STATE OF COLORADO

Colorado Department
of Public Health
and Environment

Drinking Water Capacity Development Program
Report to the Governor

Submitted to Governor Bill Ritter, Jr.

By the Water Quality Control Division
Colorado Department of Public Health and Environment
September 30, 2008

Drinking Water Capacity Development Program Report to the Governor

Submitted by

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EXECUTIVE SUMMARY

The Drinking Water Capacity Development program conducts activities that assist public water systems in Colorado develop technical, managerial, and financial capabilities so they can sustainably comply with regulations and supply continuously safe drinking water. In state fiscal year 2008, Colorado received nearly $3 million from EPA in water infrastructure funding because the state is implementing a Capacity Development program that aligns with requirements of the Safe Drinking Water Act.

The 1996 Safe Drinking Water Act amendments require that a report regarding the effectiveness of Colorado's Capacity Development program be provided to the Governor by September 30, 2002, followed by a new report every three years. Failure to provide the reports to the Governor by the specified dates will result in the loss of 20 percent of the federal Drinking Water Revolving Fund capitalization grant Colorado is otherwise eligible to receive. This capitalization grant ($14 million in 2008) augments the annual EPA Drinking Water Performance Partnership Grant ($800k in 2008) and provides Colorado with funding for loans to build drinking water system facilities and to assist in implementing the state Drinking Water Program.

A strategic plan is developed for the Capacity Development Program, which provides direction to the long range goals of the effort. In addition, work plans are developed on a rotating three year time schedule to focus on the specific efforts needed to accomplish the goals of the strategic plan. The rotating three year approach is used to keep consistency in the year to year work efforts.

Both the strategic plan and the work plans focus on three key areas – new public water systems, existing public water systems, and program administration. For new drinking water systems, the program focuses on a review of the technical, managerial, and financial capacity of the proposed system, to ensure the system developer is creating a sustainable drinking water system that will be able to provide consistently safe drinking water for years to come.

For both new and existing systems, the program has delivered a wide variety of training and technical assistance efforts directed toward helping systems meet their existing future needs. These efforts, including capacity assessments, assistance programs, coaching, and training have had significant impacts on the capabilities of these drinking water systems.

Colorado is the number one state in the number one EPA region in the country with respect to percent population served by community water systems that meet all health-based standards. Still, there has been one waterborne disease outbreak in each of the last two calendar years.

Providing assistance in emergency situations, like the salmonella outbreak in Alamosa in March 2008, is one distinct advantage of having the technical assistance resources available to the citizens of Colorado, and a valuable additional resource that would not be available without the Capacity Development funds.

The majority of the water systems that are out of compliance with health-based standards have high levels of naturally occurring radionuclides like uranium and radium, which are a chronic, not an acute health risk. With Capacity Development resources, the Drinking Water Program is implementing the Colorado Radionuclides Abatement and Disposal Strategy (or "CO-RADS"), which is providing small communities in Colorado with sophisticated and state-of-the-art technical assistance that they otherwise would not be able to afford on their own.

Partnering with existing not-for-profit technical service providers, such as the Colorado Rural Water Association, the Rocky Mountain Section of the American Water Works Association and the Rural Community Assistance Corporation have allowed the Capacity Development program to stretch the available funding and provide substantially more training and technical assistance than if all this work had to be performed through contracts with for-profit consultants. However, these organizations cannot provide all the services required, so judicious use of contracts with reputable consulting firms has also allowed the Capacity Development program to create the optimum mix of delivered services at the most reasonable cost.

I. INTRODUCTION

The Drinking Water Program of the Water Quality Control Division (WQCD) of the Department of Public Health and Environment (CDPHE) has developed this report to provide an overview of the Capacity Development program, as required by the Safe Drinking Water Act. It provides a review of the program's impact on Colorado public water systems and their associated compliance rates and operational practices that ultimately affect the health and well-being of the citizens of Colorado. The report is directed toward the Governor of the State of Colorado, but provides an excellent basis for anyone else to understand the structure and effectiveness of the Capacity Development program.

Capacity Development is a frequently misunderstood term, because it sounds like it is building infrastructure, but the simplest description is a program designed to build capabilities in public water systems (PWS) 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 PWS to manage and operate their existing infrastructure effectively, and to identify those situations where infrastructure changes are essential. Other efforts within the Drinking Water Program focus on ensuring that infrastructure of the systems is adequate, and providing loan funding to assist in building that infrastructure. Capacity Development is separated into three parts, Technical Capacity, Managerial Capacity and Financial Capacity, known as TMF Capacity.

This report covers efforts during state fiscal years 2006 through 2008. Many of the projects and efforts of the capacity development program are continuous, so projects started during the previous reporting period are still ongoing. Others have terminated, been modified, or replaced with more appropriate efforts. The key consideration is that a Capacity Development program is a long-term effort with results often becoming visible only years after a project is initiated.

Measurement of the outcomes of such an effort should be made over a similarly long timeframe, and are described in the section of this report titled Program Efficacy.

The Colorado Capacity Development program is funded from several sources that are integrated into one comprehensive program. The funding for these efforts includes several specific set-asides from the Capitalization Grant for the Drinking Water Revolving Fund, specifically the Program Management Set-Aside, the Capacity Development Set-Aside, the Small Systems Training and Technical Assistance Set-Aside and the Well Head Protection Set-Aside. In addition, Colorado received a one-time grant from EPA, the Operator Certification Expense Reimbursement Grant, which is also used in an integrated manner to provide resources to develop training materials, technical assistance, and a program to reimburse new operators for the cost of their certification.

This report describes the program, the strategic planning that guides the program, work plans developed regularly to implement the strategy, and specific accomplishments highlighted by examples of some of the more successful efforts. The report concludes with a measurement of the impact of the program, description of future expectations and challenges, and a summary.

Both the 2002 and 2005 Drinking Water Capacity Development Program Report to the Governor are available if additional historic information is desired. Those reports can be found online at http://www.cdphe.state.co.us/wq/drinkingwater/CapacityDevelopment.html. This website also lists documents and resources related to Capacity Development.

A. Overview of the Safe Drinking Water Act

The Safe Drinking Water Act, originally enacted in 1974, established a national program to ensure the safety of drinking water supplied to the public by public drinking water systems. The Act's original emphasis was directed primarily at establishing maximum contaminant levels (MCLs) in the water delivered at the consumer's tap. It also provided grant funding and authority for states to implement the Public Water System Supervision program after receiving Environmental Protection Agency (EPA) approval called "primacy."

The Safe Drinking Water Act was significantly amended in 1986 to improve control of microbiological contaminants, control organic contaminants from natural and man-made sources, control sources of contamination after water treatment and during distribution, and to encourage protection of sources of drinking water.

The regulations developed by EPA to address the requirements of the 1986 amendments began the transition to a set of significantly more complicated regulations than their predecessors. But the sea change for the Safe Drinking Water Act and its implementing framework arrived with the 1996 amendments. In addition to continuing the traditional regulatory approach on a more demanding schedule, the 1996 amendments established a strong new emphasis on preventing contamination, and preventing the formation of new systems without adequate technical, managerial, and financial capacity; it also provided funding for the associated costs through a new and unique approach: the use of set-asides from the newly authorized revolving fund

capitalization grant. This emphasis transformed the previous law, which had an after-the-fact regulatory approach, into a statute that recognized the need for and provided capital resources to prevent the multiple risks of contamination that threaten the public's drinking water. Four explicit themes characterize the 1996 SDWA amendments:

- Making more and better information about drinking water available to consumers;
- Improving drinking water regulation development with better science, risk assessment and prioritization of effort;
- Providing new funding for infrastructure construction through the Drinking Water Revolving Fund, and for state drinking water programs through use of set-asides from the loan fund capitalization grant; and
- Encouraging new and stronger approaches to prevent drinking water health risks through source water protection, operator certification and Capacity Development programs.

A fifth theme, not clearly visible, also is woven into the Act's 1996 amendments: the need for significantly increased resources for states to adopt and implement, in a relatively compressed timeframe, a vast array of new and highly complicated regulations and administrative requirements. State programs are required to accomplish these tasks or face losing either primary enforcement authority or a substantial portion of their capitalization grant under the Drinking Water Revolving Fund provisions of the Act's 1996 amendments.

B. Colorado Capacity Development Program Changes Since 2005

1. Drinking Water Program Revisions – Required Activities

The Safe Drinking Water Act requires that certain activities are mandatory in order for states to maintain primacy. If a state fails to perform these activities, EPA is required to revoke the state's primary enforcement authority, and all associated federal funding (federal program grant and capitalization grant to Colorado alone is over $15 million annually) to support the Drinking Water Program. Colorado public water systems would still be subject to compliance with all of the national primary drinking water regulations, but the state would not have the resources to provide compliance assistance or infrastructure improvements.

Colorado has taken all necessary actions over the past three years to implement the required changes to the Colorado Primary Drinking Water Regulations to maintain EPA's approval of the State's primary enforcement authority.

2. Drinking Water Program Revisions - Voluntary Activities

In addition to the mandatory activities, there are certain activities that are described in the 1996 SDWA amendments as voluntary. These activities included the state operator certification, revolving loan fund and Capacity Development programs.

Failure to implement these activities would not result in loss of Colorado primacy, but would result in losses to the capitalization grant. In 2008, failure to implement a Capacity Development strategy would have resulted in a loss of nearly $3 million in federal infrastructure funding for Colorado. The State has determined that it would cost less to implement the voluntary activities than would be lost in federal grant funds. Probably more importantly, the voluntary activities represent essential components of a public health program based on prevention rather than after-the-fact correction.

Operator Certification – The Colorado Operator Certification Program provides oversight of the nearly 7,000 certified operators for water and wastewater facilities throughout the state. These activities include management of the testing and certification of new operators and upgrade of the requirements for existing operators, recertification of existing operators, and discipline of operators who violate provisions of their license. In addition, systems that do not employ properly certified operators are subjected to the Drinking Water Program enforcement program.

Drinking Water Revolving Fund - The Drinking Water Revolving Fund (DWRF) is managed by a partnership consisting of WQCD staff, the Department of Local Affairs and the Colorado Water Resources and Power Development Authority. This partnership has proven effective for the State of Colorado, and enhances the integration of the DWRF with other loan and grant programs supported by the State or other Federal Agencies.

Capacity Development Program – The Capacity Development program is an integral part of the Colorado Drinking Water Program, and interfaces with other parts of the program, including compliance assurance, engineering, security, and technical assistance efforts. The program is wholly contained within the WQCD, but works with partners throughout state government and the private technical assistance community.

C. Current Strategy and Work Plan

1. Capacity Development Defined

EPA has defined drinking water system capacity and its elements as follows:

Capacity Development: the process of water systems acquiring and maintaining adequate technical, managerial and financial capabilities to enable them to consistently provide safe drinking water. A conceptual relationship between the three areas of capacity is provided in Figure 1.

Technical Capacity: the physical and operational ability of a water system to meet the Act's requirements. Technical capacity refers to the physical infrastructure of the water system, including the adequacy of source water and the adequacy of treatment, storage and distribution infrastructure. It also refers to the ability of system personnel to adequately operate and maintain the system and associated components.

Managerial Capacity: the ability of a water system to manage its system to achieve and maintain compliance with the Act's requirements. Managerial capacity refers to the system's institutional and administrative capabilities and considers the accountability of the ownership, an effective staffing and organizational structure and constructive linkages to external entities including customers, regulators and assistance sources.

Financial Capacity: a water system's ability to acquire and manage sufficient financial resources to achieve and maintain compliance with the Act's requirements. Associated elements include having sufficient revenue to cover costs; access to credit through pubic or private sources; and use of standardized and accepted accounting, budgeting and planning techniques.

2. Capacity Development Strategy

EPA guidance requires the state to develop a Capacity Development strategy. This strategy is the foundation of the work plans that are developed each year to guide the activities of the program. Colorado's Capacity Development strategy is revised regularly, most recently in June 2008 (and approved by EPA in July 2008).

The current Strategic Plan is focused on three key areas: Program Administration, New Drinking Water Systems, and Existing Drinking Water Systems. The plan has nine strategic goals, each directing efforts toward one or more of these key areas. These goals are shown below.

Strategic Goal 1 – Provide a system of education, training, and technical assistance that provides assurance to the public that the drinking water provided to them by their public drinking water system is consistently safe.

Strategic Goal 2 – Develop and apply a measurement system for all Capacity Development Projects to ensure the program has a measurable and documented beneficial impact on public health, compliance rates, and public trust in the state drinking water program and in their own public water supplier.

Strategic Goal 3 – Apply a proactive approach to systems of concern, so these systems are provided the tools and resources needed to regain compliance and full capacity.

Strategic Goal 4 – Develop a program that will support collaboration among all drinking water systems, assist those smaller systems understand their problems and potential solutions, and use performance based approaches to developing training.

Strategic Goal 5 – Use available resources in an efficient and timely manner, with a focus on continuous improvement of the program.

Strategic Goal 6 – Develop and distribute an effective needs assessment to drinking water systems of Colorado, evaluating the technical, managerial and financial needs, capital needs, and impact of shortfalls on system performance on the health of the populations served.

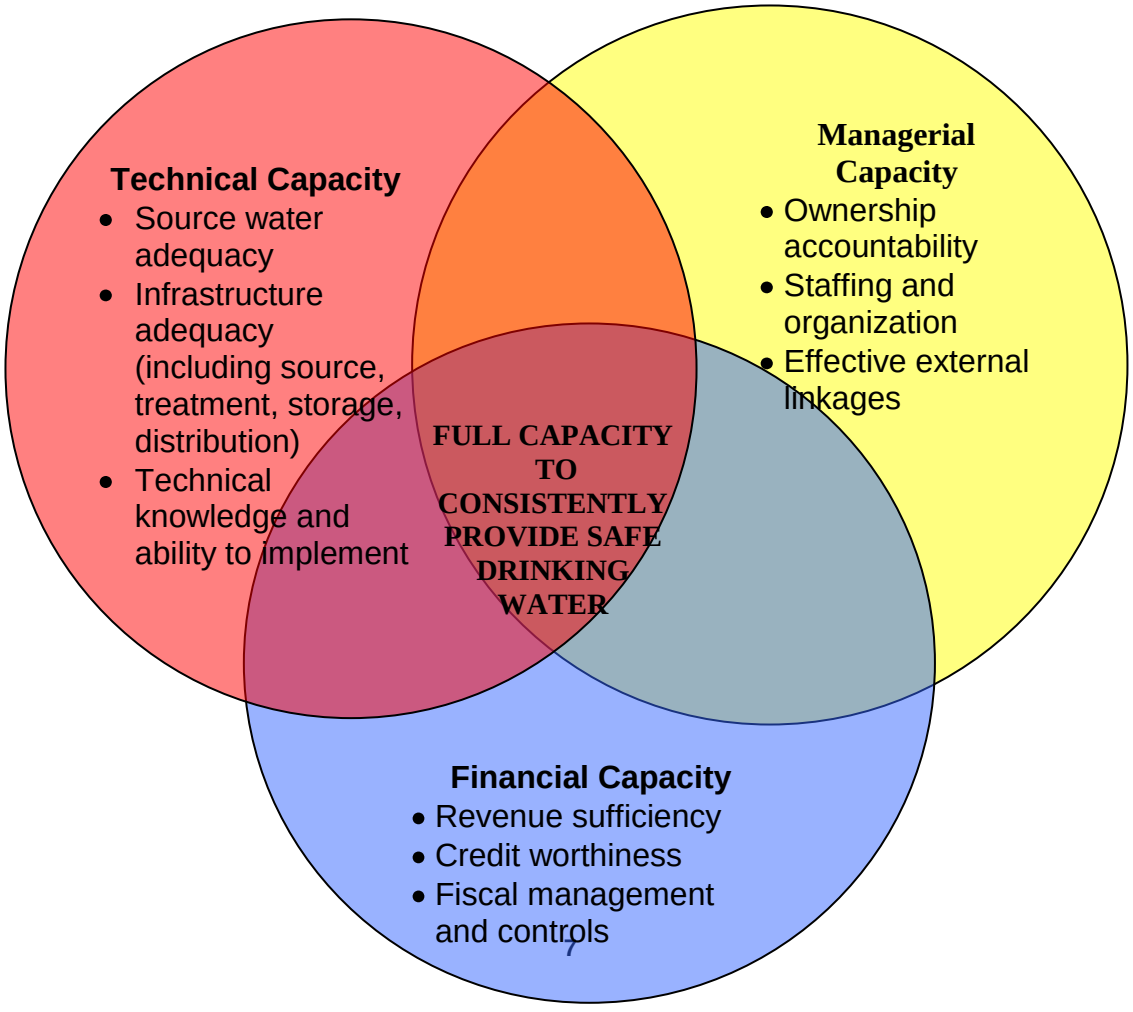
Strategic Goal 7 – Integrate sustainability into program projects wherever possible, to ensure that resource expenditures develop ongoing programs that provide measurable impacts, and do not result in only short-term, single project outcomes.

Strategic Goal 8 – Ensure all new and proposed new systems are developed with adequate technical, managerial, and financial capacity to remain a viable and sustainable drinking water system into the foreseeable future.

Strategic Goal 9 –Establish and foster partnerships with other federal, state, and local drinking water organizations.

This report will show how program activities have addressed these nine goals during the past three years.

Figure 1. Technical, Managerial and Financial Capacity



3. Capacity Development Work Plan

The State is also required to provide EPA with a Capacity Development work plan that builds on the state's strategy and describes specific projects designed to achieve the goals contained in the strategy. EPA reviews and approves the work plan. Colorado also identifies these 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 Water Quality Control Commission. This allows the state to charge associated program costs to the various set-asides. The current work plan was developed in June 2008, and approved by EPA in July 2008. This work plan continues many of the elements of previous work plans that guided the work during the reporting period of this report. The work plans provide details on the various activities that will be carried out during the work plan period – currently developed as three-year plans to allow for flexibility in the staging of projects. Individual work plans are developed for each of the set-asides: Capacity Development, Program Management, Small System Training and Technical Assistance (SSTTA), and Wellhead Protection. The plans describe the activities in the following general categories:

- Compliance Assistance
  - Response to public water systems questions
  - Informational materials preparation and dissemination
  - Sanitary Surveys for community and non-community public water systems
  - Consumer Confidence Report preparation
- Public Water System Assessments
  - Operational assessments using Comprehensive Performance Evaluations
  - Technical, Managerial, and Financial Onsite Assessments
  - Source Water Assessment and Protection
- Operator Training
  - Small System Technical Assistance funded training
  - State developed regulatory training
- Technical Assistance
  - Surface water Treatment Process control
  - Technical, Managerial, and Financial Toolbox
  - Radionuclide Disposal Options Toolbox
- Financial Assistance
  - SSTTA Planning and Design Grants
  - Public Improvement District Formation Assistance for Privately Owned Public Water Systems
  - Disadvantaged Community Program loan subsidy reimbursement for State Revolving Fund Loans

The list of specific projects and activities, as well as their outcomes, are described in section IV.

IV. COLORADO CAPACITY DEVELOPMENT PROGRAM ACTIVITIES

The vast majority of drinking water systems in Colorado are existing systems, with no current compliance problems. However, this does not imply these systems all have the full capacity to continuously assure safe water, optimal operations and management, and appropriate financial management. Accordingly, the Program has prepared a variety of efforts to help these systems gain full capacity. In addition, the Program has developed a toolbox of supporting efforts to assist those systems with violations to achieve compliance. The following discussion provides details on the existing operational and in-development projects, and the results of these efforts.

A. New Systems

The *New Water System Capacity Planning Manual* identifies the criteria new community and non-transient non-community public water systems must meet in order to be approved for operation in the state. Division staff use this document to guide the review and, if appropriate, approval of new public water systems in these categories. The division has approved 28 new public water systems during 2006-2008.

The compliance status for these systems is monitored routinely and reported to EPA annually. These reports list both 1) monitoring and reporting violations, which limit the system's and the Division's ability to determine if poor water quality is being delivered to customers, and 2) MCL or Treatment Technology violations, which indicate poor quality water and may result in significant adverse health effects. There are no historical data for new systems to which these compliance rates can be compared to determine if this program is reducing the rate of non-compliance. However, there data indicate that only failure to monitor (FTM) violation and no MCL violations were observed in these systems, during their initial operational phase. This would suggest that our new system capacity review process is preventing the development of non-compliant systems.

Those new systems with MCL or Treatment Technique violations, if any, would be placed on the Systems of Concern list and on the Coaches prioritization list. Assistance would be provided to help these systems return to compliance. In addition, the standard enforcement escalation procedure will be taken with all violations within these systems. It may be necessary to develop a better data tracking system to more completely identify all new systems and to track their compliance rates.

B. Projects and Activities to for Existing Public Water Systems

Assisting systems to achieve and maintain compliance is a key activity in the Capacity Development program. The following list describes the efforts extended toward these existing systems.

- About 40 drinking water systems in Colorado have high levels of naturally occurring radionuclides such as uranium and radium in their source water. This presents an elevated risk for chronic health effects. Most of these systems are small, rural systems,

many with incomes lower than the median household income of the state. With Capacity Development resources, the Drinking Water Program is implementing the Colorado Radionuclides Abatement and Disposal Strategy (or "CO-RADS"), which is providing small communities in Colorado with sophisticated and state-of-the-art technical assistance that they otherwise would not be able to afford on their own. CO-RADS has been designed to assist these systems understand the full scope of the problem they face, from searching for alternative source waters, treating the water to remove the contaminants, disposing of the waste generated by the treatment process, and providing public education to their consumers to understand the health implications of the problem, the costs of remediation, and their role in protecting their public health. This project will not be completed until state fiscal year 2010.

- Technical, Managerial, and Financial Capacity Assessments are performed on approximately 20 water systems each year. These assessments are followed by an assistance program uniquely tailored to that system's needs. These projects are augmented by a training program that teaches the same tools to other systems that have not had this individualized service, but are interested in improving their capabilities. An Internet based self-assessment has also been designed to help any system understand the areas they should improve. This web based program also provides many resources to help the system solve its shortcomings and improve its operations and management.

- An Excellence in Drinking Water Program has been established to provide advanced training to drinking water system operators. This multi-year effort has successfully implemented training programs for operators in treatment plant evaluations, and is now launching performance based training and leadership programs for drinking water systems. This effort allows some of the better operated and managed systems of Colorado to take their performance to a higher level, ensuring exceptional water quality and management performance. In addition, a recognition program has been initiated, which provides state-wide recognition for systems that perform at a high level. This allows the leaders in the drinking water industry to establish and then strive for more challenging targets.

- A Drinking Water Coaching Program has been initiated with technical coach and financial/managerial coach positions established. These coaches are available to provide direct assistance to drinking water systems throughout the state. They have developed a prioritization plan to identify the water systems that most need their assistance. This plan will be reviewed and updated on a quarterly basis. The systems placed on the prioritization plan are identified by the Systems of Concern Teams, by system inspections, by the compliance records, and by our financial assistance program. Assistance includes the delivery of on-site, hands-on training, providing operational or management improvement tools (including training on those tools), and consultation on alternative approaches the system can use for operations, management, and financial management.

- WQCD/Consumer Protection/Local Health Department Sanitary Surveys. Sanitary Surveys, the inspection of drinking water systems to ensure they are meeting all requirements of the CPDWR and are operating their system in the appropriate manner, are conducted at all community and non-community drinking water systems. This project involves a partnership between the Water Quality Control Division, the Department's Consumer Protection Division, and local health departments to inspect over 1000 non-community groundwater systems throughout Colorado. Each year, approximately 550 systems are visited, with a report prepared to identify compliance problems, sanitary deficiencies or other observations. A letter specifying actions to be taken to correct these deficiencies is sent to each system.

- Sanitary survey requirements for community water systems have been expanded in breadth of focus and frequency through the new EPA-promulgated Enhanced Surface Water Treatment Rules and Disinfectant-Disinfection By-Products Rules. Each year, Division staff conducts approximately 300 on-site sanitary surveys. Site visits are followed by a report identifying any deficiencies and a notice to correct these problems. While conducting the on-site surveys, district engineers provide owners and operators limited technical assistance on operation and maintenance of the water system and suggest ways to eliminate any identified sanitary deficiencies. A portion of these activities are supported by Capacity Development funded staff.

- Surface Water Technical Assistance Comprehensive Performance Evaluation - this project utilizes specialized consultants to resolve capacity issues at surface water treatment systems. This effort includes comprehensive performance evaluations (CPE) to assist systems in identifying the cause of performance-limiting factors (PLFs) at the treatment facility. A total of 112 water treatment facilities have received a CPE.

- Web Page Access and Posting of New Information Materials. Guidance materials and updated forms have been posted on the Drinking Water Program's website to help systems to comply with the drinking water regulations. Development of new guidance materials is on-going and is made available in both written form and on the website.

- Regulations Guidance for Colorado Systems – The Capacity Development program has developed and distributed simplified guidance to explain the requirements applicable to seven different categories of drinking water systems. This effort started with a comprehensive review of state regulations and identification of provisions that pertain to each category of public water system. The documents are produced in electronic format, so they are searchable for easy access to required information.

- Emergency Technical Assistance to Public Water Systems – In 2008, Colorado experienced a devastating outbreak of waterborne disease with salmonella in the Alamosa drinking water system. The technical assistance efforts of the drinking water program assisted the community in their investigation and recovery from this incident. Similar

technical assistance is always available to other systems due to support from the Capacity Development program.

- On-site sampling to verify compliance. Samples are collected at approximately 60 systems each year to verify the self-reported monitoring that is the foundation of the drinking water quality compliance program.

- Capacity reviews, similar to those for new systems, are required for all systems applying for loans from the Drinking Water Revolving Fund, and any capacity shortfalls are included as a condition of the loan.

The Capacity Review for public water systems requesting loans from the Drinking Water Revolving Fund is expected to also prevent future violations by these systems, since the objective of the Capacity Review is to ensure the system has all of the capabilities required to continuously produce and deliver safe drinking water. While there are a few failures to monitor violations reported for some of these systems, there were no MCL or treatment technology (i.e. health-based) violations in these systems. The program is designed to avoid these violations, but it must be recognized that these systems are frequently coming to our loan program because they have been underfinanced in the past, and have accumulated numerous operational and plant capacity issues. The loans provided to these systems contain conditions that require the resolution of the violation or capacity limitation before acceptance of the loan. These systems are also added to our Systems of Concern project in order to continue to provide them with assistance in resolving these difficulties, and referred to our standard enforcement escalation process.

C. Projects and Activities to Gather Information on Capacity Deficiencies in Existing Systems

In addition to the information available to the Drinking Water Program regarding compliance status from self-monitoring reports, projects within the Capacity Development work plan help the Drinking Water Program gather information on water system capacity deficiencies. In particular, results of the comprehensive performance evaluations, Consumer Protection Division site visits, and Division-conducted sanitary surveys identify water system deficiencies. That information is incorporated into a Systems of Concern program that coordinates input from all areas of the Drinking Water Program, including engineering, compliance assurance, financial assistance and Capacity Development. This program allows staff to assess the system history, evaluate the many tools available to help achieve compliance, and works with the system to develop a return to compliance program.

In 2008, the Drinking Water Program worked with the University of Colorado, Boulder to examine the results of multiple years of Comprehensive Performance Evaluations (CPE) performed at over 100 surface water treatment plants. This study showed that substantial improvements in the program can be incorporated into the next contract developed for this work, including: 1) using a total systems approach, 2) combining CPE and Sanitary Survey efforts, 3) providing more extensive follow-up activities, 4) outlining small system financial alternatives

and 5) incorporating disinfection profiling into the evaluations. These improvements will all be considered as we develop the next work plan for this project.

D. Projects and Activities to Encourage Partnerships

There are many individuals, interest groups and professional organizations that are deeply concerned with ensuring that water provided by all public water systems is consistently safe. The purpose of encouraging partnerships is to find ways to leverage the resources of interested parties and cost-saving approaches to help guarantee the continuous provision of safe drinking water by all public water systems.

The Capacity Development staff have developed a close working relationship with staff of the Colorado Rural Water Association (CRWA) to provide assistance to drinking water systems. One example of a project with CRWA is where the division provides CRWA with a list of systems with monitoring and reporting violations for the Total Coliform Rule. CRWA staff, who are visiting many of these systems already or are routinely visiting a neighboring system, will visit the violating system to discuss sampling techniques and schedules, and provide suggestions on reporting, etc.

Division staff meet periodically with the Colorado Water Utility Council, the Colorado Water Quality Control Commission, the Department of Local Affairs, and the staff and Board of the Colorado Water Resources and Power Development Authority to provide capacity development updates. Capacity Development Strategy and Small Systems Training and Technical Assistance Stakeholder work group meetings provide a forum for information and encourage partnerships among members and the Drinking Water Program. Joint training activities are sponsored by the Drinking Water Program and involve technical assistance providers including the American Water Works Association, the Colorado Rural Water Association, Rural Community Assistance Program, the Department of Local Affairs, and others.

E. Projects and Activities to Assist System Operators Access Appropriate Training and Certification

Training events for new regulatory requirements, as well as training to assist operators, engineers and managers in the day-to-day operational and management requirements of an effective drinking water system have been conducted by the Capacity Development program, with a focus on delivering training that is well designed, has measurable training outcomes, and provides a proper learning environment for the students. This effort has focused on obtaining professionally trained instructors, along with specific technical experts in the subject matter being taught. The training provided includes:

- Short schools which are hosted by partnership organizations, and are held each year in two locations. Each school is typically four or five days in length, and cover either basics or advanced programs in drinking water treatment or distribution system management. An average of 6,500 classroom hours are logged each year with these schools.

- Monthly training classes are held by the Rocky Mountain Section of the American Water Works Association (RMSAWWA) and the Colorado Rural Water Association (CRWA), with support from the Small Systems Training and Technical Assistance Set-Aside. These programs typically draw about 30 participants each, although there is considerable repeat participation. Approximately 14,000 classroom hours of training are provided by these events.

- Presentations are given on regulatory requirements and financial management for elected officials, system managers, and operators at the CRWA and RMSAWWA annual meetings.

- Training programs have been provided to drinking water systems on new regulatory requirements as well as existing regulations.

- Board and Council Training was developed by a contractor and delivered to approximately 100 water system managers or board/council members through five training sessions. The contractor developing this material has also prepared a self-paced training course on DVD that systems can use at their own location and on their own schedule to learn these same water system governance principles.

F. Projects and Activities That Update and Revise the Capacity Development Strategy

The Capacity Development Strategy is updated every three years, the most recent update being in 2008. This effort includes an evaluation of staff input as well as stakeholders, including representatives from drinking water systems, technical assistance providers, and associations representing the drinking water community and small communities and special districts. The strategic plan addresses the requirements of the 1996 SDWA Amendments and sets the goals for future years.

V. EFFICACY OF THE COLORADO CAPACITY DEVELOPMENT STRATEGY

The Capacity Development program is designed to improve public health by assisting drinking water systems achieve long term sustainability and improve their compliance with all drinking water regulations. The outcomes of these efforts are difficult to measure, because the actions may have immediate and measureable inputs and outputs, but the net outcome may take time to develop.

For example, a training program can be measured on the basis of hours of classroom time, and the student progress can even be measured by pre- and post- examinations. But the outcome depends on the student applying the new knowledge once back on the job, and then those changes may only have a measurable effect on public health when adverse raw water quality conditions exist.

The Drinking Water Program is attempting to track the effectiveness of the state Capacity Development program, using a number of different approaches. These include:

- The noncompliance rate of new systems that were approved after October 1999, and that were the subject to the complete technical, managerial and financial capacity review prior to approval.
- Annual noncompliance rate comparisons.
- Increases in the number of sanitary surveys or other on-site evaluations conducted using Capacity Development funds.
- Decreases in the number of deficiencies identified during site visits, and increases in the number of deficiencies resolved.
- The effectiveness of on-site third-party training and technical assistance in helping systems achieve and maintain compliance.
- Effectiveness of Systems of Concern teams in assisting systems with compliance difficulties to resolve their problems.
- Changes in the compliance status of systems listed as significant non-compliers as defined by EPA.

Noncompliance rates do not provide a complete picture of the true state of safe drinking water for the public because changes in rules and implementation of new rules change the baseline against which the measurements are made. However, compliance rates with the health-based MCL and treatment technology regulations have remained steady, even with the new rules, with nearly 90% of public water systems in Colorado meeting all health-based regulations during the past three years.

The Capacity Development program supports the increased complexity of sanitary surveys for community and non-community systems, and provides the resources to provide technical assistance to the communities with deficiencies in their system or their operations. On-site third-party training is provided through associations (Colorado Rural Water Association and Rocky Mountain Section of the American Water Works Association), the University of Colorado, and the Colorado Mountain College in Leadville. Technical assistance and training is provided directly by Drinking Water Program staff and contractors hired for specific projects. These programs provide assistance and training to more than 750 systems each year, with many systems sending multiple operators and managers to training each year. More than 270 hours of classroom training are provided each year, delivering over 35,000 student hours of training. One measure of the effectiveness of this training is the success rate of operator certification. Passage rate for operators sitting for exams has increased from 47% in 2004 to 54% in 2007 (last year of available records). In addition, including all categories, the percentage of systems with certified operators has increased from 56% to 93% over the past 5 years and community water systems have increased to 96% during the same period.

VI. CONCLUSIONS

The 1996 SDWA amendments presented many challenges to the Colorado Drinking Water Program, including new regulatory requirements, source water protection, operator certification, revolving fund and Capacity Development program requirements. The Act also presented many challenges to the drinking water systems of the state, challenges that many smaller systems have a difficult time addressing. However, the Act also provided states with a funding mechanism to augment state and other federal funding to complete the many tasks required of the state. This mechanism includes specific set-asides from the revolving fund capitalization grant that provide funds for Capacity Development, program management, wellhead protection, and small system training and technical assistance. Colorado has put a robust system in place to use these set-asides to fund needed activities to complete requirements and to assist systems in meeting their goal of providing safe water to their customers on a continuous basis.

This report has provided details on the use of these set-aside funds to accomplish these tasks, and demonstrates that it is in Colorado's best interest to continue to support these efforts, provide the necessary state funds to keep the drinking water programs effective and viable, and to continue to support program growth with the necessary state resources to make all public water systems in the state a strong, integral part of the state's public health protection efforts.

A. Retention of Drinking Water Program Primary Enforcement Authority

The Colorado Capacity Development program is one part of the overall Drinking Water Program and federal funding will not be available to fund its activities unless Colorado retains primary enforcement authority for the Safe Drinking Water Act. The Drinking Water Program staff have continued to meet all EPA requirements to retain primary enforcement authority. This ensures that Colorado public water systems receive the benefit of a Drinking Water Program that provides helpful assistance activities that encourage compliance. The Drinking Water Program will continue to implement all activities under the SDWA to ensure full federal funding.

B. Retention of Capacity Development Set-Aside and Full Capitalization Grant Allotment

In addition to the requirements to retain primary enforcement authority, there are requirements that must be met in order to retain the Capacity Development program, and the related set-aside funding and the full allotment for the capitalization grant. These requirements include the development, and subsequent approval by EPA of a current Capacity Development strategy, work plan, and implementation report. Inadequate response in any of these areas can result in EPA withholding a portion of the capitalization grant. Colorado has successfully complied with all requirements of this program during the three years of this report period.

C. Future Challenges

Of all of the challenges facing the program, the most important is adequate program funding. In the past, state drinking water programs with primary enforcement authority received federal

funding only through an annual drinking water program grant, but the 1996 SDWA amendments provided additional funding through the annual federal capitalization grants. The capitalization grant provides approximately $14 million of funding annually for infrastructure improvements for Colorado public water systems and allows set-asides that can supplement state program funding levels. Colorado uses about 30% of these funds for program support and system assistance. However, with the exception of these grant set-asides, federal funding for state drinking water programs has not substantially increased since 1996. Levels of state funding need to continue to be sufficient to retain the federal support to the Colorado Drinking Water Program and the associated advantages.

Regulations cannot cover all contingencies, monitoring is not continuous but fixed in time, and enforcement actions are only taken after a problem has occurred. Regardless of the regulations, monitoring, assistance, and enforcement, the only way to assure continuously safe drinking water and sustainable drinking water systems is to ensure all systems have technical, managerial and financial capacity and operate at the very best of their capabilities, and operators and managers strive for excellence in their daily operations.

D. Report Availability

This report is available in several forms for the public and interested stakeholders for review. The primary availability is on the Internet, at:

http://www.cdphe.state.co.us/wq/drinkingwater/CapacityDevelopment.html.

The report can also be viewed at our offices during normal business hours. An appointment will make scheduling this viewing more efficient, by calling 303-692-3604.