

# STATE OF COLORADO

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Colorado Department  
of Public Health  
and Environment

**Annual Report to the  
Colorado Legislature and  
Water Quality Control Commission  
Fiscal Year 2006-2007**

Submitted to the Colorado Legislature and Water Quality Control Commission  
by the Water Quality Control Division  
Colorado Department of Public Health and Environment  
October 2007

## **FOREWARD**

I am pleased to submit the Water Quality Control Division's (Division's) Annual Report to the Water Quality Control Commission (Commission) for the period from July 1, 2006 through June 30, 2007 (FY 07). Pursuant to CRS Section 25-8-305, the Division is to file with the Commission, on an annual basis, a report on the effectiveness of its efforts under the state Water Quality Control Act. In particular, the Division is to:

Include in such report such recommendations as it may have with respect to any regulatory or legislative changes that may be needed or desired. Such report shall include the then current information that has been obtained pursuant to Section 25-8-303 [monitoring] and information concerning the status of the Division's implementation of the discharge permit program established in part 5 of this article.

Further, in accordance with the requirements of section 25-8-305 of the Colorado Water Quality Control Act, this report is also filed with the House Agriculture, Livestock, and Natural Resources Committee and the Senate Agriculture, Natural Resources and Energy Committee.

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October 2007

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## **I. NECESSARY LEGISLATIVE OR REGULATORY CHANGES**

### **A. Legislative Changes**

In 2007, the General Assembly authorized funding for an additional 12 FTE in the Water Quality Control Division. This was the second year that the Division received additional resources from the General Assembly as contemplated in the report submitted by the Colorado Department of Public Health and Environment pursuant to Senate Bill 03-276. Legislation is being contemplated for the upcoming session to modify the Colorado Water Quality Control Act to address three areas of the Water Quality Control Commission's permit regulations that are not as stringent as the conforming federal regulations.

### **B. Regulatory Changes**

With reference to regulatory changes that may be needed or desired, the Commission is fully aware of the on-going efforts of the Division to address a variety of issues through collaborative work group processes, including those formed under the auspices of the Water Quality Forum. The stakeholder community is advancing many work group proposals. A recent status report on work group efforts is attached as Appendix A.

The Commission is scheduled to consider changes to several sections of the Colorado Discharge Permit System Regulations in March 2008 to address areas, other than those identified in the Legislative Changes section, above, that are not as stringent as the conforming federal regulations. The Commission will also consider changes to regulations that establish technology-based treatment requirements for discharges.

The Commission held a rulemaking hearing in April 2007 to promulgate rules regarding administration of the Water Quality Improvement Fund. The Division submitted proposed rules that defined the criteria for eligibility and disbursement of the available funds. The Commission adopted the Division's proposal, which became effective July 30, 2007.

## **II. MONITORING ACTIVITIES**

The Division's surface water monitoring activities for FY 2007 were grouped into four general types: (1) routine sampling; (2) special studies; (3) lake and reservoir monitoring; and (4) aquatic life and habitat studies. In FY 2007, the majority of the Division's sampling efforts were devoted to the collection of water chemistry samples from the four major river basins across the state with an emphasis on the Colorado River Basin. River and stream sites in these basins are sampled for the purposes of reviewing and developing standards for triennial reviews, water quality assessments, developing total maximum daily limits (TMDLs), Clean Water Act Section 303(d) listing determinations, and for reporting trends and water quality status in Colorado's Section 305(b) report.

### **A. Routine Sampling**

The Division uses a rotating basin approach for primary stream monitoring. The entire state is sampled on a five-year cycle that matches the Commission's schedule for triennial reviews of basin standards and classifications. For the purposes of conducting the triennial reviews, the state has been divided into four major river basins. Each of the four major river basins is sampled intensively once every five years. This allows the Division to concentrate its limited resources in one basin in order to provide a complete set of data in preparation for the triennial review scheduled for that basin. In every fifth year of the cycle Regulation No. 31 (Basic Standards and Methodologies for Surface Water) is reviewed by the

Commission, and there is no need to intensively sample one of the major basins. For that year, sampling is more evenly allocated among the long-term trend sites in the four basins.

The number of sites and the number of times each site is sampled each year is controlled by the Division's fixed monitoring budget for laboratory analyses, which in FY 2007 was \$460,000. The samples that are collected are analyzed by the department's Laboratory Services Division. Depending upon the amount of data sought for a particular site and the accessibility of the site, sites were visited on a regular schedule, such as monthly, bimonthly or when weather and road conditions allowed. In FY07, routine water chemistry samples were collected from a network of 238 sampling sites located across the state. The Division concentrated 61 percent of the sampling in the Colorado River Basin. The remainder was allocated to the South Platte Basin (9 percent), Arkansas and Rio Grande Basins (22 percent), and the San Juan and Gunnison River Basins (8 percent). This sampling resulted in 952 sample sets collected. Samples were analyzed for a suite of constituents including metals, inorganics, nutrients and *E. coli*. Field parameters such as dissolved oxygen, pH, conductance, and temperature were also collected.

## **B. Special Studies**

Special studies monitoring includes synoptic sampling events for total maximum daily load determinations, spill and fish kill investigations, fish tissue sampling, and other water quality investigations. In FY 2007, synoptic sampling was conducted on the East Fork of the Mancos River, Boulder Creek, Kerber Creek, and Geneva Creek. Samples were collected by WQCD staff and local volunteers.

Fish tissue sampling to detect the presence of mercury was completed at 28 reservoirs across the state from July 1, 2006 through June 30, 2007. This effort resulted in 926 composite tissue samples for analysis by the department's Laboratory Services Division. Of these 28 water bodies, five exceeded the action level for mercury and were candidates for fish consumption advisories. During this time, Colorado issued approximately 11 new fish consumption advisories for mercury in lakes and reservoirs across the state (some of these resulting from data analysis from the previous fiscal year.) As of July 1, 2007, there are 15 total fish consumption advisories in Colorado.

Arsenic and selenium were also analyzed in fish tissues from these reservoirs. The Division is currently working with the CDPHE Disease Control and Environmental Epidemiology Division to determine action levels for selenium concentration in fish tissue.

## **C. Lake and Reservoir Monitoring**

The Division continued its lake and reservoir sampling in FY 2007. The Division monitored 29 reservoirs/lakes during the algal growing season from June through September. Sites were located in the Arkansas, Rio Grande, Colorado, North Platte, and Gunnison basins. Most sites were visited more than once, resulting in a total of 73 site visits. At each lake, depth profiles of dissolved oxygen, pH, conductance, and temperature were collected at 1-meter intervals. In addition, water quality samples were taken near the surface and near the bottom. Samples were analyzed for chlorophyll a and a suite of chemical parameters including nutrients, metals, inorganics and *E. coli*. In addition, near-surface samples were analyzed for algal species composition and biomass (as chlorophyll).

The WQCD, in cooperation with the EPA, developed an agreement with the United States Geological Survey whereby the Survey collected data from approximately 30 lakes/reservoirs in Colorado in FY08 as part of the National Lakes Probabilistic Survey.

#### **D. Aquatic Life and Habitat Studies**

Macroinvertebrate and habitat samples were collected at 54 sites across the state. Nearly all samples were collected for the purpose of locating reference sites in the plains and xeric bioregions. At each of the habitat sites, water quality samples were taken and analyzed for a specific suite of constituents that would allow the Division to determine reference status. These data, plus substrate measurements, habitat scores and periphyton samples, will be used in the development of expected conditions and assessments of aquatic life.

This year's aquatic life and habitat studies included a one-day sampling event along Bear Creek, which involved 7 sites, and two separate sampling events along an unnamed tributary to Pass Creek which involved 3 sites. Furthermore, the WQCD trained a member from the Grand County Water Information Network who in turn collected macroinvertebrate samples from 8 more sites around the Winter Park area.

#### **E. Nonpoint Source Monitoring Requirements**

Nonpoint source projects that conduct on-the-ground restoration and remediation activities are required under Clean Water Act Section 319 grant conditions to report measurable results from the efforts. EPA defines measurable results as "restoring waters to partial or full uses and standards, or as a minimum, reducing pollutant loads such as nutrients and sediment." To accomplish this, existing nonpoint source impacts must be better quantified in order to provide the water quality baseline information necessary to measure improvements. Surrogate measures, such as a record of the best management practices installed, can be used to evaluate the total project effort, but do not provide data that equate to water quality improvements. Few project sponsors have the expertise needed to draft an adequate sample and analysis plan to assess changes in water quality. As a result, the Division modified its approach to monitoring and evaluating nonpoint source projects. Starting with the 2004-2005 Nonpoint Source Section 319 project cycle, sponsors are required to provide more definitive water quality baseline data, and subsequent post-project data to substantiate project outcomes. This additional monitoring requirement was continued during fiscal year 2006-07.

The Commission approved the 2006 Supplement to the Colorado Nonpoint Source Management Program in August 2005. One new feature of the supplement is to implement nonpoint source management activities by using a focused watershed-based approach. This approach was initiated by synchronizing nonpoint source monitoring needs with the five-year, basin-monitoring schedule used to collect water quality data to establish classifications and standards for water bodies in Regulation Nos. 32 through 38. The South Platte, Laramie, Republican, and Smoky Hill River basins were identified as the watershed funding priority in fiscal year 2006-07.

#### **F. Cooperative Monitoring Activities**

To ensure that the maximum amount of relevant data is assessed each year, the Division issues a "call for data" to numerous cooperators, including federal and state entities, basin authorities, dischargers, and watershed groups, as well as River Watch and Section 319 sponsors. Through this mechanism, the Division accumulates a considerable amount of data beyond what it can directly sample and analyze.

As a charter member of the Colorado Water Quality Monitoring Council (Council), the topic of cooperative monitoring efforts has been discussed with other stakeholders. To facilitate data sharing, the Council has initiated a Data Sharing Network. 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 and what parameters exist. If the monitoring entity has uploaded data, the data can be viewed and downloaded. The data that is uploaded must comply with the STORET (EPA national database) requirements so that it is in a standard format that is usable by EPA and the state.

The software tools for the Data Sharing Network were donated by the EPA Region X and the network will be maintained by EPA Region XIII. A CWA Section 319 grant from the Division is funding this project and includes development of training materials, user training, and outreach to publicize the network and to seek out monitoring data to populate it. The Division is continually working on ways to build its capacity to gather water quality through partnerships with other agencies and citizen groups.

#### **G. Augmented Monitoring Funds**

To upgrade state monitoring efforts and encourage implementation of the Monitoring and Assessment Strategies for States, EPA placed an additional \$17 million in the CWA Section 106 state grants dedicated to monitoring purposes in the EPA 2007 budget. Colorado received \$441,900 of these “Monitoring Initiative” funds to facilitate the implementation of EPA’s 10 Elements document and to conduct a statewide flowing waters survey of water quality as part of a national project. The Division has earmarked these funds for increased biological and habitat monitoring, biological data management, training, risk assessments for fish tissue analysis, additional monitoring of rivers and lakes, and ambient ground water monitoring for specified areas.

### **III. PERMIT PROGRAM**

#### **A. Permit Backlog Reduction**

The Division developed a permit backlog reduction plan in May of 2000 that set goals to reduce the backlog of major individual process water permits to 10 percent by December 31, 2002, and the minor individual process water permit backlog to 10 percent by December 31, 2005. This plan was reviewed and approved by EPA and has, since that time, been reflected in the Performance Partnership Agreement between the Department and EPA. The Division did reduce its permit backlog to those agreed upon levels by those agreed upon dates.

In the time since the Division received approval of the backlog reduction plan, EPA’s backlog reduction program has expanded to include individual stormwater permits and general process water permits. For 2006-2007, this was a major shift in the focus of the Division’s backlog reduction efforts. The Performance Partnership Agreement between the department and EPA for federal fiscal years 2007 and 2008 includes a goal of 80 percent current (20 percent backlogged) for all permits included in EPA’s backlog reduction program. The Division is currently working to meet the 80% current target, and anticipates that by the end of September 2007, it will meet or be very close to that number.

Another important element of EPA's backlog reduction efforts is priority permits. EPA considers any renewal permit that has been expired and administratively extended, and any new permit that has not been issued for two years or more to be a candidate priority permit. As part of the Performance Partnership Agreement between the department and EPA, EPA requires 95 percent of each state's priority permits to be issued during the fiscal year. This is a continuing priority for the Division for the coming year. As of September 30, 2006, the Division was successful in issuing 15 of 16 priority permits. While this was a significant accomplishment, it fell short of the 95% goal by calculating to a 94% issuance rate. For federal fiscal year 2007, the Division had 5 priority permits and was able to issue all 5 by September 30, 2007.

## **B. Stormwater Program**

Stormwater discharges are generated from runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events, and often contain pollutants in quantities that could adversely affect water quality. Most stormwater discharges are considered point sources and require coverage by a permit. The primary method to control stormwater discharges is through the use of best management practices. EPA's stormwater regulations went into effect in two phases. Commission regulations, which adopted Phase I of EPA's stormwater regulations, were finalized in September 1993, and Phase II of the regulations were finalized in March 2001. Due to the recent establishment of the stormwater program, it continues to develop at a fairly rapid pace.

Most stormwater discharges in Colorado are authorized under general permits, which cover a category of discharges, such as construction, municipal storm sewer systems, and industrial sectors. Authorizations to individual discharges are issued in the form of certifications under a general permit. During 2006 - 2007, a total of 2392 new stormwater certifications were issued, a 21 percent increase over the previous fiscal year. As of June 30, 2007, there were 5,074 active general permit certifications for industrial and construction activities, and one individual permit. As of June 30, 2007, there were 116 active Municipal Separate Storm Sewer System (MS4) general permit certifications for Phase II municipalities and five MS4 individual permits for Phase I municipalities.

The Division's compliance assurance strategy for stormwater discharges implements both compliance assistance and inspection/enforcement to enhance water quality protection. A variety of educational materials is available and the Division staff conducts presentations for stakeholder groups. The Division's stormwater inspection program continued to grow during the past year, with a total of 378 compliance evaluation inspections having been performed during 2006-2007.

## **C. Environmental Agriculture Program**

The Environmental Agriculture Program (Ag Program) administers the department's regulatory, permitting, compliance assistance and compliance assurance activities for animal feeding, concentrated animal feeding and housed commercial swine feeding operations. The Ag Program is the department's first cross-media, sector-based program that leverages resources from the Water Quality Control and Air Pollution Control Divisions and the Sustainability Program. The program is staffed by 3.0 FTE from the Water Quality Control Division, 1.0 FTE from the Sustainability Program and 0.5 FTE from the Air Pollution Control Division. The goal of the Ag Program is to approach environmental issues in a holistic way that takes into account the interaction and environmental impact of air, water and waste together prior to making regulatory and policy decisions.



The regulatory and permitting requirements for animal feeding, concentrated animal feeding and housed commercial swine feeding operations are contained in Water Quality Control Commission Regulations No. 61, the Colorado Discharge Permit System Regulations, and No. 81, the Animal Feeding Operations Control Regulation. During FY07, the Ag Program renewed 18 concentrated animal feeding operation (CAFO) general permits and certified 22 new CAFOs under the general permit. In addition, the program conducted the following activities: completed over 80 CAFO inspections, completed a rulemaking on Regulation No. 61 to conform to revised federal CAFO rules; initiated the triennial review of Regulation No. 81, including numerous stakeholder meetings; responded to 19 CAFO complaints, over 10 AFO complaints; finalized the state CAFO inventory with 203 CAFOs identified; and began implementation of an innovative self-certification (Environmental Results Program) regulatory tool that targeted CAFO compliance with an impoundment liner certification requirement in Regulation No. 81. The self-certification project had a 100% response rate from CAFOs with a demonstrated compliance rate of over 84%. Early Settlement Agreements were issued to 32 CAFOs for lacking proper certification of a liner. Specific to permitted CAFOs, one CAFO was referred to the Water Quality Control Division for consideration of further enforcement.

Along with CAFOs, the program regulates housed commercial swine feeding operations. These facilities are capable of housing 800,000 pounds or more of swine at any one time and are more stringently regulated than CAFOs (diary, feedlots, poultry facilities) due to a citizen referendum passed by Colorado voters in 1998. The department has issued 11 individual permits to swine operations and actively works with producers to assure compliance with state regulations. There are 92 permitted swine facilities in Colorado that are inspected twice a year by personnel from three local health departments. Program staff meets quarterly with the local health departments on matters pertaining to swine facility inspections and related compliance assurance issues.

Future goals of the Ag Program include completion of the self-certification project, i.e., addressing additional groundwater protection compliance issues, completing rulemaking activities on Regulation No. 81 and Regulation No. 61 (due to anticipated federal rule changes), developing a single cross media air and water permit for housed commercial swine feeding operations, and exploring innovative ways to address compliance issues such as record keeping deficiencies and monitoring requirements.

#### **D. Water Quality Information Systems Improvement Projects**

The Division maintains several dispersed databases to support the compliance, enforcement and billing activities of the facilities-based Clean Water Act programs. All of the databases are outdated technology. Two are no longer supported by the department, and at least two require constant maintenance to prevent imminent failure. Some managers track essential program information in Excel spreadsheets because the existing databases do not include needed functionality.

Consistent with the department's strategic plan and the goals of the National Environmental Information Exchange Network, the Division has undertaken a major modernization effort. Investment in database improvements over the next three to five years is focused on providing a single solution, the Clean Water Information System, to replace legacy systems, preparing for EPA-required use of its modernized national NPDES database (ICIS), and creating the technical solution to conduct business via the Internet. Completion of phase one, data conversion, is scheduled for July 2007. Integration of enhancements and electronic data collection will follow.

## **E. Proposed Major Wastewater Treatment Plant Self-Certification Pilot Program**

The Clean Water Act and EPA, via the Performance Partnership Agreement, require the Division to conduct annual inspections at all major dischargers. The Division has met this requirement for a number of years and has determined, over time, that many major dischargers do not need to be inspected annually to ensure compliance. Conversely, the number of minor dischargers in need of compliance assistance and possibly, compliance assurance activities from the Division is significant. The Division, while increasing its resources, proposed an approach to EPA to better focus its resources on dischargers with compliance problems by launching a pilot program to allow major dischargers with very good compliance track records to self-certify compliance in lieu of an annual inspection. EPA approved the program in early 2007 and the Division reached agreement with 55 out of 75 systems deemed eligible for self-certification who completed self-certification forms in lieu of Division-conducted inspections. These entities are expected to continue to participate in the program and will be inspected every three to five years instead of annually. Resources saved by not conducting these inspections were devoted to improved follow-up with minor dischargers with compliance problems. Specific targets have been set to improve compliance rates at minor dischargers. The Division believes that this pilot program, if successful, could be permanently implemented and assist the Division to operate more efficiently, achieve greater compliance rates and increase environmental benefits.

## **IV. CONCLUSION**

The Division continues to plan and implement improvements to its critical monitoring and permitting programs. In the face of increasing expectations in these and other programs, the Division continues to explore innovative ways to improve its efficiency and performance so that the need for additional resources to meet program requirements is minimized while continuing to ensure that public health and the environment is protected.

**APPENDIX A**  
**Water Quality Forum Work Groups Status**  
 Last Updated July 19, 2007

Work Group	Chair/Coordinator/ I. WQCC Contact	Next Meeting(s)	Status
1. Standards Framework	Paul Frohardt (303-692-3468)/Amy Woodis (303-286-3240)/ <b>Andrew Todd</b>	August 28, 2007; 2:00 p.m. CDPHE Sabin Room  November 28, 2007; 2:00 p.m.	<b>New work group to address issues for potential consideration in 2010 Basic Standards rulemaking and/or for revised interpretation of existing Basic Standards provisions.</b>
2. Nutrient Criteria	Jim Saunders [lakes] (x3572)/Blake Beyea [streams] (x3656) (co-chairs)/Mary Fabisiak (303-430-2400 x2187)/ <b>Jeff Bedingfield</b>	October 23, 2007; 10:00 a.m. CDPHE Room C1A	In November and December, 2006, the Division staff briefed the work group and the Commission regarding its concept for an approach to developing nutrient criteria for lakes and reservoirs. A subgroup has held three meetings to discuss nutrient criteria to protect the water supply use.
3. Aquatic Life Classification	Chris Theel (x3558)/Barb Horn (970-382-6667) <b>Robert Sakata</b>	July 24, 2007; 1:00 p.m. CDPHE Carson Room  September 27, 2007; 9:00 a.m.  November 15, 2007; 9:00 a.m.	Continuing efforts to delineate statistically valid zones of transition from which to further refine current aquatic life use classifications; continuing efforts to add an OE-RIVPACS type fish model as another bioassessment tool; continuing efforts to finalize statewide reference sites for recalibration of existing indicator tools; continuing efforts to refine current aquatic life use classifications.
4. Membrane Treatment work group (formerly RO Roundtable)	Dave Akers (x3591)/Laurie Rink (303-777-0188) (co-chairs)/ <b>Robert Sakata</b>	(First Tuesday of each month); 9:00 to 11:30; FRICO offices.	Working on a “consensus document” that will: (1) summarize the state of understanding on technical and regulatory issues; (2) present an analytical tool for evaluation of technical approaches to brine treatment and discharge; (3) compare and contrast potential regulatory pathways for management of brine waste; and (4) offer recommendations for WQCC consideration. The goal is to complete the report by late summer.

5. Practical Quantitation Limits Guidance	Dave Akers (x3591)/ Sharon Davis (303-286-3360)/ <b>Andrew Todd</b>	None planned. Subcommittee meeting February 7 at CDPHE lab.	Commission informational hearing on the current Guidance was held on October 10, 2006. Plan is to address comments and to issue finalized guidance in February. A subgroup will begin to look at PQLs for inorganic parameters.
6. Discharge Permit Regulations	Dave Akers (x3591)/Janet Kieler (x3599) (co-chairs)/ Carol Webb (970-221-6231)/ <b>Chris Wiant</b>	August 21, 2007 10:00 a.m. MWRD  September 18, 2007 1:00 p.m. MWRD	Work group provided input to the Division's development of a list of issues addressed in a February 12, 2007 Routine Review Informational Hearing regarding the Colorado Discharge Permit System Regulations; rulemaking hearing scheduled for March 11, 2008. Issues are being resolved through stakeholder discussions. Progress is being made toward preparation of a draft proposal.
7. Spill Reporting and Response	Dave Akers (x3591)/ Dave Meyer (303-430-2400, x2376)/ <b>Robert Sakata</b>	If needed: September 13, 2007 1:00 p.m.  October 11, 2007	Work group has discussed issues related to requirements for reporting of spills, and other related topics to be included in guidance/policy. <b>A final draft guidance document has been circulated to work group participants. If consensus, this draft will be circulated in August Water Quality Information Bulletin.</b>
8. Agricultural Diversions	Gary Beers (x3524)/ Landon Gates (303-749-7516)/ <b>Gary Teague</b>	August 23, 2007 1:00 p.m. Colorado Farm Bureau Office	Work group will address how to implement the statewide narrative standards to protect agricultural uses. Work group has held a series of meetings with an educational focus before scoping the goals of the work group and setting specific objectives. <b>A draft guidance document for implementing the narrative standard was circulated for comment in May. A second draft will be circulated in August.</b>
9. E. coli Issues	Becky Anthony (x3339)/ Jim McCarthy (720-898-7765)/ <b>Chris Wiant</b>	TBD	Three subgroups established: (1) Regulatory options; (2) Evaluation of research resources; (3) Data. Goal to gain a better understanding of the issues regarding E. coli and to delineate an approach for developing regulatory options for listed stream segments.