A GUIDE TO COLORADO PROGRAMS FOR WATER QUALITY MANAGEMENT AND SAFE DRINKING WATER

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Part I. Introduction

A. Purpose and Overview

The Water Quality Control Division (Division) of the Colorado Department of Public Health and Environment (CDPHE), under the authority of federal and Colorado statutes, administers state programs implementing two major federal statutes: the Clean Water Act and the Safe Drinking Water Act. The federal Clean Water Act activities protect the quality of Colorado's ambient water bodies – its rivers, streams, lakes, reservoirs and ground waters. The federal Safe Drinking Water Act activities ensure that drinking water provided to consumers' taps by Colorado public water systems is always safe to drink.

The purpose of *A Guide to Colorado Programs for Water Quality Management and Safe Drinking Water* (Guide) is to describe how the objectives of these related, but separate, statutes are implemented in Colorado. In addition, this Guide is intended to help satisfy the requirements in Section 303(e) of the federal Clean Water Act that the state maintain a water quality "continuing planning process" by describing the process currently applied in Colorado. Part I provides a brief overview of the various agencies with a role in ensuring protection of water quality in Colorado. Part II describes how Colorado protects the quality of its ambient water bodies. Part III describes how Colorado's Safe Drinking Water Program is primarily focused on ensuring that the water provided by public water systems "at the consumer's tap" is always safe to drink. Part IV details the different Financial Assistance options available that can assist efforts to protect public health and the environment.

The contents of this document have no regulatory effect, but rather describe Colorado's Water Quality Management and Safe Drinking Programs. Moreover, this guidance document is not intended and should not be interpreted to limit any actions undertaken by the Division or options that may be considered or adopted by the Water Quality Control Commission in future proceedings. This guidance document can and will be modified over time as warranted.

B. Institutional Roles and Responsibilities

1. Water Quality Control Commission

The Colorado Water Quality Control Commission (Commission) is the administrative agency responsible for developing standards that protect the quality of drinking water and the beneficial uses of waters of the state. The Commission's nine members are appointed by the Governor and confirmed by the Colorado Senate for three-year terms. Appointments are to "achieve geographical representation" and "reflect the various interests in water in the state." At least two members are to be from west of the Continental Divide.

The Commission adopts water quality classifications and standards to protect beneficial uses of water of the state, as well as various regulations aimed at achieving compliance with those classifications and standards. It also adopts regulations to ensure safe drinking water. In addition to its formal rulemaking role, the Commission serves as a forum to facilitate and advance a statewide policy dialogue on a variety of important water quality topics.

The Commission also serves a quasi-judicial role in administrative hearings concerning appeals of certain decisions of the Division, including but not limited to: approval of design plans and specifications for public water systems and domestic wastewater treatment plants, determinations regarding anti-degradation reviews, and Section 401 certification decisions.

2. Water Quality Control Division

The management of Colorado's water quality is crucial to the continued development of the state and to the quality of life the state offers to its citizens. The Division plays an important role in the protection and restoration of the state's streams, lakes and reservoirs and in assuring that the citizens of Colorado have safe water to drink. Table 1 describes the functional elements of the Division's organizational units. An organizational chart for the Division can be found on our website.

Table 1

Clean Water Program	
Watershed Section	
Environmental Data Unit	Provide surface water quality status and reporting services to government agencies, the public, regulated entities, and the Water Quality Control Commission (Commission) so they can make informed decisions regarding the use and care of surface water resources.
Standards Unit	Provide information, scientific analysis, and policy recommendation services to the Commission, government agencies, and the public so they can make informed water quality decisions.
Restoration and Protection Unit	Provide financial and technical support, collaboration, and planning services to performance partners, government agencies, and the Commission so they can implement strategies to protect, improve, and restore water quality for the public.
Permits Section	
Permits Unit 1	National Pollutant Discharge Elimination System permitting for surface water discharges, both process water and stormwater, from domestic treatment facilities, industrial sources, construction sites, municipal separate storm sewer systems, and pesticide applications. Issuance of biosolids authorizations, pretreatment control mechanisms, reuse authorizations, and Colorado Discharge Permit System ground water discharge permits.
Permits Unit 2	
Permits Unit 3	
Environmental Agriculture Program	National Pollutant Discharge Elimination System permits specific to concentrated animal feeding operations and housed commercial swine feeding operations. Water quality protection state control regulations applicable to animal feeding operations, including concentrated animal feeding operations, are administered by the Department's Environmental Agriculture Program. This program is housed within the Division of Environmental Health and Sustainability and administers all aspects of the regulatory programs associated with livestock operations including inspections, permitting, compliance assurance and compliance assistance.
Clean Water Compliance and Enforcement	
Clean Water Compliance and Enforcement Unit 1	Evaluation of self-reported and field collected National Pollutant Discharge Elimination System and Colorado Discharge Permit System facility data, enforcement of permit requirements and Colorado Water Quality Control Act.
Clean Water Compliance Unit 2	Evaluation of self-reported and field collected National Pollutant Discharge Elimination System and Colorado Discharge Permit System facility data, enforcement of permit requirements and Colorado Water Quality Control Act.
Drinking Water Program	
Field Services Section – Matrix-Managed With Clean Water Program	
Field Unit 1 (Denver)	Geographic coverage units provide compliance assurance and technical assistance to public water systems and clean water (e.g., domestic wastewater, industrial, stormwater, biosolids) facilities (e.g., compliance sampling and inspection, compliance assistance, spill response and enforcement case support).
Field Unit 2 (Pueblo and Grand Junction)	
Engineering Section – Matrix-Managed With Clean Water Program	
Engineering Review Unit 1	Engineering review, compliance assurance and technical assistance for public water systems and domestic wastewater facilities (e.g., areawide wastewater facility planning and drinking water capacity development, facility site approval, engineering plan review, facility construction inspection, compliance assistance, comprehensive performance evaluation).
Engineering Review Unit 2	
Drinking Water Compliance Assurance Section	
Compliance and Enforcement Unit North	Evaluation of self-reported and field collected drinking water facility data, enforcement of the Colorado Primary Drinking Water Regulations.
Compliance and Enforcement Unit South	

Regulation and Infrastructure Report Unit	Coordinate and directly support the development and maintenance of the Colorado Primary Drinking Water Regulations, Safe Drinking Water Program Policies, and Section-level business process and implementation documentation.
Facility Operator Certification Program	Assistance to facilities and operators and support for the Operator Certification Board (Matrix Managed with Clean Water Program).
Local Assistance Unit	
Local Assistance Unit	Provides training, technical assistance, and management support services to public water systems so they can strengthen their ability to supply safe drinking water to the public. The unit also performs significant program- and division-wide support activities including budget and grant management and is responsible for security and emergency preparedness services, including leadership of Colorado's Water/Wastewater Agency Response Network ("CoWARN"). Additionally, the unit is responsible for providing technical and financial assistance to public water systems and governmental entities to facilitate completion and implementation of source water protection plans.
Operations Program	
Grants and Loans Unit	Provides grants and low interest loans for water quality and public health-related infrastructure projects.
Business Data Services Unit	Supports the Division's Record Center, Data Management, GIS and Office of Information Technology coordination.
Fiscal Services and Support Unit	Provides general administrative, budget, contracting, purchasing, and grant management services for the Division.

The Division is the agency responsible for implementing and enforcing the regulations adopted by the Commission. Moreover, the Division provides the principal source of technical expertise available to the Commission in its rulemaking and other policy-setting activities. By statute, the Division is authorized to act as staff to the Commission in proceedings other than adjudicatory or appellate proceedings in which the Division is a party.

The Division has the challenging and vital responsibility of maintaining, restoring, and improving the quality of the state's waters and assuring that safe drinking water is provided from public water systems for the people of the state. In short, the Division's mission is to ensure that Colorado's waters are safe and clean.

C. Other State Implementing Agencies

The Colorado Water Quality Control Act identifies several "implementing agencies" that have the initial responsibility for implementing ground water water quality classifications and standards adopted by the Commission for activities subject to their jurisdiction. These agencies include: the Division of Reclamation, Mining, and Safety (formerly the Division of Minerals and Geology), the State Engineer, the Oil and Gas Conservation Commission, the Hazardous Materials and Waste Management Division, and the Division of Oil and Public Safety at the Department of Labor and Employment. Certain residual authority is preserved for the Commission to intervene in the event it determines that an implementing agency is not assuring compliance with water quality classifications and standards. Regulation of surface water discharges from these activities is retained by the Division.

Memoranda of Agreement (MOA) with each of the implementing agencies are in place to better define the interagency relationships. Pursuant to these MOA's, each agency submits annual reports to the Commission describing the status of their efforts to implement water quality protection requirements. These reports are discussed by the implementing agency with an opportunity for public comment provided at a regular Commission meeting.

Similarly, the Department of Agriculture has the initial responsibility to address potential ground water contamination from agricultural chemicals (pesticides and commercial fertilizers). Pursuant to Section 25-8-205.5 of the *Colorado Water Quality Control Act*, that Department is to develop voluntary best management practices and, if necessary, mandatory agricultural management plans to control this potential pollution source. Again, some residual authority is preserved for the Commission to act if it determines that additional regulatory requirements are necessary.

Finally, it should be noted that the Commission and the Division are required by Section 25-8-104(2)(d) of the *Colorado Water Quality Control Act* to consult with the State Engineer/Division of Water Resources and the Water Conservation Board, which are part of the Colorado Department of Natural Resources, "before making any decision or adopting any rule or policy which has the potential to cause material injury to water rights." These agencies receive copies of all Commission rulemaking hearing notices, and all notices include a provision requesting information from the public regarding potential impacts on water rights. In addition, in recent years, the Commission and Division have initiated several informal efforts to work toward better integration of Colorado's water quality and water quantity management systems, including:

- Quarterly meetings between a Commission member, the Commission Administrator, the Division Director, the State Engineer, the Water Conservation Board Director, and a member of the Water Conservation Board. Representatives of the Colorado Parks and Wildlife and Department of Agriculture also participate in these meetings;
- Upon request, briefings of the Colorado Water Conservation Board or the Commission by staff of the other agency on topics of mutual interest.
- In addition, several joint meetings between the Commission and the Colorado Water Conservation Board have been held as needed.

More information can be found on these implementing agencies at their respective websites:
Colorado Department of Agriculture: http://www.colorado.gov/ag.
Colorado Water Conservation Board: http://cwcb.state.co.us/Pages/CWCBHome.aspx
Division of Reclamation, Mining, and Safety: http://www.mining.state.co.us.
Division of Oil and Public Safety: http://oil.cdle.state.co.us.
Hazardous Materials and Waste Management Division: http://www.colorado.gov/cdphe/hm.
Oil and Gas Conservation Commission: http://cogcc.state.co.us.
State Engineer's Office: http://www.water.state.co.us.

D. Colorado Water Resources and Power Development Authority

Since its creation by the General Assembly in 1981, the Colorado Water Resources and Power Development Authority (Authority) has evolved into a major financing resource for water and wastewater utilities throughout Colorado. The Division, in partnership with the Authority and the Department of Local Affairs (DOLA), administers the State Revolving Funds (SRF). The Authority is governed by a nine-member Board of Directors appointed to four-year terms by the Governor and confirmed by the Senate. The Board members are chosen geographically from the eight major drainage basins around the state and from the City and County of Denver.

E. Department of Local Affairs

As a signatory to the Memorandum of Understanding (MOU) with the Authority and the Division, DOLA helps administer the SRFs by reviewing the financial capacity of public water systems seeking loans or grants under the revolving loan program.

F. Water and Wastewater Facility Operators Certification Board

The Colorado Water and Wastewater Facility Operators Certification Board (WWFOCB) maintains a program for the certification of operators of water treatment plants, municipal and industrial wastewater treatment plants, water distribution systems and wastewater collection systems. The WWFOCB establishes experience and examination requirements for separate categories of certification and establishes training requirements for renewal of certifications.

The WWFOCB contracts with two nonprofit corporations to carry out the principal day-to-day administration of the program. In addition, the Division is responsible for compliance and enforcement activities related to the operators certification program. The WWFOCB is responsible for disciplinary actions regarding water and wastewater facility operators based on Division investigation findings. It also serves as an appellate body with respect to program implementation actions by the Division and the nonprofit corporations that implement the

program.

G. Regional/Areawide Planning Agencies

Section 208 of the federal Clean Water Act provides that the governor of a state must identify areas of the state which, as a result of urban or industrial concentration or other significant factors, have substantial water quality problems. The Governor may designate regional planning agencies for these areas, after consultation with local governmental officials having jurisdiction over the area, to conduct the planning required by Section 208. The planning in these areas must be done by a single regional planning agency representing local elected officials. Section 208 calls for the preparation of "areawide waste treatment management plans," which are now more commonly referred to as "regional water quality management plans."

In Colorado, regional water quality management planning has occurred in each of the fourteen planning and management regions. The Governor has designated regional planning agencies to conduct Section 208 planning in five of these regions:

- Denver Regional Council of Governments (Denver, Boulder, Broomfield, Jefferson, Adams, Arapahoe, Clear Creek, Gilpin and Douglas Counties);
- North Front Range Water Quality Planning Association (Larimer and Weld Counties);
- Northwest Colorado Council of Governments (Pitkin, Eagle, Summit, Grand, Jackson and Routt Counties);
- Pikes Peak Area Council of Governments (EI Paso, Teller and Park Counties); and
- Pueblo Area Council of Governments (Pueblo County).

Of the five, only four are actively involved in water quality planning. As of the adoption of this document, Denver Regional Council of Governments (DRCOG) was not currently active in water quality planning. Water quality management planning for the remaining areas of Colorado (non-designated areas) and the DRCOG planning area is the responsibility of the state and is being coordinated through the Division in cooperation with local governments.

The regional water quality management planning agencies serve as the local link in the overall water quality management program. The actions of these agencies, and their collective local governments, provide essential information to ensure that local water quality goals and objectives are considered in state and federal water quality decision making. These actions include stream classifications, wasteload allocations, grant and/or loan priority information, planning reviews and site application comments.

The water quality management planning process also identifies roles for "management agencies" and "operating agencies." Management agencies are identified under the law as implementers of Section 208 plans. The primary responsibility of the management agency is to assure that the point and nonpoint source control programs which have been assigned to them are accomplished within prescribed time frames.

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

Several water quality management plans prepared under Section 208 have identified operating agencies. 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). Additional information on Section 208 Planning requirements is included in Appendix E.

H. Watershed-Based Water Quality Authorities/Associations/Forums

Over the last several years, increasing interest in a watershed-based approach to water quality management has led to a number of local and regional initiatives in Colorado. These initiatives reflect a great diversity of

organizational models and functional roles. Some initiatives focus on implementation of site-specific control regulations adopted by the Commission (e.g., Cherry Creek Basin Water Quality Authority, Chatfield Watershed Authority, Bear Creek Watershed Association, Summit County Water Quality Committee). Some initiatives have primarily an information-sharing focus (e.g., Upper Arkansas Watershed Initiative, Colorado River Headwaters Forum). Some initiatives focus on source water protection (e.g., Standley Lake/Upper Clear Creek Watershed Association). Other initiatives focus on implementation of remediation and restoration projects (e.g., Animas River Stakeholders Group, Clear Creek Watershed Foundation).

The number and nature of these local and regional watershed initiatives in Colorado is continually evolving. No effort is made in this Guide to comprehensively catalogue or describe such initiatives. Whatever the primary focus, organizational structure, scope and level of formality of these local and regional initiatives, they are expected to play an increasingly important role in water quality management in Colorado. All local and regional watershed initiatives should be listed in appropriate regional water quality management plans. To increase the effectiveness of watershed initiatives, the Colorado Watershed Assembly was formed. It is an informal network which facilitates communication between groups and agencies and serves as a clearinghouse for resource information. The Assembly's website is http://www.coloradowater.org.

I. Local Health Departments

Organized local health departments exist in many areas of Colorado. These agencies are authorized by state law to provide health and environmental protection services at the local level. Through specific authorization, local health departments can serve as agents of CDPHE. Over the last several years, CDPHE has been striving to create a more effective partnership with local health agencies.

Among the functions which the local health departments can perform are water and wastewater inspections, sampling and emergency assistance. Approval of on-site wastewater treatment systems (OWTS) rests under law with counties. This function is generally performed by the local health department, where one exists. Local health departments are provided the opportunity to comment on site applications for domestic wastewater treatment facilities and wastewater management planning aspects of regional water quality management plans. In addition to these responsibilities, the local health departments assist Division personnel in their routine functions. The Division contracts with certain local health departments to conduct Sanitary Survey Inspections of non-community ground water systems. Inspections of housed commercial swine feeding operations for the protection of surface and ground water quality are contracted by the Division of Environmental Health and Sustainability to local health departments where these operations are located.

J. Informal Advisory Organizations

In addition to the governmental and quasi-governmental entities described above, a number of more informal advisory organizations play important roles in the water quality management process. These groups tend to fall into two categories: (1) standing committees that have an ongoing operation and role in water quality management; and (2) short-term, issue-specific groups.

One example of the former is the Colorado Water Quality Forum (Forum). The Forum was created in 1992 to provide an opportunity for an ongoing informal dialogue among diverse parties representing a broad spectrum of stakeholder interests in water quality management. Participants include water suppliers, industrial and municipal dischargers, environmental groups, and federal, state, and local governmental agencies. The adopted mission of the Forum is: “To achieve solutions to Colorado water quality issues through communication and understanding, balancing use, and protection of the resource.” Forum meetings are facilitated by an external contractor, and funded through participant contributions. To date, the Forum has experienced considerable success in improving communication among stakeholders and fostering a more cooperative approach in the administrative and legislative consideration of difficult water quality issues. The Forum's website is: http://colowqforum.org/.

A second example of an informal standing committee is the Colorado Nonpoint Source Alliance, formerly known as the Nonpoint Source Council, which was formed at the request of the Division in 1987. Since then it has served as an advisory work group for the Division in the implementation of Colorado's nonpoint source management program, annually providing input to the Division on which proposed projects should receive

federal funding under Section 319 of the federal Clean Water Act. The current Nonpoint Source Alliance is made up of various water interests, including governmental, environmental, and the resource development community.

Two other examples of informal advisory organizations are the Colorado Water Quality Monitoring Council and the Ground Water Quality Protection Council. Both serve as a forum for information exchange on water quality monitoring and protection efforts as well as a vehicle for changing data and databases.

K. Environmental Protection Agency

The federal Environmental Protection Agency (EPA) has several roles with respect to Colorado's water quality control programs. EPA is required to approve water quality classifications and standards adopted by the Commission, as well as total maximum daily loads developed by the state. EPA provides discharge permit program oversight both by approving overall program delegation and through its ability to veto individual discharge permits or take independent enforcement action. As part of the state's continuing planning process, the Division submits the Statewide Water Quality Management Plan to EPA. This plan is prepared in accordance with Section 303(e) of the federal Clean Water Act. Section 208 plans approved by the Commission are also submitted to EPA.

EPA also plays a key role by providing approximately half of the funding for the Division's water quality programs. In addition to funding for general program administration, substantial funds are provided for nonpoint source control projects and to capitalize the SRFs for wastewater and water treatment plant construction. This funding from EPA requires the Division to prepare an annual work plan of its activities that is approved by EPA. The work plan is called the Performance Partnership Agreement (PPA) and is tied to the Performance Partnership Grant (PPG). The PPA outlines the Division's goals, objectives, performance measures, and milestones and is updated biennially with status reports in the alternate years.

Finally, in addition to adopting regulations establishing water quality program requirements that must be met by states, EPA frequently issues guidance documents or policy statements on a variety of topics. While often useful, such documents have also led to controversy in a number of instances due to confusion or disagreement about their voluntary vs. mandatory nature.

L. Other Federal Agencies

Several other federal agencies become involved in water quality management in Colorado in particular circumstances. Federal land management agencies, such as the U.S. Department of Agriculture (USDA) Forest Service and the U.S. Department of the Interior Bureau of Land Management, and National Park Service, consider water quality protection in their management programs. The U.S. Army Corps of Engineers administers the federal Clean Water Act Section 404 permit program, which regulates the discharge of dredged or fill material that may adversely impact waters of the United States, including wetlands. The U.S. Bureau of Reclamation has increasingly included environmental protection considerations into its management of federal water projects. The USDA administers an Environmental Quality Improvement Program under the federal Farm Bill. The U.S. Fish and Wildlife Service (USFWS) consults with other federal agencies under Section 7 of the Endangered Species Act regarding activities that may adversely impact threatened or endangered species. The USFWS has entered into an MOA with EPA regarding consultation with respect to water quality program activities. The U.S. Geological Survey undertakes a variety of studies regarding water quality, including the National Water Quality Assessment program.

M. General Public

Public participation is an integral part of water quality management in Colorado. All regulatory actions of the Commission and Division are required to follow the appropriate public notice and hearing requirements. In addition, with respect to other policy-making and non-rulemaking activities of the Commission and Division, an opportunity for public input is often provided, e.g., through informational hearings or public meetings. Information regarding opportunities for participation in Commission activities is included in a *Water Quality Control Commission Public Participation Handbook*, copies of which are available from the Commission Office or the Commission website.

Local governments and regional water quality planning agencies are required to provide opportunities for public input into their deliberations regarding water quality management plan updates. Moreover, an important aspect of the increasing trend toward a watershed protection approach is assuring a full opportunity for stakeholder input and participation in watershed planning and management activities.

Part II. Water Quality Management

A. Introduction

This portion of the Guide describes how Colorado protects the quality of its ambient water bodies. Section 303(e) of the federal Clean Water Act requires states to maintain a continuing planning process to protect the quality of its ambient waters and describes how this requirement is met by Colorado's water quality management efforts. Traditionally, the term "water quality management" refers to ongoing or continuing efforts to:

- Assess the quality of water in the environment;
- Set water quality standards for such waters to protect beneficial uses; and
- Control sources of pollution that may adversely impact water quality.

This section details how these major functions are accomplished in Colorado and provides information on topics including water quality monitoring and reporting, water quality classifications, total maximum daily loads (TMDLs), discharge permits, compliance assurance and financial assistance efforts.

Colorado's approach to water quality planning and management has evolved substantially over the last four decades, largely in response to the changing federal and state statutory mandates. At present, these efforts are evolving toward more of a watershed protection focus. (In this context, the term "watershed" is intended as a flexible concept, referring to an identified geographic area affecting a water body or water segment.) That is, planning and management are moving toward a holistic strategy to protect or attain the desired beneficial uses and levels of water quality within a watershed, including, where appropriate, protection of human health and aquatic ecosystems. A successful watershed protection approach must be founded on cooperative interaction between the federal, state, and local levels of government and between the public and private sectors. This document describes how these groups interact to address water quality management in Colorado.

Sections B through F of Part II provide a summary of Colorado's approach to implementation of what can be referred to as the "water quality management cycle." The concept of a watershed-based water quality management cycle is based on the observation that there is a logical sequence to most of the steps in the water quality management process, and that this process is an iterative one, where the major steps are repeated over time. Specifically, the major steps in this cycle can be summarized as:

- Water Quality Monitoring, Assessment and Reporting
- Water Quality Classifications, Standards and Designations
- Total Maximum Daily Loads Development
- Establishment of Source Controls
- Compliance Assistance and Assurance
- Financial Assistance (See Part IV of this Guide)

After this final step, the process returns to monitoring, assessment and reporting. Although this model is largely conceptual, and in many instances provides only a very general relationship to day-to-day water quality management, it provides a useful framework for understanding how the planning and management process works.

B. Water Quality Monitoring, Assessment and Reporting

1. Monitoring

Monitoring of water quality is an important component of the state's water quality management program. Monitoring and data analysis are essential to identifying and characterizing water quality problems, revising water quality standards, and developing and evaluating the results of control programs. Monitoring information is also essential for calibration of water quality models used for wasteload allocation studies. Monitoring can also substantiate water pollution in connection with an enforcement action.

Although the federal Clean Water Act does not specifically direct states to conduct ambient monitoring, Section 106(e) of the federal Clean Water Act authorizes grants to states to administer pollution control

programs if those states have established necessary water quality monitoring procedures, have compiled and analyzed data, and have completed a Section 305(b) report. In 2003, EPA issued a guidance document entitled *Elements of a State Water Monitoring and Assessment Program* (The Ten Elements). This guidance document was intended to assist in determining whether a state program meets the prerequisites for Section 106(e) and to provide a framework for states to identify their programmatic and resource needs so as to establish a plan for incremental improvement in the monitoring program over the long-term. In response to this guidance, the Division prepared the *Colorado's Water Quality Monitoring and Assessment Strategy 2004- 2014*. The plan consists of two activities: review and evaluation of existing state monitoring and assessment programs, and development of statewide monitoring strategies.

In the process of developing this strategy, the Division took the first steps in evaluating its monitoring and assessment programs. The Division identified many needs, gaps, and opportunities to improve the programs. Already, several activities to improve or expand its monitoring activities have been included as objectives in the PPA.

The following is a short list of the monitoring and assessment initiatives and projects that are underway or being initiated. These projects are part of the overall strategy and, to the extent that funding is available, the Division will continue to implement them.

- Increased funding for laboratory analytical services for water samples;
- Increased macroinvertebrate sampling;
- Electronic data stream development for habitat, sediment and periphyton data;
- Increased monitoring of fish tissue for mercury, selenium, and arsenic;
- Cyanotoxin (blue-green algae) monitoring;
- Increased monitoring of lakes/reservoirs; and
- Ambient ground water monitoring.

To facilitate implementation of The Ten Elements, EPA provides "supplemental" monitoring and the Section 106 “Monitoring Initiative” grant.

The goal of the monitoring program is to provide information needed to assess the surface waters and provide information for the state's water quality management activities. The Division’s surface water monitoring strategy has many specific program objectives which can be grouped into four categories: routine monitoring, lakes and reservoir monitoring, biological and habitat monitoring, and special studies monitoring.

a. Routine Monitoring

Routine monitoring is the collection of water quality samples at a network of fixed sites on a regular schedule, such as monthly or bimonthly. These sites are sampled for multiple purposes, including reviewing and developing water quality standards for rulemaking hearings, water quality assessments, trend detection, and TMDL development. The Division's routine water quality samples are collected by three technicians stationed in Denver. Samples are analyzed by CDPHE's Laboratory Services Division.

i. Standards Review

One focus of the Division's routine monitoring is to provide an adequate, representative, and current water chemistry database to support changes to water quality classifications, designations, and standards for surface water segments. Since 1992, the Division's routine monitoring has been concentrated in a different major watershed each year, to provide a complete data set for the triennial review of water quality standards. Each year, monitoring efforts are rotated to the watershed next on the schedule for standards review. The schedule for the water quality standards reviews is posted on the Commission's website.

Generally, the Division's primary monitoring for a particular basin occurs the year prior to the next major rulemaking hearing for a basin. The Division's monitoring plan is presented at an Issues Scoping Hearing 20 months prior to the rulemaking hearing.

ii. Trend Monitoring

Another important purpose for maintaining the statewide routine monitoring network is to obtain water quality data for the detection of trends. Sites established to detect trends are permanent ensuring that there is an adequate database to identify and evaluate long-term changes in water quality, especially in relation to anthropogenic factors. Most of these sites are located on streams that are affected by point or nonpoint pollution sources such as urban development or irrigated agriculture. A few trend sites, however, are located in undeveloped watersheds; these act as reference stations which may aid in identifying subtle changes in quality due to changes in climatic patterns, or atmospheric deposition.

b. Lakes and Reservoir Monitoring

The Division conducts monitoring at a limited number of reservoirs and lakes around the state to determine their trophic status, develop TMDLs, and support changes to standards and classifications during triennial reviews. Resources for lake monitoring are limited, as funds for such monitoring originate from the overall surface water-monitoring program.

c. Biological and Habitat Monitoring

The Division conducts biological and habitat monitoring to obtain data for use in stream standards and classification reviews and for determining attainment of the aquatic life use in the context of the listing of impaired waters pursuant to Section 303(d) of the federal Clean Water Act. This monitoring typically includes macroinvertebrate sampling, attached algae analysis, chemical sampling, and habitat evaluation.

d. Special Study Monitoring

Special studies include synoptic studies for the development of TMDLs, site-specific criteria development studies, spill investigations, measurement of contaminants in fish tissue, fish-kill investigations, compliance sampling inspections of dischargers, special water quality investigations, and in-depth monitoring below specific wastewater treatment plants to develop information about effluent mixing zones.

i. Synoptic Studies

Synoptic studies provide a "snapshot" of water quality conditions and constituent loadings in a particular geographical area (watershed) during constant conditions, over a short period of time. Synoptic studies are typically conducted on targeted watersheds to determine pollutant concentrations and loadings. Watersheds are targeted for study based on (1) their priority in the schedule to complete TMDLs; (2) if assessments are needed to develop the Section 303(d) or monitoring and evaluation lists; (3) to develop effluent limits; or (4) to detect nutrient or other water quality problems where site-specific concerns have been raised.

ii. Point Source Monitoring

Under the Colorado Discharge Permit System (CDPS), the state collects water quality data to use in calculation of wasteload allocations on stream segments before discharge permits are issued or renewed. These allocations ensure that the discharge of constituents to the stream segment will not affect the beneficial uses of the water.

iii. Probability-Based Monitoring

Colorado is currently participating in EPA's National Aquatic Resource Surveys, a probability-based monitoring program to assess the status and trends of aquatic systems. These surveys provide consistent and technically defensible methods across the country through standardized field and lab methods. This effort will result in a statistically-based comprehensive assessment of conditions in Colorado streams by 2014. Similar data collection efforts for lakes and wetlands have been conducted in Colorado, and data will be reported out on a national level.

iv. Monitoring for Measureable Results

The Measureable Results Program was designed to conduct water quality characterization to support planning and prioritization of point and nonpoint source pollution control activities to achieve

maximum water quality benefit. The Division designs, plans and conducts water quality investigations to measure how effective investment projects and division programs are in restoring, maintaining and protecting water quality.

e. Quality Assurance/Quality Control Program

The Division's monitoring programs follow standard operating procedures for sample collection, sample processing, field data analysis, and quality assurance/quality control (QA/QC). The Division has a quality management plan entitled *Quality Management Plan for the Collection and Utilization of Environmental Data (QMP)*. This document represents an update of the Division's QA/QC procedures including the development of a process for updating and developing Quality Assurance Project Plans, Sample Analysis and Assessment Plans and Standard Operating Procedures. It defines the quality assurance goals and the methodology and criteria for attaining the goals. The QMP is an "umbrella" under which all activities involving the collection, manipulation, and utilization of environmental data are controlled. This QMP satisfies EPA's requirement for an approved agency-wide quality system for all EPA funded or sponsored activities generating or using environmental data. The QMP will be used to ensure that all data used by the Division, not just that connected to EPA programs, are reliable and of a defined level of quality. Mandatory use of Quality Assurance Project Plans and the associated Sampling Analysis and Assessment Plans and Standard Operating Procedures will be key elements in implementing this QMP. All activities that use or generate environmental data will be subject to the requirements outlined in the Division's QMP.

f. Monitoring Partnerships

In 1999, the Colorado Water Quality Monitoring Council was established by a group of interested stakeholders, including the Division. The council was patterned after newly formed councils at the state and national level. The Monitoring Council serves as a statewide collaborative body to help achieve effective collection, interpretation, and dissemination of water quality data and information. The goals of the Monitoring Council are to:

- Provide a forum for effective communication, cooperation, collaboration, and documentation among individuals and organizations involved in monitoring;
- Promote the development of collaborative and cost-effective watershed-based monitoring strategies;
- Promote the use of quality assurance procedures and protocols related to sample collection, analytical methods, assessment, data management, and distribution; and
- Provide strategic direction for a statewide water quality monitoring network.

Numerous entities are now members, including a diverse group of policy-level individuals; government, academic, citizen, and industry organizations; consultants, and watershed groups who are involved in water quality or quantity issues. Activities sponsored by the council include website development, a conference, and data swaps where entities involved in monitoring in a particular watershed were invited to a council meeting to share why, what, when, where and how they were monitoring water quality and quantity. The data swaps were very successful in identifying where there were monitoring gaps as well as duplication of monitoring efforts. The major project currently underway is the Colorado Data Sharing Network project.

The Data Sharing Network is a statewide, web-based, water quality database and interactive map. Anyone who would like to share water quality data can upload their data through a template on the internet. This data can be accessed (read only) by anyone. Anyone accessing the map can zoom into a particular watershed and click on a monitoring site (dots on the map) to find out who is monitoring at that site, what parameters are being used, and, if the monitoring entity has uploaded data, the data can be viewed and downloaded. The data that is uploaded must comply with the EPA's Water Quality Exchange (WQX) requirements so that it is in a standard format that is usable by EPA and the state.

The Division has funded this project through a nonpoint source/Section 319 grant and a Section 106 Monitoring Initiative Grant and includes development of training materials, user training, and outreach to publicize the network and to seek out monitoring data to populate it. The Data Sharing Network will eventually need to become a self-supporting entity. This will take ownership by some agency, or possibly a fee structure, or both.

There are over 50 local watershed groups across Colorado, a number of which are involved in monitoring activities. The Division has partnered with several of these groups by providing laboratory analysis of samples collected by the watershed group. The Division has funded the sorting and identification of macroinvertebrate samples collected by the Big Thompson Watershed Forum, the Roaring Fork Conservancy, and Colorado Parks and Wildlife.

g. Environmental Quality Information System

The data management application, Environmental Quality Information System (EquIS), is a crucial piece in the support of local, state, and national water resource monitoring and management strategies. This application provides for effective storage, retrieval, data analysis and presentation of water resource data, including chemical, physical, and biological information. It also facilitates cooperation among monitoring agencies and other entities since it is designed to work with the EPA's WQX standardized set of data elements that describe the expertise and methodologies used to obtain the data. The WQX provides a framework for data sharing through the EPA's Central Data Exchange (CDX) network and thus serves to ensure that the data being collected is readily shared and thus more useful to the community at large. Additionally, it is via the WQX/CDX network that the state will provide its data to the EPA's national ambient water quality warehouse, previously known as STORET for STOrage and RETrieval.

2. Assessment

a. Overview

Assessment is the process by which water quality data is transformed into information. Assessment can be characterized as the processes that lead to the interpretation of data and the utilization of tools such as computer modeling to simulate various conditions. Water quality information is then used as the basis for water quality management decisions. Assessment activities support nearly all aspects of the water quality management processes described in this document.

Assessment of water quality data is essential in determining whether use classifications and water quality standards are being attained and whether proposals to make changes to such standards and classifications are appropriate. Permit limitations, for municipal and industrial dischargers, also require an assessment of instream water quality conditions, the quality of discharged wastewater, and the allowable levels of various pollutants to meet stream standards.

Other important water quality management processes which may require assessment include: reviews of actions which require an antidegradation analysis to ensure that antidegradation requirements are met; source water protection plans designed to reduce pollutants and provide safe drinking water quality; and certification of federal permits and licenses under Section 401 of the federal Clean Water Act to ensure that state water quality standards are met.

b. Listing of Impaired Waters

Section 303(d) of the federal Clean Water Act requires that states periodically submit to EPA a list of those waters for which technology-based effluent limitations and other required controls are not stringent enough to implement water quality standards. Once listed, the state is required to prioritize these water bodies or segments (rivers, streams, lakes, reservoirs) for analysis as to the causes of the water quality problem and for allocation of the responsibility for controlling the pollution. This analysis is called the TMDL process which is described in Section D below.

Segments are included on the Section 303(d) list of impaired waters based on an evaluation of biological, chemical, or physical data demonstrating nonattainment of numeric or narrative standards or use impairment. An additional list, the Monitoring and Evaluation List, is comprised of waters for which there is some data available suggesting water quality problems, but for which the data are inadequate to support a determination of nonattainment. Both lists are promulgated as regulation by the Commission.

The assessment practices used by the Division to determine the attainment status of waters in the state are detailed in the Listing Methodology document. The Listing Methodology is approved by the Commission through an Administrative Action Hearing process. Like the lists themselves, the Listing Methodology is revisited every two years. The Lists and Listing Methodology are available on the Commission's website.

3. Water Quality Management Plans and Reports

a. Integrated Report/Section 305(b) Report

Section 305(b) of the federal Clean Water Act requires each state to biennially prepare and submit a report regarding the status of water quality to EPA. This report provides a means for states to report to EPA an assessment of the status of water quality for the preceding two years. Typically, the Section 305(b) report includes a summary of water quality management programs and an estimate of the environmental, social, and economic impacts associated with achieving the objectives of the federal Clean Water Act.

Section 305(b) Report

Section 305(b) of the federal Clean Water Act requires states to assess and report on the quality of the State's waters every two years. The Section 305(b) Report, Status of Water Quality in Colorado, characterizes the waters of Colorado through the assessment of water quality data and analyzes the extent to which the waters support designated uses. The report also includes updates on the status of water quality control programs, including the Colorado Discharge Permit System Program. Nonpoint Source Management Program, Ground water Program, Water Pollution Control Revolving Fund, and the Drinking Water Program.

The Integrated Report includes Section 305(b) as well as the Section 303(d) list. The state is responsible for preparation of the Section 305(b) report and draws upon a number of sources of information in preparation of the document. Particularly important information sources used in preparation of the report include monitoring information from a variety of sources, special stream studies conducted by a variety of public or private agencies, and the water quality assessment section of regional water quality management plans.

Once the Division has prepared the Integrated Report Section 305(b) and 303(d) list report, an informational public hearing is held by the Commission to provide a forum for public comment on the contents of the report. Following Commission approval, the report is submitted to EPA.

b. Regional Areawide Planning

The state, through the Division, is required to conduct planning for areas outside the borders of designated planning agencies. The State Planning and Management Regions are identified in the map below. See Appendix C, Item 15, for the counties listed in each Planning Agency.

Section 208 of the federal Clean Water Act planning for the non-designated areas is coordinated through the Division in cooperation with the local governments. The Division does the functional planning in these areas (Regions 1, 3, 5, 6, 8, 9, 10, 11, 13, and 14). The Division will periodically review the need to update regional water quality management plans for the non-designated regions of Colorado. Factors such as funding availability, regional interest in pursuing an update, population growth, development pressure, support of local elected officials, and the commitment of local and regional resources into continued water quality planning will be considered in this review. The Division will identify potential funding that may be available to hire contractors or made available to local and regional interests to develop an appropriate plan.

The role and uses of approved water quality management plans include, but are not limited to, the following:

- The plans review the status of water quality within specific areas and report on progress in meeting the local, state, and federal water quality goals, as well as watershed management objectives, which are established in approved plans.
- The plans support and/or recommend revisions to water quality standards, stream classifications, and TMDLs, where appropriate.
- The plans include priorities, processes and recommended solutions for addressing water quality problems. The plans document results of local and regional TMDLs and special studies.
- The plans identify priorities and permitting needs or wastewater utility/facility plans for improving or constructing wastewater facilities, as required by Section 208(d) of the federal Clean Water Act.
- The plans identify the social, economic, and environmental costs and benefits of implementing portions of the plans, where appropriate.
- The plans list existing or anticipated (20-year planning horizon) water quality problems, assessments, and solutions.
- The plans identify data and information to support watershed restoration action strategies, source water, TMDLs, stormwater, and nonpoint source decision-making processes.

c. Watershed and Basin Plans

Watershed plans and basin plans are designed to consider water quality problems and solutions from a broad perspective. Watersheds are geographic regions which are usually defined by natural drainage areas and the waters within those drainages. Utilizing a "watershed approach" allows for an inclusive appraisal of all potential sources of water pollution, both point and nonpoint source, and increases the opportunities for finding solutions to those identified problems. In recognition of this potential, the Forum authored a July 1994 paper on the watershed approach, which is entitled *A Colorado Watershed Protection Approach*.

Basin planning pursuant to Section 303(e) of the federal Clean Water Act was initiated in 1973 with financial assistance from the State of Colorado. This broad planning effort was conducted by the Division at the hydrologic river basin level for a major portion 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 Commission and the Governor in 1975. The basin plans concentrated on water quality management for point sources. Nonpoint source problems were assessed only briefly.

Watershed planning is a comprehensive approach to considering water quality problems and solutions in a holistic framework. It is generally utilized when water quality problems cannot be solved at a single location with a simple solution, but instead requires analysis of many different possible sources which may generate water pollution.

Watershed planning may vary in terms of specific objectives, priorities, elements, and resources, but generally follows these guiding principles:

- Partnerships/Stakeholders - Those people most affected by management decisions are involved throughout and shape key decisions.
- Geographic Focus - Activities are directed within specific geographic areas, usually areas that drain to rivers, streams, or lakes.

- Sound Management Techniques Based on Good Science and Data - Sound scientific data, tools, and techniques are used in an iterative decision-making process. This requires characterizing the affected resources, setting goals and objectives, identifying priority problems, developing management options, implementing selected options, and evaluating effectiveness.

Watershed planning encourages long-lasting collaborative relationships, which are capable of establishing and implementing goals and targets for water quality improvement while continuing to analyze and verify problems for which information is incomplete.

d. Statewide Water Quality Management Plan

The Statewide Water Quality Management Plan (SWQMP) provides a framework for water quality planning based on federal regulation at Section 130.6 of Title 40 of the Code of Federal Regulations (40 CFR 130.6). The SWQMP discusses Division programs and activities associated with the following specific elements defined in 40 CFR 130.6: water quality management agencies; effluent limitations; TMDLs; municipal and industrial waste treatment; nonpoint source management and control; water quality management plan implementation measures; dredge and fill; and ground water. The SWQMP also provides a comprehensive look at water quality across the entire state, as well as more specific water quality information for the seven river basins in the state. This comprehensive water quality information is compiled from a number of information sources including the Division's Integrated Report (an integration of the federal Clean Water Act Section 305(b) report on statewide water quality and the federal Clean Water Act Section 303(d) list of waters not meeting water quality standards) and the Colorado Water Conservation Board's statewide water supply initiative documents.

The first version of the SWQMP was finalized in June 2011 and the updating process for the SWQMP is tied to the triennial review cycle. Basin-specific data and information are updated the year following the associated standards triennial review hearing, and statewide and programmatic updates occur the year following a Basic Standards Rulemaking Hearing. The annual, basin-specific revisions to the plan are completed by the Division with the understanding that any person concerned about a Division update can request Commission review of the Division's action and the understanding that the Commission formally acts on proposed updates to the SWQMP through a public process once every five years.

e. Commission/Division Report to the Public

The Commission and Division have developed a new type of report for the public regarding Colorado water quality. The goal is a short, easy-to-read document that conveys an understanding of current water quality in Colorado, as well as existing and future challenges. This report is entitled *Status of Water Quality Colorado* and is available on the Commission's website.

C. Water Quality Classifications, Standards, and Designations

1. Surface Water Standards

a. Overview

The Basic Standards and Methodologies for Surface Water (Basic Standards), Regulation No. 31: (1) establishes a system for classifying state waters to protect beneficial uses, for assigning numeric standards and for granting temporary modifications; (2) establishes certain statewide standards that are applicable to all state waters; (3) establishes a statewide antidegradation rule; and (4) includes certain provisions unique to wetlands.

The system for assigning surface water quality classifications and standards is based on adopting use classifications that identify those uses to be protected on a stream segment, and then adopting numerical standards for specific pollutants to protect those uses. The Basic Standards regulation constitutes the framework that is applied on a site-specific basis to adopt classifications and standards in each of the state's river basins. (As used in Colorado, "classifications" refers to the use categories for which specific state waters are to be protected, while "standards" refers to the narrative or numeric criteria that are adopted to protect the classified uses. EPA uses somewhat different terminology.) See the *Water Quality Standard Setting Process*

chart on page 22.

Note that the state does not have jurisdiction to adopt water quality standards for land on Indian reservations located within Colorado's borders. Water quality standards for those areas come under the jurisdiction of the EPA, Southern Ute tribe, or Ute Mountain tribe.

b. Statewide Standards

Several narrative water quality standards have been adopted which are applicable to all state surface waters. (Note: Sections referenced in brackets refer to Commission Regulations.) [Section 31.11(1)] A narrative standard is a general, non-quantified statement of conditions to be met by state waters. For example, state surface waters are to be free from pollutants that "are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life."

Statewide numeric standards have been adopted for radioactive materials and organic chemicals. The radioactive materials standards apply to all state surface waters unless alternative site-specific standards have been adopted. [Section 31.11(2)] The "water supply" and "aquatic life based" standards for organic chemicals apply to all surface waters for which the corresponding use classifications have been adopted unless alternative site-specific standards have been adopted. [Section 31.11(3)] The "fish ingestion" and "water + fish" standards for organic chemicals are intended to provide human health protection where fish consumption is a consideration. The fish ingestion standards apply to all Class 1 aquatic life segments that do not have a water supply classification and any Class 2 aquatic life segments without a water supply classification designated by the Commission after a rulemaking hearing. The “water + fish” ingestion standards apply to Class 1 aquatic life segments and designated aquatic life Class 2 segments that also have a water supply classification. [See footnotes 3 and 8 to the Basic Standards for Organic Chemicals Table in Section 31.11(3).]

c. Site-Specific Classifications and Standards

Use classifications and numeric water quality standards have been adopted for streams, lakes, and reservoirs throughout each of the state's river basins. Within each basin, waters are divided into individual stream segments for classification and standard-setting purposes. Site-specific water quality classifications are intended to protect all existing uses of state waters and any additional uses for which waters are suitable or are intended to become suitable. [Section 31.13] The current use classification categories are: (1) recreation class E - existing primary contact use, recreation class P - potential primary contact use, recreation class N - not primary contact use, or recreation class U - undetermined use; (2) agriculture; (3) cold water aquatic life class 1, warm water aquatic life class 1, or cold and warm water aquatic life class 2; (4) domestic water supply; and (5) wetlands. A "seasonal" qualifier can be adopted to limit applicability of a classification to certain periods of the year. A "goal" qualifier can be adopted to indicate waters that are not yet fully suitable for a classified use.

The concern regarding appropriate classifications is heightened by state and EPA downgrading rules. Section 31.6(2)(b) precludes downgrading "unless it can be demonstrated that the existing classification is not presently being attained and cannot be attained within a twenty year time period." A "use attainability analysis" (UAA) needs to be performed to justify the downgrading.

For each classified stream segment, numeric water quality standards are adopted that are intended to maintain water quality at a level sufficient to protect the classified uses. Even where classified uses can be agreed upon, there can be substantial debate over the appropriate numeric standards for a site-specific segment, largely because more stringent numeric standards can have a major impact on dischargers' treatment costs.

There are three potential approaches to the adoption of site-specific numeric standards. [Section 31 .7(1)(b)] First, table value standards (TVS) are based on criteria set forth in three tables contained in the Basic Standards regulation. These are levels of pollutants determined to be generally protective of the corresponding use classifications. They are applied in most circumstances, unless site-specific information indicates that one of the following approaches is more appropriate.

Second, ambient quality-based standards - e.g., standards based on the existing instream quality - may be

adopted where natural or irreversible pollutant levels are higher than would be allowed by TVS but are determined adequate to protect classified uses.

Third, site-specific criteria-based standards may be adopted where an indicator species procedure (water effects ratio), recalculation procedure, use of the biotic ligand model for site-specific copper standards, use attainability analysis or other site-specific analysis indicates that alternative numeric standards are appropriate for protection of classified uses.

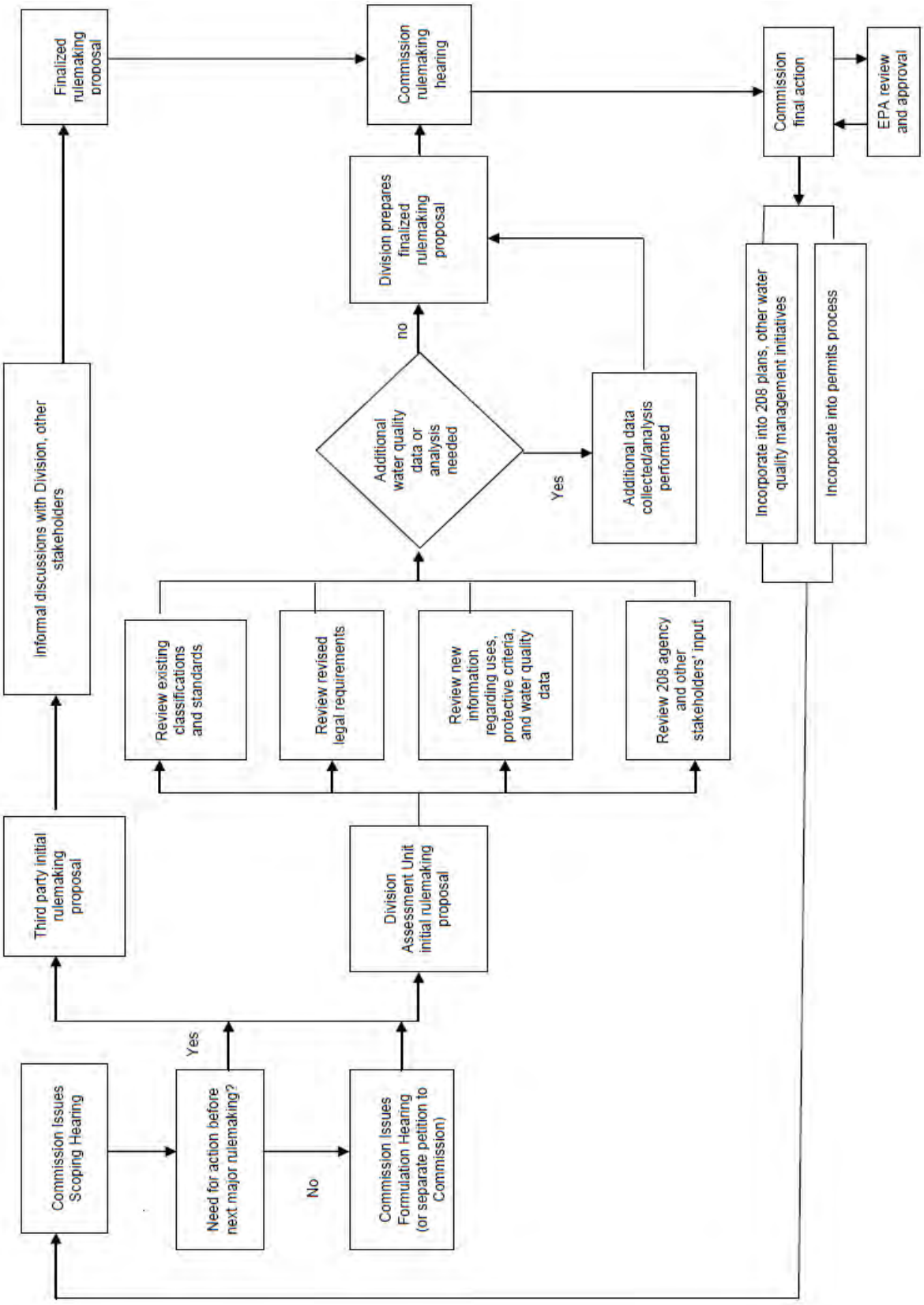
Temporary modifications to numeric standards may be adopted where the Commission determines that there is significant uncertainty regarding the appropriate underlying standard. [Section 3 I .7(3)] For example, if the Commission believes that the existing quality of a segment may be the result of natural or irreversible human-induced conditions, it may adopt a temporary modification based on existing quality while studies are undertaken to determine the appropriate long-term standards. Temporary modifications are re-examined not less than once every three years.

The Commission expects that progress will be made to develop information to resolve temporary modifications. The Basic Standards direct that while temporary modifications are in place, water quality should be maintained at the best level that is practicably achievable. This allows the Division to exercise its discretion in determining the level of treatment that a facility can provide without significantly increasing costs, such that water quality would be maintained or even improved. An example would be where the existing quality of the facility discharge is better than the level of the temporary modification or where relatively minor actions, such as adopting local pretreatment limits or low cost facility improvements, could be taken to improve the quality of the discharge.

In 2010, the Commission adopted provisions in the Basic Standards authorizing "discharger-specific variances" from water quality standards where an alternative analysis demonstrates that there are no feasible alternatives that would result in attainment of standards. [Section 31.7(4)]

Pursuant to the federal Clean Water Act, EPA has established requirements that define acceptable state surface water quality standards. All water quality classifications and standards adopted by the Commission are submitted to EPA for review and approval. Pursuant to an EPA rule adopted in 2000, revisions to classifications and standards adopted by the Commission and submitted to EPA for approval now do not become effective for purposes of the federal Clean Water Act until approved by EPA. If EPA disapproves specific classifications and standards, the state has an opportunity to reconsider its standards. If appropriate modifications are not made, EPA has authority to adopt standards that will then apply within the state. Although EPA has never exercised this authority in Colorado, the potential has had a major impact on Commission decisions in a number of instances.

Water Quality Standard Setting Process Map



d. Antidegradation Provisions

Antidegradation

Colorado's antidegradation regulation provides protection of water bodies from degradation over a baseline water quality condition. Three levels of protection apply to Colorado's waters: Outstanding Waters - where no degradation is allowed, "Reviewable Waters" - where only insignificant degradation is allowed without further analysis, and "Use Protected Waters" - where degradation is allowed up to the water quality standard. Colorado's regulations regarding what constitutes significant degradation are further defined in a guidance document available on the Division's website.

Antidegradation provisions of the Basic Standards and Methodologies for Surface Water: (1) set forth provisions regarding the adoption of water-quality-based designations for certain surface waters; and (2) establish an antidegradation review process applicable to certain activities impacting the quality of surface waters. [Section 31.8]

Either of two water quality-based designations may be adopted in appropriate circumstances. [Section 31.8(2)] An "outstanding waters" designation may be applied to certain high quality waters that constitute an outstanding natural resource. No degradation of outstanding waters by regulated activities is allowed. A "use-protected waters" designation may be applied to waters with existing quality that is not better than necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water. The quality of these waters may be altered so long as applicable use-based water quality classifications and standards are met.

Waters that are not given one of these designations are referred to as "reviewable waters." Reviewable waters are subject to antidegradation review requirements before any new or increased water quality impacts are allowed. [Section 31.8(3)] The activities that are subject to the requirements are those that: (1) require a discharge permit; (2) require water quality certification under Section 401 of the federal Clean Water Act; or (3) are subject to control regulations. The first step in the antidegradation review process is a determination, in accordance with criteria specified in the regulation, whether "significant degradation" would result from the activity. In 2001, the Division developed a guidance document entitled *Antidegradation Significance Determination for New or Increased Water Quality Impacts* to help explain how this significance determination is made. If significant degradation will not result from the activity, the review ceases. If significant degradation would result, a determination is made whether the degradation is necessary to accommodate important economic or social development in the area in which the waters are located. This determination is based on an assessment of whether there are water quality control alternatives available that would result in less degradation of state waters and which are economically, environmentally, and technologically reasonable. The proposed degradation is allowed only if no such alternatives are available.

e. Wetlands Provisions

In 1993, the Commission added provisions to the Basic Standards regulation to address water quality classifications and standards for wetlands. Note that these provisions are not intended to affect the determination as to whether specific wetlands may be filled in pursuant to Section 404 of the federal Clean Water Act. Rather, these provisions address the water quality to be maintained in wetlands that will continue to exist as wetlands. Waters in wetlands are state waters, except for waters in "constructed wetlands," which are wetlands designed, constructed, and operated for the primary purpose of wastewater or stormwater treatment or environmental remediation. [Section 31.5(11)]

Narrative standards have been adopted that are applicable to all wetlands that are state waters. [Section 31.11(I)(b)] Site-specific water quality classifications and standards may be adopted to protect wetland functions. [Section 31.13(1)(e)(v), 31.7(1)(b)(iv)] The regulation defines three subcategories of wetlands to help distinguish which classifications and standards apply prior to adoption of any site-specific classifications and standards. These are:

- "Compensatory wetlands" are those created to provide mitigation for adverse impacts to other wetlands. [Section 31.5(10)] These wetlands initially have the classifications and standards of the water body segment in which they are located.
- "Created wetlands" are wetlands other than compensatory wetlands that are created in areas which would not be wetlands in the absence of human modifications to the environment. [Section 31.5(12)] Unless site-specific wetlands classification and corresponding numeric standards have been adopted,

only the statewide narrative standards apply to created wetlands.

- "Tributary wetlands" are wetlands that serve as the headwaters of surface waters or that are located within a floodplain, and which are hydrologically connected to other surface waters. [Section 31.5(29)] These wetlands are initially subject to most of the water quality classifications and numeric standards of the segment in which they are located, except where the existing ambient quality is worse than those standards.

Wetlands that are not tributary wetlands are often referred to as isolated wetlands and are initially subject to the statewide narrative standards but not numeric standards.

f. Nutrient Control Provisions

The Commission adopted nutrients regulatory provisions in June 2012, composed of two major components: (1) scientifically-based interim numerical values for nutrients at levels to protect beneficial uses of Colorado waters, which would initially be applied only to streams and lakes above dischargers and to protect municipal water supplies taken directly from lakes or reservoirs; and (2) a new Nutrients Management Control Regulation establishing technology-based treatment requirements for many domestic (and some industrial) wastewater dischargers, enhanced nutrients control requirements for stormwater dischargers, provisions encouraging voluntary controls of nonpoint sources, and monitoring requirements to develop better information to refine Colorado's nutrients management efforts over time. The new rules became effective on September 30, 2012.

2. Ground Water Quality Standards

a. Basic Standards for Ground Water

In 1987, the Commission adopted *The Basic Standards for Ground Water*, Regulation No. 41 (5 CCR 1002-41). This regulation establishes a system to classify and set numeric standards for ground water on a site-specific basis. This regulation also contains statewide ground water 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. Since the original adoption of *The Basic Standards for Ground Water*, the Commission, through the triennial review process, has updated this regulation adopting new standards and omitting obsolete ones when appropriate.

b. Site-Specific Standards

In contrast to the comprehensive classifications and standards in place for Colorado surface waters, site-specific ground water quality classifications and numeric standards have been established for slightly more than 50 specific areas. Most of these have been adopted to protect public water supply systems relying on ground water. Regulation No. 42 (5 CCR I 002-42) documents these specified areas and the associated standards that have been adopted. Due in part to the fact that it is likely to take many years before more comprehensive site-specific ground water quality classifications and standards are in place throughout the state, the Commission adopted an "interim narrative standard" for pollutants. The interim narrative standards include all compounds, other than statewide radioactive materials and organic chemical standards, and provide an initial level-of protection of existing ground water quality throughout the state [Section 42.5]. The interim narrative standard states that in the absence of site-specific classifications and standards ground water quality shall be maintained at the less restrictive of: (1) ambient quality as of January 1, 1994; or (2) table value criteria. This interim standard is intended to assure that: (1) in relatively unpolluted areas, ground water quality adequate to protect all potential uses is preserved through the application of table value standards; and (2) in contaminated areas, ground water quality is not allowed to get any worse than its existing quality. This interim standard defines the protection provided unless and until site-specific use classifications and numeric standards are adopted.

3. Water Quality Standard-Setting Process

The Commission is required by both federal and state law to review all existing water quality classifications and standards at least once every three years. Because these triennial reviews occur separately for each of the

state's major surface water basins and for the separately adopted ground water quality standards, the review and update process is nearly continuous. Moreover, in addition to these regularly scheduled reviews, any interested person can also petition the Commission to consider new or revised standards.

The Commission has established a three-step process for triennial review of water quality classifications and standards in Colorado. The first step is an Issues Scoping Hearing, which provides an opportunity for early identification of potential issues that may need to be addressed in the next major rulemaking hearing for particular regulations and an opportunity to identify any issues that may need to be addressed in rulemaking prior to that time. The second step in the triennial review process - the Issues Formulation Hearing - results in an identification of the specific issues to be addressed in the next major rulemaking hearing. The third step is the Rulemaking Hearing, where any revisions to the water quality classifications and standards are formally adopted. The timing of the three steps is as follows: (1) the Issues Scoping Hearing - for the *Basic Standards and Methodologies for Surface Water* or individual river basin classifications and standards - is held in October of Year 1; (2) the Issues Formulation Hearing is held in November of Year 2; and (3) the Rulemaking Hearing is held in June of Year 3. To satisfy the triennial review requirement, an Issues Scoping Hearing is held in the third year following a Rulemaking Hearing for a particular basin.

For proposals brought forward by individual entities or members of the public, informal communication is encouraged between the entity or person advancing the proposal and Division staff prior to filing a formal rulemaking notice and proposal. While not required, this informal, pre-rulemaking communication may reduce or eliminate controversy at a rulemaking hearing. The Commission has developed a document entitled *Considerations for Advancing External Proposals for Revised Water Quality Classifications and Standards Before the Water Quality Control Commission* to help determine when proposals are “ripe” for rulemaking.

Proposals advanced by the Division as staff to the Commission typically result from: (1) identification of errors in the previous classifications or standards; (2) changes in federal or state legal requirements; (3) new information regarding existing or potential uses of water segments; (4) new scientific information regarding protective levels for particular uses; or (5) new water quality data for particular water segments. In preparing its proposals, the Division reviews the best currently available information regarding each of these factors. The Division considers any input received from the applicable Section 208 agencies, as well as from other water quality stakeholders. In some instances, the Division may determine that there is a need for additional data or analysis before proceeding with a rulemaking proposal.

Depending on the degree of complexity and controversy associated with a particular proposal, and within the constraints of available time and resources, the Division attempts to consult with interested persons regarding proposals prior to initiation of the formal rulemaking process. The rulemaking process provides an additional opportunity for public input. For more information on both the informal pre-rulemaking and formal rulemaking processes of the Commission, see the Water Quality Control Commission's *Public Participation Handbook*, copies of which are available from the Commission Office or on the Commission's website.

One important component of the triennial review process is a requirement in EPA's current water quality standards regulations that a UAA be conducted for any surface water segment that lacks either an aquatic life use classification or a use quality that provides protection for primary contact recreation. This requirement stems from a federal Clean Water Act goal of attaining "fishable, swimmable" water (e.g., "protection and propagation of fish, shellfish, and wildlife and… recreation in and on the water") in all of our nation's surface waters. EPA’s interpretation of this provision puts the burden on states to justify any decision not to protect specific waters for these uses. There has been and continues to be debate regarding how much information is needed to constitute an adequate use attainability analysis. In 2002, the Division finalized a guidance document regarding the preparation of use attainability analyses for recreational uses (Water Quality Control Division's *Recreational Use Classification Guidance* - version 1.1, January 2003). New or revised water quality classifications and standards adopted by the Commission after rulemaking are incorporated into Section 208 plans, factored into subsequent revisions of point source discharge permits, and used as the basis for other water quality management planning, such as the development of TMDLs, nonpoint source control efforts, and in watershed planning initiatives.

D. Total Maximum Daily Load Development

1. Overview of Federal Regulatory Requirements

Section 303(d) of the federal Clean Water Act requires each state to identity waters within its boundaries for which technology-based effluent limitations and other required controls are not adequate to attain water quality standards. In accordance with a priority ranking of those waters, states are then to establish total maximum daily loads for those waters "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."

303(d) List and TMDLs

Section 303(d) of the federal Clean Water Act requires that states compile lists of impaired waters. Impaired waters are those lakes and stream segments which do not attain one or more numeric or narrative standards or classified uses.

Total Maximum daily loads, are prepared for pollutant/ water body combinations which are included on the 303(d) List. TMDLs:

- Quantify the overall reduction in pollutant loading which is necessary to attain assigned standards or classified uses.
- Identify and characterize significant sources of the pollutants.
- Allocate the necessary loading reduction among those sources.

2. TMDL Process for Listed Waters

a. Assigning Priorities

The Division must ensure that TMDLs are developed for all water bodies and pollutants on the 303(d) List. Recognizing that all TMDLs cannot be completed at once, the federal Clean Water Act directs the state to prioritize the waters on the 303(d) List. The Division uses the prioritized 303(d) List to focus resources to support the development of TMDLs. For more information on the Division Section 303(d)/TMDL program, see: http://www.colorado.gov/cs/Satellite/CDPHE-WQCC/CBON/1251590907448

Section 303(d)(l)(A) of the federal Clean Water Act requires states to compile lists of impaired waters and to "establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters." The state has also utilized the list prioritization process to identify where the Division should concentrate its resources. Through this process, useful information is provided to other stakeholders when deciding how to focus their resources. The identification of a high priority segment does not necessarily mean that the TMDL will be developed before any lower priority segments. For some high priority TMDLs, the development may have to await data collection or stakeholder outreach.

The segments on the Section 303(d) List will be at different stages on the path to an approved TMDL. Some will need to have more data collected, some will need outreach to increase stakeholder involvement, and some will need scoping, additional data and problem identification. Some TMDLs are complex, multi-task problems; some simply result in CDPS permit effluent limits. The development of these TMDLs may proceed at different rates. Implementation of approved TMDLs is a separate process with separate authorities and timeframes.

Priorities are initially based on consideration of the severity of impairment to use classifications for the segment. Use Classifications are described in *Basic Standards and Methodologies for Surface Water* Regulation No. 31 (5 CCR 1002-8, sec. 31.13). The initial prioritization will assign water bodies (or specific pollutant/water body combinations) as either a high priority or a low priority. Factors that result in an initial high priority ranking consider whether there is non-attainment of a human health-based criterion or a Class 1 Aquatic Life Use-based criterion (e.g., a high quality fishery may potentially be affected). Secondary factors are used to modify the initial prioritization to an overall or final prioritization which includes high, medium, and low priority categories. Secondary factors may either elevate a water body into a higher priority group (e.g., endangered or declining native species, public interest, administrative needs, NPS program priorities, and data availability) or reduce the priority (e.g., pace of the stakeholder group development, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) cleanup action in progress). Prioritization factors are identified in the Listing Methodology document and, as such, are reviewed and approved by the Commission every two years in advance of the list development process.

i. Removal of Listed Segments from 303(d) List

In general, removal of water bodies/pollutants from the 303(d) List is subject to requirements similar to those utilized for listing decisions. Removal from the list is considered appropriate in instances where new information is developed which indicates that water quality standards are being met and/or designated uses attained. Considerations include more recent or more accurate data (for instance, chemical data generated using clean sampling/analytical methodologies), more sophisticated analysis or modeling, identification of deficiencies in the original assessment, or changes in standards, guidance, or policy.

Where sampling is performed to document improved water quality, sampling frequency and number of sampling events should be similar to, or greater than, that which was used as a basis to list the segment (an exception would be in instances where data collected utilizing conventional methods is supplanted by clean data). Assessments demonstrating attainment of designated uses should provide documentation of a nature similar to that used to support the listing decision. Attainment of water quality standards and uses will result in removal of the water body, or one or more listed parameters, from the list.

Similar data may be developed to document the underlying cause of non-attainment. Should information indicate that the water body remains in non-attainment, but that the listing is incorrectly attributed to pollutants (as opposed to a condition or stressor which is not appropriately addressed through a TMDL), the segment or condition will be removed from the list.

In instances where the Division determines that pollutant controls which have been completed or are scheduled for implementation will result in attainment of water quality standards within a reasonable time frame, the segment will be removed from the list. EPA approval of a TMDL will result in removal of the segment/pollutant(s) addressed by the TMDL from the list.

ii. Monitoring and Evaluation List

The Monitoring and Evaluation List is an administrative and tracking tool to identify segments where there is reason to suspect water quality problems, but there is uncertainty regarding one or more factors, such as the representative nature of the data (data requirements are discussed in the Listing Methodology). In general, the Division develops any additional water quality information necessary to support a decision with respect to standards attainment within six years of the original listing decision. Should additional information justify placement of the water on the 303(d) List, TMDL development will then follow as described elsewhere in this section.

iii. TMDL Completion Schedule

As the result of settlement of litigation regarding TMDL development in Colorado, the state committed to completion of TMDLs for the segments and parameters on the 1998 303(d) List.

Additional 303(d) Lists have been promulgated in 2002, 2004, 2006, 2008, 2010, and 2012. The priorities assigned each listed water body/pollutant combination have remained consistent over time. For example, a water which is not in attainment of a human health-based standard has been assigned a "high" priority. In general, the Division would expect a TMDL to be completed for a high priority listing within approximately five years of listing. As consistent with EPA guidance, any listed water should be addressed within thirteen years of its original listing (see *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act, USEPA, July 2005*.)

b. Methods for Development of TMDLs

The TMDL process results in the determination of: (l) the amount of a specific pollutant that a segment can receive without exceeding water quality standards (the TMDL); and (2) the apportionment to the different contributing sources of the pollutant loading (the allocation). The TMDL must include a margin of safety, waste load allocation (for point sources) and a load allocation (for nonpoint sources and natural background). The TMDL can include upstream loads in the assessment and apportionment.

The Division has overall responsibility to complete TMDLs for all segments on the Section 303(d) List. However, the Division may rely upon local watershed groups and entities to participate in developing TMDLs for their segments. TMDLs must ultimately be submitted to EPA by the Division for review and approval which is a primary consideration in the final pollutant source allocations. Once a prioritized Section 303(d) List is finalized, the Division's principal responsibilities are: (1) to ensure that all completed TMDLs will be protective of water quality standards; and (2) to submit TMDLs to EPA for approval in accordance with the schedule for completion.

The Division has the following objectives for all individual TMDLs submitted by the Division to EPA for approval. They must have:

- An adequate inventory of pollutant sources;
- Accurate estimates of pollutant contributions;
- Consideration of all readily available data;
- Documentation of decisions regarding sources and data;
- Appropriate verification or validation of assumptions and modeling;
- Opportunity for public participation representing a wide range of interests; and
- Conforms to EPA submittal and approval requirements.

The Division notifies potential local stakeholders groups when beginning TMDL development. Local entities or groups that decide that they want to participate in TMDL development with the Division must ensure that their membership adequately represents the diversity of interests in their watershed.

Notwithstanding the preceding comments, the Division recognizes the potential need to expedite TMDL development in instances where a TMDL may effectively address an imminent threat to public health, agriculture or the aquatic environment. In these circumstances, the Division may opt to develop the TMDL internally, coupled with a streamlined public process.

In order to reduce duplication and to increase efficiency, the Division intends that all TMDLs that are initiated by stakeholders should be of a quality that the Division can submit to EPA for approval without lengthy delays. To ensure adequate Division consideration and timely submittal, participation in TMDL development by outside parties must be coordinated through the Division. The Division may support locally initiated TMDL development projects as long as the objectives discussed above are met and the Division is involved in the process.

A defined procedural approach to the completion of TMDLs is appropriate. The wide variety of water bodies, parameters and local stakeholder group evolution dictates that the Division retains a flexible approach to problem solving. This is not a one-size-fits-all program; however, the common process elements involved in all TMDLs are:

- Scoping (enough problem analysis to know what data to gather and what stakeholders to involve);
- Stakeholder involvement;
- Data gathering;
- Data analysis;
- TMDL apportionment; and
- Public involvement.

Most TMDLs are mass-balance calculations that determine the amount of pollution reduction that must occur in order for the water body to attain assigned numeric water quality standards. These calculations rely on existing data for stream flow and water quality. Expected effluent flow is provided by the discharger, and, based upon known factors, the allowable effluent pollutant loads or concentrations are identified.

A TMDL may be more complex when extensive preparatory work is required because data are missing. TMDLs for multiple discharges to a segment, nonpoint sources, stormwater discharges or unusual background conditions may incorporate the use of more sophisticated models which consider kinetic reaction rates, travel times, constituent partitioning, or constituent interactions. This type of TMDL may require a special data collection program to explain the water quality or hydrologic system.

Before the Division submits a TMDL to EPA for approval, there is a public comment period. The Division attempts to resolve issues raised during this comment period and, if it is successful, does so before formal submittal to EPA. In some cases, it is anticipated that the Division will not be able to resolve issues to all parties' satisfaction. In these cases, an affected party may appeal the Division's TMDL determination to the Commission. The Commission would then conduct an adjudicatory hearing to decide the disputed issues. The Division would submit the modified TMDL, reflecting the Commission's decision, to EPA as the final TMDL.

A second alternative that may sometimes be appropriate to resolve a disputed TMDL would be through traditional rulemaking processes. A party could ask the Division for a stay of the TMDL and propose a TMDL in the form of a Control Regulation for consideration by the Commission. The final Control Regulation, if adopted by the Commission, would be submitted as the TMDL.

TMDL wasteload allocations for point sources are implemented as effluent limits in a discharge permit. Effluent limits are legal restrictions on the quantities, rates, and concentrations of chemical, biological, physical, or other constituents which are discharged from point sources. The wasteload allocation may include both a flow rate and a concentration of the constituent, both of which may be translated into effluent limits.

Load allocations are assigned to nonpoint sources. The nonpoint source reduction program for Colorado gives preference to non-regulatory solutions to nonpoint source problems over regulatory options, as provided by the Colorado Water Quality Control Act and the Colorado Nonpoint Source Management Program. Under this program, stream segments are prioritized for the application of best management practices (BMPs) based on severity of the nonpoint source impact and amenability of restoration. The purpose of BMPs is to reduce mass loading of pollution to a segment, but in some cases, BMPs may not produce sufficient load reduction to alleviate exceedances of the standards. After BMPs have been installed, a review of stream improvements may require that stream classifications and standards be revisited or that additional BMPs be identified. In such cases, identification of nonpoint source loading areas and parties responsible for reduction of these loads is necessary. Technological and financial constraints may cause the application of BMPs to lag behind point source improvements.

E. Establishment of Source Controls

1. Site and Design Approval Process

The site and design approval process established by the Colorado Water Quality Control Act provides that construction of a domestic wastewater treatment works, or enlargement of the treatment capacity of an existing facility, shall not commence unless the site location and design have been approved by the Division. As the site approval process includes elements which are also addressed by the regional water quality management plan and by discharge permits, it is critical that applicants for site approval understand that all three elements must be accomplished to allow construction of new or expanded wastewater treatment facilities.

The Commission has adopted *Site and Design Approval Regulations for Domestic Wastewater Treatment Works*, Regulation No. 22, defining policy and procedures for the submission and review of applications as well as criteria for decision-making on the part of the Division and Commission. These regulations establish a system of site application requirements based on the nature of the proposed facility and specify appropriate opportunities for public input and comment. The three categories of application requirements are: new wastewater treatment plants; expansions of existing wastewater treatment plants; and interceptor sewers and lift stations. The Commission has further created a process for the amendment of previously approved site applications to deal with upgrades and modifications to existing facilities. The basic steps in each of these processes are described below.

a. The process is initiated when an applicant (individual, developer, district, community, etc.) determines that the need exists for new or expanded domestic wastewater treatment works, as defined in the Colorado Water Quality Control Act. The applicant, working through the local planning process, the regional water quality management planning process, and the appropriate Division review engineer, defines the wastewater needs and prepares a site application. This application consists of preliminary effluent limits (PELs) if needed, an application form and an engineering report. The engineering report requirements vary from category to category but generally will address such factors as

treatment and/or location alternatives, water quality issues, and economic analyses. It is critical that the designated planning and management agencies be involved early in the process to ensure that the selected alternative is consistent with regional water quality goals. The applicant must also allow for public input and comment as specified in Regulation No. 22.

b. The completed site application is then circulated to the appropriate agencies for review and comment, based on their respective responsibilities. The water quality planning agency's role includes an evaluation of the proposal's consistency with relevant elements of the applicable regional water quality management plan. If the proposal is not consistent with that plan, or is not reflected in the plan, the applicant should be following a parallel track to amend the plan to reflect the proposed wastewater facilities.

c. The comments and recommendations of the various reviewing agencies are submitted, along with the site application form and engineering report, to the Division. The Division is responsible for determining completeness of the submittal and evaluating suitability of the site, adequacy of the treatment alternative selected, consistency with the water quality aspects of local or regional planning efforts, management and institutional elements of the engineering report, feasibility of consolidation and efforts to achieve those ends, an adequacy of the financial plan, and any public comments.

d. In the case of lift stations and interceptor sewers, the recommendation of the water quality planning agency as reflected in the approved regional water quality management plan, will be adopted as the Division recommendation unless the Division is aware of potential adverse impacts to public health and/or water quality which are not addressed in the application. For other categories of site approval actions, the planning agencies will have the option to enter into an agreement with the Division to establish a coordinated review and approval process. Under such a process, a new or expanded wastewater treatment facility may, at the time of its inclusion in an approved water quality management plan, be deemed to meet the requirements of the site approval process.

e. The Division approves, conditionally approves, or denies the application based on the results of its review, as well as the comments and recommendations of the other review entities. The applicant is notified in writing of the Division's action and the conditions of approval or the rationale for denial. In the event of a denial, the notification also includes what actions, if any, can be taken to rectify those issues which are the basis for the action. Notice of the Division's action appears in the following month’s Water Quality Information Bulletin.

f. For a period of 30 days after the mailing date of the Water Quality Information Bulletin containing notice of the Division action, that action may be appealed to the Commission by any person adversely affected by the decision.

g. The Commission, within 90 days of the filing of an appeal, commences a hearing to consider the appeal of the Division’s decision. The Division's decision is stayed pending the outcome of the Commission's hearing.

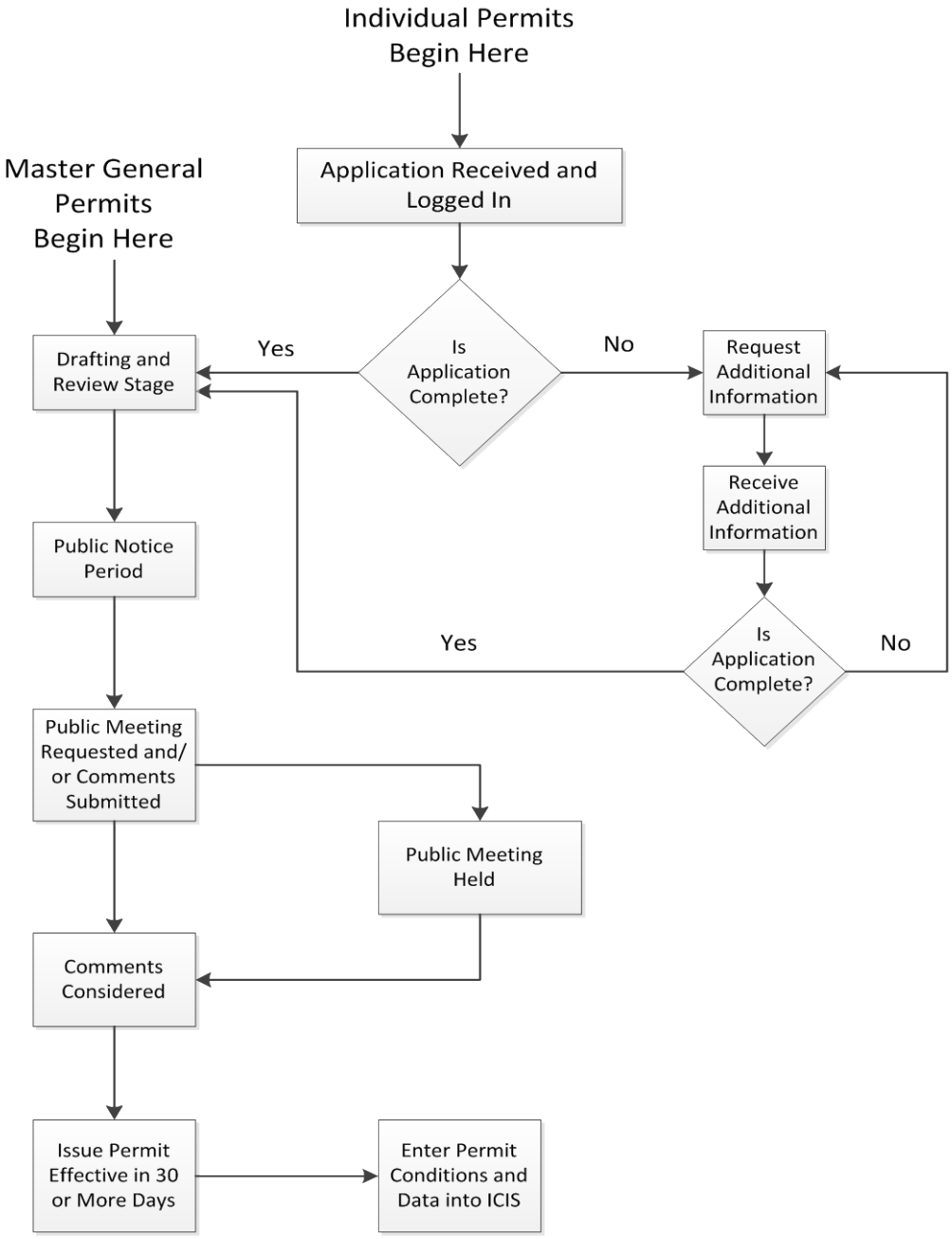
Following site approval, design approval is also required, though concurrent site and design approvals do take place in some instances. Applicants typically retain professional engineers to develop the design for wastewater treatment works and design documents are submitted to the Engineering Section. Decisions regarding design approvals are based upon the *Design Criteria for Wastewater Treatment Facilities* (Policy WPC-DR-1). Steps d through g above regarding the site approval process also apply generally to the design review process.

2. Point Source Discharge Permit

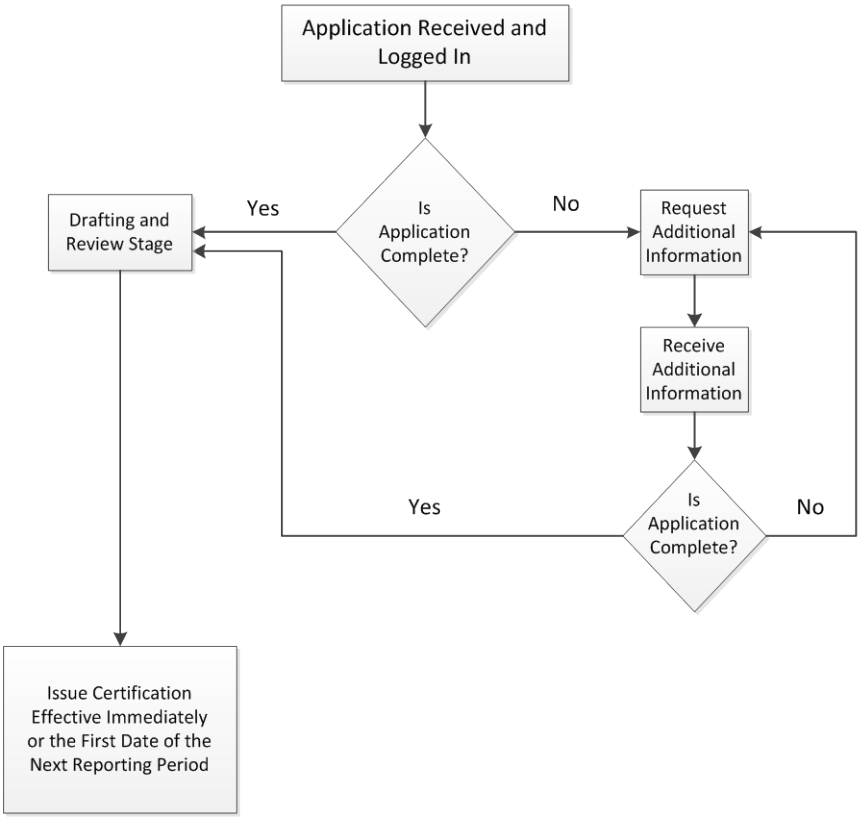
The federal Clean Water Act prohibits the discharge of pollutants from a point source to surface water without a permit. The National Pollutant Discharge Elimination System (NPDES) permit program was established by the federal Clean Water Act to regulate such discharges. Because the state has developed a program that meets the requirements of the federal Clean Water Act, the primary discharge permit program in Colorado is administered by the Division rather than by EPA (subject to certain EPA review and oversight authority). The Commission has adopted *Colorado Discharge Permit System Regulations*, Regulation No. 61 to govern this program. Note, however, that the state has not yet received delegation of permitting authority for federal facilities, the federal pretreatment requirements or the federal biosolids requirements and does not have jurisdiction for permitting discharges on tribally-owned lands within Indian reservations. In these instances, permits and approvals are still issued by EPA.

The Discharge Permit System Regulations principally define the permit issuance process which is illustrated in the permit flow charts on Pages 31 and 32. Individual permits are issued to a single facility and may cover a single or multiple discharges associated with the facility's operations. The Division may also issue general permits to cover a category of discharges. These permits are an administrative mechanism that was developed to provide more timely and efficient permit coverage to facilities with similar types of operations and discharges. Once the general permit has been issued, facilities that apply for coverage under a general permit are issued certifications, or authorizations to discharge in accordance with the general permit, as illustrated in the general permit certification flow chart.

Individual and Master General Permit Flow Chart



General Permit Certification
Flow Chart



The discharge permit regulations also define the types of terms and conditions that shall be included in permits. The condition effluent limitations included in permits are determined primarily by other regulations. These effluent limitations fall into two principal categories: (1) technology-based effluent limitations; and (2) water quality-based effluent limitations. Technology-based effluent limitations are intended to attain certain minimum levels of pollution control determined to be technologically achievable by dischargers within identified categories. These effluent limitations are based principally on nationally applicable EPA effluent limitation guidelines (ELGs) and on the Colorado *Regulations for Effluent Limitations* Regulation No. 62.

Water quality-based effluent limitations are intended to assure compliance with site-specific water quality classifications and standards as well as statewide narrative and numerical standards. To implement standards, the Division will incorporate the appropriate waste-load allocation developed pursuant to an applicable TMDL or will assign a numeric or narrative limitation on the concentration or load of pollutants that may be discharged. Numeric water quality-based limits for surface water discharge permits are developed by performing a "mass balance" analysis that determines what concentration of pollutants can be contained 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 may not be available where discharges are to waters designated as critical habitat for threatened or endangered species or when antidegration review requirements apply. The Division also includes conditions in permits to ensure that where assimilative capacity is allocated, appropriate physical mixing occurs. This mixing demonstration ensures that the pollutants in the discharge combine or mix with the receiving water uniformly.

Two areas where the Division routinely includes requirements in discharge permits as implementation of narrative water quality standards include toxicity, through requirements for whole effluent toxicity (WET) testing, and protection of irrigated crops, through requirements for electrical conductivity (EC) and sodium adsorption ratio (SAR). Rather than measuring the levels of specific pollutants in discharges, WET testing assesses the acute or chronic toxicity of effluent for certain aquatic test organisms. Thus, this technique may be beneficial in detecting toxicity from pollutants for which no specific standards exist or from the interaction of multiple pollutants. WET requirements therefore help implement the narrative "free from toxics" standard contained in the *Basic Standards and Methodologies for Surface Water*. [Section 31.11(1)] Requirements for EC and SAR are included in discharge permits to ensure that elevated salts will not be present in discharges at a level that impacts receiving water quality and its ability to be used for downstream crop irrigation. EC and SAR requirements, therefore, implement the narrative “no harm to plants” and “no harm to beneficial uses” provisions contained in the *Basic Standards and Methodologies for Surface Water*.

Discharge permit regulation provisions addressing discharges to ground water require permits for land disposal, land treatment, and discharges to ground water from impoundments. These permits include both technology-based and water quality-based effluent limits which can be applied at a point of discharge with verification monitoring or at a downgradient compliance point such as a ground water monitoring location.

3. Pretreatment

The federal Clean Water Act and EPA regulations establish pretreatment requirements applicable to non-domestic sources of pollutants that discharge wastes into a publicly owned treatment works (POTW). The Commission has adopted Colorado *Pretreatment Regulations*, Regulation No. 63. The goals of the program are:

- Prevent pass through and interference at the POTW;
- Protect the quality of the POTW's sludge; and
- Protect the workers at the plant and throughout the collection system from fires, explosions, and other safety hazards related to industrial discharges.

The pretreatment requirements do not apply to industrial discharges to privately owned treatment works or direct discharges to surface water or ground water.

The pretreatment requirements were developed with the intent that implementation would primarily be delegated to local authorities, usually either a city or a water/sanitation district. These cities/districts are responsible for implementing all aspects of the pretreatment program including: permitting, inspecting, and monitoring industrial dischargers; enforcing pretreatment program requirements; developing local limits; and identifying all industrial dischargers who should be included in the program. The Division issues permits or control mechanisms to "categorical" industries that are located in areas where no approved local pretreatment program exists.

The Division also conducts oversight of cities/districts which have approved pretreatment programs in coordination with EPA, who has the lead authority for the federal pretreatment requirements. Oversight inspection of the cities/districts includes: review of each program's budget, local limits, compliance history, and program changes. The oversight inspection also includes a review of a city's/district’s management of their industrial users.

A business involved in operations described by one of the federal industrial point source discharge categories is automatically subject to the pretreatment requirements. Categories are listed in 40 CFR Parts 405 to 471. Examples of categorical processes include metal finishing, pharmaceutical manufacturing, plastics molding and forming, and steam electric power generation. In addition to categorical limitations, local limits, which are effluent limitations designed for a specific POTW's capacity, apply to categorical industries. Local limits may be more stringent than categorical standards and for some parameters may be the limitation which is the most difficult for an industry to meet. Businesses which are not involved in operations described by one of the categories may be subject to local limits. Businesses which do any of the following may be regulated:

- Discharge >25,000 gallons per day;
- Contribute >5% of the POTW's hydraulic load;
- Contribute >5% of the POTW's organic load; or
- Present a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard.

Because Colorado has not been formally delegated authority to implement the federal pretreatment program, EPA retains ultimate authority over the program.

4. Biosolids Management Program

The Commission has adopted a *Biosolids Regulation*, Regulation No. 64, which establishes requirements for land application of domestic wastewater treatment plant sludge or "biosolids." The purpose of this regulation is to establish requirements, prohibitions, standards and concentration limitations on the use of biosolids as a fertilizer and/or organic soil amendment in a manner so as to protect the public health and prevent the discharge of pollutants into state waters. Disposal of residuals/sludge from water treatment plants in Colorado are not included in the definition of biosolids but are regulated under Colorado solid waste laws.

The Commission regulation for the biosolids management program regulates the beneficial use of biosolids. Beneficial use is accomplished primarily through the application of biosolids to land as a fertilizer or soil conditioner. Application is typically made to agricultural land or to disturbed land for reclamation. Municipalities, sanitation districts, and contractors practicing land application must submit Letters of Intent (LOIs) and receive Notices of Authorization (NOAs) for application sites and are subject to oversight inspection and compliance monitoring by the Division.

Both the federal and the Colorado regulations governing beneficial use of biosolids identify allowable levels of heavy metals and pathogens in the biosolids, siting restrictions, and management requirements. The regulations require that application rates be based upon the nutrient requirements of the crops under cultivation. The regulations also specify maximum long-term application limits which are determined by the metal content of the biosolids. Permittee monitoring of biosolids quality and application site soils is required and is supplemented by compliance monitoring performed by the Division.

In 2011, approximately 91 percent of the biosolids generated by municipal wastewater treatment facilities in Colorado was beneficially reused and is regulated under the program.

Because Colorado has not been formally delegated authority to implement the federal biosolids program, EPA retains ultimate authority over the program. EPA Region 8 implemented a General Sewage Sludge Permit in 2002 for any facility that removed sewage sludge. Colorado coordinates with EPA Region 8 in implementing the land application portion of the program in Colorado since its program is consistent with federal requirements.

5. Reclaimed Water Program

The Commission adopted the *Reclaimed Water Control Regulation*, Regulation No. 84, pursuant to Section 25-8-205(1)(f) of the Colorado Water Quality Control Act. This regulation applies to the direct application of treated domestic wastewater without discharge to "waters of the state." Regulation No. 84 requires submittal of LOIs by the entity that treats the domestic wastewater (treaters) as well as each entity that irrigates with the reclaimed water (users).

The public health risk of contracting disease from pathogenic microorganisms via exposure to reclaimed water is mitigated by treating wastewater to minimize the number of viable pathogenic microorganisms: bacteria, viruses and protozoan. Acceptable public health risk is determined based on an absence of acute gastrointestinal disorders (the most likely type of disease manifestation) in those persons casually exposed to reclaimed water as it is used for surface irrigation of landscaping or other uses subject to public exposure. Bacterial protection is ensured through the imposition of limits on *E. Coli* that are consistent with EPA limits for surface waters set to protect swimmers. Viral and protozoan protection is ensured by the imposition of limits for turbidity or total suspended solids, as appropriate.

Approved applications include use of reclaimed water for landscape irrigation, cooling towers, closed loop cooling systems, dust suppression, soil compaction, mechanized street sweepers, concrete mixing and washout, zoo operations, commercial and residential fire protection, and resident-controlled landscape irrigation. The regulation provides a framework that assures these additional uses are consistent with the Commission's goals of protecting the public health and the environment by requiring reclaimed water to meet minimum standards and requiring treaters and users of such water to employ appropriate best management practices and oversee its use. NOAs issued to treaters include conditions for the type of treatment and quality of the reclaimed water that are based on the potential for the public contact and the potential for cross-connection with potable supplies at the point of use.

There are three categories of reclaimed water:

- Category 1 water requires secondary treatment and disinfection with limits for *E. Coli* and total suspend solids.
  This water is typically used for applications that have little public exposure potential. This category of water is subject to "restricted use" which means that it may only be used when the public is not present or barriers shall be installed during use to prevent public contact.
- Category 2 water requires secondary treatment, disinfection and filtration as an added barrier with limits for *E. Coli* and turbidity (as a check for filtration efficiency). Category 2 water is "unrestricted use" and can be used where public contact is likely.
- Category 3 water requires secondary treatment, filtration and disinfection and has more stringent *E. Coli* limits than the other uses. This high-quality water is typically required for uses that have high potential for public contact/cross-connection potential. This category of water is required for such uses as resident-controlled landscape irrigation and residential fire protection.

NOAs for users include conditions for the use of the water, many of which are based on whether public access to the irrigated area is restricted or unrestricted. Conditions common to all uses include: a requirement to post signs notifying the public that reclaimed water is in use; a requirement for precautions to be taken to ensure that reclaimed water will not be sprayed on any facility or area not designated for application (such as occupied buildings or domestic drinking water facilities); a requirement that runoff from use areas be strictly minimized; a requirement to educate workers and contractors of the hazards associated with reclaimed water use and proper hygienic practices; and a requirement that aggressive cross-connection control programs be implemented.

6. Stormwater

Stormwater runoff was traditionally considered nonpoint source pollution and therefore not regulated by the CDPS regulations. In August 1993, Colorado established regulations for the control of stormwater from specific municipal and industrial sources to implement 1987 revisions to the federal Clean Water Act [see particularly Sections 61.3(2), 61.4(3), and 61.8(4)(n)-(o) of the Regulations]. These regulations redefined stormwater from these sources as point source discharges instead of nonpoint source runoff and required stormwater permit coverage. Under the regulations (referred to as Phase I), permits are required for the discharge of stormwater from municipalities exceeding 100,000 population (Denver, Aurora, Lakewood and Colorado Springs, as well as the Colorado Department of Transportation), and certain industrial facilities and construction sites that disturb five or more acres of ground.

In December 1999, EPA promulgated "Phase II" stormwater discharge permit requirements that substantially expand the applicability of this program. Colorado adopted its version of the Phase II regulations in January 2001. [See particularly Sections 61.3(2)(f) and (h), 61.4(3)(d), and 61.8(11) and (12)]. The program now covers construction sites from one to five acres, and municipally-owned industries (most of which had been under a temporary exemption). In addition, many smaller municipalities will be required to have permit coverage for their storm sewer systems. The chief requirements of the municipal permits are the development and implementation of six minimum measures:

- Public education and outreach on stormwater impacts;
- Public participation and involvement;
- Detection and elimination of illicit connections and discharge;

- Construction site stormwater runoff control;
- Post-construction stormwater management in development/redevelopment; and
- Pollution prevention/good housekeeping for municipal operations.

Information about the Stormwater Program, including a program summary, applications, guidance documents, and permit copies, is available on the Division's website.

7. Section 401 Certification

Pursuant to Section 401 of the federal Clean Water Act, issuance of a federal license or permit for an activity which may result in any discharge into waters of the United States requires a certification from the state that authorization of the activity will not result in a violation of water quality standards. The Section 401 certification process in Colorado is governed by a Commission regulation entitled *Section 401 Certification Regulation*, Regulation No. 82. The Commission revised Regulation No. 82 in 2003. Federal permits that require Section 401 certifications in Colorado are: 1) federal Clean Water Act Section 404 permits issued by the Army Corps of Engineers for the discharge of dredged or fill material; 2) licenses issued by the Federal Energy Regulatory Commission (FERC); 3) federal Clean Water Act Section 402 permits issued for federal facilities by the EPA; and 4) other federal permits or licenses that may be determined to require a Section 40 l certification.

The *Section 401 Certification Regulation* sets forth the process to request a Section 401 certification in Colorado, and identifies the procedures and criteria that will be used by the Division in acting on certification requests. Based upon the information provided by an applicant, the Division may approve, conditionally approve or deny Section 401 certification requests. Denial of certification triggers denial of the federal permit or license for which certification is requested. Applicants for Section 401 certification, except for federal Section 402 NPDES permits, must select BMPs and commit to the operation, maintenance and replacement of these water quality protective measures for all aspects of their project, for the life of the project.

Federal Section 402 permit applicants at a minimum are required to include a copy of the Section 402 permit submitted to EPA while FERC and all other federal licenses require a letter of application with specific project details.

8. Control Regulations

Section 25-8-205 of the Colorado Water Quality Control Act authorizes the Commission to adopt "control regulations" for a variety of water quality control purposes. Control regulations may be adopted to establish prohibitions, standards, effluent limitations and/or precautionary measures applicable to facilities or activities that may adversely impact water quality.

Current control regulations of statewide applicability include:
- *Regulations for Effluent Limitations*, Regulation No. 62;
- *Pretreatment Regulations*, Regulation No. 63;
- *Biosolids Regulation*, Regulation No. 64;
- *Regulations Controlling Discharges to Storm Sewers*, Regulation No. 65;
- *Animal Feeding Operations Control Regulation*, Regulation No. 81;
- *Passive Treatment of Mine Drainage Control*, Regulation No. 83;
- *Reclaimed Water Control Regulation*, Regulation No. 84;
- *Nutrients Management Control Regulation*, Regulation No. 85.

Current watershed protection control regulations include:
- *Dillon Reservoir Control Regulation*, Regulation No. 71;
- *Cherry Creek Reservoir Control Regulation*, Regulation No. 72;
- *Chatfield Reservoir Control Regulation*, Regulation No. 73;
- *Bear Creek Watershed Control Regulation*, Regulation No. 74;

9. Nonpoint Source Management Program

The principal federal and state water quality regulatory programs have focused to date on discharges of pollutants from point sources. Pollution from less discrete sources, such as diffuse stormwater runoff from agricultural operations and inactive mining activities, is referred to generally as nonpoint source pollution. In contrast to the point source discharge permit program, the current approach to nonpoint sources of water pollution in Colorado is largely voluntary and nonregulatory.

The federal Clean Water Act originally envisioned that nonpoint source pollution would be dealt with at the state and local level pursuant to "areawide waste treatment management plans" mandated by Section 208 of the statute. However, the Section 208 planning process by itself was not sufficient to address nonpoint sources of water pollution. To date in Colorado, regulatory provisions addressing nonpoint sources have been adopted only in limited site-specific contexts. For example, Dillon Reservoir, Cherry Creek Reservoir, Chatfield Reservoir and Bear Creek Watershed Control Regulations referenced above each address the relationship between point and nonpoint sources of phosphorus.

The 1987 amendments to the federal Clean Water Act included a new Section 319, providing for the development of nonpoint source management programs by the states. States are to identify waters not attaining water quality standards without additional nonpoint source controls and to identify BMPs for categories of nonpoint source problems, along with programs to implement BMPs.

Nonpoint Source Pollution

Nonpoint source pollution results from rainfall or snowmelt moving over and through the ground. An example of nonpoint source pollution is when runoff picks up and carries away natural and manmade pollutants, finally depositing them into lakes, rivers, wetlands, and ground water. These pollutants include:

- Excess fertilizers and pesticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks;
- Heavy metals in acid drainage from abandoned mines;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

This section of the federal Clean Water Act is intended to operate principally through financial incentives, providing federal matching funds for nonpoint source projects in states with approved management programs. Adoption of this management program was preceded by adoption of a Nonpoint Source Assessment Report, evaluating the extent of current nonpoint source pollution in Colorado.

The Colorado Nonpoint Source Management Program was first approved in May 1989. Programs for agriculture, silviculture, urban runoff, construction runoff, and mining were adopted at that time. These management programs were updated in October 1990. The Hydrologic Modification Nonpoint Source Management Program was adopted in June 1992.

By the mid 1990's, the milestones established in the original management program had been essentially completed. At about the same time, EPA issued new guidance for updating state management programs, identifying nine key elements considered to be the keystones of nonpoint source management. The new guidance was used to develop a major update to Colorado's Nonpoint Source Management Program, which was approved by EPA in January 2000.

In 2012, the Division rewrote (and the Commission approved) the Nonpoint Source Management Plan, rather than update the existing plan to address EPA's continued emphasis that states should focus Section 319 grant funds toward addressing restoration of those waters that have been identified as impaired. This objective has been reinforced in the annual PPA between EPA and the Division by several Program Activity Measures (PAMs). Several sections were included to meet EPA program assessment criteria (summarized in a table preceding the Executive Summary), but overall, the plan describes the ongoing strategy of addressing water quality impairments documented on the Section 303(d) and Monitoring and Evaluation lists, as well as segments that have completed TMDLs. The review of these impaired water bodies indicated that the vast majority of the impaired water in Colorado is associated with legacy mining activities. The second most prevalent cause for impairments is due to selenium, followed by dissolved oxygen, pH, and fish consumption advisories on lakes and reservoirs. Correspondingly, the strategy on the nonpoint source program will focus

on these identified impairments as priorities over the next five years.

Since the nonpoint source program relies on voluntary efforts to implement needed actions, partnerships are critical to success. Those partnerships exist on two levels: the programmatic level and the project level.

Programmatic partnership is displayed through the Colorado Nonpoint Source Alliance (Alliance), formerly the Council, which was established by the Division in 1987 to act as an advisory group and work group in preparation of the Nonpoint Source Assessment and Management Programs discussed previously. The Alliance is comprised of a consortium of federal, state, and local governmental agencies, and public and private interest groups. The Alliance meets approximately five to seven times a year. It assists the Division in technical review and project recommendations for Section 319 funding.

Partnerships at the project level are critical to success on the ground. Many nonpoint source issues cover broad areas within a watershed. Land ownership is typically mixed, with private land interspersed with public lands, resulting in a range of land uses, from agricultural production to recreation to resource extraction and transportation. The most successful projects have diverse and engaged stakeholder groups, with representatives from all the various land uses and ownerships. Another hallmark of a successful project is its sustainability after the nonpoint source funding is gone.

F. Compliance Assistance and Assurance

1. Compliance Assistance

a. Technical Assistance

Compliance assistance is the first step in a process of escalating responses to non-compliance in some instances. If compliance assistance activities are not successful, the actions taken by the Division escalate in formality until compliance is achieved or formal enforcement action is pursued. The Enforcement Escalation Policy is the Division's procedure for determining the appropriate compliance activities. Prior to initiating formal enforcement action, technical assistance is provided to all regulated systems that are in violation of the applicable regulations, if it is determined that the situation is not egregious or willful.

b. Pollution Prevention

The Division provides relevant targeted information to local municipal pretreatment authorities and to industrial users to encourage worthwhile pollution prevention projects. In addition, the Division endeavors to identify small-to-medium size industries which have the potential to significantly impact water bodies, or which have a history of non-compliance, and provide them with the pollution prevention information and encouragement to employ pollution prevention concepts.

2. Compliance Assurance

a. Monitoring and Evaluation

Compliance inspections are targeted to a portion of the public drinking water systems and wastewater treatment facilities with discharge permits in the state, taking into account the length of time since the last inspection, size of the facility, timing of permit renewal and recent compliance history. Compliance inspectors are prepared to sample effluent at locations they are inspecting throughout the state where grab samples are adequate to characterize the source. The Division also inspects unpermitted facilities and discharges, such as part of investigation and follow up to a citizen complaint or a reported spill.

The Division continuously reviews self-reported data for NPDES and public water systems and enters the data into the EPA Integrated Compliance and Information System (ICIS) and the Safe Drinking Water Information System (SDWIS), respectively. Routine reports are generated and reviewed to assess the compliance status of regulated facilities. The Division's Enforcement Management System is a comprehensive document which reflects each element of the compliance assurance and data management process, providing the underpinning for enforcement activities.

b. Enforcement Activities

i. Under the authority of the Colorado Water Quality Control Act, the responsibility for issuing Notices of Violation, Cease and Desist Orders, Clean Up Orders, Enforcement Orders, and for recommending penalties for imposition, rests with the Division. The role of local governments and areawide agencies in the enforcement process is not defined formally in statute. Any person or agency may request to have suspected or alleged violations investigated. The Division also supports the enforcement efforts of local governments/agencies. Another important component of enforcement is the Division's statutory authority to collect civil and/or administrative penalties.

ii. The "typical" enforcement process proceeds through the following steps:

1. Any suspected or alleged violation of statute (or regulation promulgated under that authority), drinking water standard, discharge permit, or compliance order may cause the enforcement process to begin.
2. Violations may be noted through the Division's review of self-reported monitoring data, inspections, or through a report received from any person or agency.
3. The Division determines whether an alleged violation has occurred. In the case of a third-party report, if no violation has been detected, the requested action is terminated. If the self- reported data or an investigation indicates that a violation has occurred, the alleged violator is notified of the violation.
4. Once an entity is informed of the alleged violation, the issue or problem which caused the violation may be resolved and the action terminated. Where the violation is particularly serious or of a persistent nature, a formal enforcement action (with or without penalty) is issued to the alleged violator. Additional monitoring is sometimes necessary to substantiate a violation.
5. Once the formal action has been issued, either the alleged violator or the Division may request a public hearing to determine if the violation actually occurred, and/or the appropriateness of the penalty if imposed.
6. If no hearing is requested, or if a hearing determines that a violation has occurred, additional legal orders may be issued. Throughout the enforcement process, the Division explores opportunities for consensus resolution of the identified violations. Such agreement, if reached, is memorialized in consent orders.
7. Judicial action may ensue if a party receiving an enforcement action fails to comply with the order. Such action includes contempt motions filed in District Court and may include criminal referrals to the EPA or State Attorney General.

Part III. Safe Drinking Water

A. Introduction

The Division is delegated enforcement responsibility (primacy) for implementing all aspects of the federal Safe Drinking Water Act and the *Colorado Primary Drinking Water Regulations* (CPDWR). To retain primacy, the Division must comply with the primacy regulations published in the *National Primary Drinking Water Regulations Implementation*, 40 CFR 142. Minimum requirements include:

- Adoption of regulations no less stringent than the national primary drinking water regulations in effect under 40 CFR 141;
- Implementation of adequate procedures for enforcement, including:
  - Maintenance of an inventory of public water systems;
  - A systematic program for the conduct of sanitary surveys;
  - Establishment and maintenance of a state program for the certification of analytical laboratories conducting measurements of drinking water contaminants;
  - Assurance of the availability of state laboratories certified by the Administrator of EPA and capable of analyzing all contaminants specified in the state primary drinking water regulations;
  - Reviewing design for new and modified water treatment facilities to ensure they will be capable of compliance with the state primary drinking water regulations,
  - Statutory or regulatory enforcement authority adequate to compel compliance, including:
    - Authority to apply the primary regulations to all public water systems,;
    - Authority to sue in courts of competent jurisdiction to enjoin any threatened or continuing violation of the primary drinking water regulations;
    - Right of entry and inspection of water systems;
    - Authority to require water systems to keep appropriate records and report to the state
    - Authority to require water systems to provide consumer confidence reports and public notice that are no less stringent than those promulgated by EPA;
    - Authority to assess civil or criminal penalties for violations of primary drinking water regulations;
- Establish and maintain record keeping and reporting of its activities as specified by regulation;
- Issuance of any variances or exemptions in a manner no less stringent than the requirements of the Act;
- Adoption and implementation of a plan for the provision of safe drinking water under emergency circumstances; and
- Authority for assessing administrative penalties.

B. Summaries of Key Fundamental Elements

1. Regulation and Policy Development

The Division, in consultation with interested stakeholders, is responsible for drafting proposed regulations for consideration and adoption by the Commission. New regulations may be proposed for adoption based on risks to the health of consumers identified solely within the Colorado program or in response to revisions to or new national primary drinking water regulations promulgated by EPA. Unlike the federal Clean Water Act program, states with primacy for the Safe Drinking Water Act do not have the option of adopting only part of the federal requirements. Failure by Colorado to have primary regulations at least as stringent as the national primary drinking water regulations is grounds for revocation of Colorado's Safe Drinking Water Act primacy and associated funding provided by the federal Public Water System Supervision (PWSS) and Drinking Water Revolving Fund (DWRF) capitalization grants. Accordingly, each new or revised federal primary drinking water regulation begins a regulatory adoption cycle for the Colorado program. This effort may involve simply adopting specific requirements of the federal regulation but may also involve making decisions about which regulatory approach to pursue from among options provided in the federal regulations, developed internally or recommended by stakeholders.

Federal and Colorado regulations require public water systems to always provide consumers with safe drinking water, even under challenging conditions.

To achieve this goal, the CPDWR establishes multiple water system requirements based on the multiple risk-multiple barrier concept. These include requirements for:

- Department-approved design plans and specifications (Risk Prevention);
- Operation of treatment works by certified treatment operators (Risk Prevention),;
- Installation and proper operation of specified treatment techniques such that associated performance requirements are achieved (Risk Prevention);
- Provision of treated water that meets quality standards (Risk Management);
- Compliance monitoring and reporting to the Division as specified in the regulations including a monitoring plan containing a process flow schematic (Monitoring and Compliance); and
- Monitoring and reporting to consumers that includes among other topics: water sources, source susceptibility to contamination, monitoring results and levels of contaminants, and potential health effects of any contaminant detected in violation of health standards (Individual Action).

The regulations are tailored to address contamination risks from a number of causes, including:

- Natural or man-made contaminants that may be present in the untreated source water, including:
  - Microorganisms;
  - Organic chemicals;
  - Inorganic chemicals; and
  - Radionuclides.
- Contaminants that may result from treatment chemical impurities, interactions between treatment chemicals and contaminants in the water, or contaminant concentration within the treatment process, including:
  - Coagulant impurities such as acrylamide, and epichlorohydrin;
  - Disinfection byproducts; and
  - Recycled filter backwash flows.
- Microbiological contaminants that gain entrance to treated water due to defects in the water system's storage or distribution system;
- Contaminants that gain entrance to the distribution system as a result of cross-connections or storage tank integrity problems; and
- Contaminants that leach from distribution or plumbing system components such as lead.

To make this comprehensive web of contamination barriers more cost-effective, many of the regulatory requirements are also tailored to the type and size of the public water system and their specific associated risks. For example:

- Systems using surface water sources must provide filtration treatment for the control of certain microbiological contaminants, while systems using ground water sources do not;
- Systems that serve residential populations must monitor and control contaminants that cause adverse health effects due to long and short term exposure, while systems that serve transient populations must only address contaminants that cause adverse health effects due to short-term exposure; and
- Systems serving large numbers of consumers must generally monitor more frequently than systems serving small numbers of consumers.

This tailoring of requirements is achieved by defining different categories of public water systems to which different requirements apply.

A public water system is defined as "any water system for the provision to the public of water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily for at least 60 days out of the year." This broad category is then divided into systems that serve more than 25 year-round residents and those that do not. Systems that serve more than 25 year-round residents are classified as community public water systems, while all remaining systems are classified as non-community public water systems.

The regulations establish two types of systems within the category of Non-Community public water systems:

- Transient (e.g., restaurants, campgrounds) that serve 25 or more different people daily; and

- Non-transient (e.g., school, business, etc.) that serve 25 or more of the same people daily for six or more months of the year.

Regardless of water system size, complexity or the treatment processes used, multiple risks threaten a water system's ability to provide continuously safe drinking water. But the multiple risks can be eliminated or mitigated by the application of associated multiple risk barriers. Viewed from a conceptual level, risk barriers that contribute to ensuring delivery of safe drinking water include:

- Risk Prevention;
- Risk Management;
- Monitoring and Compliance; and
- Individual Action.

These conceptual barriers, when translated into specific actions taken by the community, the government, the watershed, the utility, the water plant, and individual consumers, can effectively eliminate contamination risk and ensure the continuous provision of safe drinking water.

There are presently 88 regulated drinking water contaminants, generally divided into six major categories, and turbidity as follows: seven-microorganisms, 16 inorganic chemicals, 53 organic chemicals, three disinfectants, four disinfection byproducts, four radionuclides and turbidity. Contaminants for which it is difficult to establish a Maximum Contaminant Level (MCL) are controlled by means of a treatment technique. Treatment technique requirements have been established for 10 specific contaminants including:

- Turbidity and the following microorganisms:
  - *Cryptosporidium;*
  - *Giardia lamblia;*
  - Heterotrophic plate count;
  - *Legionella;* and
  - Viruses.
- Lead and copper whether due to raw water contamination or corrosion within the system;
- Certain coagulant monomers including:
  - Acrylamide; and
  - Epichlorohydrin.

Certain systems using surface water must also use a treatment technique to remove disinfection byproduct precursors.

The EPA's website provides an informative table that summarizes the regulated contaminants. It identifies the major category of the contaminant, whether the contaminant is controlled by means of an MCL or treatment technique, maximum contaminant level goals, a summary of potential health effects from long-term exposure, and common sources of each contaminant in drinking water. This EPA table is located at: http://water.epa.gov/drink/contaminants/upload/mcl-2.pdf.

In Colorado, there are several treatment requirements applicable to all public water supplies. All systems, except for a limited number of protected ground water systems, are required to disinfect the water supply to control bacteria and viruses; surface water suppliers are required to filter to remove other regulated microorganisms that cannot be effectively controlled by chemical disinfection. Systems having raw water that cannot meet an established MCL, are required to either treat the water so that compliance with the MCL is attained, or find an alternative water supply. Under the 1996 amendments to the federal Safe Drinking Water Act, new standards will be developed by EPA from a federal list approximately every six years. EPA has also established a list of secondary standards related to the aesthetic quality of the drinking water. Federal and state laws provide that these secondary standards are not enforceable.

2. Public Water System Inventory Development and Maintenance

Colorado is required to develop and maintain an inventory of public water systems as a condition of maintaining primacy for the federal Safe Drinking Water Act. Unlike the federal Clean Water Act program where controls are established by issuance of a site specific (or general) permit that details compliance

requirements for a specific regulated entity, the Division does not issue permits to its regulated public water systems. Instead, the federal and Colorado drinking water regulations are self-implementing and a public water system must consult the regulations to determine the requirements applicable to it depending on their water source, system size, residential classification and type of treatment process utilized. The Division becomes aware of new systems by various means, including system self-disclosure, citizen complaints or inquiry, or discovery by our field staff or local health departments. Regardless of the means, the inventory process is used to document the characteristics of the public water system and records them in the Colorado data system which is linked to the national drinking water database. The system characteristics are then used to determine how the CPDWR applies to the system.

3. Assistance to Public Water Systems

Much of the assistance provided to public water systems in Colorado is derived from the capitalization grant authorized by Section 1452 of the 1996 federal Safe Drinking Water Act Amendments. While 61% of Colorado's annual capitalization grant is reserved to support the state revolving fund, which provides below-market rate loans to water systems for infrastructure improvements, up to 31% of the grant may be used for activities designed to strengthen the ability of public water systems to provide consistently safe drinking water. The set-asides provide the funds to reduce specific known contamination risks such as source water contamination, insufficient system capacity, and inadequately certified operators. They also provide flexibility for states to design activities to address risks unique to the state's circumstances, provided the proposed activities are included within a written strategy developed with opportunity for public input and linked to an EPA approved set-aside work plan that meets minimum federal Safe Drinking Water Act requirements. The text box below summarizes the set-asides available from the annual revolving fund capitalization grant as they apply to public water systems (PWS).

Drinking Water State Revolving Fund
Set-Aside Reference Chart

Amount	Statutory Citation	Purpose
4%	**1452(g)(2)**	**DWSRF Administration & Technical Assistance to PWSs**
2%	**1452(g)(2)**	**Small Systems Technical Assistance**
		Technical Assistance to PWSs Serving<10,000 Persons
10%	**1452(g)(2)**	**State Program Management:**
		1. Administer the State PWSS Program
		2. Administer or Provide Source Water Technical Assistance
		3. Develop & Implement a Capacity Development Strategy
		4. To Develop & Implement an Operator Certification Program
15%	**1452(k)**	**Local Assistance & Other State Programs: No more than 10% of Capitalization Grant Amount Can Be Used for Any One Activity**
		1. Loans to Acquire Land or Conservation Easements for Protection of Source Waters
		2. Loans to Provide Funding to Implement Voluntary, Incentive-Based Source Water Quality Protection Measures
		3. Assistance to PWS as Part of Capacity Development Strategy
		4. Assistance to Establish & Implement Wellhead Protection Programs Under Section 1428

The Division has elected to provide assistance in the following major categories: compliance assistance; source water protection, capacity development and financial assistance.

a. Compliance Assistance

Compliance assistance is provided to public water systems to facilitate their compliance with specific regulatory requirements. It generally includes one on one communication to explain specific requirements, including, for example: explaining monitoring requirements; developing compliance options to resolve monitoring or standards violations; explaining how to properly complete required forms, provide public notice, or conduct performance monitoring and report results.

b. Source Water Protection

As the sensitivity of analytical methods improved in the 1970's, many public water sources were found to be contaminated with organic chemicals, some of which are considered human carcinogens. Water systems soon learned how quickly what was thought to be a valuable water source could be so degraded by contaminants as to be useless or a worse – a liability. It became apparent to water systems and regulators that it is far less expensive to prevent source water contamination than to find a new source or treat the current source to remove contaminants to safe levels. The 1986 Amendments to the federal Safe Drinking Water Act required the establishment of state wellhead protection programs and in the late 1980's the Division began implementing its wellhead protection program. The 1996 Amendments to the Safe Drinking Water Act strengthened and expanded the requirements to protect source waters. It extended previous wellhead protection efforts to include surface water sources and mandated states to provide water systems with a source water assessment as the first step to encouraging water systems to undertake voluntary protection efforts. In Colorado, source water protection now encompasses both the wellhead protection and surface water protection efforts.

Source Water Protection Phases: Assessment & Protection

"Assessment" consists of four elements:

- Delineation of a public water system's source water area.
- A contaminant inventory to identify potential sources of contamination within the source water area.
- A susceptibility analysis to determine the potential risk to a system of a release from a facility or activity in their source water area.
- Public involvement to inform the public of the vulnerability of their drinking water supply.

The "protection" phase is voluntary and is the responsibility of local government.

Colorado's assessment phase produced a report for each public water system that included a map of the source water assessment area, the locations of potential source(s) of contamination, and a ranking of the susceptibility of each water source. It was recognized that this initial assessment was a baseline evaluation to provide a starting point for protection planning. The assessment reports were released to all public water systems in early 2005.

Utilizing the information developed during the assessment effort, the state is now encouraging PWS and planning partners to engage in protection planning. The source water protection effort is providing technical and financial assistance to PWS and governmental entities to facilitate their efforts to develop protection plans that will minimize the risk of source water contamination.

Available technical assistance includes a state-designed protection plan template that participating entities can use to develop their protection plans. The template simplifies the process and allows flexibility to individualize a protection plan while helping to organize the plan's four essential elements:

- Stakeholder involvement;
- Protection plan development;
- Protection plan implementation; and
- Monitoring results and updating the plan.

Site-specific technical assistance for protection planning is also being provided by the Colorado Rural Water Association.

Funding to support the source water protection planning effort is provided from set-asides to the DWRF capitalization grant for two types of projects: pilot planning projects and development and implementation projects. Additional information on grants is provided in Part IV of this Guide. Grants will support the development of exemplary and comprehensive source water protection plans. It is anticipated that, once completed, these pilot projects will serve as examples to other entities interested in developing protection plans for their drinking water sources. The complete protection planning process is outlined in the Division's source water protection planning toolkit. The protection planning template and the toolkit are available on the Colorado Source Water Assessment and Protection Program (SWAP) website at (www.colorado.gov/cdphe/swap).

c. Capacity Development

The 1996 Amendments to the federal Safe Drinking Water Act authorized the use of funds set-aside from the state revolving fund capitalization grant to support a state developed public water system capacity development strategy. The term "Capacity Development" is used within the federal Safe Drinking Water Act and is a frequently misunderstood term because it implies building infrastructure. Rather than building infrastructure, the capacity development effort conducted under the federal Safe Drinking Water Act set-aside provisions is designed to build the capabilities of public water systems to provide continuously safe drinking water to their customers. The program is not designed to build physical infrastructure but to enhance the ability of the water system to manage and operate their existing infrastructure effectively and to identify those situations where infrastructure changes are essential. In the federal Safe Drinking Water Act context, water system capacity is defined in three dimensions:

- Technical;
- Managerial; and
- Financial.

Elements of these dimensions are further defined as shown in the text box below.

Section 1420 of the federal Safe Drinking Water Act defines the components required of each state's capacity development program. These include:

- Primary drinking water regulation;
- Identification of public water systems in significant non-compliance and submittal of a report on the program's success in improving the capacity of these systems;
- A capacity development strategy, developed with the opportunity for public input; and
- A triennial report to the state's governor and the public analyzing the efficacy of the strategy.

States must have legal authority to ensure certain new public water systems have capacity. States that do not develop and implement such a strategy lose 20% of their annual capitalization grant.

PUBLIC WATER SYSTEM CAPACITY DEVELOPMENT COMPONENTS

Technical Capacity
- Source Adequacy
- Infrastructure Adequacy
- Proper Operation

Managerial Capacity
- Ownership Accountability
- Effective Staffing & Organizational Structure
- Effective External Linkages

Financial Capacity
- Revenue Sufficiency
- Fiscal Management and Financial Controls
- Credit Worthiness

The Division has developed a Capacity Development Strategy that synthesizes the prevention activities of the federal Safe Drinking Water Act's set-asides and provides an overview of the multiple goals to be achieved. Strategy implementation details are provided in individual work plans tailored to the federal Safe Drinking Water Act requirements for each set-aside. Individual work plans are developed for the State Program Management Set-aside, the Local Assistance and Other State Programs Set-aside, and the Small System Technical Assistance (SSTA) Set-aside. EPA reviews and approves each work plan. Colorado also identifies work plan activities and costs in the state's annual Intended Use Plan for the Capitalization Grant, which is presented to and approved by the Commission.

The current strategy and associated work plans are available on the Division's website. The current Intended Use Plan is available on the Commission's website.

In recent years, work plan development has been guided by the results of the federal Safe Drinking Water Act's *Failure and Root Cause Analysis Project* (FRCA) Report, which identifies and evaluates trends in compliance failures at public water systems in Colorado. The FRCA report summarizes compliance data collected at Colorado public water systems over a three-year period, from July 1, 2005, through June 30, 2008. The report highlights the areas of greatest weakness at water systems and, thereby, helps to direct the use of resources to obtain optimal results. The FRCA report also provides valuable baseline data for comparing, measuring, and evaluating the effectiveness of capacity development program activities in years ahead.

The Local Assistance Unit is the focal point for strategy development and documentation of the extensive public water system capacity development activities of the Division. However, capacity development activities under the umbrella of the strategy are implemented by multiple Sections and Units of the Division, including: Local Assistance Unit, Compliance Assurance Section, Field Services Section, Engineering Section, and select activities of the Division's Watershed Program.

Thumbnail sketches of capacity development activities pursued by the named Sections and Units of the Colorado Safe Drinking Water Act are provided below. More detailed and current lists of activities are available in the current strategy and work plans available on the Division's website.

i. Local Assistance Unit

- Capacity Coaching workgroup – includes two certified operators as Capacity Coaches who provide on-site training and technical assistance to small water systems throughout Colorado. They also support a wide variety of special projects, workshops and group training efforts requiring specialized technical experience.
- Security and Emergency Preparedness Program – promotes security and all-hazards preparedness for public water systems including: education, planning exercises, and partnerships development through the Colorado Water/Wastewater Agency Response Network (CoWARN) and National Incident Management System (NIMS) initiative.
- Drinking Water Excellence Program – promotes treatment process optimization and provides advanced and highly specialized technical training and recognition for surface water treatment facilities.
- Training Partnerships – through a long term water system training strategy (available on the Division's website), the Local Assistance Unit is leveraging training and technical assistance partnerships to deliver focused activities including: short schools, a mobile training unit, distribution system training, monitoring plan/technical, managerial and financial (TMF) workshops, a baffling factor study, distribution systems training center and other seminars and conferences.
- SWAP work group – assists public water systems with source water protection efforts as described above.

ii. Compliance Assurance Section

- Design and implement system-specific monitoring and compliance programs for new regulations.
- Develop policy and provide training to drinking water system staff to prepare them to meet requirements of new regulations.
- Identify water systems that are failing to comply with drinking water regulations so capacity resources can be directed to provide assistance.
- Develop and provide training to water system staff on regulatory requirements.

iii. Engineering Review and Field Services Sections

- Perform capacity reviews of all new public water systems to ensure they possess adequate technical, managerial and financial capacity to comply with CPDWR and continuously provide safe drinking water.
- Review capacity of all public water systems seeking loans from the DWRF.
- Provide on-site technical assistance during routine sanitary surveys of existing public water systems.
- Manage the effort to assist water systems with radionuclides violations to achieve compliance.
- Provide an internal expert on drinking water treatment, storage and delivery to provide technical assistance to drinking water systems on a variety of issues including: emerging technologies, design and treatment issues, and the development of training programs and guidance documents for both public water systems and internal staff.

4. Public Water System Compliance Assurance

The Division allocates a significant portion of available resources to assuring that public water systems comply with all applicable regulations including:

- Monitoring and Reporting – this is generally a review of water system reported data to ensure the required monitoring was conducted and that the results of the monitoring are within acceptable limits.

This also includes an on-site review of water system monitoring and reporting procedures and records conducted as part of a sanitary survey.

- Public Notification – this activity ensures that appropriate information about any water system violations are provided to the system's consumers and that certain water systems provide their consumers with an annual Consumer Confidence Report (CCR). The CCR is the centerpiece of the right-to-know provisions in the 1996 federal Safe Drinking Water Act. It allows customers to know what is in their drinking water, how the water was treated, and the source of their water. Every community public water system must provide a report to each of its customers annually. The report must include: the telephone number and name of the system's local contact; the telephone number of the EPA Hotline; all sources of drinking water used by the system; the treatment techniques used; definitions of terms used in the report; a list of all tested contaminants; a table of all detected contaminants listing the name, date of sample, the applicable standards, the level detected and most likely source of the contaminant; and any violations for the reporting year listing the type of violation, length of the violation, any pertinent health effects information, and steps the system is taking to correct the violation.
- System Design and Construction – new water systems and modification of existing water systems require approval prior to their construction to ensure their ability to provide safe drinking water. On-site reviews verify that water works are in compliance with this requirement.
- Proper Operations – treatment techniques required by the CPDWR mandate installation and proper operation such that specified performance requirements are achieved. On-site surveys also verify that approved water works are being properly operated such that the performance requirements are consistently achieved.

Compliance failures at public water systems do occur. When failures are identified, the Division's goal is to take timely and appropriate action that will result in a return-to-compliance. In general, compliance assurance efforts are premised on the belief that most regulated entities seek to maintain compliance with regulatory requirements.

For systems that frequently violate or fail to respond to informal Division actions to encourage their return to compliance, the Division may immediately escalate the formality of response. Additionally, the EPA has developed an enforcement targeting tool. Based on this approach, resources are targeted to address those public water systems which are determined to pose the most significant health threats. The Division is obligated to address these priority systems with formal enforcement action in a timely fashion to retain primacy. Penalties to recoup a violator's economic benefit and to encourage deterrence may also be imposed.

Systems having violations that are egregious, or that involve data falsification, are immediately escalated to receive formal enforcement with a penalty to recoup financial advantage and a not insignificant deterrent penalty.

When a situation is discovered at a public water system that presents an immediate threat to health, the Division immediately assembles its acute team, consisting of the Drinking Water Program technical expert and compliance and field service staff. The acute team's most immediate task is to ensure action is taken to prevent a waterborne disease outbreak by investigating the circumstances and determining if immediate public notification is necessary. If so, an immediate enforcement order (often referred to as a "Boiled/Bottled Water Order") is promptly issued, outlining public notice requirements and additional measures to be taken by the public water system to address any potential contamination.

5. Assistance to Consumers

The Division provides assistance to consumers both directly and indirectly. Direct assistance is provided to consumers who contact our staff in person, via email or by telephone. These consumers generally request information about the water quality provided by their private well or their public water system. Our ability to assist private well owners to assess their water quality or diagnose a suspected water quality problem is limited by the lack of Division funding to support this activity. The Division's response capacity is generally limited to explaining how to access laboratory services for various chemical, microbiological, physical or radiological analyses and referring callers to generic information about private wells that is maintained on our website.

For consumers requesting information about their public water system, staff are able to convey specific information such as where to find a water system's current CCR, and to provide specific information about the system, including: contact information, the name of the system's certified operator, system compliance status and the status of any condition that resulted in issuance of a public notice by the water system.

Part IV. Financial Assistance

The Division provides various financial assistance opportunities to assist with the efforts of protecting public health and the environment. The following section describes the financial assistance programs that are administered within the Division.

A. State Revolving Funds

The State Revolving Funds (SRFs) provide low-interest loans to governmental entities for drinking water and water quality improvement projects. Governmental agencies, which include cities and towns, counties and special districts, are eligible to receive funds. A proposed project must be identified on the current Project Eligibility List, which is updated annually by the Division, subject to approval by the Commission and Joint Resolution by the Colorado General Assembly and is signed by the Governor. To receive a loan, in addition to being identified on the current eligibility list, governmental agencies must comply with the following basic requirements:

- Possess an approved planning document that demonstrates the economic, environmental, and engineering feasibility of the proposed project and that the project is consistent with any approved water quality management plan;
- Complete and submit a loan application packet;
- Determination that the minimum standards for acceptance into the program have been achieved and the governmental agency is financially solvent;
- Enter into a loan agreement with the Colorado Water Resources and Power Development Authority;
- When bidding the project, solicit participation from Disadvantaged Business Enterprises; and
- Initiate construction of treatment project in accordance with applicable state requirements/approvals.

The SRFs provide pre-loan planning and design grants that offer financial assistance to applicants with costs associated with complying with programs requirements. The criteria for eligibility are provided in the annual Intended Use Plans found on the Commission's website. Grant funds may be used to support a variety of project development activities including: preliminary engineering reports; technical, managerial and financial reviews of public water systems; environmental assessments; engineering design documents; energy audits; and legal fees associated with formation of a legal entity capable of receiving SRF assistance.

The Division, in partnership with the Authority, and DOLA, Division of Local Government (DLG) (collectively the SRF Agencies) administer the SRFs. The three agencies play distinct, yet important, roles in ensuring the success of the program. The SRF Agencies operate under formal Operating Agreements and MOAs that identify their respective roles and responsibilities.

- The Division is the EPA-designated primacy agency responsible for managing the administrative and technical components of the programs, including the management of the DWRF set-asides.
- The Authority is responsible for financial structure, budgets, investments, disbursements of funds, and compliance with all federal reporting requirements.
- The DLG provides financial and managerial assistance to systems, coordinates funding activities with the Funding Coordination Committee, markets the SRFs to potential applicants and conducts financial capability assessments of communities' ability to repay loans.

To ensure the SRF Agencies are working toward the same common goals approved and supported by the Commission and the Authority Board, a shared mission statement and defined goals have been adopted by the SRF Agencies and the Commission. These goals are included in the annual Intended Use Plans.

The mission of the SRF Agencies that administer Colorado's SRFs is to actively target and allocate affordable resources to projects and initiatives that result in significant public health and/or environmental benefits while maintaining perpetual, self-sustaining revolving loan fund programs. The SRF Agencies are dedicated to providing affordable financing to systems by capitalizing on all available funds to address the state's priority water-related public health and water quality issues by providing affordable financing to communities for projects they need and support. The SRF Agencies will manage the funds in a manner to provide benefits for current and future generations.

Applicable requirements for the SRFs are described in the *Water Pollution Control Revolving Fund Rules*, Regulation No. 51, the *Drinking Water Revolving Fund Rules*, Regulation No. 52, and associated annual Intended Use Plans. These documents can be found on the Commission's website.

B. Water Quality Improvement Fund Grant Program

The *Water Quality Improvement Fund* (WQIF), provides grant funds for water quality improvement projects using civil penalties from water quality violations. State House Bill 11-1026 amended the statute to authorize grants for stormwater management training and best practices training to prevent or reduce the pollution of state waters.

The WQIF Rules, Regulation No. 55, provide the eligibility and prioritization criteria that will be used to award grants from the WQIF. Funding is dependent upon annual appropriations of the Colorado General Assembly and is based on violations that were committed on or after May 26, 2006, and penalties paid into the fund.

Entities eligible for WQIF Funding include governmental agencies, publicly owned water systems, private not-for-profit public water systems, not-for-profit watershed groups, not-for-profit stormwater program administrator in accordance with Section 25-8-802 of the Colorado Revised Statutes, not-for-profit training provider, and private landowners impacted by a water quality violation. Entities that pay a Colorado Water Quality Control Act civil penalty are prohibited from receiving a grant from this fund for a period of five years from the date of the payment of the penalty.

C. Source Water Protection Grants

Funding to support the source water protection planning effort is provided from set-asides to the DWRF capitalization grant for two types of projects: pilot planning projects and development and implementation projects. Pilot planning project grants will be of a limited number, but broad in spectrum. They will support the development of exemplary and comprehensive source water protection plans. It is anticipated that, once completed, these pilot projects will serve as examples to other entities interested in developing protection plans for their drinking water sources. Grant amounts for these projects may range up to $50,000. This additional analysis is expected to underscore the importance and significance of protecting a system's source water. Development and implementation projects will be funded in an amount of up to $5,000. These grants require a one-to-one financial match (cash or in kind).

D. Small System Training and Technical Assistance Grants

The Small System Training and Technical Assistance set-aside allocated under the DRWF provides grant funding to assist with the costs of planning and design for small drinking water systems serving less than 10,000 people. Specific criteria and funding availability is provided annually in the DWRF Intended Use Plan. The plan can be found on the Commission's website.

E. Small Community Grant Programs

State statutes 25-8-703 and 25-1.5-201 authorize funding, when appropriated by the legislature, for small community domestic wastewater and drinking water projects. These programs provide grants to municipalities for costs associated with planning, design and construction of drinking water and wastewater treatment plants. These funds are restricted to small communities, or to counties on behalf of unincorporated areas, of less than 5,000 populations. This program has not received funding from the State Legislature since 2006.

F. Nonpoint Source Project Grants

The Nonpoint Source Program receives an annual allocation from the EPA for a grant program. The funds require a 40 percent state or local match. The match can be cash or in-kind services. Funds are distributed through a competitive process to local project sponsors to implement projects which restore impaired waters, prevent future impairments, or raise public awareness. Project sponsors may be nonprofit organizations, government agencies, for-profit companies or individuals. The Alliance reviews all proposals and provides a

recommendation on which projects to fund.

The first federal funds were appropriated under Section 319 for nonpoint source projects in 1990. These funds have supported staffing in the Division as well as implementation of dozens of projects related to agriculture, silviculture, urban runoff, construction runoff, abandoned and inactive mines, hydrologic modifications, and information and education. Current projects focus on watershed-based water quality improvement on identified impaired water bodies.

To assist prospective project sponsors in understanding the Section 319 grant process, the Division offers an annual "how to" workshop on applying for Section 319 grants. For successful applicants, the Division also offers an annual "how to" workshop on contracts and other procedural requirements associated with successfully administering a Section 319 grant.

All projects funded in Colorado are reviewed and prioritized by the Colorado Nonpoint Source Alliance. The Commission holds an annual informational hearing to approve the proposed projects prior to submitting a funding request to EPA.

G. Colorado Healthy Rivers Fund

Senate Bill 02-087, established the Colorado Watershed Protection Fund. The name was changed subsequently to the Colorado Healthy Rivers Fund. The legislation authorizes the fund to be added to the Colorado Individual Income Tax Refund Check-off Program to give taxpayers the opportunity to voluntarily contribute to watershed protection efforts in Colorado. The legislation provides that moneys collected in the fund will be made available in a grant program established jointly by the Colorado Water Conservation Board and the Commission, in cooperation with the Colorado Watershed Assembly. Two grant categories are available under the program - project grants and planning grants. Project grants support projects that promote the improvement and/or protection of the condition of the watershed. Planning grants support the development and implementation of a successful watershed restoration or protection project. Grants are awarded on a competitive basis.

H. Funding Coordination Committee

Funding for drinking water and wastewater projects is coordinated by the Funding Coordination Committee, which meets regularly to discuss partnering and pooling funds. Participants include: the Division, DLG, the Authority, USDA Rural Development, and Colorado Water Conservation Board.

Appendix A

Colorado Water Quality Control Act and Federal Clean Water Act Historical Perspective

The major elements of the Colorado Water Quality Control Act largely reflect the major features of the federal Clean Water Act – the establishment of water quality classifications and standards, implemented principally through a point source discharge permit program. However, the scope for the federal Clean Water Act is largely limited to surface water, whereas the State Act addresses surface water and ground water.

The Colorado Water Pollution Control Act was first adopted in 1966, creating authority to adopt water quality standards consistent with the requirements contained in the 1965 amendments to the federal Clean Water Act. In 1972, Congress adopted a major overhaul of the Federal Water Pollution Control Act, including changes that:

- Established the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point source discharges of pollutants, by requiring that dischargers meet both water quality-based and technology-based effluent limitations;
- Authorized the EPA to establish technology-based effluent limitations for certain categories of dischargers;
- Required states to develop a comprehensive and continuing planning process for water quality management, including the adoption of area wide waste treatment management plans (Section 208 plans);
- Authorized EPA to establish water quality standards where any state fails to adopt standards that meet the requirements of the federal Clean Water Act; and
- Substantially expanded a program to provide federal grants for the construction of domestic wastewater treatment plants.

In 1973, the Colorado Water Pollution Control Act was completely rewritten (and renamed the Colorado Water Quality Control Act), to bring it into compliance with the new federal law. A second total rewrite of the Colorado Water Quality Control Act was adopted by the Legislature in 1981. Senate Bill 81-10 moved for the first time to a partially cash-funded discharge permit system. Among the other innovations of SB 81-10 were provisions requiring that "economic reasonableness" be taken into account at various points in the water regulation process. EPA objected that certain provisions – for example, variances from water quality standards based on economic impact – were inconsistent with provisions of the federal Clean Water Act, and could result in EPA withdrawing authority for the state to administer the discharge permit program in lieu of a federal program.

In 1985, the Legislature amended the Colorado Water Quality Control Act by adopting SB 85-83, which was aimed in large part at eliminating the deficiencies alleged by EPA in SB 81-10. One result of the 1985 amendments was the adoption of Section 25-8-207, creating a new basis for reconsideration of water quality classifications and standards, in part because the SB 81-10 water quality standards variance provision was deleted. Section 25-8-207 creates an automatic right to a rulemaking hearing to review classifications and standards in certain circumstances. Senate Bill 85-83 also eliminated the Commission's authority to hear certain permit appeals in order to avoid a conflict of interest concern (since Commission members include persons employed by dischargers).

In 1989, the Legislature further amended the Colorado Water Quality Control Act with the adoption of SB 89-181. Among other changes, this bill included new provisions regarding the relationships between the Commission and the Division and other state agencies. Section 25-8-104(2)(d) now requires the Commission and Division to consult with the State Engineer and the Colorado Water Conservation Board before taking any actions that have "the potential to cause material injury to water rights." In addition, new Section 25-8-207(7) identifies "implementing agencies" - Mined Land Reclamation Division (now the Division of Reclamation, Mining and Safety), State Engineer, Oil and Gas Conservation Commission – as well as agencies responsible for implementation of the federal Resource Conservation and Recovery Act - now the Hazardous Materials and Waste Management Division at CDPHE and the Oil Inspection Section at the Department of Labor and Employment - that have the initial responsibility for implementing water quality classifications and standards

adopted by the Commission for activities subject to their jurisdiction, except for point source discharges to surface waters. The roles of these other agencies are discussed further in Part I of this Guide.

In 1990, the Legislature adopted SB 90-26, establishing new provisions in the Colorado Water Quality Control Act, to address potential ground water quality contamination from agricultural chemicals (pesticides and commercial fertilizers). Section 25-8-205.5 of the Colorado Water Quality Control Act now gives the state Department of Agriculture authority to develop voluntary best management practices and, if necessary, mandatory agricultural management plans to control this potential pollution source, subject to ultimate authority of the Commission to adopt regulatory requirements, if necessary.

In 1992, the Legislature adopted House Bill 92-1200, which established a new Section 25-8-209 regarding water quality designations. This section provides for: (1) an "outstanding waters" designation for certain waters for which no degradation will be allowed; and (2) a "use-protected waters" designation for waters whose quality may be altered so long as applicable water quality classifications and standards are met. All waters not given one of these two designations are subject to antidegradation review requirements before any new or increased water quality impacts are allowed.

In 1993, Subsection 25-8-205(1)(e) was added to the statute, to give the Commission the authority to regulate the use and disposal of biosolids. In the 1998 general election, a citizen's initiative known as Amendment 14 passed, establishing a new Section 25-8-501.1, regulating housed commercial swine feeding operations. This provision requires that such facilities obtain an individual discharge permit. It also sets forth detailed requirements regarding the construction and operation of these facilities, and establishes a separate permit fee specific to these operations. In 2000, Subsection 25-8-205(1)(f) was added to the statute, to give the Commission the authority to regulate the reuse of reclaimed domestic wastewater for purposes other than drinking.

In 2001, the Legislature adopted HB 01-1032 which provides for the renewal of discharge permits, using a risk-based approach that limits the amount of work required to renew permits that have minimal or no change in permit conditions. This bill also removed the state requirement that discharge permits expire every five years.

In 2002, HB 02-1344 increased point source discharge permit fees and required that the Division conduct a study regarding whether revisions to Colorado's water quality classifications and standards system are appropriate due to the unique attributes of Colorado water bodies. The increased fees were allowed to sunset in 2005.

In 2006, SB 06-171 transferred rulemaking authority for the following water quality-related functions from the Board of Health to the Commission:

- The Primary Drinking Water Regulations (5 CCR 1003-1);
- The Drinking Water Revolving Loan Fund (5 CCR 1003-3);
- The Drinking Water Grant Program (5 CCR 1003-8);
- Biosolids Fees (5 CCR 1003-7); and
- Individual Sewage Disposal System (ISDS) Guidelines (5 CCR 1003-6).

Also in 2006, HB 06-1337 established a new Water Quality Improvement Fund. Penalties for violations of the Colorado Water Quality Control Act after the effective date of this legislation would be deposited into this fund, which is to be used for the following purposes:

- Improving the water quality in the community or water body impacted by the violation;
- Providing grants for stormwater projects or to assist with planning, design, construction, or repair of domestic wastewater treatment works; or
- Providing the non-federal match funding for nonpoint source projects under Section 319 of the federal Clean Water Act.

Subsequent years brought additional changes. In 2007, HB 07-1329 was passed that changed drinking water and clean water fees as authorized under the Colorado Water Quality Control Act.

In 2008, HB 08-1099 amended the Colorado Water Quality Control Act by authorizing the Commission, instead of the State Board of Health, to hear drinking water penalty appeals and by modifying the procedures for water discharge permit applications. In 2009, the Colorado Water Quality Control Act was amended in HB09-1330, to change fees related to the concentrated animal feeding operations and housed commercial swine feeding operations. In 2011, HB 11-1026 passed which expanded the funding eligibility within the Water Quality Improvement Fund to include grants for stormwater management training and best practices training.

In 2011, SB Bill 11-021 was passed eliminating term limits for the Water and Wastewater Operator Certification Board and SB 11-1026, which authorized the Department to designate a nonprofit stormwater management system administrator to assist in compliance activities for the state's NPDES program.

In 2012, HB 12-1119 passed that directs the divisions to collaborate with industry to develop a streamlined and responsive process for stormwater related violations and enforcement, and HB 12-1126 was authorized concerning on-site wastewater treatment systems and directing the division to develop rules for the Commission's approval that set minimum standards for the location, design, construction, performance, installation, alteration and use of onsite wastewater systems.

In 2013, HB 13-1044 passed authorizing the use of graywater for specific uses in accordance with rules established by the Commission; HB 13-1191 created a grant program to assist facilities with complying with the Commissions Nutrients management Control Regulation; SB 13-073 requires the Division to comply with the rule-making procedures set forth in the *State Administrative Procedure Act* (APA) when proposing new or amended permit requirements with respect to general permits related to water quality control; and SB 13-150 authorizes the continuation of the water and wastewater facility operators certification board until 2020 and implements recommendations in the sunset report.

Appendix B

Historical Perspective of Federal and State Safe Drinking Water Legislation

In addition to the federal Clean Water Act, a second federal statute of major importance to the structure and content of water quality management in Colorado is the federal Safe Drinking Water Act. Waterborne illness, throughout the early history of the state, was one of the primary reasons for the establishment of the Colorado Department of Public Health in the 1940s. The formation of the Department was quickly followed by regulations to protect public drinking water supplies. The major drinking water problems were related to microbiological contamination from human and animal wastes and heavy metal contamination due to heavy metal mining. By the time the federal Safe Drinking Water Act was passed in 1974, the state had become a leader in the use of advanced drinking water treatment for micro-organism control. The state adopted provisions to implement the federal act in 1979 and has continued to expand drinking water protection through adoption of provisions to implement the federal Safe Drinking Water Act amendments of 1986 and 1996. The 1986 amendments established an ambitious schedule for the adoption of federal drinking water standards for additional pollutants and established a voluntary "wellhead protection program" for community water supplies that rely on ground water. The 1996 amendments adopted several important changes, including:

- A more realistic schedule for adoption of new federal drinking water standards;
- New consumer notification provisions;
- A new drinking water revolving loan program designed to help fund both water system infrastructure improvements and state drinking water programs including:
    - New source water assessment and protection provisions;
    - Capacity development for new and existing systems;
    - Minimum certification requirements for water and distribution system operators;
    - Small system training and technical assistance; and
    - Program management.

The safe drinking water program, which has historically been viewed as a separate entity from the clean water program, is composed of similar program elements requiring staff with much the same professional and technical expertise. Drinking Water Program elements include: regulatory development (e.g., developing treatment standards and performance requirements for public water systems for adoption by the Water Quality Control Commission); compliance evaluation of self-reported data; compliance inspections (e.g., sanitary surveys); engineering plan review; technical assistance; and partnering with other agencies to oversee the drinking water revolving fund (DWRF). In Colorado, the safe drinking water functions and clean water functions have been integrated. This has been timely, particularly in view of the new program elements which emerged following the 1996 reauthorization of the Safe Drinking Water Act (e.g., source water protection, vulnerability assessment, and the DWRF program) that will rely upon ground water and watershed sciences, as well as the financial assistance program which has long been functioning within the Division's clean water program.

Another requirement of the 1996 Safe Drinking Water Act amendments was that states have a certification program for operators of drinking water treatment plants and water distribution systems. In response, Colorado's plant operator certification program was expanded to include mandatory certification of water distribution system operators and to meet all of the new federal requirements. The requirements to have certified operators of public water systems is an additional means of assuring compliance with the requirements to provide adequate drinking water quality.

Appendix C

Bibliography of Other Important Water Quality Management Documents

This Appendix lists a number of documents of general interest related to water quality management in Colorado. Copies should be available from the entities identified below. In some cases, there may be a charge.

In addition, certain current information related to water quality management in Colorado is available on the Commission's website (which can be found at: http://www.colorado.gov/CDPHE/WQCC). Information currently available on the Commission's website:

- The Colorado Water Quality Control Act, Commission regulations and policies;
- Monthly Commission meeting agendas;
- Commission long-range schedule and explanatory notes;
- Summaries of Proceedings/Motions from prior Commission meetings;
- Informational Hearing and Rulemaking Hearing Notices; and
- Commission member roster and biographical summaries.

Documents available on the web and/or in hard copy:

1. The following policies adopted by the Water Quality Control Commission:
   - Policy 87-2; Policy Concerning Approval of Section 208 Water Quality Plan Amendments.
   - Policy 96-1; Design Criteria for Wastewater Treatment Works.
   - Policy 96-2; Human Health-Based Water Quality Criteria and Standards.
   - Policy 98-1; Provisional Implementation Guidance for Determining Sediment Deposition Impacts to Aquatic Life in Streams and Rivers.
   - Policy 98-2;A Guide to Colorado Programs for Water Quality Management and Safe Drinking Water.
2. Status of Water Quality in Colorado 2012- Section 305(b) Report
   (Water Quality Control Division; 2012)
3. Water Quality Limited Segments - Colorado's 2012 303(d) List
   (Water Quality Control Division; 2012)
4. Colorado Nonpoint Source Assessment Report [Hard copy only]
   (Water Quality Control Division; 1988)
5. Colorado Nonpoint Source Management Program
   (Water Quality Control Division; 2012)
6. Colorado Watershed Protection Approach [Hard copy only]
   (Colorado Water Quality Forum; 1994)
   - A special section on water quality classification and standards reviews;
   - Information regarding selected special topics.
7. Colorado Wellhead Protection Program [Hard copy only]
   (Water Quality Control Division; 1994)
8. Colorado Source Water Assessment and Protection Program
   (Water Quality Control Division; 2000)
9. Whole Effluent Toxicity (WET) Testing
   (Water Quality Control Division; 2010)
10. Colorado Water Quality Control Division Biomonitoring Guidance Document [Hard copy only]
    (Water Quality Control Division; 1993)
11. WQCD Enforcement Management System [Hard copy only]
    (Water Quality Control Division; 1993)
12. Water Quality Control Commission Public Participation Handbook
    (Water Quality Control Commission; 1998)
13. Water Quality Control Commission Index for Policies, Regulations and Guidelines
    (Water Quality Control Commission; 2002)
14. Senate Bill 89-181 Implementing Agency Memoranda of Agreement

(Separate MOAs with State Engineers Office, Oil and Gas Conservation Commission, Hazardous Materials and Waste Management Division, Division of Minerals and Geology, and the Oil Inspection Section of the Department of Labor and Employment)

15. Section 208 Water Quality Management Plans [Documents available on the web and/or in hard copy]
    - Region 1 - Northeastern Colorado (Morgan, Logan, Yuma, Sedgwick, Phillips, and Washington Counties) Last Update-1997
    - Region 2 - North Front Range Water Quality Planning Association (Designated Planning Agency, Larimer and Weld Counties) Last Update – 2012
    - Region 3 - Denver Regional Council of Governments (Designated Planning Agency, Adams, Arapahoe, Boulder, Douglas, Denver, Jefferson, Clear Creek, and Gilpin Counties) Last Update – 2009
    - Region 4 - Pikes Peak Area Council of Governments (Designated Planning Agency; El Paso, Park, and Teller Counties) Last Update -2010
    - Region 5 - East Central Colorado (Elbert, Lincoln, Kit Carson, and Cheyenne Counties) Last Update - 1987
    - Region 6 - Lower Arkansas Region (Kiowa, Crowley, Otero, Bent, Prowers, and Baca Counties) Last Update – 1984
    - Region 7 - Pueblo Area Council of Governments (Designated Planning Agency; Pueblo County only) Last Update- 2013 (WQCC approval pending)
    - Region 8 - San Luis Valley (Saguache, Mineral, Rio Grande, Alamosa, Costilla, and Conejos Counties) Last Update -1988
    - Region 9 - San Juan Region (Dolores, Montezuma, La Plata, San Juan, and Archuleta Counties) Last Update -1987
    - Region 10 - District 10 (Gunnison, Hinsdale, Ouray, San Miguel, Montrose, and Delta Counties) Last Update -1990
    - Region 11 - Northwest Colorado (Moffat, Bio Blanco, Mesa, and Garfield Counties) Last Update – 1986
    - Region 12 - Northwest Colorado Council of Governments (Designated Planning Agency; Routt, Jackson, Grand, Summit, Eagle, and Pitkin Counties) Last Update – 2012
    - Region 13 - Upper Arkansas (Lake, Chaffee, Fremont, and Custer Counties) Last Update -1988
    - Region 14 - Huerfano/Las Animas (Huerfano and Las Animas Counties) Last Update -1987

Appendix D

Common Abbreviations

APA	Administrative Procedure Act
BMP	Best Management Practice
CCR	Consumer Confidence Reports
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CDX	Central Data Exchange
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CoWARN	Colorado Water/Wastewater Agency Response Network
CPDWR	Colorado Primary Drinking Water Regulations
CRS	Colorado Revised Statutes
DLG	Division of Local Government
DOLA	Department of Local Affairs
DRCOG	Denver Regional Council of Governments
DWRF	Drinking Water Revolving Fund
EC	Electrical Conductivity
ELG	Effluent Limitation Guidelines
EPA	Environmental Protection Agency
EquIS	Environmental Quality Information System
ETT	Enforcement Targeting Tool
FERC	Federal Energy Regulatory Commission
FRCA	Failure and Root Cause Analysis Project
ICIS	Integrated Compliance and Information System
ISDS	Individual Sewage Disposal System
LOI	Letters of Intent
MCL	Maximum Contaminant Level
MOA	Memorandum of Agreement
NIMS	National Incident Management System
NOA	Notices of Authorization
NPDES	National Pollutant Discharge Elimination System
OWTS	Onsite Waste Treatment System
PEL	Preliminary Effluent Limits
POTW	Publicly Owned Treatment Works
PPA	Performance Partnership Agreement
PWS	Public Water System
QA/QC	Quality Assurance/Quality Control
QMP	Quality Management Plan
SAR	Sodium Absorption Ratio
SDWIS	Safe Drinking Water Information System
SRF	State Revolving Fund
SSTA	Small System Technical Assistance
STORET	STOrage and RETrieval
SWAP	Source Water Assessment and Protection Program
SWQMP	Statewide Water Quality Management Plan
TMDL	Total Maximum Daily Load
TMF	Technical, Managerial, Financial
TVS	Table Value Standards
UAA	Use Attainability Analysis
WET	Whole Effluent Toxicity
WQIF	Water Quality Improvement Fund
WQX	Water Quality Exchanges
WWFOCB	Water and Wastewater Facility Operators Certification Board

Appendix E

Section 208 Planning Requirements

Regional water quality management plans prepared under Section 208 of the federal Clean Water Act should be updated regularly to reflect the progress of plan implementation and changes in regulatory programs. The plans are a source of water quality assessment information for the preparation of 305(b) reports. They also provide data, information and recommendations used for stream classifications, TMDLs and waste load allocation studies, and permitting requirements necessary for regulatory decisions in the water quality management process. The federal Clean Water Act states that plans must include, but are not limited to, the following:

- The identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs over a twenty year period, including treatment requirements, necessary wastewater collection and urban stormwater runoff systems, financial arrangements, and relationship to potential land use;
- The establishment of construction priorities for such treatment works and time schedules for the initiation and completion of all treatment works;
- The identification of regulatory programs used to manage waste management and discharge facilities;
- The period of time necessary to carry out the plan, the costs of carrying out the plan within that time, and the economic, social, and environmental impact of carrying out the plan;
- Processes to identify nonpoint sources of pollution including agriculture, silviculture, mining, construction activity, the control and disposition of residual waste, and the disposal of pollutants on land or in subsurface excavations to protect ground and surface water quality; and
- An identification of management and operating agencies to carry out appropriate portions of a water quality management plan.

Uses of the Plans

Water Quality Management Plans provide guidance on water quality goals and objectives, the cost of water pollution control and social, economic, and environmental costs and benefits. Regional water quality management plans assist local, state, and federal decision makers to focus on priority water quality issues and provide local input and guidance to Colorado's overall water quality program. This process helps assure that decisions made at the local and state levels are consistent with pertinent statutory and planning requirements. The role of the regional plans and the planning agencies is, therefore, to assure that the necessary information for water quality decisions is adequate and up-to-date and that there is proper follow-through on the part of the management agencies designated in approved plans. The roles of the planning agencies include, but are not limited to the following:

1. Assist with the development and the implementation of nonpoint source, TMDLs and stormwater control programs;
2. Assist designated management agencies with the review of wastewater utility/facility plans and site approvals to assure consistency with approved water quality management plans;
3. Review discharge permits to assure that discharges to a stream segment are consistent with approved plans, as required by Section 208(e) of the federal Clean Water Act,
4. Assist designated management and operating agencies in carrying out their responsibilities established in approved plans;
5. Provide information, assist with education, provide public participation opportunities and serve as a water and environmental resource to local governments and management agendas;
6. Participate in regulation development processes and can provide local government or management agency perspectives;
7. Periodically review the performance of the designated management agencies to assure that these agencies continue to fulfill their responsibilities; and
8. Other changes identified by the Division or Commission that can be subject to an informational hearing process.

For the plans to remain useful decision making documents, it is necessary that specific components of the plans be amended periodically. Amendments to plans recommended by planning agencies must be made in

accordance with the federal Clean Water Act and Colorado Water Quality Control Act. The regional water quality management plan elements that need to be kept current through the update and amendment process are as follows:

1. Facility needs - Discharge facility needs are those capital improvements, collection systems, purchases, and construction programs for wastewater treatment, which will result in a change in degree or method of treatment or an increase in capacity. These needs, covering a minimum period of five years with a 20-year planning horizon, must be identified in the regional plan and be supported by population and/or employment projections, degree of treatment requirements, and facility timing criteria. New facilities must be consistent with the service area, location, and capacity identified in the plan or in other locally adopted plans. The plan identifies regional priorities for facility construction, improvement, or expansion.
2. Facility location - The regional plan locates existing and proposed (20-year planning horizon) municipal and industrial wastewater treatment facilities. The plan lists the stream segment to which a discharge occurs or is expected to occur. Stream segments are consistent with prevailing state stream classifications.
3. Capacity - The capacity of a waste treatment facility is based upon design criteria. The plan shall identify the allowable organic and hydraulic throughput of the treatment works for existing conditions as well as projected needs based on a 20-year planning horizon. The units of measure for allowable organic and hydraulic throughput must be consistent with discharge permit requirements.
4. Timing of expansion facilities - The Colorado Water Quality Control Act requires that domestic wastewater treatment works permittees "initiate engineering and financial planning for expansion of the sewage treatment works whenever throughput and treatment reach 80 percent of design capacity" and "commence construction of such sewage treatment works expansion whenever throughput and treatment reach 95 percent of design capacity." The regional plan identifies the existing throughput, treatment design capacity and years in which the facility is expected to reach 80/95% of design capacity.
5. Population and/or employment projections – Population and/or employment projections are to be based on the best available information. Projections as adopted by the planning agencies and supported by the management agencies will determine the 20-year size of the service area and capacity of new or expanded treatment facilities.
6. Service area – The service area for a wastewater treatment facility is that area to which the facility provides wastewater service, is required to provide service, or will provide service when the facility reaches design capacity. It must be consistent with an adopted regional plan. Service areas in the Denver metropolitan region are governed by an adopted urban growth boundary.
7. Level of treatment - Prevailing stream standards, classifications, and regulations will determine the level of treatment. Treatment levels established by the Division will be listed for existing and proposed facilities, which have gone through the site approval process. Recommended changes to treatment levels based on approved TMDLs may be listed in the plan.
8. Social, environmental, and economic impacts of carrying out the plan - The plan should contain information on the costs and benefits of carrying out the plan in sufficient detail as to be able to identify the costs to management and operating agencies. Other social, environmental, and economic information will be provided, as appropriate.
9. Permit conditions - The major factors in permit conditions for a municipality is determined by effluent limitations. These limitations are subject to the prevailing stream classifications, standards and regulations. Water quality management plans can identify appropriate special permit requirements.
10. TMDLs/Wasteload allocations - The results of a TMDL/wasteload allocation, have been approved by the EPA, may be assigned to an individual discharger as an effluent limit contained in a state discharge permit. Water quality management plans may assist in determining the need for and completion of TMDL/wasteload allocation studies by: l) evaluating stream flow, water quality, and existing and projected wastewater discharges; 2) documenting the need for such studies; 3) recommending priorities for conducting TMDL/wasteload allocation studies; 4) making recommendations regarding actual conduct of such studies, including institutional and financial arrangements for carrying out the studies; 5) coordinating and recommending the most politically acceptable means for allocating wasteloads among multiple dischargers, where appropriate; and 6) providing planning agency recommendations, where appropriate.
11. Nonpoint Source and Stormwater Information - The plan should update nonpoint source and stormwater information of a regional interest as it becomes available, either through wasteload

allocation studies, stream sampling projects, municipal control programs, or stormwater permit programs. The plan may identify nonpoint source elements, priority watersheds, BMPs, watershed restoration strategies, stormwater management programs, and other watershed-oriented information.

12. Management Agency Review - The designated planning agency is responsible for recommending each designated management agency within its planning area to be identified in each plan update.
13. Watershed Restoration Plans - The plan should identify information that may be applicable to a specific watershed restoration strategy.
14. Source Water Assessment Protection (SWAP) - The plan may identify information applicable to source water assessment and protection efforts under the federal Safe Drinking Water Act.
15. Links to Other Water Quality Related Programs - The plan may provide links, including strategies and recommendations, to other water quality-related programs (e.g., Drinking Water, Superfund, Brownfield redevelopment, Endangered Species Act).
16. Partnerships - The plan can identify other water quality partnerships in addition to management agencies. These partnerships may include, but are not limited to, watershed associations, conservancy districts, river and/or lake protection groups and agencies.
17. Water Quality Analysis and Assessment - The plan may include specific water quality and environmental analysis and assessment results from special studies and efforts of management agencies or other appropriate partnerships.
18. Standards and Classifications - The plan may contain recommendations related to potential changes to water quality classifications and standards.
19. Regional Water Quality Policies - The plan may contain regional water quality or environmental policies, implementation guidelines and recommendations adopted by local government officials in the planning region.

Process for Amending and Updating Plans

The federal Clean Water Act and the Colorado Water Quality Control Act establish the update and amendment process. The plan amendment process is ongoing. A formal plan update, which incorporates all amendments as well as additional required information, should be completed at regular intervals. The Division reviews all requests for Section 208 plan amendments after they are duly adopted at the local level, determines whether the amendment is major or minor, and makes a recommendation as to whether the amendment warrants an informational hearing by the Commission. The Commission has final authority to approve, deny, or conditionally approve a Section 208 plan amendment and to recommend that the Governor certify the amendment to EPA.

Occasionally, requests are made by regional planning agencies to amend a water quality management plan between plan updates or outside the updating process. Sometimes the need arises for approval of a plan amendment in a relatively short time frame, in order for a wastewater treatment project to proceed. Plan amendments proposed outside of the normal update cycle are a particular problem as they affect the overall water quality planning process.

In order to expedite the review process, when necessary, plan amendments can be classified as either major or minor. Minor changes that are agreed to by the Division, the planning agency, and/or the management agency are not required to undergo an extensive amendment process. Neither the planning agency nor Division anticipates water quality impacts or major conflicts associated with a minor amendment. Minor changes can include some technical update information used for permitting purposes and water quality or environmental assessments from watershed studies. A periodic update of management plans eliminates the need for minor amendments with any minor change elements incorporated in the plan through a routine update process.

Major amendments warrant review by the Commission and require an informational hearing. These major amendments include, but are not limited to:

- Changes in planning or management agency designation or membership;
- Periodic updates to the priority water quality management plan elements previously listed in this section;
- Changes that impact water quality or have generated public controversies;
- Changes to stream standards, classifications, or regulations approved by the Commission;

- Changes that affect local, regional, state or commission policies and guidelines;
- Changes that alter watershed management strategies;
- Changes to discharge permits or permitting processes; and
- Other changes identified by the Division or Commission can be subjected to an informational hearing process.