

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 Works
With Land Treatment of Effluent at Agronomic Rates
Permit COX-633000

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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-633000 for **Domestic WWTWs with Land Treatment of Effluent at Agronomic Rates**. This permit covers WWTWs that discharge to ground water solely through land treatment at Division-approved agronomic rates. This permit requires monitoring for compliance with effluent limitations at the point of effluent discharge. Ground water monitoring wells are *not required* because protection of State waters is demonstrated through documented land application of effluent at agronomic rates.

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

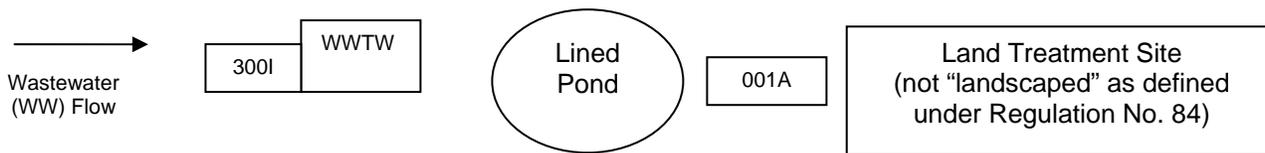
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Where coverage under this general permit is applicable to and appropriate for a WWTW, this general permit is designed to replace coverage under General Permits COG-630000 and COX-630000 for *Domestic Wastewater Lagoons System(s) Whose Design Capacity is Less than 100,000 Gallons per Day.*”

B. ELIGIBILITY FOR COVERAGE:

This permit covers WWTWs that provide wastewater treatment solely through land treatment at an agronomic rate. Specific eligibility criteria are provided in Section I of the permit. Two applicable scenarios are provided as examples below.

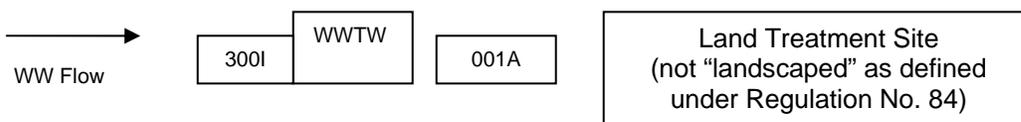
Scenario 1: WWTW discharges to a lined pond(s). Reg. 41 GW standards cannot be met prior to land treatment site. Land treatment occurs at an Agronomic Rate.



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to land treatment): Effluent flow and Reg. 62 parameters.
- Lysimeters (but not monitoring wells) may be required at the land treatment site.
- Reg. 84 does not apply given that the area is not landscaped.

Scenario 2: WWTW discharges directly to land treatment site. Reg. 41 GW standards cannot be met prior to land treatment site. Land treatment occurs at an agricultural area at an Agronomic Rate.



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to land treatment): Effluent flow and Reg. 62 parameters.
- Lysimeters (but not monitoring wells) may be required at the land treatment site.
- Reg. 84 does not apply given that the area is not landscaped.

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 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

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To apply for coverage under this discharge permit, applicants must include a site-specific land application management plan and proposed recordkeeping format with the complete permit application. The land application management plan must include determination of agronomic rate and demonstration that adequate water storage is available at the facility. The Division will approve or deny coverage under this general permit based on a review of the complete permit application and land application management plan. Additional information on the permit process is provided in Section II of the permit. The requirements of the land application management plan are provided in the permit application.

D. TERMS AND CONDITIONS OF PERMIT

D1. Influent Monitoring and Effluent Limitations

WWTWs certified under this permit may 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):

- Flow – The influent flow capacity is based on the design of the treatment plant. The hydraulic capacity is delineated in the Certification. Flow monitoring is required to evaluate system infiltration and inflow and to enable the facility to calculate percent removal efficiencies.
- BOD₅ – The influent BOD₅ capacity is based on the design of the treatment plant. The organic loading capacity is delineated in the Certification. BOD₅ must be reported in units of milligram per liter (mg/l) and pounds per day (lb/day) on discharge monitoring report (DMR) forms. BOD₅ is measured at the influent so that influent concentrations can be compared to effluent concentrations and percent removal efficiencies can be calculated.
- Total Suspended Solids (TSS) – This parameter is a technology based limit provided in Regulation No. 62, Regulation for Effluent Limitations. TSS is measured at the influent so that influent concentrations can be compared to effluent concentrations and percent removal efficiencies can be calculated.

D.1.b. Point 001A (Effluent):

- Flow - Effluent flow is measured to ensure proper operation of the treatment plant. Continuous flow is required to enable the facility to establish percent removal efficiencies for BOD₅ and TSS.
- BOD₅ – Effluent BOD₅ is a technology based limit provided in Regulation No. 62, Regulation for Effluent Limitations. The limits for BOD₅ are 30 mg/l (30-day average) and 45 mg/l (7-day average).
- Total Suspended Solids (TSS) – Effluent TSS is a technology based limit provided in Regulation No. 62, Regulation for Effluent Limitations. The limits for TSS are 30 mg/l (30-day average) and 45 mg/l (7-day average).

In accordance with Regulation No. 62, the numeric limitations for TSS may be adjusted for waste stabilization ponds which treat domestic waste provided that (1) the waste stabilization

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ponds are the principal process used for secondary treatment; and (2) the facility is designed to achieve the solids removal possible with best waste stabilization pond technology. Best waste stabilization pond technology is defined as that design criteria for ponds currently in effect as adopted by the Water Quality Control Commission. Since these criteria will be upgraded periodically, any municipality not in conformance with the approved design criteria will be given an opportunity to establish a reasonable implementation schedule given due consideration to design, construction, and financial capability of the municipality. Any adjustment to the default TSS limit (i.e., 30 mg/l and 45 mg/l) shall be specified the Certification.

- BOD₅ and TSS Percent Removal – In addition to the effluent limitations for BOD₅ and TSS, Regulation No. 62 – *Regulations for Effluent Limitations* also requires that the arithmetic mean of the values for effluent samples for BOD₅ and TSS collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85 percent removal). Where the Permittee has demonstrated that the treatment facility is unable to meet the 85% removal requirement for a parameter and the inability to meet the requirement is not caused by excessive infiltration, as defined in 40-CFR 35.2005(b)(16), a lower percent removal requirement or a mass loading limit may be substituted provided that the Permittee can demonstrate that the provisions of 40 CFR 33.103(d) can be met.
- E. Coli Bacteria - The Division has established a monthly geometric mean limit for E. coli of 126/ 100 ml in order to protect the ground water standard for total coliform. Because actual ground water monitoring is not being required and this permit does not require an analysis of the fate and transport of microorganisms between the point of application and the downstream property boundary, the Division believes that this limit is necessary to ensure that the effluent has been properly disinfected. The level of disinfection required in order to meet this requirement is equal to that for the use of reclaimed water under Regulation 84 and is expected to prevent contamination of the ground water such that the applicable total coliform standard would be met.
- 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. It should be noted that pH limitations are also provided in Regulation No. 62 – *Regulations for Effluent Limitations*; however, the ground water standards provided in Reg. No. 41 is designed to be protective of ground water and was therefore selected as the appropriate limitation at the point of effluent discharge.
- Oil and Grease – This parameter is a technology based limit provided in Regulation No. 62, *Regulation for Effluent Limitations*. The standard for oil and grease in Regulation No. 62 is 10 mg/l. Where a visual sheen is detected, the discharger is required to collect a grab sample and analyze the sample for oil and grease.

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

- 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.

D2. Monitoring Requirements

D.2.a. Monitoring Locations

Required monitoring locations are provided in Section VI of the permit. The Permittee is required to submit proposed monitoring locations (i.e., Point 300I and Point 001A) 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 shall be so designed or modified as to provide a representative sample of the influent wastewater to the treatment system.
- Point 001A shall be so designed or modified as to provide a representative sample of the discharge to the unlined pond(s) and/or land disposal site. Where a treatment system has multiple discharge points, the Point of Compliance shall be numbered sequentially as Point 001A, Point 002A, Point 003A, and so on, to ensure compliance with discharge limits prior to discharge to each discharge.

D.2.b. Monitoring Frequencies

Required monitoring frequencies are provided in Table 3, 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 for primary and secondary flow metering devices provided in Section VI.E. of the permit were included to give representative values of influent and effluent flow. The Division may, on a case-by-case basis, approve site-specific modifications to the flow measuring requirements provided in the permit. All requests for modifications to these flow measuring requirements must be provided to the Division in writing. Any Division-approved modifications to these flow measuring requirements will be delineated in the Certification.

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).

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.

D5. Recordkeeping

WWTWs certified under this permit must comply with the recordkeeping requirements specified in Section IX of the permit and in the permit Certification. Under this general permit, Permittees are specifically required to maintain adequate documentation demonstrating compliance with the Division-approved application rates. Permittees must develop and maintain a land application plan including the determination of site-specific agronomic application rates and must maintain records of actual land application rates at the site. Records must be available for Division review upon request.

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.

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- "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.
- "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

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persons have been considered in the classifications and standards setting process, permits 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