STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
TELEPHONE: (303) 692-3500

RATIONALE

Colorado Discharge Permit System (CDPS)
General Permit
for Domestic Wastewater Treatment Works
With Land Disposal of Effluent

Permit COX-631000

TABLE OF CONTENTS

Section		Page
A.	INTRODUCTION	1
B.	ELIGIBILITY FOR COVERAGE:	2
C.	APPLYING FOR COVERAGE	3
D.	TERMS AND CONDITIONS OF PERMIT	4
E.	CERTIFICATION	7
F.	VIOLATIONS/PENALTIES	7
G.	REFERENCES	8
H.	PUBLIC NOTICE CHANGES	8

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-631000 for **Domestic WWTWs with Land Disposal of Effluent**. This permit covers WWTWs where effluent limitations and ground water standards are met prior to effluent discharge to an unlined impoundment [i.e., an infiltration basin or any lagoon or impoundment for which the Permittee has not adequately demonstrated that the seepage rate is less than 10^{-6} centimeters per second (cm/sec)] and/or a land disposal site. This permit also covers WWTWs where effluent limitations and ground water standards are met prior to water reuse for landscape irrigation or other approved use under the

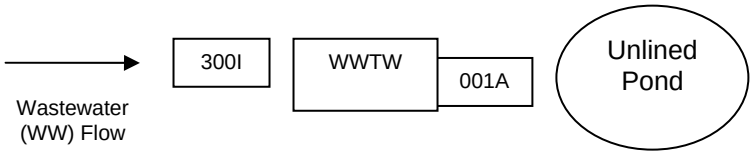
provisions of Colorado Regulation No. 84, Reclaimed Water Control Regulation and water reuse occurs at above-agronomic rates as defined under Regulation No. 84. This permit requires monitoring for compliance with ground water standards at a point prior to effluent discharge and does not require ground water monitoring wells.

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 where effluent limitations and ground water standards are met prior to effluent discharge to an unlined impoundment [i.e., an infiltration basin or any lagoon or impoundment for which the Permittee has not adequately demonstrated that the seepage rate is less than 10^{-6} centimeters per second (cm/sec)] and/or a land disposal site. Specific eligibility criteria are provided in Section I of the permit. Four applicable scenarios are provided below as examples.

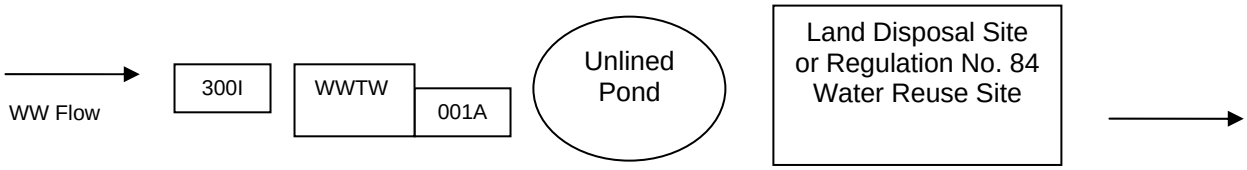
❖ **Scenario 1: WWTW discharges to unlined pond(s). Reg. 41 GW standards can be met prior to unlined pond(s).**



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to the unlined pond): Effluent flow, Reg. 62 parameters, and Reg. 41 GW parameters.
- GW wells not required.

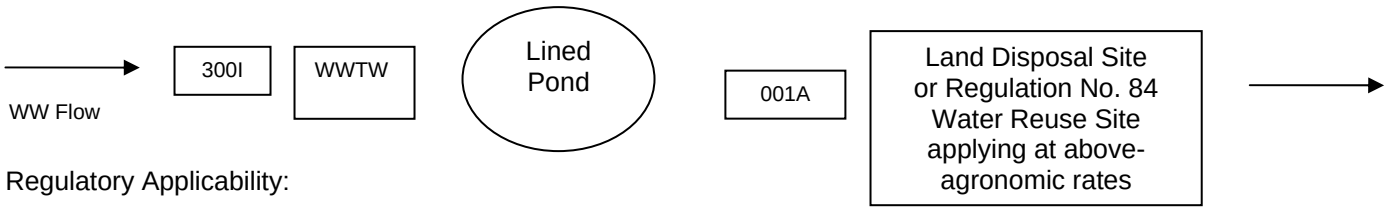
❖ **Scenario 2: WWTW discharges to an unlined pond(s) followed by a land disposal or water reuse site. Reg. 41 GW standards can be met prior to the unlined pond(s).**



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to the unlined pond): Effluent flow, Reg. 62 parameters, and Reg. 41 GW parameters.
- GW wells not required.
- WWTWs that utilize reuse water for landscape irrigation or other approved use must submit a *Letter of Intent* and receive a *Notice of Authorization* under the provisions of Regulation 84.

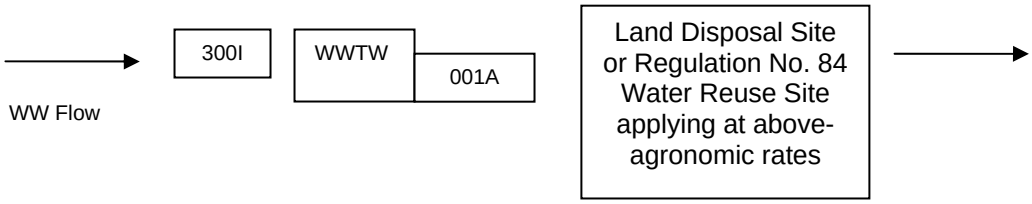
❖ **Scenario 3: WWTW discharges to a <u>lined</u> pond(s). Reg. 41 GW standards <u>can</u> be met prior to the land disposal site. Land disposal occurs at a non-landscaped area.**



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to land disposal): Effluent flow, Reg. 62 parameters, and Reg. 41 GW parameters.
- GW wells not required.
- WWTWs that utilize reuse water for landscape irrigation or other approved use must submit a *Letter of Intent* and receive a *Notice of Authorization* under the provisions of Regulation 84.

❖ **Scenario 4: WWTW discharges directly to land disposal site. Reg. 41 GW standards <u>can</u> be met prior to the land disposal site. Land disposal occurs at a non-landscaped area.**



Regulatory Applicability:

- 300I: Influent flow, BOD, TSS
- 001A (a point prior to land disposal): Effluent flow, Reg. 62 parameters, and Reg. 41 GW parameters.
- GW wells not required.
- WWTWs that utilize reuse water for landscape irrigation or other approved use must submit a *Letter of Intent* and receive a *Notice of Authorization* under the provisions of Regulation 84.

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

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):

- 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.

- BOD_5 – The influent BOD_5 capacity is based on the design of the treatment plant. The organic loading capacity is delineated in the Certification. BOD_5 must be reported in units of milligram per liter (mg/l) and pounds per day (lb/day) on discharge monitoring report (DMR) forms. BOD_5 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 BOD_5 and TSS.

- BOD_5 – Effluent BOD_5 is a technology based limit provided in Regulation No. 62, Regulation for Effluent Limitations. The limits for BOD_5 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 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.

- BOD_5 and TSS Percent Removal – In addition to the effluent limitations for BOD_5 and TSS, Regulation No. 62 – *Regulations for Effluent Limitations* also requires that the arithmetic mean of the values for effluent samples for BOD_5 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.

- 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.

- 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.

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.

- The Division will include effluent limits and wasteload allocations based on the Watershed Protection Control Regulations (Regulation Nos. 71 through 75) in the Certification as applicable.

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.

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.
- "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 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