

Chapter 2

Water Quality Planning and Management in Colorado

2.1 Introduction

This chapter is organized to present Colorado’s water quality planning and management process in the following manner:

- ♦ *Section 2.2 – Statutory and Regulatory Authority* presents an overview of the applicable federal and state regulations that govern water quality activities and planning in the state.
- ♦ *Section 2.3 – Statewide Water Quality Management Plan* describes the basis for the SWQMP, and by addressing the nine elements required under section 130.6 of title 40 of the *Code of Federal Regulations* (CFR), demonstrates why it is a water quality management plan as envisioned under 40 CFR 130.6.
- ♦ *Section 2.3.9 – Basin Plans* describes the relationship between Colorado’s current water quality planning efforts and the basin planning requirements of Section 209 of the Clean Water Act (CWA or act).

2.2 Statutory and Regulatory Authority

2.2.1 Federal Clean Water Act

The CWA is the primary federal law under which surface water quality is regulated in the United States.¹ The law was first passed in 1972 as the Federal Water Pollution Control Act (Public Law 92-500) and was later amended through the Clean Water Act of 1977 (Public Law 95-217) and the Water Quality Act of 1987 (Public Law 100-4). The 1972 act introduced a new framework of water quality management and water pollution control that continues today.² The fundamental goal of the CWA continues to be to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. § 1251 *et seq.*). The U.S. Environmental Protection Agency (EPA) is the federal authority responsible for implementing the act.

The CWA authorizes two permitting programs. Under section 402, point source³ dischargers (public and private wastewater treatment plants, industrial facilities, and other sources) are not

¹ The CWA does not directly address groundwater protection.

² The legislative roots of the CWA were drawn from the Water Pollution Control Act of 1948, which was much more limited in scope than the current law. It provided limited funds for research and municipal wastewater treatment planning and gave the U.S. Surgeon General limited authority regarding interstate pollution. It authorized a cautious and limited federal enforcement role.

³ Section 502(14) of the CWA defines the term *point source* as “...any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.”

authorized to discharge wastewaters to “waters of the United States”⁴ without a National Pollutant Discharge Elimination System (NPDES) discharge permit. EPA and authorized states implement the NPDES program and issue the associated permits.

Section 404 of the act requires permits for the discharge of dredged or fill material into wetlands and other waters of the United States. See sidebar for definition of wetlands subject to CWA section 404. Activities regulated under this program include fill from development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and mining projects (USEPA N.d.b.). The CWA section 404 program is implemented primarily by the U.S. Army Corps of Engineers, EPA, and authorized states and tribes.

Wetlands subject to Clean Water Act section 404 are defined as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” (USEPA N.d.b.)

The CWA also mandates several types of water quality planning, including regional water quality planning under section 208. At the state level, these regional water quality plans provided a first attempt to address nonpoint sources of water pollution, an effort that was later augmented through planning addressed under CWA section 319. Section 209 of the CWA encourages basin-wide planning, and section 303(e) requires the development of statewide water quality standards and implementation plans. Section 303(d) requires states to focus on water quality restoration planning where waterbodies are not attaining adopted water quality standards and protecting use classifications.

The Municipal Construction Grants Program under title II of the CWA substantially increased municipal wastewater treatment plant funding. The availability of grants greatly facilitated the nation’s adoption and implementation of new treatment systems to meet the technology-based limitations required under the act. Over \$80 billion was awarded to municipalities for treatment improvements through the Municipal Construction Grants Program (Copeland 2002).

As previously noted, the 1972 act was significantly amended twice. The Clean Water Act of 1977 mandated technology-based control of toxic pollutants. Previous technology-based

⁴ The term *waters of the United States* is defined at 40 CFR 230.3(s) as follows: “(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purposes by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under this definition; (5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section; (6) The territorial sea; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.” Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA.

control requirements had focused on conventional pollutants.⁵ The Water Quality Act of 1987 strengthened water quality-based toxic pollutant control. It authorized substantial funding for nonpoint source control programs and established a requirement that stormwater discharge permits be issued. These provisions were adopted after years of debate as to whether stormwater should be treated as a point or a nonpoint source of water pollution. The Municipal Construction Grants Program was phased out in favor of a state revolving fund (SRF) loan program with substantial initial federal capitalization grants (Frohardt 2004). Congress continues to capitalize the SRFs through the annual appropriations process. Under the SRF, federal grant funds must be matched by state funds.

2.2.2 Colorado Water Quality Control Act

The CWA enables states to obtain authority to administer many programs under the act within their respective boundaries. This authority is predicated on having laws and regulations at least as stringent as the CWA. The Colorado legislature enacted the Colorado Water Quality Control Act (CWQCA or state act; *Colorado Revised Statutes* (C.R.S.) § 25-8-101 *et seq.*) in order for the state to assume the lead role for water quality management, especially to adopt water quality standards and attain EPA authorization for implementation of the NPDES program. The state act consists of 7 parts and 55 sections. The major parts of the statute are shown in exhibit 2-1. Several relevant excerpts are discussed below for illustrative purposes.

Exhibit 2-1. Major Parts/Provisions of the Colorado Water Quality Control Act

Part	Provision
I	General Provisions, §§ 25-8-101 to 105
II	Water Quality Control Commission, §§ 25-8-201 to 209
III	Administration, §§ 25-8-301 to 309
IV	Procedures, §§ 25-8-401 to 406
V	Permit System, §§ 25-8-501 to 510
VI	Violations, Remedies and Penalties, §§ 25-8-601 to 612
VII	Domestic Wastewater Treatment Works, §§ 25-8-701 to 703

Source: CWQCA, C.R.S. §25-8-101 *et seq.*

Section 103 defines *waters of the state* in a manner that includes groundwater. Therefore, all permitting and other control programs that address discharges of pollutants and other impacts on water quality include groundwater as well as surface water, unless otherwise specified.

Section 104 is intended to prevent water quality requirements from injuring existing water rights. It requires the Water Quality Control Commission (WQCC) and Water Quality Control Division (WQCD), both within the Colorado Department of Public Health and Environment (CDPHE), to consult with the State Engineer and the State Water Conservation Board or their designees before making any decision or adopting any rule or policy that has the potential to cause material injury to water rights.

⁵ Conventional pollutants are those pollutants that are typically expected to be found in domestic wastewater and are amenable to treatment at public and private wastewater treatment plants. The CWA defines conventional pollutants to include biochemical oxygen demand (BOD), total suspended solids (TSS), oil and grease, pH, and fecal coliform bacteria.

Section 105 addresses *regional wastewater management plans*, also called 208 plans. The Statewide Water Quality Management Plan (SWQMP) builds on the regional water quality planning efforts initiated and updated under the CWA and the CWQCA over the past 30 years.

Section 202 establishes the WQCC as a nine-member, Governor-appointed body with the following duties:

- ◆ Adoption of water quality classifications and standards to protect beneficial uses of state waters
- ◆ Adoption of pollution control/permitting regulations
- ◆ Hearing appeals of certain decisions of the WQCD
- ◆ Serving as a forum to advance statewide water quality policy
- ◆ Adoption of primary drinking water regulations and treatment requirements for public water systems in accordance with the parallel provisions of the federal Safe Drinking Water Act.

Section 302 sets forth the duties of the WQCD. It authorizes the Division to implement and enforce regulations and policies established by the WQCC. Staff of the Division also serves as technical resources to the Commission for rulemaking activities.

Part VII of the state act establishes several programs and requirements not found in the CWA, such as the requirement that owners of proposed or expanding domestic wastewater treatment works obtain preliminary effluent limitations and site approval before commencing construction of such wastewater treatment works. These provisions are designed to ensure the following:

- ◆ Full consideration is given to the local long-range comprehensive plan for the area as it affects water quality and any approved regional wastewater management plan for the area
- ◆ The plant on the proposed site will have the treatment capacity to meet its effluent limitations and will be managed to minimize potential adverse impacts on water quality
- ◆ The consolidation of wastewater treatment facilities is encouraged whenever feasible.

2.2.3 Water Quality Standards in Colorado

State surface water quality standards programs must meet the minimum requirements established by EPA under the CWA. The system for assigning surface water quality classifications and standards is based on adopting use classifications for waterbody segments (i.e., uses to be protected) and then adopting numeric standards for specific pollutants to protect those uses. Water quality standards consist of three components: (1) use classifications, (2) numeric or qualitative standards, and (3) antidegradation provisions.

2.2.3.1 Use Classifications

Under section 25-8-203 of the CWQCA, the WQCC must address several major considerations when assigning use classifications. Adopted use classifications must always protect existing uses, a requirement under EPA regulations. Classifications must support the attainment of state and federal water quality goals (e.g., establishing classifications for some uses that do not currently exist). Upstream classifications may not jeopardize downstream classifications, and classifications must reflect the highest attainable uses. Classifications must be determined based on uses that are reasonably judged to be attainable in 20 years by recognized control techniques (Frohardt 2004).

The WQCC has adopted the following use classifications for Colorado (WQCC 2010a):

Aquatic Life

- ◆ **Class 1 (cold water):** Waters that (1) currently are capable of sustaining a wide variety of cold-water biota, including sensitive species or (2) could sustain such biota but for correctable water quality conditions.
- ◆ **Class 1 (warm water):** Waters that (1) currently are capable of sustaining a wide variety of warm-water biota, including sensitive species or (2) could sustain such biota but for correctable water quality conditions.
- ◆ **Class 2 (cold or warm):** Waters that are not capable of sustaining a wide variety of cold- or warm-water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

Recreation

- ◆ **Class E, Existing Primary Contact Use:** Surface waters that are used for primary contact recreation or have been used for such activities since November 28, 1975.
- ◆ **Class P, Potential Primary Contact Use:** Surface waters that have the potential to be used for primary contact recreation.
- ◆ **Class N, Not Primary Contact Use:** Surface waters that are not suitable or intended to become suitable for primary contact recreation uses.
- ◆ **Class U, Undetermined Use:** Surface waters whose quality is to be protected at the same level as existing primary contact use waters, but for which there has not been a reasonable level of inquiry about existing recreational uses and no recreation use attainability analysis has been completed.

Water Supply

- ◆ Surface waters that are suitable or intended to become suitable for potable water supplies after receiving conventional (standard) treatment.

Agriculture

- ◆ Surface waters that are suitable or intended to become suitable for irrigation of crops usually grown in Colorado and are not hazardous as drinking water for livestock.

The WQCC generally specifies water quality classifications and standards for specific waterbody segments. For example the “mainstem of Lone Tree Creek from the source to the confluence with the South Platte River” is the description of segment 5(a) of the Middle South Platte Sub-basin within the overall South Platte River Basin. Segmentation is based on changes in uses or water quality, as well as practical lengths and identifiable boundaries (Frohardt 2004). The WQCC has separately identified more than 800 waterbody segments in Colorado. Different uses and standards may be assigned to different portions or segments of a waterbody. Segments were originally delineated to include reaches of similar water quality. Over time, however, the Commission’s segmentation process has evolved to address additional factors and interests.

The CWA requires that all water quality classifications and standards be reviewed at least once every 3 years. The Commission has designed a rotating basin approach that meets this requirement. With a system of informational and rulemaking hearings, the WQCC conducts in-depth reviews of the water quality standards for a quadrant of the state each year; a review of Regulation No. 31: *The Basic Standards and Methodologies for Surface Waters* (5 Code of Colorado Regulations (CCR) 1002-53) occurs during the fifth year (WQCC 2006a).

At the time of a basin review, the WQCD evaluates the basin's water quality classifications and standards and determines the current status of the water quality. The Division also reviews any temporary modifications or site-specific standards and determines whether any changes need to be made to conform to new statewide or national developments. Additionally, the WQCD reviews any new information about uses, such as aquatic life, water supplies, or recreation that has been gathered to determine whether the existing uses and water quality standards are appropriate.

During such triennial review hearings, the Commission may consider adopting more restrictive or protective use classifications. The Commission may also remove use classifications. If a classified use is impaired, the Commission may only remove it if the non-attainment is due to natural conditions or human-caused conditions that cannot be remedied within 20 years.

The Division is required to perform a use attainability analysis (UAA) if classified uses are not already assigned to a waterbody. This requirement is based on one of the CWA’s objectives of attaining water quality adequate for the “protection and propagation of fish, shellfish and wildlife, and recreation in and on the water” for all waters of the United States. This objective is typically referred to as the *fishable, swimmable goal*, which represents the full attainment of aquatic life and recreational uses (Frohardt 2004).

2.2.3.2 Water Quality Standards

The national Water Quality Standards Program was created by the Water Quality Act of 1965 and expanded by the 1972 CWA. In 1983, EPA issued regulations governing the development, review, revision, and approval of water quality standards. States, however, have the primary responsibility for setting water quality standards. As previously noted, the WQCC is the body in Colorado that adopts water quality standards.

Water quality standards are at the core of water quality management. Standards identify the specific conditions determined to be necessary to protect the classified uses of the water. They have a dual purpose. Standards establish long-term water quality goals and provide an immediate regulatory tool to govern discharges and other kinds of potential water quality impacts. The WQCC has established standards for both surface water (rivers, streams, lakes, reservoirs, and wetlands) and groundwater. The standards are *neither self-implementing nor enforceable* without a separate implementation requirement (e.g., a permit or a control regulation).

Standards may be set forth in narrative or numeric terms. Colorado has adopted a number of statewide *narrative standards*. These are qualitative statements of the water quality to be attained for all waters of the state. For example, “All waters shall be free from toxic pollutants in toxic amounts.” or “All waters shall be free from floating debris, scum, or other surface materials sufficient to harm existing beneficial uses.” These narrative standards are sometimes referred to as the “free froms.”

Colorado has established statewide human health-based *numeric standards* for more than 150 manmade organic chemicals, such as pesticides and solvents. Colorado has also set statewide numeric standards for seven non-naturally occurring radioactive materials. It has further adopted statewide, rather than site-specific, standards for organic chemicals and radionuclides on the basis that those parameters are not naturally occurring.

Colorado has established *table value standards* for a number of pollutants, such as metals and other inorganic chemicals, for many individual waterbody segments throughout the state. The term “table value standards” is used because the standards are listed in tables of water quality criteria in Regulation No. 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31) (WQCC 2010a). The standards are generally based on criteria previously developed by EPA under section 304 of the CWA, and thus they are presumed by the WQCC to be protective. The WQCC has also adopted table value standards using different EPA-approved methodologies to protect human health and aquatic life.

Colorado has adopted several different types of *site-specific numeric standards* for certain streams. These standards differ from table value standards in that they are based on site-specific uses and/or water quality information. The categories of standards include ambient quality-based standards, site-specific criteria-based standards, standards for surface waters in wetlands, and site-specific narrative standards.

The WQCC has established *ambient quality-based standards* in certain limited cases, based on existing in-stream water quality. These standards are typically adopted where there are natural or irreversible human-induced pollutant levels above the levels of table value standards. The WQCC may adopt temporary modifications of water quality standards to reflect existing poorer water quality, where improvement is anticipated but will require time to achieve.

The WQCC has adopted *site-specific, criteria-based standards* for state surface waters where an indicator species procedure (water effects ratio), recalculation procedure, use attainability analysis, or other site-specific analysis has been properly completed. Site-specific standards

require a great deal more data collection and background information to support their adoption. In proposing site-specific standards, the proponent must show that the proposed levels will be protective of the uses of the segment. The Commission may adopt site-specific standards as determined to be appropriate by the site-specific study results. A “water effects ratio” considers the potential effects of a discharge in mitigating toxicity (e.g., due to advantageous changes in pH), whereas a “recalculation procedure” analysis considers whether the aquatic species actually present in a segment might differ from those used to set the table value standards.

The Commission has also adopted *standards for surface waters in wetlands* in Regulation No. 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31). The water quality management framework for wetlands is discussed in section 2.3.7 of this chapter.

The WQCC may assign *site-specific narrative standards* to apply to a specific waterbody or groundwater aquifer where numeric criteria are not required under federal law, provided they protect the classified uses. Generally such standards are adopted to promote water quality improvement efforts where there is uncertainty regarding what water quality is attainable.

Historically, the principal focus in Colorado has been on setting chemical-specific water quality standards to protect classified uses, which were defined long ago. More recently, however, the WQCC has refined its aquatic life classifications in a manner tailored to match the species present and particular habitats found, or expected to be found. Also, the Commission has replaced its prior system for classification of recreational uses, which described two classes, with four classifications, along with a detailed use attainability framework. The WQCC has established classifications and standards for wetlands as well.

Colorado has developed both narrative and numeric standards for such pollutants as sediment, temperature, and nutrients, which specifically include combinations of standards to help maintain, restore, or enhance the trophic condition⁶ of lakes and reservoirs. These efforts have involved lengthy consultations with large numbers of stakeholders, followed by extended formal regulatory proceedings.

2.2.3.3 Antidegradation and Water Quality-Based Designations

Antidegradation is an important regulatory element within the national water quality management framework. It is rooted in a federal policy initiated by the U.S. Secretary of the Interior in 1968. Antidegradation was intended to provide an extra layer of protection for high-quality waters (i.e., waters of a quality better than necessary to support the “fishable, swimmable” goal of the CWA). The important aspect of this concept is the protection of water quality beyond that mandated to meet use-based water quality standards.

Colorado’s antidegradation provisions provide three separate levels, or “tiers,” of antidegradation protection:

- ♦ **Tier 1:** Requires existing uses to be protected for all waters.

⁶ *Trophic* refers to nutrition and growth. Trophic status is typically measured in lakes and reservoirs to ascertain the productivity of the system.

- ♦ **Tier 2:** Prohibits degradation of waters whose quality is better than necessary to protect the “fishable, swimmable” uses, unless allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.
- ♦ **Tier 3:** No degradation is allowed for “outstanding national resource waters.”

At a minimum for all surface waters, the existing classified uses and the level of water quality necessary to protect such uses are to be maintained and protected. Waters that receive only this level of antidegradation protection are called “use-protected.” The highest level of water quality protection applies to certain waters that constitute an outstanding state or national resource and are called “outstanding waters.” An intermediate level of water quality protection applies to waters that have not been designated either outstanding or use-protected. These undesignated waters, known as “reviewable waters,” are to be maintained and protected at their existing quality unless the state determines that allowing poorer water quality is necessary to accommodate important economic or social development in the area in which the waters are located (WQCC 2010a).

New or increased water quality impacts from regulated activities (including those subject to Colorado Discharge Permits System (CDPS) permits and 401 certifications⁷) on reviewable waters must undergo an antidegradation review. The initial step in the antidegradation review is the “significance determination.” New or increased water quality impacts on reviewable waters that are deemed “significant” must be subjected to an antidegradation review, including an alternatives analysis and a determination of whether the degradation to be caused by the regulated activity is necessary to accommodate important economic or social development in the area in which the waters are located. The Commission has approved a detailed procedural guidance document that fully elucidates the significance determination for new or increased water quality impacts (WQCC 2001).

2.2.4 Planning Aspects of the Clean Water Act

Water quality planning efforts are governed by certain provisions of the CWA, primarily sections 205(j) / 604(b), 303(e), 208, and 319 and in federal regulation found at 40 CFR section 130. One of the objectives of the SWQMP is to meet the requirements defined in 40 CFR 130.6⁸ for water quality management plans.

2.2.4.1 CWA Sections 205(j) and 604(b)

Historically, Congress has authorized funding under CWA section 205(j), and more recently under CWA section 604(b), to assist states and regional water quality planning agencies in

⁷ Under CWA section 401, authorized states and tribes may review and approve, condition, or deny any federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands (USEPA 2009).

⁸ Per the requirements of 40 CFR 130.6, state water quality management plans are to be developed in accordance with areawide waste treatment management plans (CWA section 208 plans) and water quality standards and implementation plans (CWA section 303 plans). Their intended use is to indicate the means by which the state will address water quality problems as identified in the state’s water quality assessment reports (CWA section 305(b) reports).

conducting several different kinds of required water quality planning activities. CWA section 205(j) identifies the following types of water quality planning activities eligible for funding:

- ◆ Identifying the most cost-effective and locally acceptable facility and nonpoint measures to meet and maintain water quality standards
- ◆ Developing an implementation plan to obtain state and local financial and regulatory commitments to implement measures developed under the first item above
- ◆ Determining the nature, extent, and causes of water quality problems in various areas of the state and interstate region
- ◆ Determining those publicly owned treatment works that should be constructed with assistance, in which areas, and in what sequence taking into account the relative degree of effluent reduction attained and the relative contributions to water quality of other point or nonpoint sources
- ◆ Carrying out the purposes of the nonpoint source program under CWA section 319
- ◆ Carrying out described purposes of CWA section 303(e).

2.2.4.2 Continuing Planning Process and CWA Section 303(e)

Section 303(e) of the CWA requires that states maintain a water quality “continuing planning process (CPP)”⁹. The implementing regulations for this requirement are at 40 CFR 130.5. Colorado’s water quality planning and management processes are described in the document, *Colorado Water Quality Management and Drinking Water Protection Handbook: A Continuing Planning Process* (CPP or CPP Handbook) (WQCC 2006a). This document was first adopted as WQCC Policy No. 98-2, and it has been revised and updated every 5 years since. The CPP is scheduled for updating by December 31, 2011, when the current version of the policy expires. Regulation 23: *Regulations for State of Colorado Continuing Planning Process* (5 CCR 1002-23) governs Colorado’s CPP (WQCC 1997).

The CPP Handbook is intended to satisfy the CWA section 303(e) continuing planning process requirement by describing the water quality management procedures currently applied in Colorado. The CPP Handbook is intended to be process-oriented. It identifies the processes involved in water quality management, whether these involve policy-related activities undertaken by the WQCC or implementation activities conducted by the WQCD. This is in contrast to the SWQMP, which is a planning and management document that shows how the state is implementing the various CWA programs and activities and the corresponding state authorities for doing so. The SWQMP is therefore a supplement or companion document to the CPP Handbook.

2.2.4.3 CWA Section 208 Plans

A major planning component of the CWA is contained in section 208, entitled “Areawide Waste Treatment Management.” This section provides the requirements for implementing the

⁹ 40 CFR 130.5 requires each state to establish and maintain a CPP as described under section 303(e)(3)(A)(H) of the CWA. Each state is responsible for managing its water quality program to implement the processes specified in the CPP.

areawide waste treatment management planning process. Plans developed to meet these requirements are also referred to as “208 plans,” “areawide plans,” and “208 water quality management plans.” The required elements of such plans are listed under CWA section 208(b)(2). These requirements are incorporated into EPA’s 1985 Water Quality Planning Regulations at 40 CFR 130.6. Since the SWQMP is intended in part to address EPA’s 40 CFR 130.6 requirements, it includes discussions regarding 208 plans.

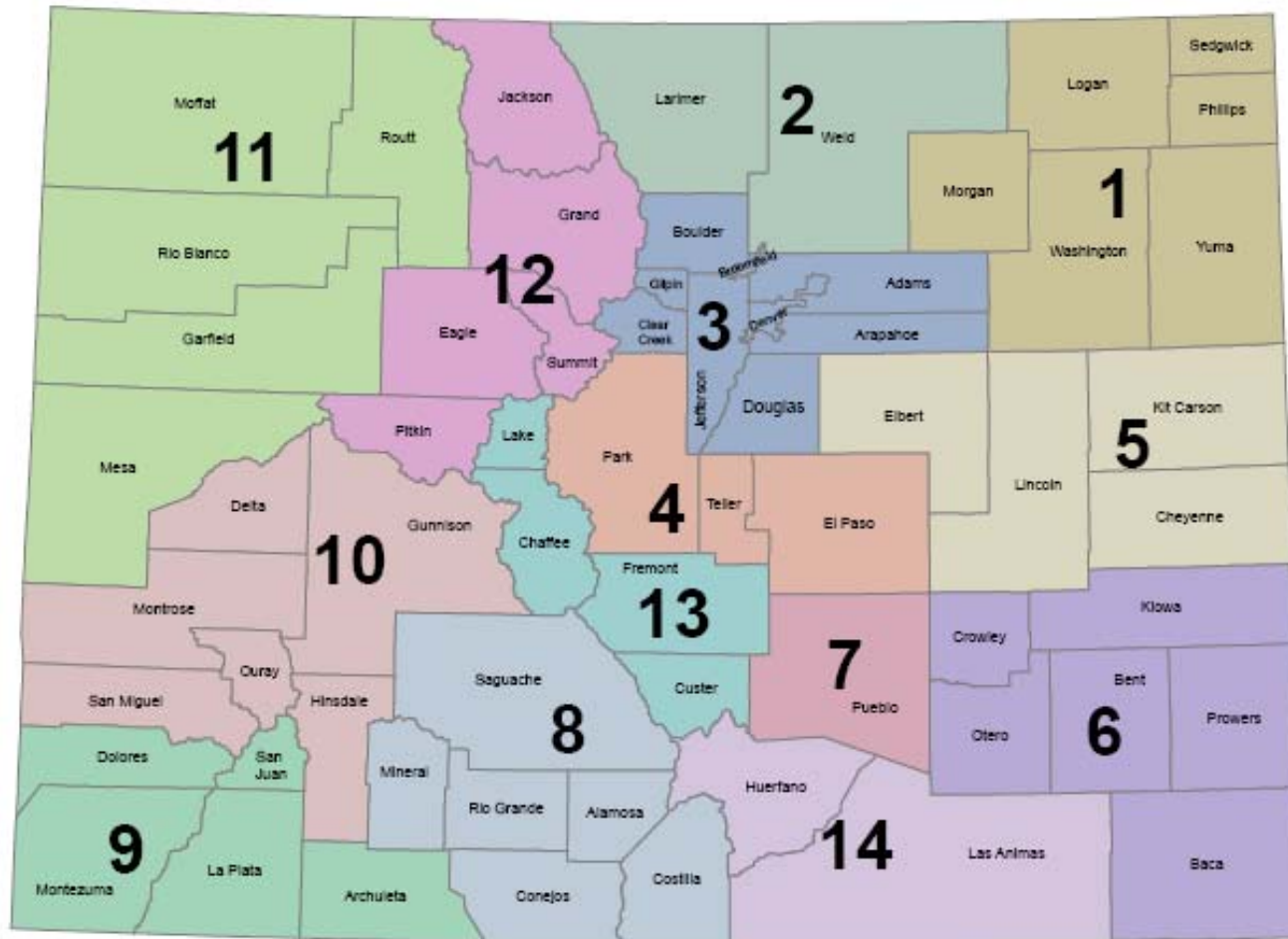
CWA section 205(j) initially provided the funding mechanism under which 208 plans were developed and other water quality planning activities were performed. In recent years, EPA has funded these activities under CWA section 604(b). Regardless, funds for planning continue to be specified under CWA sections 205(j) and 303(e), which incorporate CWA sections 208 and 319 by reference.

CWA section 208(1)(2) addresses the concept of *designated planning agencies*. This section requires the Governor to “identify the boundaries of each area within the State which, as a result of urban-industrial concentrations or other factors, has substantial water quality control problems; and to designate a single representative organization capable of developing an effective areawide waste treatment management plan.” The Colorado Governor officially designated Councils of Government (COGs) in five planning regions—planning regions 2, 3, 4, 7, and 12—as 208 planning agencies during the late 1970s and early 1980s (exhibit 2-2). The designated COGs have developed and maintained CWA section 208 plans for their respective regions. Nothing in the SWQMP is intended to supplant or supersede the procedural requirements and informational resources contained in these approved 208 plans. Rather, the SWQMP is designed to incorporate the existing 208 plans by reference (see section 2.3.10 of this chapter for a listing of websites for accessing the existing 208 plans).

The state is required to act as a 208 planning agency for those regions that do not have Governor-designated regional planning agencies. Such regions are referred to as “non-designated planning regions or areas.” As of January 1, 2011, the COG for region 3 elected to withdraw from 208 related water quality planning, and therefore until a successor organization is recognized by the Governor, region 3 will be included as a non-designated planning region. The WQCD developed and updated Water Quality Management Plans for the non-designated planning areas of Colorado (planning regions 1, 5, 6, 8, 9, 10, 11, 13, and 14) pursuant to section 208 of the act during the late 1970s and early 1980s and has also performed functional planning in these areas. Exhibit 2-2 is a map of the designated and non-designated planning regions in Colorado. As with the COG-developed 208 plans, the SWQMP does not supersede the procedural requirements or information in the state-developed 208 plans. Instead, the SWQMP incorporates these documents by reference in section 2.3.10 of this chapter. For future revisions to the SWQMP the WQCD will investigate updates to these 208 plans for the non-designated planning regions.

CWA section 208(b)(2), subparagraphs A–K, lists the required elements of a 208 plan. The WQCD conducts its internal 208 planning and management responsibilities under a set of regulatory authorities, adopted management plans, and guidance documents that are implemented by specialized organizational units with statewide responsibilities.

Exhibit 2-2. Colorado Water Quality Planning Regions



Source: DOLA 2010.

These are discussed under section 2.3 of this chapter. The Division carries out these regulatory and management programs in both designated and non-designated planning areas throughout the entire state.

2.2.4.4 CWA Section 319 Nonpoint Source Planning Activities

The 1987 CWA amendments established the section 319 Nonpoint Source Program and authorized funding for its implementation.¹⁰ Initially, section 319 required states to engage in two major program start-up activities: (1) develop an assessment report to describe the impact of nonpoint sources on the water resources of the state, and (2) establish a management program outlining how the state would address the impacts identified in the assessment report (WQCD 2000).

The WQCD was given the primary responsibility for administering the federally mandated nonpoint source program in Colorado. The responsibility includes preparing and updating the nonpoint source assessment and management program, maintaining the statewide manual of best management practices (BMPs), preparing lists of nonpoint source funding priorities, and administering grants, as necessary, to achieve the goals of section 319. Colorado's nonpoint source program is described further in section 2.3.5 of this chapter.

2.2.4.5 Water Quality Management Plans and 40 CFR 130.6

As previously noted, Colorado's SWQMP is developed as a water quality management (WQM) plan as defined in the federal water quality planning regulations at 40 CFR 130.6. The SWQMP is an example of what is described in the regulation as a "continuing water quality planning" effort. As such, the SWQMP is required to "build upon initial plans produced in accordance with sections 205(j), 208 and 303(e) of the Act." However, because the SWQMP effort is being conducted subsequent to the January 11, 1985 adoption date of the regulatory requirements at 40 CFR 130.6, it must also "be based upon water quality management plans and water quality problems identified in the latest 305(b) report." This planning requirement also includes an expectation that state-level water quality planning will focus annually on "priority issues and geographic areas and on the development of water quality controls leading to appropriate implementation measures." In 2010, the WQCD produced and WQCC approved a comprehensive update of its CWA section 305(b) report, called the *Integrated Water Quality Monitoring and Assessment Report* (2010 Integrated Report) (WQCC 2010d and WQCD 2010d). This document was the primary reference used throughout the development of the SWQMP.

Under the federal water quality planning requirements, WQM plans must contain nine elements. Each of these required elements is discussed in section 2.3 below.

2.3 Statewide Water Quality Management Plan

One of the WQCD's objectives in developing the SWQMP is to provide statewide, foundational information in support of pursuing its strategic goals. The Division has

¹⁰ Colorado had an active nonpoint source program before passage of the CWA amendments of 1987 that included the section 319 program.

implemented a 3-year Strategic Plan that began in April 2009 (WQCD 2009b). The plan identifies the following strategic goals:

- ◆ Prevent waterborne disease and reduce chronic public health risks from drinking water through improved implementation of the federal Safe Drinking Water Act and Colorado's drinking water statutes and regulations.
- ◆ Protect all designated uses by fully attaining water quality standards through improved implementation of the CWA and CWQCA and their associated regulations.
- ◆ Restore impaired water quality to attainable standards through improved implementation of the federal CWA and CWQCA and their associated regulations.
- ◆ Assist with Colorado's economic recovery by providing increased funding to water infrastructure and nonpoint source projects through implementation of applicable portions of the American Reinvestment and Recovery Act (ARRA) and associated regulations.
- ◆ Evaluate Division services that are not currently supported with adequate funding sources and realign as necessary.

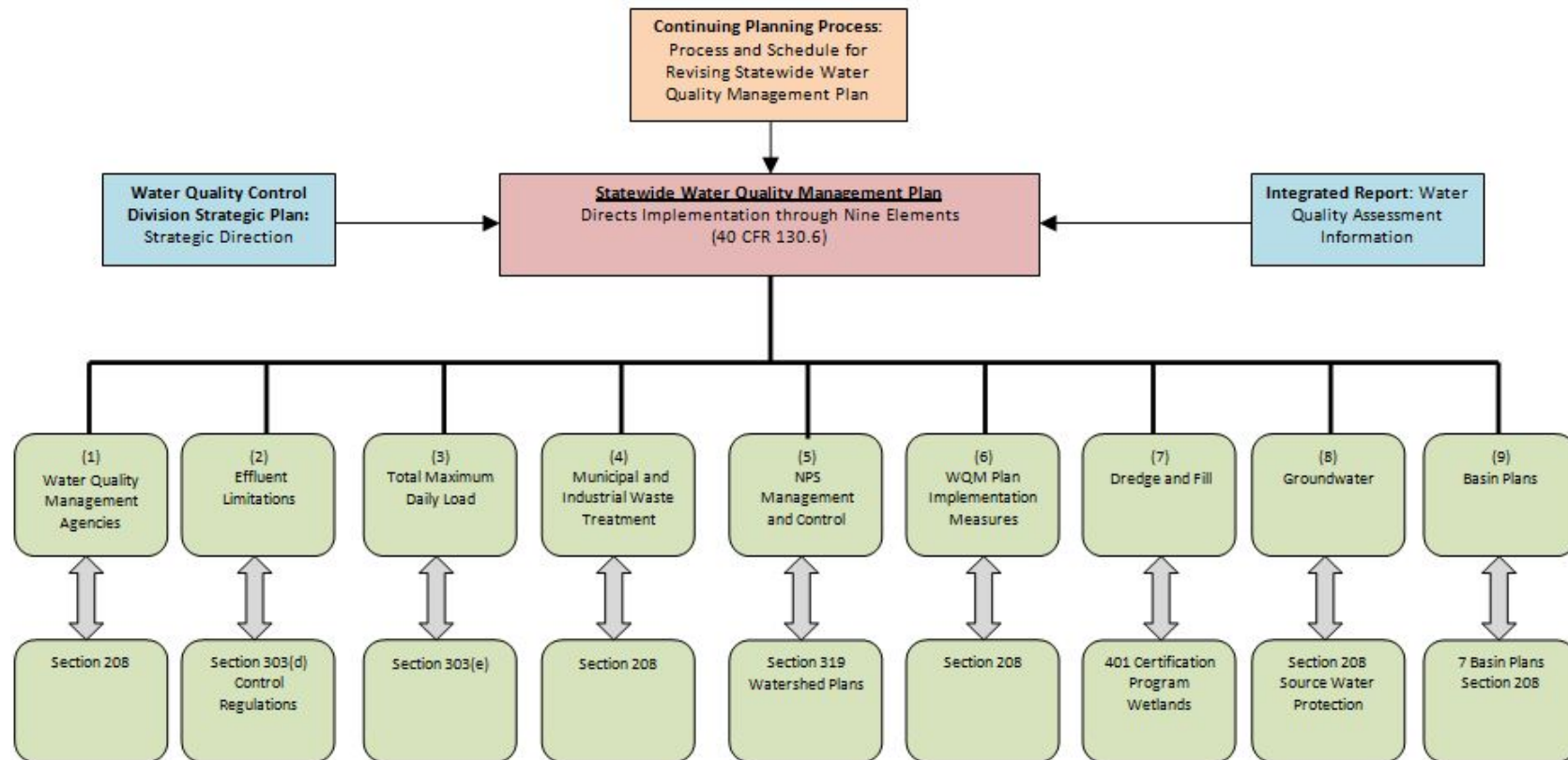
These goals serve as the basis for the Division's work plans for its Watershed, Clean Water Facilities, and Safe Drinking Water Programs. These work plans drive program strategies and allocation of resources. The work plans include short- and long-term measures that are used to assess progress and improve program performance in response to the stated goals. The program strategies ultimately become the basis for the respective Division sections' and unit tactics and tasks to achieve the goals.

In this section of the chapter, the WQCD presents the basis for the SWQMP and demonstrates why it is a water quality management plan as envisioned under 40 CFR 130.6. This water quality planning effort was made possible through a special funding appropriation under ARRA¹¹. One of the ARRA funding priorities is to incorporate "green elements"—environmentally sustainable water quality management strategies that are specifically applicable to Colorado. Another ARRA funding-related priority is for the implementation of the SWQMP to aid Colorado's economic recovery, ultimately through the increased funding needed for water infrastructure and nonpoint source projects.

The specific content required for the SWQMP under EPA's 40 CFR 130.6 water quality planning regulation is presented in sections 2.2.1 through 2.2.9. The presentation is organized according to the nine required elements in 40 CFR 130.6, as shown in exhibit 2-3. Exhibit 2-3 also illustrates how the SWQMP and its nine elements relate to existing documents, programs, and functions. As previously noted, the basin plans presented in chapters 6–12 draw heavily from the water quality problems identified in Colorado's 2010 *Integrated Water Quality Monitoring and Assessment Report* (WQCC 2010d and WQCD 2010d).

¹¹ American Recovery and Reinvestment Act of 2009. Public Law 111-5. 123 Stat. 115. (2009). The Division received funding to develop the SWQMP under the 2010 ARRA appropriation, which has its own set of strategic objectives.

Exhibit 2-3. Statewide Water Quality Management Plan Overview



Source: WQCD 2010a.

2.3.1 Water Quality Management Agencies

2.3.1.1 Section 208 Management Entities

The term *management agency* was introduced into the water quality lexicon in section 208 of the CWA. It is defined in relation to *planning agency* and *operating agency*. At the time the CWA was enacted in 1972, Congress recognized that all three types of entities would be necessary to accomplish the ultimate objective of the act to “restore and maintain the chemical, physical, and biological integrity of the nation's waters.”

In order to achieve this goal, management control must be exerted over both point and nonpoint sources of pollution. Operating agencies are needed to carry out day-to-day wastewater treatment plant functions and to ensure operational and financial capacity is adequate to protect the receiving waters assimilating wastewater discharges. Planning agencies are needed to develop regional or statewide water quality management plans in accordance with the requirements of CWA section 208 (i.e., to evaluate the existing conditions in state waters, identify the sources of pollutants, and address the cumulative impacts of multiple discharges and nonpoint sources in the planning area by developing appropriate management practices and recommendations for appropriate wastewater treatment effluent limitations).

The capabilities that management agencies are required to have are listed in CWA section 208(c)(2). They include the authority to:

- ◆ Carry out appropriate portions of an areawide waste treatment management plan
- ◆ Manage waste treatment works and related facilities serving such an area in conformance with any plan
- ◆ Design and construct new works directly or by contract and to operate and maintain new and existing works as required by any plan
- ◆ Accept and use grants, or other funds from any source, for waste treatment management purposes
- ◆ Raise revenues, including the assessment of waste treatment charges
- ◆ Incur short- and long-term indebtedness
- ◆ Ensure in implementing an areawide waste treatment management plan that each participating community pays its proportionate share of treatment costs
- ◆ Refuse to receive any waste from any municipality, or subdivision thereof, that does not comply with any provisions of an approved plan under this section applicable to such area
- ◆ Accept industrial wastes for treatment.

2.3.1.2 Management Agencies in Colorado

In Colorado, general-purpose local governments and special districts are designated as management agencies for controlling point and nonpoint sources of pollution. General-purpose local governments, such as counties and incorporated cities and towns, are considered preferable in this management role because the opportunity to coordinate point source, nonpoint source, and planning decisions can be vested in one specific entity. Management

agencies are identified under the law as having the responsibility and authority to implement section 208 plans. The primary responsibility of the management agency is to ensure that the point and nonpoint source control programs that have been assigned to them are accomplished within prescribed time frames (WQCC 2006a).

Operating agencies, as distinguished from management agencies, are those entities which are responsible for specific activities for pollution control under the general direction of a management agency. For example, water districts, sanitation districts, industries and municipalities who are holders of point source discharge permits are operating agencies under some water quality management plans. They may be responsible to a management agency (e.g., a city or a county within which they are located).

2.3.2 Effluent Limitations

A water quality plan like the SWQMP must address or refer to the process for developing effluent limitations and schedules of compliance. Effluent limitations are the main control mechanism for point source discharges and a central feature of the NPDES permit system. The CPP Handbook includes an overview of Colorado's process for developing effluent limitations (WQCC 2006a). The WQCC is the entity in the state responsible for specifying water quality standards, and the WQCD is the entity that implements the standards. The WQCD staff also serves as a technical resource to the WQCC on standards and other water quality issues.

2.3.2.1 Types of Effluent Limitations

Following enactment of the 1972 CWA, point source dischargers were required to meet uniform, nationally determined levels of effluent quality, so called "technology-based limitations," following EPA's regulatory determination that such levels are technologically achievable for the category of dischargers in question.

Technology-based effluent limitations require certain levels of effluent quality to be attained regardless of the quality of the receiving water. This across-the-board requirement eliminated debates about what receiving water quality was attainable and precluded arguments about cause and effect with respect to the impacts of individual discharges. Although very controversial at the time, this policy choice is principally responsible for the bulk of the success that has been achieved in water pollution control over the past 30 years (Frohardt 2004).

The levels of technological control specified in the act include Best Practical Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT), Best Available Technology Economically Achievable (BAT), and New Source Performance Standards (NSPS) for industrial dischargers. Technology-based effluent limitations for municipal dischargers are known as secondary treatment standards. EPA adopts national effluent guidelines to specify technology-based requirements for separate categories of industrial dischargers. Where EPA has not adopted such guidelines, technology-based controls are determined by the best professional judgment of the permit writer.

Technology-based controls tend to be the most important (i.e., most restrictive) permit limitations in areas of the country with high year-round stream flows. Colorado streams, however, do not experience high year-round stream flows in many areas of the state. In the more arid areas of the country that have less dilution water available, a second type of permit limit is generally more restrictive. It is known as a *water quality-based effluent limitation*.

Where technology-based requirements are not stringent enough to protect water quality in a particular location, the CWA requires NPDES permits to include more stringent effluent limits that will protect water quality and achieve the adopted standards. All point source dischargers must meet the levels of effluent quality necessary to achieve and maintain water quality standards in the receiving stream. Because of the water-short hydrological conditions in Colorado, this state was one of the first to routinely issue NPDES permits with water quality-based effluent limitations.

Unlike technology-based effluent limitations, water quality-based effluent limitations are calculated by taking the existing quality and available dilution in the receiving waters into account. In other words, water quality-based controls allow use of the assimilative capacity of the receiving waters. The assimilative capacity is the quantity of each given pollutant that can be introduced to a waterbody without causing an exceedance of a water quality standard.

2.3.2.2 Effluent Limitations and the Permits Program

The CDPS is designed to protect public health and the environment through discharge permits and other control mechanisms, as provided by the CWQCA. The permits program is multifaceted and covers industrial, domestic, and animal feeding operation wastewater discharges to surface waters. It controls discharges to groundwater and stormwater discharges, and also implements the industrial pretreatment, biosolids, and treated wastewater reuse programs. Permits are designed to limit the amount of pollutants entering streams, lakes, and groundwater so as to protect the classified uses of the receiving water, and to protect public health and the environment (WQCC 2010d and WQCD 2010d).

Water quality-based effluent limitations are established to ensure compliance with site-specific water quality classifications and standards, as well as statewide narrative and numeric standards. To implement standards in permits, the WQCD either incorporates the appropriate waste load allocation developed pursuant to an applicable total maximum daily load (TMDL) or performs a “mass balance” analysis that determines what concentration of pollutants can be allowed in a discharge of a particular volume so that water quality standards are still met instream during specified low-flow conditions. In general, this allows dischargers to take advantage of any assimilative capacity (dilution) available in complying with standards; however, this opportunity might not be available where antidegradation review requirements apply (WQCC 2006a). See section 2.3.3 for a further discussion of TMDLs.

A number of complexities can arise in developing effluent limitations. In some cases, sophisticated water quality modeling is required. Accordingly, EPA and the WQCD have developed detailed regulations, technical guidance documents, and implementation policies for establishing point source controls at least as stringent as those required by CWA sections 301(b)(1) and (2), 306, and 307, along with any requirements contained in applicable water

quality standards. The CDPS regulations set forth the permitting regulatory framework for point sources of all kinds. There are also continuously evolving technical guidance documents that support the development of effluent limitations by the Division's permit writers. The state's permits program has more than 40 policy, guidance, and fact sheet documents to guide staff in implementing permitting requirements and for compliance assistance purposes. In general, these may be found at <http://www.cdphe.state.co.us/regulations/wqccregs/>.

- ◆ Regulation No. 61: *Colorado Discharge Permit System Regulations*. 5 CCR 1002-61 (WQCC 2010b)
- ◆ Regulation No. 62: *Regulations for Effluent Limitations*. 5 CCR 1002-62 (WQCC 2008b)
- ◆ Regulation No. 63: *Pretreatment Regulations*. 5 CCR 1002-63 (WQCC 2007b)
- ◆ Regulation No. 64: *Biosolids Regulation*. 5 CCR 1002-64 (WQCC 2010c)
- ◆ Regulation No. 65: *Regulations Controlling Discharges to Storm Sewers*. 5 CCR 1002-65 (WQCC 2008c).

The Division manages more than 1,450 wastewater treatment facility permits, including combined individual process water and stormwater permits and general process water permits. Of these, approximately 370 are individual permits and approximately 1,080 are general permit-covered facilities. Individual process water permits almost always contain water quality-based effluent limitations, whereas general permits often contain technology-based requirements (including BMPs) as effluent limitations. In the past few years, the universe of individual permits has increased not only because of new sources but also, more significantly, because of the need to ensure that permits fully protect water quality standards.

2.3.3 Total Maximum Daily Load Development

A TMDL is the process that calculates the total amount of a pollutant that may be released into a waterbody before the water quality standard for that pollutant will be exceeded. TMDLs may be thought of as the generally accepted water quality accounting practice for controlling water pollution to restore impaired waters.

2.3.3.1 TMDL Background

A TMDL is comprised of (1) the Load Allocation (LA) or that portion of the pollutant load attributed to natural background or the nonpoint sources, (2) the Waste Load Allocation (WLA), which is that portion of the pollutant load associated with point source discharges, and (3) a Margin of Safety (MOS). The TMDL process provides for the identification of water quality-limited segments of waterbodies and their listing on the state's list of impaired waters commonly referred to as the CWA section 303(d) list. CWA section 303(d) requires states to identify and list water quality-limited or impaired waters. These impaired or quality-limited waters represent those for which technology-based effluent limitations and other required controls are not adequate to attain water quality standards. After listing, states must prioritize the listed waters and develop TMDLs. Assuming there is adequate baseline water quality information available, TMDL development involves essentially five steps:

1. Select the pollutant to consider.

2. Estimate the waterbody's assimilative capacity.
3. Identify the contribution of the pollutant from all significant sources.
4. Analyze information to determine the total allowable pollutant load.
5. Allocate (with an MOS) the allowable pollutant load among the sources so that water quality standards can be achieved.

Where there are multiple point source dischargers, each discharger receives a portion of the WLA that is then reflected in individual discharge permits as effluent limitations. TMDLs must be prepared in accordance with CWA sections 303(d) and (e) of the act and 40 CFR 130.7. The complexity of TMDL development is determined by the nature of the waterbody, the pollutant being considered, and the sources of the pollutant. Implementation can be impacted based on the number of point and nonpoint sources in the segment(s) to which the TMDL applies. In general, states do not require nonpoint sources to undertake certain control actions. Instead, the state develops partnerships with nonpoint sources and others to encourage voluntary actions that will result in reductions in pollutant loadings.

Colorado prioritizes the development of TMDLs based on such factors as the risk to human health and aquatic life, the degree of public interest and support, the vulnerability of a waterbody, and whether there might be an immediate need for an allocation for permitting purposes.

2.3.3.2 TMDL Program Development Process

The CPP Handbook (WQCC 2006a) describes Colorado's TMDL process and procedural requirements. The WQCD document, entitled *Section 303(d) Listing Methodology: 2010 Listing Cycle* (Listing Methodology), identifies the state's procedures for listing and delisting of segments (WQCD 2009a). This document is used as the basis for TMDL development. This document is revisited every 2 (odd-numbered) years and is approved via WQCC action at an Administrative Approval Hearing. The document is available at <http://www.cdphe.state.co.us/op/wqcc/Resources/303dLM2010.pdf>. State Regulation No. 93: *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List* (5 CCR 1002-93) contains the state's CWA section 303(d) and monitoring and evaluation lists themselves.

The state's 2010 CWA section 303(d) list contains 173 impaired waterbody segments, covering 260 individual pollutants. Each of the pollutant impairments requires the development of a TMDL. The current numbers reflect an increase in the number of listed segments from the 2008 CWA section 303(d) list, due mainly to changes in the CWA section 303(d) Listing Methodology, changes to table value standards in Regulation 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31), and increased monitoring. See chapter 3, for a statewide summary of waterbody impairments and required TMDLs.

In regards to metals, historically the TMDL development in Colorado has dealt primarily with metals from mining legacy areas and abandoned mined lands. Although metals continue to be a focus of TMDL efforts in the state, there are significant numbers of waterbodies that are impaired due to other pollutants and activities. The most common cause of identified

impairment in Colorado is selenium, followed by cadmium, zinc, copper, lead, and mercury. Selenium is prevalent in rivers, and mercury is prevalent in lakes. A natural source of selenium in Colorado is marine shale deposits, while airborne mercury is deposited from numerous sources (local, regional, and global). The sources of the other pollutants are generally unknown, typically because of insufficient monitoring data. Where the sources have been identified, they are most often attributed to resource extraction in areas with significant natural mineralization (WQCC 2010d and WQCD 2010d).

Implementation of a TMDL often requires active participation from the stakeholders in the impacted watershed area. TMDLs are not self-implementing and in some instances companion implementation plans have been developed. Watershed plans frequently include a TMDL implementation component, and should contain or prescribe the development of one when a TMDL is completed within a watershed. Colorado works with stakeholders to optimize pollutant allocations during WLA apportionment. The state does not have a set protocol for apportioning WLAs for TMDLs. In the case of nonpoint sources, voluntary controls or locally enacted controls are necessary to implement the LAs.

Completed TMDLs are public noticed by the Division, and after EPA approval, are made available at <http://www.cdphe.state.co.us/wq/assessment/TMDL/TMDLs.html>. Future TMDLs that have been approved by EPA will be integrated into the SWQMP basin by basin in conjunction with the corresponding SWQMP basin update. Historic TMDLs may not be readily available on the web site, and in this instance the reader should contact the Division for information.

2.3.4 Municipal and Industrial Waste Treatment

A WQM plan must identify existing and anticipated municipal and industrial waste treatment works; identify programs to provide necessary financial arrangements for such works; and establish construction priorities and schedules for initiation and completion of such treatment works, including an identification of open space and recreation opportunities from improved water quality, in accordance with CWA sections 208(b)(2)(A) and (B).

2.3.4.1 Municipal Waste Treatment

Existing and anticipated municipal waste treatment facilities are identified in the basin plans contained in chapters 6–12 of the SWQMP. Schedules for initiating and completing needed treatment works are often influenced by the timelines required for financing through grants or loans specifically designed to meet the needs for such infrastructure investments. There are, however, strict legal requirements in CWQCA sections 501(5)(d) and (e) that govern when planning and design must be commenced and construction initiated. Those requirements are fixed in the discharge permit.

The issues concerning proper siting, design, and funding for municipal waste treatment facilities are addressed in considerable detail in the following state regulations:

- ◆ Regulation No. 22: *Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*. 5 CCR 1002-22. (WQCC 2009a)

- ◆ Regulation No. 51: *State of Colorado Water Pollution Control Revolving Fund Rules*. 5 CCR 1002-51. (WQCC 2009b)
- ◆ Regulation No. 53: *Domestic Wastewater Treatment Grant Funding System*. 5 CCR 1002-53. (WQCC 2009d)
- ◆ Regulation No. 55: *Water Quality Improvement Fund*. 5 CCR 1002-55. (WQCC 2007a).

The state has developed policies and guidance documents to direct implementation of the regulatory programs for facility siting and design approval. These include Regulation 22: *Guidance Document for the Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works* (5 CCR 1002-22) available at <http://www.cdphe.state.co.us/wq/engineering/reg22/guide/22guide.pdf> and Policy No. 96-1: *Design Criteria Considered in the Review of Wastewater Treatment Facilities* available at <http://www.cdphe.state.co.us/regulations/wqccregs/>.

Two different organizational units within the WQCD implement these regulatory requirements: Engineering Section and Financial Solutions Unit. The WQCD Engineering Section conducts municipal wastewater facility site application reviews, design reviews, facility performance inspections, and technical assistance activities. During 2010 this section has coordinated a stakeholder workgroup process to update the administrative and technical components of Policy No. 96-1 (WQCC 1996) that are anticipated to be adopted in August 2011.

The Financial Solutions Unit coordinates, prioritizes, and processes requests for loans and/or grants to construct or improve domestic wastewater treatment facilities. The following entity types are eligible for loans from the Water Pollution Control Revolving Fund: municipalities, water and sanitation districts, sanitation districts, metropolitan districts, and improvement districts. Coordination of funding requests involves working with multiple funding partners through the Colorado Water and Sewer Funding Coordination Committee to determine the most appropriate means of financing each particular project.

The Water Pollution Control Revolving Fund provided more than \$30 million in ARRA funds to 12 of the state's highest-priority wastewater/water quality projects in the state fiscal year ending June 30, 2010. More than \$15.6 million was awarded in the form of principal forgiveness; the remaining funds were loaned out at interest rates of 0%–2%. Colorado awarded 25% of the ARRA funds to wastewater/water quality projects with green components. All ARRA-funded wastewater projects are to be completed as of December 31, 2011.

2.3.4.2 Industrial Waste Treatment

The CWA does not require industrial waste treatment facilities to be subject to site approval or design approval requirements. Moreover, they are not eligible for public financing through grants or loans provided under the CWA (the SRF). EPA established regulatory requirements for site and design approval as safeguards for the large investments of tax-derived moneys required by publicly owned treatment works to meet the goals of the act.

The WQCD's Permits Section addresses industrial waste treatment directly under the CDPS. Privately owned industrial and commercial facilities bear the entire financial burden for planning, constructing, and operating waste treatment facilities in a manner that complies with all discharge permit conditions. Construction priorities and schedules for initiating and completing new or improved treatment works are addressed solely through the permit system and compliance assurance programs. Industrial facilities are simply held to the standard of strict liability for any end-of-pipe noncompliance or failure to meet permit conditions. See section 2.3.2.

2.3.5 Nonpoint Source Management and Control

2.3.5.1 Background

The importance of nonpoint source pollution was recognized at the time the CWA was enacted in 1972.¹² Section 208(b)(2) required identification and control of nonpoint sources of pollution from agricultural, silvicultural, mining, construction activities, and saltwater intrusion (primarily related to hydro-modification in Colorado). These issues were to be addressed in CWA section 208 plans. All across the nation, however, the dominance of the point source challenge eclipsed public awareness of and governmental attention to these more diffuse pollution sources (Adler et al. 1993).

The 1987 amendments to the CWA included section 319, which created the Nonpoint Source Program and authorized funding for its implementation. The new provision required states to engage in two major program start-up activities: (1) developing an assessment report to describe the impact of nonpoint sources on the water resources of the state and (2) developing a management program outlining how the state would address the impacts identified in the assessment report (WQCD 2000).

2.3.5.2 Nonpoint Source Management in Colorado

The WQCD has the primary responsibility to administer the nonpoint source program in Colorado. The responsibility includes preparing and updating the nonpoint source assessment and management program, maintaining the statewide manual of BMPs, preparing lists of nonpoint source funding priorities, and administering grants as necessary to achieve the goals of CWA section 319.

In May 1987, the Division established a nonpoint source (NPS) Task Force (now called the NPS Alliance) to serve as an advisory group and workgroup. One purpose of the group is to advise the Division in creating Colorado's nonpoint source management approaches. The NPS Alliance consists of volunteers and representatives of agencies and various groups involved in efforts to manage nonpoint source issues in Colorado. The first key advisory function of the Alliance was to provide technical input to Colorado's nonpoint source activities (WQCD 2000).

¹² The CWA was first enacted as the Federal Water Pollution Control Act in 1972 (Public Law 92-500). See section 2.2.1 of chapter for further background.

Initially, CWA section 319 required states to engage in two major program start-up activities: (1) develop an assessment report to describe the impact of nonpoint sources on the water resources of the state and (2) establish a management program outlining how the state would address the impacts identified in the assessment report (WQCD 2000). EPA approved the *Colorado Nonpoint Assessment Report* in 1988; the Report was subsequently updated and approved in November 1989. More recently WQCD has performed the assessment work as part of its efforts to develop the *Integrated Water Quality Monitoring and Assessment Report* as required by CWA sections 303(d) and 305(b) (WQCC 2010d and WQCD 2010d). The latter report is prepared on a biannual basis, in years that end with an even number.

The *Colorado Nonpoint Source Management Program* submittal to EPA was originally approved in 1989 and then updated in October 1990. EPA approved a major update of the program submittal in January 2000. Each of the state's various types of nonpoint source issues is addressed in the Division's EPA-approved 2000 *Nonpoint Source Management Program* (WQCD 2000).

The WQCC approved a *Supplement to the 2005 Colorado Nonpoint Source Management Program* developed by the WQCD in August 2005. Although much of the background and program foundation information in the 2000 document is still valid, the 2005 supplement supersedes the 2000 action plan, program priorities, and funding guidelines. In addition, some of the BMPs in the 2000 document were updated and several key policy changes were made. The Nonpoint Source Management Plan is updated every 5 years to reflect the ongoing goals and objectives of the 319 grant. The next major update to the Nonpoint Source Management Plan is scheduled for August of 2011.

Significant policy revisions in the 2005 supplement concern the use of nonpoint source funds on private lands. These policies address the issues of future maintenance of nonpoint source improvements on such lands through long-term access agreements and/or environmental covenants, as well as obtaining public access to private lands restored or improved with nonpoint source grant funds (WQCD 2005).

The WQCD operates Colorado's nonpoint source management activities on two tracks. At the program level, the Division identifies and prioritizes nonpoint source issues, coordinates funding and staffing resources, partners with various groups and agencies to address problems, and tracks progress toward water quality improvement. At the project level, the Division addresses state water quality priorities through on-the-ground watershed restoration activities and information/educational efforts to broaden public awareness of nonpoint source issues. The WQCD organizes its nonpoint source management work on a watershed basis. For example, it has synchronized its nonpoint source monitoring needs with the 5-year basin monitoring schedule used to collect water quality data in support of the triennial review of basin classifications and standards. The Division also has focused its nonpoint source watershed planning efforts according to this schedule.

The WQCD established a Measurable Results Program (MRP) in 2010 to increase the Division's capacity regarding baseline and post-project monitoring of nonpoint source projects. EPA defines *measurable results* as "restoring waters to partial or full uses and standards, or at

a minimum, reducing pollutant loads such as nutrients and sediment.” In order to obtain measurable results, existing nonpoint source impacts first need to be accurately quantified to provide a water quality baseline from which to measure improvements. Although surrogate measures, such as a record of BMPs installed, can be used to evaluate total project effort, they do not provide data that equate to water quality improvements.

The MRP is designed to assist the Division with collecting data before and after project implementation to establish the effectiveness of a nonpoint source project. The MRP provides for assessments of on-the-ground restoration activities and their associated water quality improvements outside the period of performance of a given project grant/contract. The WQCD established the MRP to coincide with the annual nonpoint source section 319 project cycle. Therefore, it can be modified to fulfill project monitoring requirements based on future nonpoint source management activities.

The Division engages the public with its nonpoint source management activities and makes its funding opportunities accessible and user-friendly. The Division has established an external website for the program that is accessible to all at <http://www.npscolorado.com>. This site contains detailed instructions and tools to assist the greater watershed community in applying for nonpoint source grants and other funding, as well as information about nonpoint sources in the state. It also provides professional social networking opportunities and tools for collaboration.

2.3.6 Water Quality Management Plan Implementation Measures

CWA section 208(b)(2)(E) calls for the identification of the measures necessary to carry out the water quality management plan, including financing; time period required; and the economic, social, and environmental impacts.

2.3.6.1 Program Implementation Factors

The CPP Handbook (WQCC 2006a) provides descriptions of the procedural measures the state employs to implement water quality protection, restoration, and enhancement programs. Many other planning and procedural documents are incorporated by reference into the CPP Handbook. Where appropriate, or required, individual program policy and guidance documents might describe more detailed implementation measures specific to that program.

The WQCD recently adopted an Implementation Policy Framework for organizing, developing, coordinating, carrying out, and reviewing implementation policies in the Division. The policy is primarily aimed at developing guidelines for decision-making and identifying factors that influence best professional judgment or factors that could lead to different resolutions or decisions (WQCD 2010c).

Financing of these programs and activities can arise from a variety of sources, including federal grants (e.g., CWA sections 104(b) and (g), 106, 319, and 604(b)), state budgets authorized by the Legislature, state revolving funds, local governments, cost sharing with stakeholders (public and private), or other means. Future updates of the SWQMP are

anticipated to be funded primarily out of annual appropriations under CWA section 604(b), although opportunities to leverage those funds will be sought whenever possible.

Several factors will influence the schedules and priorities for implementing the various elements of the SWQMP. For example, the schedule for continuously updating the basin plans in the SWQMP will occur in staggered form with the WQCC 5-year review cycle for water quality standards and classifications in the major drainage basins. This means that each basin plan would be updated in the 12- to 18-month period following the applicable comprehensive rulemaking hearing, in which standards and classification are reviewed and modified. The schedule for updating basin plans will also be influenced by implementation schedules that may be included in regulations and policy and procedure guidance documents associated with specific water quality management programs. Finally, the schedule for updating basin plans could be subject to statutory or court-imposed orders.

The economic, social, and environmental impacts associated with implementing the SWQMP are not quantified in this plan, but are generally expected to be positive. The costs associated with implementing the SWQMP are likely to be higher in the initial years of implementation as the WQCD's program and activities are more fully integrated into a geographic or watershed based approach.

Approximately 75 jobs were created as a result of \$30 million of ARRA-funding being made available for wastewater infrastructure projects in Colorado. Currently, the state's Water Pollution Control Revolving Fund and Domestic Wastewater Treatment Grant 2010 Project Eligibility List (Intended Use Plan) identifies projects totaling \$2.5 billion (WQCD 2010e).

2.3.6.2 Program-Specific Implementation Schedules and Priorities

The WQCD has developed a *Water Quality Control Division Strategic Plan 2009-2012* for program implementation. The plan provides direction for implementing Colorado's water quality management programs in a manner consistent with adopted strategic, environmental, and programmatic goals along with more specific associated objectives (WQCD 2009b).

Colorado's water quality standards activities are organized around a 5-year cycle of regulatory reviews of standards and classifications. The WQCC establishes a long-range hearing schedule for approximately 2 years into the future. The current schedule is available at <http://www.cdphe.state.co.us/op/wqcc/Meetings/Meetings.html>.

The Commission's regulation rulemaking hearing schedule drives many of the program implementation activities carried out by the WQCD. The Division's water quality monitoring activities must be actively collecting data to support the triennial review hearing for a basin 2 years before the hearing is scheduled. Likewise, the Division must be engaged in developing recommendations for new standards in an upcoming basin rulemaking process based on such factors as new EPA requirements with adoption deadlines, the need to incorporate changes in table values from the most recent Regulation No. 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31) rulemaking hearing into a specific basin context, and the need to address the recommendations of various stakeholder work groups focused on specific

standards issues and criteria development efforts. Annual work plans negotiated between EPA and the WQCD influence the priorities concerning adoption of new standards.

The Division conducts comprehensive assessments of the monitoring data being collected, beginning approximately 1 year before the basin standards and classifications rulemaking hearing. Many complex determinations are required to make sound recommendations to the Commission for any changes or even to maintain the status quo for basin-specific standards and classifications.

CDPS permitting efforts for discharges of process water to surface water and groundwater, stormwater, pretreatment, and biosolids management programs are driven by statute or by regulation-based processing deadlines. Backlog reduction schedules negotiated with EPA also drive the processing of new CDPS applications and renewing existing CDPS permits. Since the Division originally received approval from EPA in May 2000 for its backlog reduction, the Division has expanded its backlog program requirements to include individual process water and stormwater permits and general process water permits.

Nonpoint source management efforts and programmatic deadlines are driven by annual changes in EPA guidance and grant conditions, and the resulting annual Performance Partnership Agreement (PPA) work plan agreements between the Division and EPA.¹³ The Division's schedule for developing required TMDLs is also negotiated annually with EPA as part of the PPA.

The rates at which site approvals and design reviews are conducted by the WQCD's Engineering Section are driven by the number of application submittals at any given time. The WQCD schedule and deadlines for performing compliance assessment inspections / audits and technical assistance activities are negotiated between EPA and the WQCD annually as part of the PPA work plan development process.

The Intended Use Plan in Regulation No. 51 drives the implementation schedule and priorities for the financial solutions unit for processing grant and loan applications under the Water Pollution Control Revolving Fund and the Domestic Wastewater Treatment and Drinking Water Grant Program (WQCC 2009b).

2.3.7 Dredge and Fill

2.3.7.1 Background Information

EPA's water quality planning regulation (40 CFR 130.6) requires an identification of programs related to the control of dredge or fill material to be included in the Water Quality Plan. This requirement is derived from a specific provision in section 208 of the CWA.

Subsection 208(b)(4)(B) of the CWA sets forth the criteria that would have to be met if a state water quality agency wished to obtain approval for a program that would control the placement of dredged or fill material into the navigable waters in connection with its activities to manage

¹³ The EPA conducts its oversight activities of approved state CWA programs in part through PPA work plans. These plans are negotiated annually.

and control the various types of nonpoint sources of pollution. Such a program would have to complement and be coordinated with a delegated state section 404 program.

Colorado has never sought delegation of a section 404 program under the CWA. The U.S. Department of the Army, Corps of Engineers, is responsible for issuing permits in Colorado for activities that involve the discharge of dredged or fill materials, as required under section 404 of the act.

Currently, CWA section 404 requires a permit only for a discharge of dredged material or other placement of fill material into waters of the United States, which include wetlands. Many other activities that destroy wetlands are not within the purview of the permitting program. For example, the program does not regulate draining of wetlands so long as no “discharge of dredged or fill material” is involved. Nonetheless, section 404 is often thought of as the major federal wetland protection program. While many believe this regulatory program has slowed the loss of wetlands, along with incentive programs under the 1985 and 1990 Farm Bills (Adler et al. 1993), the nation still loses about 60,000 acres of wetlands each year. The very runoff that wetlands help to clean can overload and contaminate the fragile ecosystems. Nonnative plants and animals, along with global climate change, further contribute to wetland degradation and loss (USEPA N.d.a.).

2.3.7.2 Section 404-related Activities

Several agencies in Colorado implement programs aimed at wetlands protection and management. Some programs are regulatory, while others are nonregulatory.

Colorado’s wetlands are considered “state waters.” They are, therefore, subject to state water quality regulations contained in Regulation No. 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31). The WQCD is involved in wetland-related activities through its responsibilities under the CWA, including assisting in the development of water quality standards and classifications, implementing water quality standards through NPDES permits, and issuing CWA section 401 certifications for CWA section 404 permits issued by the U.S. Army Corps of Engineers. The definition of applicable 404 wetlands in the regulations generally reflects that in the *1987 Corps of Engineers Wetlands Delineation Manual*. Additionally, the regulations encourage local governments to define and regulate areas of “state interest” (24-65.1-101, *et seq.*, C.R.S.), including “significant wildlife habitats in which wildlife species in a proposed area could be endangered” (ASWM 2004).

Based on a recommendation of the National Academy of Sciences, the U.S. Army Corps of Engineers has developed regional supplements to the Agency’s 1987 delineation manual referenced above. The supplements pertinent to Colorado include one for the Great Plains, another for the Western Mountains, and a third for the Arid West. The supplements are available at http://www.usace.army.mil/cecw/pages/reg_supp.aspx.

WQCC Regulation No. 31: *The Basic Standards and Methodologies for Surface Water* (5 CCR 1002-31) contains water quality classifications and standards for wetlands. The regulations provide definitions for constructed wetlands, compensatory wetlands, created wetlands, and tributary wetlands, which determine how surface water standards are applied. No site-specific

numeric or narrative standards have yet been developed for wetlands in Colorado, although that is authorized and envisioned in the existing regulatory framework. Waters in constructed wetlands are not state waters because they are wetlands that have been designed, constructed, and operated for the primary purpose of wastewater or stormwater treatment, or environmental remediation (WQCC 2006a).

2.3.7.3 Section 401 Certification Activities

Under section 401 of the CWA, Colorado is authorized to review proposed discharges of dredged or fill materials into waters of the United States, which include wetlands. This so-called “401 certification” is issued to ensure that the discharge will: (1) be compatible with state law, (2) protect water quality standards, and (3) be part of an effective water quality management plan. In 401 certifications, the state may approve the discharge without condition, conditionally approve the discharge, deny certification, or waive certification.

Under Regulation No. 82: *401 Certification Regulation* (5 CCR 1002-82), all nationwide permits are certified by statute and do not require separate certification by the WQCD. Applicants for nationwide 404 permits do not need to submit any information or documents to the WQCD. The Division has developed a set of standardized conditions that apply to all individual CWA section 404 permits. Site-specific conditions may also be applied. The standard conditions for certification are presented in a concise brochure available online at <http://www.cdphe.state.co.us/wq/EDU/FormsDocs/401Brochure.pdf>. A complete list of the requirements pertaining to certification of 404 permits is contained in Regulation No. 82 (WQCC 2003).

2.3.7.4 Miscellaneous Wetland Protection Activities

The Colorado Department of Transportation (CDOT) conducts major roadway and stream crossing construction and maintenance activities that are subject to the section 404 regulatory program for wetland protection and mitigation. The wetland regulatory program at CDOT requires one-to-one replacement of both jurisdictional and non-jurisdictional wetlands impacted by road projects. Similar activity occurs at the Division of Reclamation, Mining and Safety within the Department of Natural Resources (DNR) (ASWM 2004).

The Colorado Division of Wildlife (CDOW) within DNR houses the state’s major non-regulatory wetlands program. Since its inception in 1997, CDOW’s wetland program reportedly has protected, restored, or created more than 200,000 acres of wetlands, including adjacent upland habitat buffer areas. In addition, the program has protected or restored 114 linear miles of riparian habitat. The CDOW wetland program does not explicitly define wetlands for its non-regulatory programs. Rather, projects are evaluated based on their contribution to protecting and enhancing habitats important to wetland-dependent wildlife. In addition to classic wetlands, projects eligible for assistance in the CDOW program include restoration and protection efforts in riparian areas, ephemeral wetland habitats (e.g., playas), and adjacent non-wetland buffer zones. CDOW, in collaboration with the Colorado Natural Heritage Program (CNHP), has been involved in an ongoing wetlands mapping effort that includes identifying isolated wetlands

(CNHP 2003). A 2005 study by Nature Serve¹⁴ identified isolated wetlands throughout the United States. One conclusion of the study is that “geographically isolated wetlands” represent a considerable amount of ecological diversity present in the United States and provide habitat for a considerable portion of the nation’s flora and fauna. In Colorado specifically, NatureServe identified 17 wetland types, 6 of which (35%) were identified as isolated. NatureServe further identified three at-risk plants in isolated wetlands in Colorado but no at-risk animals (NatureServe 2005).

2.3.8 Groundwater

2.3.8.1 Background

EPA’s water quality planning regulation (40 CFR 130.6) requires an identification of programs for the control of groundwater pollution, as required under section CWA section 208(b)(2)(K). This section of the act calls for identification of a process to control the disposal of pollutants on land or in subsurface excavations to protect groundwater and surface water quality. Neither the CWA nor other federal environmental legislation establishes a general mandate for groundwater quality protection. States may develop more far-reaching groundwater plan elements than those required under the CWA if doing so is necessary to address a groundwater quality problem. States also may develop groundwater programs under their own legal authorities, as Colorado has done.

2.3.8.2 Colorado’s Groundwater Management Program

Colorado’s groundwater management program is described in detail in the CPP Handbook (WQCC 2006a). The WQCC has established a complete regulatory framework for groundwater classifications and standards and discharge permitting. Colorado’s system for classifying and setting numeric standards for groundwater is found in Regulation No. 41: *The Basic Standards for Ground Water* (5 CCR 1002-41). This regulation also contains statewide groundwater quality standards for radioactive materials and organic chemicals that are similar to the statewide surface water quality standards for these constituents, except that aquatic life protection is not a consideration (WQCC 2009c).

Site-specific groundwater quality classifications and numeric standards have been established for slightly more than 50 specified areas. These areas are identified in the basin plans in chapters 6–12 of the SWQMP. Most of site-specific standards have been adopted to protect public water supply systems that rely on groundwater (WQCC 2006b).

The Commission has adopted an “interim narrative standard” for pollutants in groundwater. The standard includes chemicals, other than statewide radioactive materials and organic chemical standards, and provides an initial level of protection of groundwater quality throughout the state (WQCC 2006b). The interim narrative standard provides that in the absence of site-specific classifications and standards, groundwater quality must be maintained at the less restrictive of (1) the ambient quality as of January 1, 1994 or (2) the table value

¹⁴ NatureServe is a private conservation organization. It operates with a network of natural heritage programs or conservation data centers in all 50 U.S. states, Canada, Latin America, and the Caribbean. Collectively, NatureServe and the national heritage programs are the leading source for information about rare and endangered species and threatened ecosystems. For further information, go to <http://www.natureserve.org/aboutUs/index.jsp>.

criteria set forth in Regulation No. 41: *The Basic Standards for Ground Water* (5 CCR 1002-41) (WQCC 2009c).

This interim standard is intended to ensure that where existing groundwater quality is adequate to protect all potential uses, that quality is preserved through the application of protective table value standards. In already-contaminated areas, groundwater quality is not allowed to become any worse than its existing quality (WQCC 2006b).

Discharges to groundwater are controlled under Regulation No. 61: *Colorado Discharge Permit System Regulations* (5 CCR 1002-61) (WQCC 2010b) and under the legal authorities of specific implementing agencies. The CWQCA gives the WQCC the exclusive authority to adopt water quality classifications and standards for state waters, including groundwater. Several other agencies, however, have the primary initial responsibility to implement the standards for particular activities.

Implementing agencies include the State Engineer's Office (for water rights administration); the Oil and Gas Conservation Commission (for oil and gas production activities); the Division of Reclamation, Mining, and Safety (for mining operations); the Hazardous Materials and Waste Management Division (for hazardous and solid waste regulation); and the Division of Oil and Public Safety of the Department of Labor and Employment (for underground storage tanks). In implementing the groundwater quality classifications and standards, these implementing agencies have the authority to develop appropriate "points of compliance" at which attainment of the standards is to be determined.

The permitting regulations addressing discharges to groundwater first became effective in 1993. These provisions are tailored in a manner to avoid overlap with other existing regulatory programs and require permits for land disposal, land treatment, and discharges to groundwater from impoundments. The WQCD, depending on the site-specific facts, may establish one of three alternative levels of permit conditions: (1) effluent limitations at a point of compliance, with verification monitoring; (2) groundwater monitoring only; and (3) discharge monitoring only.

Under its Agricultural Chemicals Program, the WQCD conducts groundwater monitoring of mainly nitrates and pesticides within an established well-sampling network. The WQCD has performed limited monitoring of these wells for other parameters since 2005.

2.3.9 Basin Plans

EPA's 40 CFR 130.6 water quality management planning regulation calls for identification of the relationship between Colorado's current water quality management planning effort and any basin plans developed under section 209 of the CWA. A total of \$200 million was authorized by Congress to fund the section 209 planning efforts between 1973 and 1980. Basin planning was authorized under CWA section 209 to provide for the management of areas having urban-industrial concentrations, in addition to contributing factors that produce substantial water quality control problems. Section 209 establishes three classes of review for basin planning: Levels A, B and C. Level A is a general overview that establishes a framework for assessing basin needs. Level B consists of studies to address long-range problems that involve federal,

state, and local involvement in plan development and implementation. Level C is the implementation of plans based on the Level B studies. These plans were to be completed no later than January 1, 1980. Priority was given to those basins for which local planning agencies had been designated under CWA section 208. In general, CWA section 208 planning has been performed in Colorado under funds authorized under CWA sections 205(j) or 604(b).

Basin planning pursuant to section 303(e) of the act was initiated in 1973 with \$1 million in financial assistance from the state of Colorado. Whether the funding contributed by the state was matched by federal funding appropriated under section 209 is not clear at this point. The WQCD conducted this broad planning effort at the major-drainage-basin level for major portions of the state. Three localized exceptions were the Standard Metropolitan Statistical Areas of Denver, Colorado Springs, and Pueblo. These areas of the state were omitted from the basin planning process with the expectation that they would be addressed through planning conducted under section 208. The basin plans for the remainder of the state were completed and approved by the WQCC and the Governor in 1975. The basin plans concentrated on water quality management for point sources.

Regardless of whether regional water quality planning or basin planning work in Colorado was conducted under section 209, there is a strong relationship between those earlier efforts and the current statewide water quality planning effort. In fact, there has been a continuously updated planning process, as required under section 303(e) of the act, in the designated planning areas. The current updated versions of those plans have been incorporated by reference into the SWQMP, as shown in section 2.3.10.

Major tasks in preparing the SWQMP were to organize and segregate data and information for each basin and sub-basin and to generate maps and other figures to clearly illustrate the findings and to communicate issues of concern across the state. The basin plans contain detailed information about the drainage systems at the basin scale and, where appropriate, at the sub-basin scale. The plans aim to present a baseline of comprehensive water quality information available for the drainage basins in terms of applicable classifications and standards and nature of current water quality.

Where known, the basin plans present the sources of water quality impairments. They also summarize known point source strategies undertaken and nonpoint activities or projects to address problems. This information will enable those interested in watershed management throughout the state to further identify strategies to prevent water quality problems as well as restore it where it has been degraded.

This first edition of the SWQMP does not dictate or specify specific water quality strategies for respective water quality problems. The WQCD recognizes that solutions are generally best developed at the local level after further characterization of water quality problems has been completed. As the SWQMP evolves, greater information on localized studies and activities to address problems will likely be incorporated. This information will serve as a resource to the greater watershed community in Colorado and will facilitate the WQCD in directing its program resources in a strategic manner.

2.3.10 Documents Incorporated into SWQMP by Reference

Exhibit 2-4 provides a list of the various state documents incorporated by reference into the SWQMP. These documents support the various discussions under the nine key elements of a state water quality management program as specified in 40 CFR 130.6. Readers interested in further background on any of the discussions under the nine 40 CFR 130.6 elements should consult these documents.

Exhibit 2-4. Documents Incorporated into SWQMP by Reference

Continuing Planning Process

- ◆ Regulation No. 23: Regulations for State of Colorado Continuing Planning Process. 5 CCR 1002-23. Effective August 30, 1997. <<http://www.cdphe.state.co.us/regulations/wqccregs/100223planning.pdf>>.

TMDLs

- ◆ Completed TMDLs are available from the Division website at <<http://www.cdphe.state.co.us/wq/assessment/TMDL/TMDLs.html>>.

Designated Planning Agency 208 Plans

- ◆ Region 2, North Front Range Water Quality Planning Association. 2007. *Areawide Water Quality Management Plan (208 Plan) for Larimer and Weld Counties*. <<http://www.nfrwqa.org/awqmp.shtml>>.
- ◆ Region 3, Denver Regional Council of Governments. 2009 as amended. *Metro Vision 2020: Clean Water Plan Policies, Assessments and Management Programs*. <<http://www.drcog.org/index.cfm?page=RegionalPlanning>>.¹
- ◆ Region 4, Pikes Peak Area Council of Governments. 2010. *Water Quality Management Plan 2010 Update*. <<http://ppacg.org/downloads/func-startdown/721/>>.
- ◆ Region 7, Pueblo Area Council of Governments. 1994. *Section 208 Water Quality Management Plan*. Volume VII, 1983 Update. <<http://www.co.pueblo.co.us/planning/pacog/default.aspx?id=769>>.²
- ◆ Region 12, Northwest Colorado Council of Governments. *NWCCOG Regional Water Quality Management Plan*. 2002 as amended. <<http://www.nwcog.co.us/index.php/programs/watershed-services>>.

Non-Designated Planning Agency 208 Plans

- ◆ Section 208 plans for non-designated planning regions are available from the Division upon request.

WQCC Regulations and Policies

The following WQCC regulations can be found at <<http://www.cdphe.state.co.us/regulations/wqccregs/index.html>>.

- ◆ Regulation No. 22: *Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*. 5 CCR 1002-22. Effective September 30, 2009.
- ◆ Regulation No. 23: *Regulations for State of Colorado Continuing Planning Process*. 5 CCR 1002-23. Effective August 30, 1987.
- ◆ Regulation No. 31: *The Basic Standards and Methodologies for Surface Water*. 5 CCR 1002-31. Amended August 9, 2010.
- ◆ Regulation No. 41: *The Basic Standards for Ground Water*. 5 CCR 1002-41. Effective November 30, 2009.
- ◆ Regulation No. 42: *Site-Specific Water Quality Classification and Standards for Ground Water*. Effective March 30, 2009.
- ◆ Regulation No. 51: *State of Colorado Water Pollution Control Revolving Fund Rules*. 5 CCR 1002-51. Effective January 1, 2010.
- ◆ Regulation No. 53: *Domestic Wastewater Treatment Grant Funding System*. 5 CCR 1002-53. Effective January 1, 2009.
- ◆ Regulation No. 55: *Water Quality Improvement Fund*. 5 CCR 1002-55. Effective July 30, 2007.
- ◆ Regulation No. 61: *Colorado Discharge Permit System Regulations*. 5 CCR 1002-61. Effective August 30, 2010.
- ◆ Regulation No. 62: *Regulations for Effluent Limitations*. 5 CCR 1002-62. Effective March 30, 2008.
- ◆ Regulation No. 63: *Pretreatment Regulations*. 5 CCR 1002-63. Effective April 1, 2007.
- ◆ Regulation No. 64: *Biosolids Regulation*. 5 CCR 1002-64. Effective March 30, 2010.
- ◆ Regulation No. 65: *Regulations Controlling Discharges to Storm Sewers*. 5 CCR 1002-65. Effective May 30, 2008.
- ◆ Regulation No. 93: *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. 5 CCR 1002-93. Effective April 30, 2010.

The following WQCC policies are available online at <<http://www.cdphe.state.co.us/op/wqcc/StatutesRegsPolicies/wqpol.html>>.

- ◆ WQCC Policy 96-1: *Design Criteria Considered in the Review of Wastewater Treatment Facilities*. 1996.
- ◆ WQCC Policy 98-2: *Colorado Water Quality Management and Drinking Water Protection Handbook*. Effective January 1, 2006.

WQCD Policies, Guidance, and Reports

- ◆ *Water Quality Control Division Strategic Plan 2009-2012*. April 2009. Available from the Colorado Department of Public Health and

Environment, Water Quality Control Division.

- ◆ *Water Quality Control Division Implementation Policy Framework*. WQCD Policy No. 1. December 1, 2010. Available from the Colorado Department of Public Health and Environment, Water Quality Control Division.
- ◆ *Integrated Water Quality Monitoring and Assessment Report*. 2010. Available from the Colorado Department of Public Health and Environment, Water Quality Control Division.
- ◆ *Guidance Document for the Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*. 5- CCR 1002-22. Water Pollution Control Policy No. WPC- SA-1, 8/31/2010. Colorado Department of Public Health and Environment. Available at <<http://www.cdphe.state.co.us/wq/engineering/techhom.html>>.
- ◆ *Guidance On Data Requirements And Data Interpretation Methods Used in Water Quality Standards and Classification Proceedings*. Updated May 2008. Colorado Department of Public Health and Environment. <<http://www.cdphe.state.co.us/op/wqcc/SpecialTopics/303%28d%29/303dtmdlpro.html>>.
- ◆ *Section 303(D) Listing Methodology 2010 Listing Cycle*. May 2009. Colorado Department of Public Health and Environment, Water Quality Control Division. <<http://www.cdphe.state.co.us/op/wqcc/SpecialTopics/303%28d%29/303dtmdlpro.html>>.
- ◆ *Antidegradation Significance Determination Guidance*. April 2002. V1.0 12-2001. Colorado Department of Public Health and Environment. <<http://www.cdphe.state.co.us/wq/PermitsUnit/POLICYGUIDANCEFACTSHEETS/guidanceandpolicynewpage.html>>.
- ◆ *Colorado's Nonpoint Source Management Program*. January 10, 2000. Colorado Department of Public Health and Environment, Water Quality Control Division. <<http://www.cdphe.state.co.us/wq/nps/index.html>>.
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Notes

¹ DRCOG has requested de-designation by the Governor as a CWA section 208 Water Quality Planning Agency to be effective on January 1, 2011.

² The Pueblo Area Council of Governments' CWA section 208 water quality program has been inactive for several years, but it is being reactivated. Reactivation will require a 208 plan update.

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