestic Wastewater Treatment On-site Systems  
with Design Capacity Equal to or Greater than 2,000 Gallons per Day (GPD)  
Permit COX-621000

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### **A. INTRODUCTION**

The Water Quality Control Division (“the Division”) has recently modified Colorado’s domestic ground water discharge permit program in order to streamline the permit process, increase consistency and clarity in permit requirements, and increase and enhance effluent and/or ground water monitoring requirements to ensure the protection of State waters. As part of this effort, the Division has developed new ground water discharge general permits intended to cover the majority of ground water discharges from domestic wastewater treatment works (WWTWs) in Colorado.

This document summarizes General Permit COX-621000 for **Domestic Wastewater Treatment On-site Systems with Design Capacity Equal or Greater than 2,000 Gallons per Day (GPD)**. This permit requires compliance monitoring for ground water standards at a point of compliance located hydraulically down-gradient of the WWTF.

**ISSUED MARCH 30, 2007    EFFECTIVE MAY 1, 2007    EXPIRATION DATE APRIL 30, 2012**

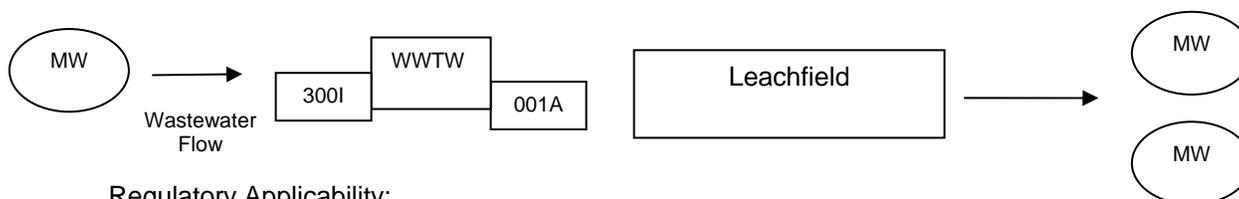
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Where coverage under this general permit is applicable and appropriate to a WWTW, this general permit is designed to replace coverage under General Permits COG-620000 and COX-620000 for *Domestic Wastewater Septic System(s) Whose Design Capacity is Equal to or Greater than 2,000 Gallons per Day and Less than 10,000 Gallons per Day.*

**B. ELIGIBILITY FOR COVERAGE:**

This permit covers Domestic Wastewater Treatment On-site Systems with Design Capacity Equal or Greater than 2,000 Gallons per Day (GPD). Specific eligibility criteria are provided in Section I of the permit. The scenario is depicted below.

**Scenario 1: WWTW discharges to on-site system and leachfield(s). Reg. 41 GW standards cannot be met prior to leachfield(s).**



Regulatory Applicability:

- 300I or 001A: Flow
- MW: Reg. 41 GW parameters.
- Reg. 62 parameters (BOD, TSS are not monitored).
- Regulation 84 does not apply.

**C. APPLYING FOR COVERAGE**

Facilities that qualify under Section I.A of the permit, may apply for coverage under this permit by submitting a complete *CDPS Permit Application* form to the Division at least ninety (90) days prior to the anticipated date of first discharge. The *CDPS Permit Application* form is available through the Division web page at [www.cdphe.state.co.us/wq/PermitsUnit/index.html](http://www.cdphe.state.co.us/wq/PermitsUnit/index.html) or may be obtained by contacting the Division at 303-692-3500.

Discharge permit applications shall be submitted to:

Colorado Department of Public Health and Environment  
Water Quality Control Division, WQCD-P-B2  
4300 Cherry Creek Drive South  
Denver, Colorado 80246-1530  
Attention: Permits Unit

Additional information on the permit process is provided in Section II of the permit.

## **D. TERMS AND CONDITIONS OF PERMIT**

### **D1. Influent Monitoring and Effluent Limitations**

WWTWs certified under this permit must comply with the effluent limitations specified in Section V of the permit and in the permit Certification. The following parameters of interest and /or concern for the type of domestic wastewater treatment system covered under this general permit, or are regulated under Regulation No. 41, *Basic Standards for Ground Water* or Regulation No. 62, *Regulations for Effluent Limitations*, and shall be monitored as specified in the permit and Certification.

Where an existing treatment system certified under this general permit is subject to more stringent effluent limitations than required under a previous discharge permit, the Permittee may be eligible for a schedule of compliance for meeting effluent limitations. All Division-approved compliance schedules, including interim dates and requirements, will be delineated in the Certification.

#### **D.1.a. Point 300I (Influent) or a Division-Approved Point of Effluent:**

- Flow – The flow capacity is based on the design of the treatment plant and will be delineated in the Certification. Flow monitoring is required to ensure that the treatment system is operated within the design capacity and to evaluate system infiltration and inflow.

#### **D.1.b. Ground Water Monitoring Wells (e.g., 050B, 050C):**

- Chloride, Sulfate, and Nitrate – These limitations are to protect ground-water quality in accordance with Regulation No. 41, The Basic Standards for Ground Water. The ground water standards for both sulfate and chloride are 250 mg/l. The ground water standard for nitrate is 10 mg/l.
- Total Coliform – The Total Coliform limit is established protect ground-water quality in accordance with Regulation Number 41, The Basic Standards for Ground Water. The Total Coliform standards are established for separate methods of analysis; (1) Membrane Filter Technique (MFT) [Method 9222B], which is found in the Twentieth (20) Edition of Standard Methods for the Examination of Water and Wastewater; and (2) the Multiple Tube Fermentation Technique (MTFT) [Method 9221B]. The annual average limit for MFT method is 1.0 organism per 100 milliliters, and the annual average for the MTFT method is 2.2 organisms per 100 milliliters. The Permittee is required to report a single number for the result of the chosen analytical method.

Because the limit for total coliform is an annual average, compliance with the permit limit will be determined based upon one year of data beginning from the effective date of the permit (the second year begins on the thirteenth month and ends on the twenty-fourth month). The Permittee is required to report the total coliform monthly average on each DMR, using the selected analytical method that is specified in the permit, as chosen by the Permittee. The DMR for the twelfth month of the reporting period will include a space to report the average of the data for the previous twelve months.

For an annual average limitation, where the method of analysis has changed during the course of a year, the limitation will be <2.2 for that year that uses “dual” analytical methods. The annual limit for the next year will be the limit corresponding to the new method of analysis, as documented by the permit amendment.

- pH – This parameter is established to protect ground-water quality in accordance with Regulation Number 41, The Basic Standards for Ground Water. The pH standard in Regulation 41 has a range from 6.5 s.u. to 8.5 s.u. The pH limits are an instantaneous minimum and maximum, respectively.

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- **TDS** – This parameter is established to protect ground-water quality in accordance with Regulation Number 41, The Basic Standards for Ground Water. The TDS standard in Regulation 41 depends upon demonstrated background TDS values as follows:

Background TDS Value (mg/l)	Maximum Allowable TDS Concentrations
0 - 500	400 mg/l or 1.25 times the background level, whichever is least restrictive
501 - 10,000	1.25 times the background value
10,001 or greater	No limit

Where a facility adequately demonstrates in writing that to the Division that a reasonably well-defined relationship has been developed between total dissolved solids (TDS) and conductivity based on ground water sampling and analysis at the site, Division may, on a case-by-case basis, allow for continued monitoring of conductivity in lieu of TDS.

**D.1.c. Other Potential Modifications to Influent Monitoring and Effluent Limitations**

D.1.d. Where a facility adequately demonstrates in writing to the Division that site-specific ambient (background) concentrations of chloride, nitrate, sulfate, and/or total coliform in ground water exceed the limitations in the permit, the Division may, on a case-by-case basis, establish site-specific effluent limitations for these parameters under the provisions of Regulation No. 41, Basic Standards for Ground Water (Ref. 41.5(C)(6)). In addition, the Division may, on a case-by-case basis, grant a variance from the chloride and/or sulfate discharge limitations provided in the permit under the provisions of Regulation No. 61, Colorado Discharge Permit Regulations (Ref. 61.12).

- If determined to be appropriate to protect ground water, the Division may add site-specific monitoring requirements in accordance with Water Quality Control Commission Regulation No. 41, The Basic Standards for Groundwater and Regulation No. 62, Regulations for Effluent Limitations. The Permittee may apply for coverage under an individual permit in lieu of coverage under this general permit where any additional monitoring required under this general permit is disputed.
- Wasteload allocations based on the Watershed Protection Control Regulations (Regulation Nos. 71 through 75) will be included in the Certification as applicable.

**D2. Monitoring Requirements**

**D.2.a. Monitoring Locations**

Required monitoring locations and sample frequencies are provided in Section VI of the permit. The Permittee is required to submit proposed monitoring locations (i.e., flow monitoring location and up-gradient and down-gradient monitoring well locations) as part of the complete permit application. Incomplete applications will not be processed by the Division. The monitoring locations approved by the Division will be delineated in the Certification. A brief description of monitoring locations is provided below:

- Point 300I or an effluent flow monitoring location shall be so designed or modified as to provide a representative sample of flow through the treatment system.
- Ground Water Monitoring Wells: At a minimum, the Permittee shall propose at least one (1) up-gradient and two (2) down-gradient ground water monitoring well locations as part of the complete permit application. The up-gradient location (delineated as 050A) is necessary to determine the quality of ground water coming onto the Permittee's property. The down-gradient well locations (e.g., 050B, 050C) shall meet the requirements for a "Point of Compliance" provided in Regulation No. 41 and shall be

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based on a risk-based approach that considers design and performance of the system, depth to ground water, location of nearest receptors, distance to and/or barriers to mixing of effluent with ground water, and other pertinent factors.

**D.2.b. Monitoring Frequencies**

Required monitoring frequencies are provided in Table 2, Section VI of the permit. A copy of Table 3, complete with site-specific monitoring frequencies, will be included in the Certification.

**D.2.c. Flow Monitoring**

The requirements flow metering provided in Section VI.E. of the permit were included to give representative values flow through the treatment system. Where influent flow metering is not practicable, the Division may approve on a case-by-case basis flow metering at the effluent end of the treatment facility or flow metering by some other means.

**D3. Sampling Requirements**

Permittees are required to take samples and measurements that are representative of the volume and nature of the monitored discharge (see Section VI.D.1 of the general permit). The following documents are provided as guidance to meet the Division's expectations for this permit requirement. These documents are available for download at:  
[www.cdphe.state.co.us/wq/PermitsUnit/guidanceandpolicy.html](http://www.cdphe.state.co.us/wq/PermitsUnit/guidanceandpolicy.html)

- *Ground-water Sampling Guidelines for Superfund and RCRA Project Managers*, Groundwater and Engineering Forum
- *Practical Guide for Ground-Water Sampling*, by Michael j. Barcelona, James p. Gibb, John a. Helfrich, and Edward e. Garske, 1986
- *Compendium of ERT Groundwater Sampling Procedures*, USEPA Office of Solid Waste and Environmental Protection Emergency Response, EPA/540/P-91/007, January 1999

**D4. REPORTING**

WWTWs certified under this permit must comply with the reporting requirements specified in Section VIII of the permit and in the permit Certification. A brief description of reporting requirements is provided below

**D.4.a. Discharge Monitoring Report**

The Permittee is required to submit pre-printed DMR's on a monthly basis for the parameters described above. The Permittee should note that the DMR's contain the appropriate blanks to be completed for each parameter monitored by the Permittee. DMR's are due at the Division on the twenty-eighth day of the month following the end of the reporting period.

**D.4.b. Annual Biosolids Report**

The Permittee is be required to submit an annual Biosolids Report, that includes the results of all biosolids monitoring performed for the year and information on management practices, land application sites, site restrictions and certifications. The Annual Biosolids Report is due by February 19th of the following year. For more information on requirements for Biosolids, contact the Biosolids Program Coordinator at 303-692-3613.

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**D.4.c. Annual Compliance Report**

The Permittee shall submit an annual self-certification form to demonstrate compliance with the terms and conditions of this permit. The Division shall utilize the information provided in the compliance self-certification form when making determinations to approve or deny requests for reduced monitoring at the treatment plant.

**D.4.d. Special Reports**

Special reports are required in the event of a spill (the CDPHE spill hotline number is 877-518-5608), bypass, or other noncompliance.

**E. CERTIFICATION**

If facility conditions change while certified under this general permit, such that the conditions for coverage under this general permit are no longer met, the Permittee is required to apply for an individual permit, or seek coverage under a different general permit. Coverage will continue under this permit until issuance of a different permit or certification.

Receipt by the Division of additional information pertaining to the facility that indicates that coverage under this general permit is not applicable, whether before or after the facility has been certified under this permit, will also result in changing permit coverage. Any such permit changes may be initiated by the Division.

This general permit shall not exceed five years in duration. The Permittee's authority to discharge under this general permit is approved until the expiration date. At that time the Division may extend the general permit or require the facility to reapply for certification under this same general permit or to apply for an individual permit based upon the information provided to the Division.

**F. VIOLATIONS/PENALTIES**

Dischargers to State waters who do not obtain coverage under this or other Colorado Discharge Permit System (CDPS) permits will be in violation of the Colorado Water Quality Control Act, 25-8-101. For facilities covered under a CDPS permit, failure to comply with any CDPS permit requirement constitutes a violation.

**G. REFERENCES**

- "Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works" Regulation No. 22 (5 CCR 1002-22)"; Water Quality Control Commission; effective June 30, 2004.
- "The Basic Standards for Ground Water", Regulation No. 41 [5 CCR 1002-41]; Water Quality Control Commission; effective March 22, 2005.
- "Site-Specific Water Quality Classifications and Standards for Ground Water", Regulation No. 42 [5 CCR 1002-42]; Water Quality Control Commission; effective December 30, 2004.
- "Colorado Discharge Permit System Regulations", Regulation No. 61 [5 CCR 1002-61]; Water Quality Control Commission, effective May 30, 2005.
- "Regulations for Effluent Limitations", Regulation No. 62 (5 CCR 1002-62)"; Water Quality Control Commission; effective December 30, 1998.
- "Biosolids Regulation", Regulation No. 64, Colorado Water Quality Control Commission, effective June 30, 2003.

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- "Colorado Water Quality Control Act" Updated June, 2003.
- "Design Criteria for Wastewater Treatment Works", Policy 96-1; Water Quality Control Commission, Expires May 31, 2007.

Permit Writer:

Margo Griffin

February 20, 2007

#### **H. PUBLIC NOTICE CHANGES**

Comments were received from one operator of a water and sanitation facility with a ground water discharge permit. While most of the comments pertained to the facility's specific permit conditions, the following comments and response to comments pertain to this general permit:

- The Commenter identified inclement weather, and specifically snow conditions, as a significant barrier to conducting required monitoring.

**Response:** The Division agrees that inclement weather can be a significant barrier to conducting required monitoring and has added the following text to the general permit: *Where the Permittee is unable to conduct monitoring at the frequency specified in the Certification due to inclement weather that restricts safe and reasonable access to required monitoring locations, the Permittee shall write "Sampling not performed due to inclement weather" on DMRs required under the Certification. Sampling shall be performed as soon as possible thereafter.*

- The Commenter recommended that the Division allow facilities that are currently monitoring for total dissolved solids (TDS) in place of conductivity to continue to monitoring for TDS under the general permit.

**Response:** The general permit typically requires monitoring for TDS. As stated in the permit Rationale, where a facility adequately demonstrates in writing that to the Division that a reasonably well-defined relationship has been developed between total dissolved solids (TDS) and conductivity based on ground water sampling and analysis at the site, Division may, on a case-by-case basis, allow for continued monitoring of conductivity in lieu of TDS.

- The Commenter raised concern over the "additional cost for additional sampling" required under the general permit.

**Response:** The Division recognizes that some facilities will face increased monitoring requirements and increased associated costs in order to demonstrate compliance with water quality standards. Section 25-8-503(8) of the revised (June 1985) Colorado Water Quality Control Act required the Division to "determine whether or not any or all of the water quality standard based effluent limitations are reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons, and are in furtherance of the policies set forth in section 25-8-192 and 25-8-104."

The Regulations for the State Discharge Permit System, 61, further define this requirement under 61.11.0 and state: "Where economic, environmental, public health and energy impacts to the public and affected persons have been considered in the classifications and standards setting process, permits

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written to meet the standards may be presumed to have taken into consideration economic factors unless:

- a) A new permit is issued where the discharge was not in existence at the time of the classification and standards rulemaking, or
- b) In the case of a continuing discharge, additional information or factors has emerged that were not anticipated or considered at the time of the classification and standards rulemaking."

The Water Quality Control Commission (the Commission) did provide an economic reasonableness evaluation for the statewide standards. The Commission believes in general that the cost associated with the compliance with the statewide standards will be counter-balanced by the environmental benefits associated with protecting and maintaining ground-water quality. Although the benefits are impossible to quantify at this time, there is evidence indicating that preventing ground water contamination is less costly than after-the-fact clean up or remediation. In respect to the interim narrative standard, the Commission determined that this standard should resolve any uncertainty of information, which would determine or estimate an ambient ground-water quality. Moreover, as a matter of policy, that where existing information is limited, the interim narrative standard should be utilized in favor of protection of the ground-water quality. These statements reveal the Commission's intention that ground-water quality is to be protected and maintained rather than to experience a costly remediation.

- The Commenter proposed that "each facility should be evaluated on its merits and past performance records before applying additional sampling monitoring frequency and additional samples. "

Response: The monitoring frequency required under the general permit will be determined on a site-specific basis and will be specified in the WWTW's Certification under the general permit. The Division will determine required monitoring frequencies based on a review of the geologic and hydrogeologic conditions at the site, the WWTW's past performance records, and the Division's *Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Industrial and Domestic Wastewater Treatment Facilities*.

Permit Writer:

Margo Griffin

March 26, 2007