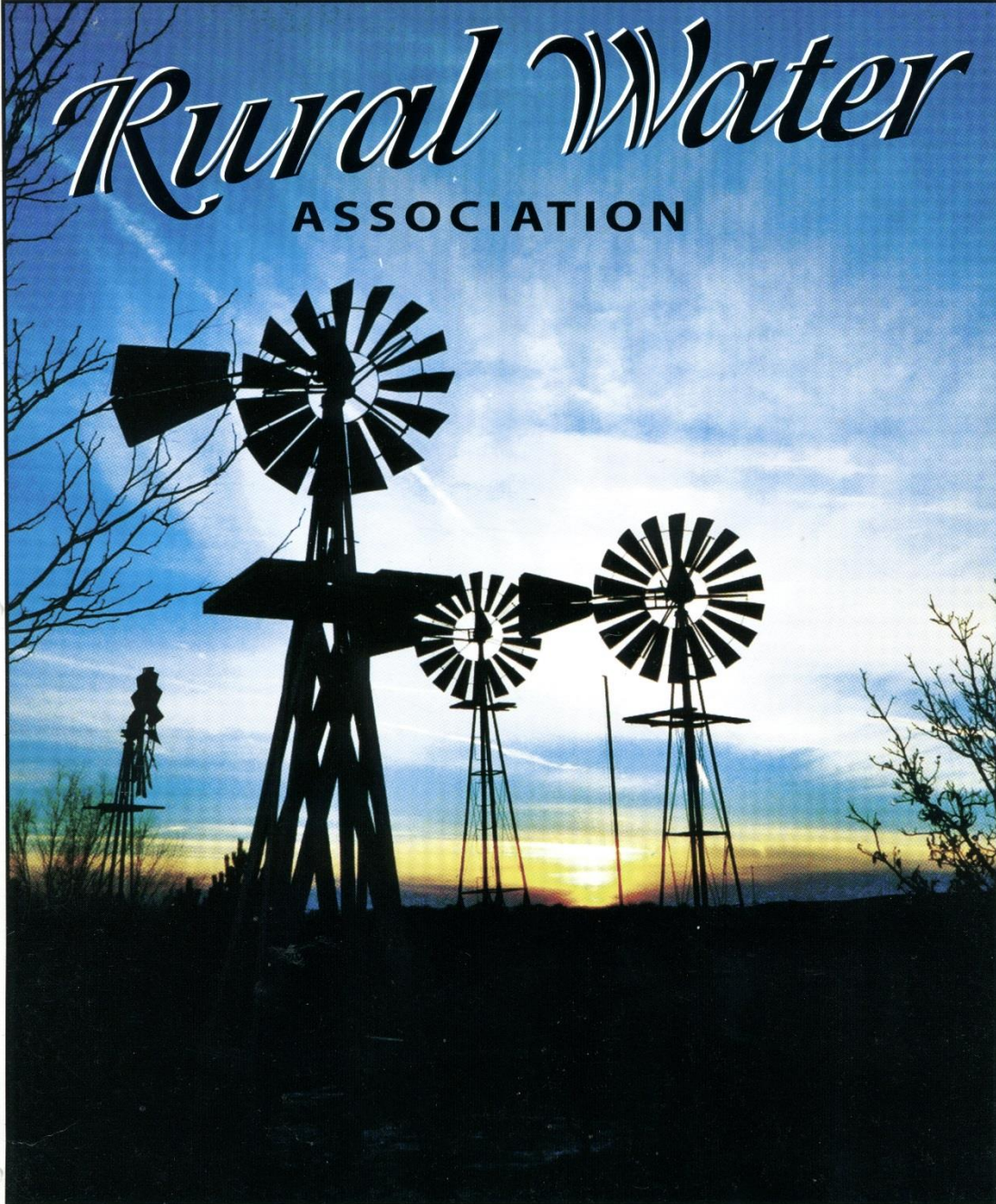


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Preliminary Effluent Limitations (PEL): Critical Input to Site Approval And Permitting Processes for Domestic Wastewater Treatment Facilities

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Process

Effluent limitations are critical to the development of a wastewater treatment facility (WWTF), starting with the planning process and continuing through the engineering design and approval for discharging effluent to state waters.

For domestic WWTFs, the Colorado Water Quality Control Division adheres to a three-step process: site approval, design approval and discharge permit issuance. This process is based on Colorado Water Quality Control Regulation Nos. 22 (Site Location and Design Approval Regulation for Domestic Wastewater Treatment Works) and 61 (Colorado Discharge Permit System Regulations).

In support of this process for a domestic WWTF, a specific document called Preliminary Effluent Limitations or (PEL) is developed (as described below). The PEL and the engineering report are the key documents required in the site application submittal. In the final step of the process, the PEL becomes a core component of the Rationale that describes the technical basis for the discharge permit. An overview of this process, with key decisions, is provided in Figure 1.

For industrial WWTFs, the Division adheres to a simpler process because of the numerous types of industrial WWTFs. The industrial WWTF process begins with the submittal of an application for a discharge permit. The site approval and the design approval steps are dropped, along with the PEL requirement. Effluent limitations are developed during the preparation of the industrial discharge permit and are contained in the supporting Water Quality Assessment document.

Scope of PEL

In accordance with Regulation No. 61, Part 8, Section 2, technology-based and water-quality-based effluent limitations are to be considered in the development of the PEL and in the selection of the more stringent, effluent limit for each parameter. All discharges in Colorado must meet, as a minimum, a set of technology-based limits. These are defined in Regulation No. 62 (Regulations for Effluent Limitations). For and with reference to domestic WWTFs, these are known as "secondary treatment standards". These technology-based limits are applied independent of discharge location.

Effluent limitations are based on the application of appropriate physical, chemical, and biological factors reasonably necessary to achieve the levels of protection required by the water-quality standards to maintain the long-term beneficial uses of the local and downstream receiving waters. These limits are determined on a case-by-case basis in accordance with Colorado Water Quality Control Regulation Nos. 31 (The Basic Standards and Methodologies for Surface Water) and 41 (Basic Standards for Groundwater). There also

are other basin-specific water quality standards and control regulations for phosphorus or salinity.

The PEL describes how the best available information is used to assess the predicted impact of the WWTF discharge on the water quality in the receiving waters. The PEL is organized as follows:

- **Introduction.** The WWTF location is described and nearby dischargers are identified.
- **Water Quality.** The receiving water segment, classification, and water quality standards are identified, along with a discussion of ambient water quality data.
- **Water Quantity.** A low flow analysis for streams is presented, using the DFLOW model.
- **Technical Analyses.** The identification and analyses of the pollutants of concern is presented, using technology-based and water-quality-based approaches.

Implementation of the latter approach which involves the evaluations of the receiving water's assimilative capacity for conservative and non-conservative parameters. When a parameter is considered under both approaches, the more stringent limit is selected for the final limit.

- **Antidegradation Review.** For receiving waters with high water-quality, the selected limit may be lowered, based on the Division's Antidegradation Policy, to maintain this level of water quality.

PEL Preparation

Two options are available for the preparation of the PEL. Under one option, the WWTF provides a written request to the Division for the preparation of the PEL. Typically, four to six weeks is required for preparation. Under the second option, the WWTF prepares a PEL that is submitted to the Division for review and acceptance. In this instance, the PEL must conform to the Division's PEL approach and format. The Division's review under this option typically requires two to three weeks.

The Division charges a fee either for the PEL preparation (based on design flow and type of permit) or for the PEL review (based on design flow). The fee which must be paid before the service can be provided.

To obtain the form for requesting a PEL-related service and the PEL Fee Schedule, visit the Division's web site at: (<http://www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html>).

