

Water Quality

A. Clean Water Act (33 U.S.C. § 1251)

The Clean Water Act passed in 1972 is the basis for water quality management for all states. The U.S. Environmental Protection Agency (EPA) is the federal agency in charge of assuring compliance with the Act. However, in Colorado implementation of this Act has been delegated to the Water Quality Control Commission of the Colorado Department of Public Health and Environment. The Colorado Water Quality Control Division is the state agency in charge of regulating water quality under the Colorado Water Quality Control Act.

Section 208

Section 208 of the Clean Water Act allows for regional approaches to water quality management. This gives regional agencies the power to recommend ways to protect and enhance water quality, to identify the major water quality issues, to provide input on water quality standards and classifications, and to adopt water quality management plans. NWCCOG is the Section 208 agency for Eagle, Grand, Jackson, Pitkin, and Summit Counties in Colorado (region 12).

Section 404

Section 404 of the Clean Water Act (CWA) requires approval for discharges of dredged or fill material into any waters located in the U.S. This section focuses on ensuring that physical, biological, and chemical water quality is protected from unregulated discharges that could permanently degrade waters and wetlands. Section 404 permits are issued by the U.S. Army Corps of Engineers and are required for most any type of water diversion or storage project. When determining the validity of a permit, the Corps follows the Section 404(b)(1) guidelines of the CWA. This permitting process is a key component to water development in Colorado, as it is necessary for the development of most reservoirs and other diversion projects.

Section 401

Section 401 of the Clean Water Act is titled the State Water Quality Certification Program and requires states to certify that federal permits or licenses will comply with state water quality laws. Under this section, Colorado has the right to review any federal permit or license that may result in a discharge into its waters, including a 404 permit for wetlands. This allows the state to ensure that discharges are consistent with the state's water quality laws, as these are sometimes more stringent than federal requirements. Federal permits must meet these state requirements in order to be issued.

Section 402

The NPDES (National Pollution Discharge Elimination System) is the regulatory program created under the Clean Water Act to issue permits to those discharging

pollutants from “point sources.” “Point sources” are points of discharge, most commonly from factories or wastewater plants that emit water directly into the stream system. These sources are normally discharged from the end of a pipe and are of different quality than the receiving stream. The NPDES, or CPDES as it is called in Colorado, requires discharges to meet technology-based effluent standards, which are set nationally by the EPA for each category of water based on where the discharges occur. In Colorado, the Water Quality Control Commission is charged with classifying waters based on current and future uses. These classifications include uses for agriculture, aquatic life, domestic water supplies, recreation, and wetlands. Discharges that reduce water quality below standards adopted to protect these classified uses are prohibited.

B. Colorado Water Quality Control Act

The Colorado Water Quality Control Act is Colorado’s version of the Clean Water Act, and it is the source of Colorado’s state laws pertaining to water quality. It was adopted by the Colorado General Assembly in order “[t]o protect, maintain, and improve where necessary and reasonable, water quality for public water supplies, for protection and propagation of wildlife and aquatic life, for domestic, agricultural, industrial, and recreational uses.”¹

C. Water Pollution and Pollutants

Introduction

A “pollutant,” as defined by federal and state law, includes any substance that will detrimentally affect water quality or interfere with the desired uses of a stream. Some of the most common pollutants include metals, nutrients (phosphorus and nitrogen), ammonia, pathogens (disease-causing bacteria and viruses), sediment, and saline. Metals and ammonia can kill fish, nutrients may cause a water body to fill with algae, pathogens can cause human illness, and sediment can destroy an aquatic habitat.

“Pollution” is defined more broadly than “pollutant,” and refers to human induced activities that lead to changes in the chemical, physical, biological, and radiological makeup of the water.

Point Source Discharges

Point sources are discharges that flow into water bodies and are readily discernible and confined. They are generally thought of as discharges that occur from the end of a pipe and were at one point under some sort of human control. However, they may also include overflows from impoundments and stormwater runoff that is concentrated in drainage systems. The largest source of this type of pollution comes from industrial wastewater treatment and municipal sewage plants.

Nonpoint Source Discharges

¹ C.R.S. § 25-8-102

Nonpoint source pollution comes from various unconfined sources, rather than from one fixed source location. Examples include runoff from agricultural lands, inactive mine sites, construction sites, diffuse stormwater and urban development. It is the largest remaining source of pollution contributing to the degradation of water quality throughout the state and nation.

D. Antidegradation

The Water Quality Control Act adopted antidegradation provisions to protect existing levels of water quality. This protects the water quality standards that were in place at the time of the Act. So if a water body had better water quality standards than required when the Act took effect, these standards are protected and degradation of the body of water is not permitted.

The provisions under the Act designate Colorado's water bodies into three types of water:

- 1) **Outstanding waters** – absolutely no degradation is permitted to take place.
- 2) **Use-protected waters** – degradation is allowed so long as water quality standards are not violated.
- 3) **Reviewable waters** – degradation is severely limited and must be shown to be necessary for important social or economic development and there are no reasonable alternatives to the degrading activity available.

E. Triennial Review Process

The “triennial review process” requires state and federal water quality classifications and standards to be reviewed once every three years. Any new or revised water classifications or standards that come out of the process must gain EPA approval before becoming effective. The EPA has the authority to implement its own standards if a state standard that is up for review is denied, or if the state chooses not to implement its own standards. The EPA gives the state time to redo a classification or standard that did not initially meet EPA minimum standards. Colorado has its own standards that are in accordance with those required by the EPA.

F. Monitoring and Assessment

The Water Quality Control Division is charged with monitoring and assessing Colorado's water, although a variety of other agencies, organizations and individuals are actively collecting water quality data which is used in the state's decision making process. Monitoring can include both chemical and biological data collection. Chemical monitoring takes samples of water and assesses certain chemical constituents such as ammonia, or metals. Biological monitoring, on the other hand, looks at fish populations, aquatic insects, algae, and aquatic habitat.

G. Relationship to Quantity

There is a natural tension between the extensive use of water resources and the desire to maintain high quality. This is particularly an issue in semi-arid states like Colorado where water rights typically require diversion from the stream. The lower the water level in a stream or water body, the greater the potential for water quality impacts. Therefore, water quality must be considered when weighing the costs and benefits of extracting, diverting, and storing water resources.

Water quality and quantity laws often conflict. This is due mainly to the fact that each body of law was developed at different times with different objectives. Many water quantity laws date back more than 150 years and have been predominately formulated at the state levels. In contrast, water quality law is quite new, largely coming into existence with the passage of the Clean Water and Safe Drinking Acts in the last quarter of the 20th century. These Acts are federal laws and contain very specific requirements developed mostly by federal agencies. This often times produces conflicts with the state water quantity laws, as the federal water quality standards were not taken into consideration upon formulation of the state quantity standards.

H. Clean Up of Polluted Waters

Section 303(d) List

Section 303(d) of the Clean Water Act requires states to periodically submit a list of polluted waters to the EPA. This list of impaired water segments that do not meet water quality standards is called the Section 303(d) List and is updated by the EPA every two years. This list is established in Colorado by the Water Quality Control Commission. Once the list is submitted to the EPA, the EPA must give its approval. If the EPA finds the list to be incomplete, it has the authority to add additional polluted waters to the list.

Colorado also maintains a Monitoring and Evaluation List. A water body is placed on this list if there is inadequate information to reach a definite conclusion as to whether it complies with water quality standards or not.

Total Maximum Daily Loads (TMDLs)

As required by the Clean Water Act, the state must develop and implement total maximum daily loads (TMDLs) for waters that are on its 303(d) List. A TMDL identifies the total quantity of pollutants that can be added to a water body from any and all sources to ensure compliance with water quality requirements. The TMDL must include and evaluate all sources of pollution, whether they come from a point source, a nonpoint source, or are naturally occurring. The TMDL identifies all the pollution sources that affect the stream segment, determines how much pollution must be reduced to meet water quality standards, and outlines a plan for reducing pollution loads. The Water Quality Control Division is in charge of developing the TMDL reports, but also receives substantial assistance from local watershed groups.

I. Pollution Controls

The state controls water pollution through NPDES discharge permits for point source pollution, control regulations, and voluntary nonpoint source controls. Section 404 of the federal Clean Water Act also requires permits issued by the U.S. Army Corps of Engineers for certain activities impacting wetland areas (see “Section 404” under the “Water Quality Control Act” section above for more information).

Point source discharge permits

Point source discharge permits regulate municipal and industrial wastewater, as well as stormwater sewer systems that emit pollutants from point sources. The permits that regulate the storm sewers are required of cities and towns with populations of greater than 10,000 by the National Pollution Discharge Elimination System (NPDES).

The permits are issued in Colorado by the Water Quality Control Division, though the EPA has the power to veto any of these individual permits. The permits are good for five years, at which point the permittee must apply for a renewal.

Control Regulations

Control regulations are situation specific regulations that the Water Quality Control Commission determines are necessary to regulate specific activities or to protect water quality in certain water bodies that are not already covered by discharge permits. Some activity-specific control regulations that have been adopted include industrial pretreatment of water prior to discharge into municipal sewers, wastewater reuse for landscape irrigation, pollution trading mechanisms and passive treatment for mine drainage. The implementation of control regulations protects Dillon Reservoir, Cherry Creek Reservoir, Chatfield Reservoir, Bear Creek Watershed, and Cheraw Lake.

Nonpoint source pollution controls

Nonpoint sources represent the largest remaining source of water quality problems nationwide. Despite this fact, there are very limited mandatory federal programs in place regulating the activities that cause this pollution. Colorado has a voluntary program that focuses on preventing the pollution from occurring at the source. This program uses federal grants under section 319 of the Clean Water Act.

J. NWCCOG Water Quality Protection Standards

The NWCCOG has established recommended water quality protection standards for certain activities under the control of local governments. These activities include control of erosion and sedimentation for construction projects, control of post construction stormwater and urban runoff, slope limitations for building, a waterbody buffer system, hazardous materials management, snow storage, standards for wastewater systems, water quality protection standards applicable within a watershed district or sensitive area

overlay district, and enforcement and penalties for not complying with these regulations. For more information, please see the NWCCOG's web page under the Water Quality and Quantity Program at www.nwc.cog.co.us.

K. References

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