

Colorado Department of Public Health and Environment

Capacity Development Strategy FY 2005-2007

June 2004

I. INTRODUCTION

The 1996 Safe Drinking Water Act (Act) Amendments established a strong emphasis on preventing contamination problems affecting public water systems and their consumers. Emphasis on prevention transforms the original law, which had an after-the-fact, regulatory focus. The revised statute provides for the sustainable use of source water, and helps ensure delivery of continuously safe drinking water by providing the means to improve the technical, managerial and financial capacity of public water systems. To achieve these prevention objectives, the Act created a funding mechanism and provided minimum elements to be addressed by states in developing their capacity development programs. The Act also anticipates that the capacity development program will address both new and existing public water systems and withholds full funding of revolving fund capitalization grants for state failure to develop and implement an effective capacity development strategy that addresses both new and existing public water systems.

While the SDWA provides states flexibility to pursue various strategies in the design and implementation of their programs, state capacity development strategies must address the following elements (SDWA1420(c)(2)):

- (A) The methods or criteria that the State will use to identify and prioritize the public water systems most in need of improving technical, managerial, and financial capacity;
- (B) A description of the institutional, regulatory, financial, tax, or legal factors at the Federal, State, or local level that encourage or impair capacity development;
- (C) A description of how the State will use the authorities and resources of this title or other means to
 - (i) assist public water systems in complying with national primary drinking water regulations
 - (ii) encourage the development of partnerships between public water systems to enhance the technical, managerial, and financial capacity of the systems; and
 - (ii) assist public water systems in the training and certification of operators;
- (D) A description of how the State will establish a baseline and measure improvements in capacity with respect to national primary drinking water regulations and State drinking water law; and
- (E) An identification of the persons that have an interest in or are involved in the development and implementation of the capacity development strategy (including all appropriate agencies of Federal, State, and local governments, private and nonprofit public water systems, and public water system customers).

The Act envisions a strong public and stakeholder role in aiding States with development of their capacity development program. To encourage this stakeholder input, Colorado established a Capacity Development Stakeholder Strategy Workgroup.

The Colorado Capacity Development Stakeholders Workgroup has met periodically since the Act's revision to assist the Drinking Water Program to develop and revise its strategy. The State of Colorado has received the full allotment of funds to which it is entitled to for its Drinking Water State Revolving Fund (DWSRF) by developing and implementing an effective program that includes:

- a.) A program to ensure that all new community and new non-transient, non-community water systems commencing operation after October 1, 1999, demonstrate sufficient technical, managerial, and financial capacity to comply with national primary drinking water regulations; and,

- b.) A program to assist existing public water systems with acquiring and maintaining technical, managerial, and financial capacity to comply with the Safe Drinking Water Act requirements.

Colorado’s initial strategy, completed and approved by EPA in 2001, focused primarily on preventing incidences of non-compliance and presumed that other drinking water program activities would address water systems with existing violations. Further evaluation has indicated that this approach was not effective. Accordingly, the original Colorado strategy has been revised to more fully use capacity development set-aside resources to assist public water systems to resolve existing violations. The strategy allocates few resources directly to addressing new systems. This is appropriate because all new systems must demonstrate that they meet a set of capacity criteria described in the New System Capacity Planning Manual before they are approved for construction. Additionally, the components of the original strategy designed to prevent public water system violations by supporting training and compliance assistance activities are continued. This revised strategy (2005-2007) will require substantially more resources than have been applied in the past. These resources will include funding of additional staff positions as well as additional contractual agreements with third party providers and contractors.

Capacity development efforts funded under Section 1420 of the Act are implemented within the framework of Colorado’s overall Drinking Water Program. To provide context, and to explain how Section 1420 funded activities are integrated into the Colorado Drinking Water Program, this strategy refers to some activities funded by other DWSRF set-asides, federal public water system supervision program grants, and revenue from state fees. The specific activities associated with this capacity development strategy are described in detail in the Colorado Capacity Development Work plan for SFY05-07. However, both the work plan and the strategy for existing systems are based on implementation of an iterative process as depicted in Figure 1.

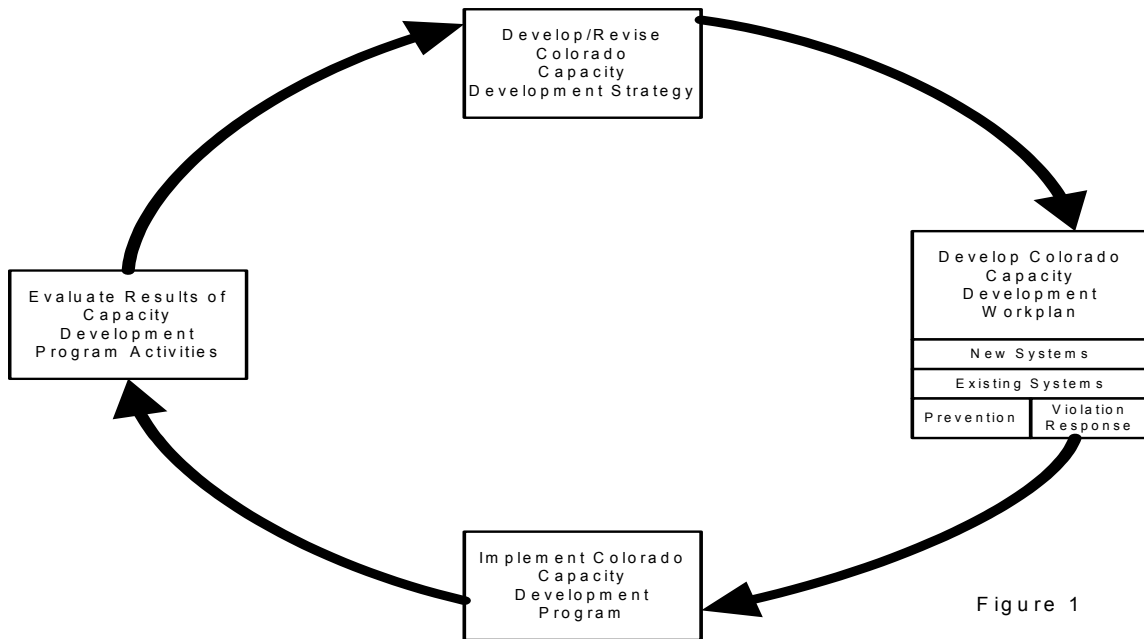


Figure 1

The Colorado Capacity Development Strategy has both short and long-term goals. The short-term goals of the state's capacity development strategy are to: 1) to substantially reduce violations among existing public water systems, and 2) to prevent the formation of new public water systems that lack adequate capacity to ensure consistent delivery of safe drinking water. The long-term goal is to assure the consistent provision of safe drinking water by all systems through their systematic acquisition and application of adequate technical, managerial and financial capacity.

This strategy addresses these short and long-term goals while simultaneously addressing the elements required by the Safe Drinking Water Act Amendments of 1996. Table 1 depicts how the strategy narrative is organized and how the required elements of the capacity development strategy are addressed in this document. In addition, it provides some insight into how these elements are addressed for both new public water systems and two subsets of existing systems: 1) Those with existing violations (where the strategy is focused on resolution of violations), and 2) Those with no known existing violations (where the strategy focuses on prevention activities). Table 1 provides a framework to isolate and discuss those activities that, taken together, constitute the overall capacity development program. The narrative of Section II follows the format established in Table 1. A discussion of the factors that encourage or impair capacity in Colorado is provided in Section IV. These factors framed the development of the Colorado capacity development strategy. Finally, this strategy is not static: following implementation of its activities, results will be evaluated, and the strategy will be revised as appropriate. The schedule for such revisions is provided in Section III.

TABLE 1 - FRAMEWORK FOR COLORADO CAPACITY DEVELOPMENT STRATEGY GOALS AND PROGRAM ACTIVITIES

S H O R T T E R M G O A L	Public Water System Category	Colorado Strategy Activities to Meet Statutory Requirements				
	Existing Public Water Systems	Identify Systems Lacking Capacity	Prioritize Identified Systems	Develop Partners	Provide Assistance	Evaluate Results
	▪ Resolve Violations	*S of C Process	*S of C Process	*S of C Process	*S of C Process	*S of C Process
	New Public Water Systems	Identify Systems Lacking Capacity	Prioritize Identified Systems	Develop Partners	Provide Assistance	Evaluate Results
▪ Assure Capacity	New System Review	New System Review	New System Review	New System Review	New System Review	
L O N G T E R M G O A L	Existing Public Water Systems	Identify Systems Lacking Capacity	Prioritize Identified Systems	Develop Partners	Provide Assistance	Evaluate Results
	▪ Prevention Activities	System Self Determines	System Self Determines Capacity Development Work Plan	**SSTA Work Plan Capacity Development Work Plan	**SSTA Work Plan Capacity Development Work Plan	**SSTA Work Plan Capacity Development Work Plan

*S of C = Systems of Concern
 **SSTA = Small System Technical Assistance

II. COLORADO CAPACITY DEVELOPMENT STRATEGY FOR STATE FYs 2005-2007

SHORT-TERM GOALS

The short-term goals of the state capacity development strategy are to: 1) to substantially reduce known violations among existing public water systems, and 2) to prevent the formation of new public water systems that lack adequate capacity to ensure consistent delivery of safe drinking water.

EXISTING SYSTEMS				
Identify Existing Systems Lacking Capacity	Prioritize Identified Systems	Develop Program and System Partners	Provide Assistance	Evaluate Results
VIOLATION RESOLUTION STRATEGY				

IDENTIFY EXISTING SYSTEMS LACKING CAPACITY

Figure 2, Systems of Concern (“S of C”) Compliance Assurance Process is a model that depicts how the Drinking Water Program plans to implement its compliance assurance process for the near future. It provides a convenient way to explain the process to be used by the Drinking Water Program to prioritize and address public water systems that have violated the Colorado Primary Drinking Water Regulations.

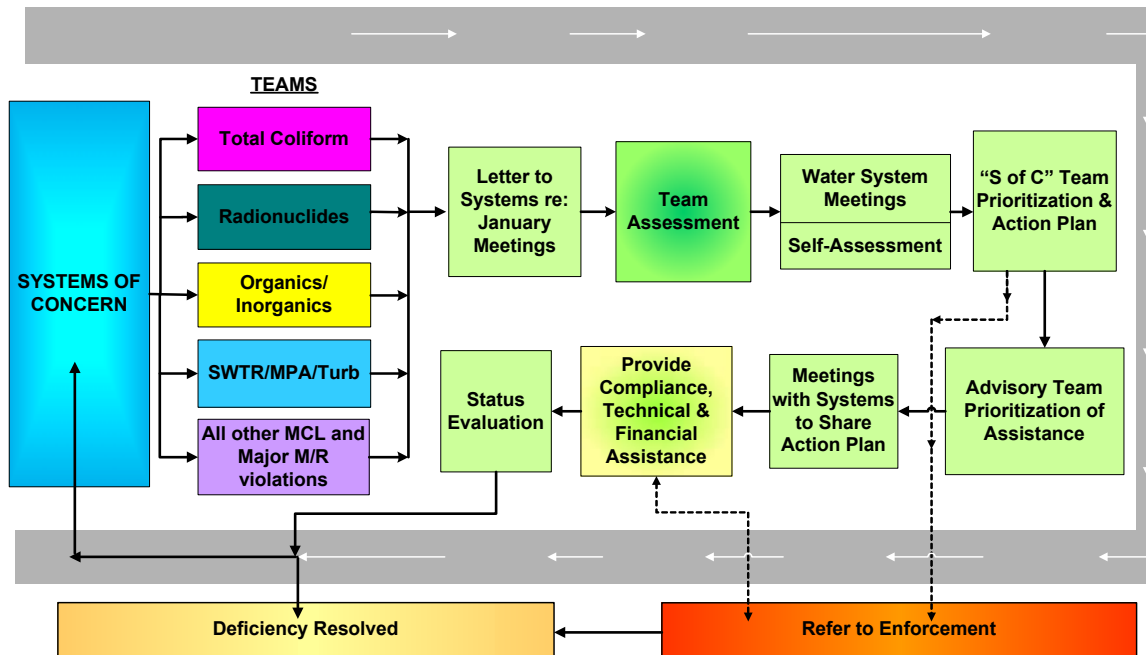


Figure 2

The “S of C” list and compliance assurance process provides a way for the Drinking Water Program to keep visible those systems that are currently in violation of Colorado Primary Drinking Water Regulations and to better ensure effective engagement of all the Program’s tools to assist and assure that public water systems achieve and maintain compliance. The process relies on organizing Drinking Water Program staff from the Division’s various Units into teams devoted to assisting and assuring public water systems resolve violations that fall into five violation categories. The team concept is coupled with an ongoing schedule

used to communicate and assess the status of each system, and to obtain management input into a prioritization scheme for delivering limited program services.

Each violation team/team member will be responsible for participating in and/or using the steps depicted in the model. A detailed explanation of the S of C process is contained in the Systems of Concern Handbook. The first step of the S of C project is to identify all public water systems that have violations that will be addressed through the S of C process. This is accomplished by staff of all Units in an effort led by the Compliance Assurance and Data Management Unit that identifies public water system deficiencies from self monitoring reports, field visits and consumer complaints.

PRIORITIZE IDENTIFIED SYSTEMS

The S of C process organizes staff from each of the Division's various units into teams devoted to resolving violations that fall into one of five violation categories as follows:

- Total Coliform
- Radionuclides
- Organics/Inorganics
- Surface Water Treatment Rule, GWUDI, and Turbidity Violations
- All Other MCL and Major Monitoring/Reporting Violators

Team members will evaluate the systems of concern that fall in their categories to prioritize those systems most in need of assistance. All of the team leaders will then meet to develop an overall prioritization list from the individual team's priority listing to identify those systems most in need of assistance. The Drinking Water Advisory Team (composed of Unit managers and staff) will then review and approve or revise the prioritization performed by the team leaders, and the prioritized systems will be offered assistance based on the resources available. Recognizing that ongoing implementation activities will identify systems with new violations as the teams work to resolve legacy violations, the process allows for a reprioritization of all violating systems to be accomplished on at least a quarterly basis.

DEVELOP PROGRAM AND SYSTEM PARTNERS

Following the prioritization step, and before initiating assistance activities, team leaders will meet with the legal representatives of the selected water systems to develop a collaborative agreement. This agreement will provide the starting point for the assistance activities and establish a schedule for delivery of available assistance. Depending upon the results of the S of C team evaluation, assistance resources may be provided by Water Quality Control Division staff, Consumer Protection Division staff or local health departments, representatives of the Colorado Rural Water Association, representatives of the Colorado Water Resources and Power Development Authority, staff of the Department of Local Affairs, or Drinking Water Program contractors hired with capacity development set-aside funds.

PROVIDE ASSISTANCE

Public water systems may be provided capacity assessments, compliance assistance, training, technical assistance and/or financial assistance. This assistance may be provided by Drinking Water Program staff, third-party partners, or Drinking Water Program contractors. The major categories of assistance and associated activities are more fully described later under prevention assistance activities.

Capacity Assessments

Capacity assessments will include the following approaches:

- Comprehensive Performance Evaluations (CPE) will be conducted at systems identified as having potential performance limiting factors as evidenced by microscopic particulate and turbidity monitoring results, or on site observations that identify potential operational concerns.
- On site Technical, Managerial and Financial (TMF) capacity assessments will be conducted for systems of concern as part of the Drinking Water Program's effort to identify and address not only violations, but the underlying cause of those violations.

- Public water system self-assessments will be an integral part of evaluating and prioritizing systems of concern that will be provided assistance. Drinking Water Program staff will be used to review the results of these system self-assessments and to integrate the results with other information available to Drinking Water Program staff to develop a system-specific action plan to resolve violations and underlying capacity needs.

Compliance Assistance

Compliance assistance resources available to systems with violations are described in the long-term goal portion of the strategy that addresses prevention activities.

Training

The S of C team members will evaluate training opportunities available that would benefit employees of systems of concern and provide that information to system representatives. The S of C process may also uncover system staff training needs that are not readily available and, in this case, the Drinking Water Program staff may work with the Small System Training and Technical Assistance (SSTTA) workgroup to investigate and fill those needs. Training efforts to be supported include:

- Operator certification through such training providers (but not limited to) as the Boulder School, the Leadville School and programs sponsored by the Colorado Rural Water Association.
- Operator proficiency improvement through such training providers (but not limited to) AWWA Action Now and Colorado Rural Water Association.
- Regulatory compliance training through, but not limited to, internal staff events and contract providers.

Technical Assistance

Some systems will need assistance that is more specialized than that previously described. Technical assistance is generally system-tailored and will be used to address those violations and capacity issues not amenable to resolution through less resource intensive efforts. The degree and scope of technical assistance to be provided depends on system-specific needs and the level and type of resources available, and new staff resources included in this strategy will expand upon the current limited capabilities. For technical assistance that the Division is unable to provide with internal staff, contractors (hired through a competitive process) will be used to respond to selected systems (prioritized by the S of C Process) as funds allow. Technical assistance activities to be provided under capacity development funding include:

- Multi –event performance-based process control instruction for surface water treatment facilities with identified performance limiting factors.
- On-site help to implement changes in organization, management or operational controls to affect capacity improvements. Capacity issues to be addressed might include, but would not be limited to, source water protection activities, defining or revising organizational structure (e.g. changing ownership status from private to public), defining operator duties, improving operational controls and monitoring, evaluating revenue sufficiency and water rates, leak detection programs or encouraging cross connection control activities.

Financial Assistance

Drinking Water Program staff (assigned to the Outreach and Assistance Unit) are experts in the realm of financing public water system improvements. They are available to explain to public water system managers not only the loan program supported by the Drinking Water State Revolving Fund (DWSRF) capitalization grant, but other grant and loan programs of the Department and other local, state and federal programs. Their efforts will be augmented through the capacity development program in the following ways:

- Planning Grants or access to Drinking Water Program hired consultants will be provided to select water systems using Small System Technical Assistance (SSTA) set-aside funds not used to support training efforts or capacity development set-aside funds. The Drinking Water Program is investigating the feasibility and potential benefit of using the SSTA or capacity funding to provide technical assistance in the form of small system planning and/or design grants. These grants would be provided to public water systems with populations of less than 10,000 that are “disadvantaged” as defined by the Drinking Water Program. The Division is

developing planning report content criteria that will be required as a condition of grant award to ensure that water systems benefit from the engineering work and that program goals are achieved.

- Public Improvement District (PID) formation assistance for private systems with health-based violations that require infrastructure improvements and cannot qualify for loans under the Colorado DWSRF program due to their private ownership status and Colorado statutory limitations on loans to private entities.

EVALUATE RESULTS

The S of C process is designed to determine the compliance status of all S of C systems at the end of every calendar quarter. Information from the S of C process will identify which assistance tools were provided to the water system and provide insight on the number of water systems that have been able to achieve compliance. With that information in hand, it will be possible to track a system’s compliance status going forward to see if they can maintain their compliance status. As a longer-term project, dependent on Drinking Water Program database capacity improvement efforts, the program anticipates being able to better track and evaluate efforts to improve the technical, managerial and financial capacity of individual water systems. One tool to help with this process is the field PDA system currently under development by EPA. Once developed, this tool may provide a better means to assess and track system capacity before and after assistance using a self-assessment or staff administered TMF survey form; however, this process is subject to many uncontrolled variables and may only serve as a vague indicator of success or failure of capacity improvement efforts.

In some cases, particularly where guidance materials or training are provided to public water systems representatives, the Division may have difficulty demonstrating results given the length of time that these activities take to produce measurable outcomes and the difficulty of establishing cause and effect relationships. In addition, the number of new regulatory requirements affecting water systems of all sizes may cause the level of noncompliance to increase due to the new regulations even with a reduction of violations as a result of the capacity development program. The number of training events and participant evaluation of these events may provide some indirect indication of their value. However, some technical assistance outcomes may be more amenable to evaluation.

NEW PUBLIC WATER SYSTEMS				
Identify New Systems Lacking Capacity	Prioritize Identified Systems	Develop Program and System Partners	Provide Assistance	Evaluate Results
ENSURING CAPACITY STRATEGY				

IDENTIFY NEW SYSTEMS LACKING CAPACITY

Each proposed new public water system must obtain written approval in order to construct a public water system. This approval process requires all new community water systems and non-transient non-community water systems to demonstrate technical, managerial, and financial (TMF) capacity using the criteria contained in the New Water System Planning Manual. Proposed new systems are identified by project proponents, WQCD District Engineers, and local health agencies that may be aware of proposed new construction in their communities or assigned work areas.

PRIORITIZE IDENTIFIED SYSTEMS

There is no need to prioritize proposed new systems, as each new community or non-transient non-community public water system will receive a technical, managerial, and financial capacity review soon after submitting water treatment facility plans and specifications.

DEVELOP PROGRAM AND SYSTEM PARTNERS

The New Water System Planning Manual has been developed with the assistance of system partners including the Capacity Development Strategy Workgroup, local health agencies, Colorado Rural Water Association, and the Consumer Protection Division of the Colorado Department of Public Health and Environment.

PROVIDE ASSISTANCE

The New Water System Capacity Planning Manual was designed to assist owners and engineers with the TMF process and provides the criteria the Division uses to evaluate the technical, managerial, and financial capacity of a new system. District and Drinking Water Program Engineers are available to provide assistance to individuals filling out the application forms and respond to questions about the process.

EVALUATE RESULTS

Since October 1999, the Division has tracked new systems that have demonstrated technical, managerial, and financial capacity and were approved to operate as public water systems. Following system approval, these systems will be evaluated on an annual basis during a 5-year period to assess their compliance status with respect to the maximum contaminant levels and treatment technique requirements of the Colorado Primary Drinking Water Regulations.

LONG-TERM GOAL

EXISTING PUBLIC WATER SYSTEMS				
Identify Existing Systems Lacking Capacity	Prioritize Identified Systems	Develop Program and System Partners	Provide Assistance	Evaluate Results
PREVENTION STRATEGY				

The long-term goal of the Capacity Development Strategy is to prevent system failures and associated public health risks. Stated more positively, the goal is to assure the consistent provision of safe drinking water by all public water systems through their systematic acquisition and application of adequate technical, managerial and financial capacity.

Assistance provided to public water systems under the long-term prevention strategy will also be made available to the systems of concern. Assistance provided to public water systems to prevent system failures may also take the form of capacity assessments, compliance assistance, training, technical assistance and financial assistance. The assistance resources described under the prevention portion of the capacity development strategy are available to all water systems, but priority for assistance will be accorded first to those systems that have health-based violations of the Drinking Water Program regulations that might be resolved by the assistance activities. Remaining resources will be made available to systems that are working to achieve excellence using criteria supported by the Drinking Water Program.

IDENTIFY EXISTING SYSTEMS LACKING CAPACITY

Across-the-board assessments of public water systems to document capacity strengths and to identify systems with capacity weaknesses are not anticipated at this time. Drinking Water Program limited resources are committed to assisting, on a priority basis, those systems with violations of health based regulations and providing access to remaining assistance resources to those systems that request such services. However, the Drinking Water Program will be providing public water systems with the results of source water assessments developed for all Colorado public water systems. Systems can use this report to

identify sources at high risk of contamination and to evaluate the need for their system to develop contamination control strategies. If it turns out that either the PDA tool under development by EPA, or an alternative tablet PC system is effective, the most cost effective system may be used to periodically record capacity information that can then be analyzed to assess capacity weaknesses and design remedial programs.

PRIORITIZE IDENTIFIED SYSTEMS

The various assistance activities available to develop public water system capacity are generally provided to public water systems upon their request, but are limited by the availability of resources. The prioritization of assistance provided is sometimes dictated by program requirements or other factors. These are described below.

Compliance Assistance

Sanitary surveys are prioritized based on the following criteria for sanitary surveys: (1) system is on the significant non-compliance (SNC) list and the technical services unit determines that a sanitary survey will assist, (2) failure to conduct a microscopic particulate analysis or analytical results indicate poor performance, (3) follow-up to comprehensive performance evaluation with performance limiting factors or a sanitary survey result that indicates the presence of significant sanitary defects, (4) input from Division staff, (5) acute violations, (6) follow-up to Division sampling results that indicate quality assurance problems, and (7) time since last sanitary survey. The remaining assistance activities, (described in the section titled “Compliance Assistance”) are available across-the-board to all systems as resources allow.

Capacity Assessments

Comprehensive performance evaluations (CPE) will be made available to those systems that desire to examine and improve operational practices as part of an excellence program with performance criteria supported by the Drinking Water Program. TMF assessments must be conducted for systems seeking loans from the DWSRF as such systems must demonstrate full TMF capacity to qualify for a loan. Contract evaluators available under the capacity development program will be used to supplement internal staff resources in the event that other acute priorities assigned to program staff would slow the loan applicant’s processing time, absent such assistance. In addition, public water systems may request a capacity assessment, and to the extent resources are available, their requests will be honored.

Training

The Drinking Water Program has prioritized some general classes of systems that would benefit from the availability of selected regulatory requirements training. Contractors were hired to develop workshops on the requirements of the DDBP/IESWT Rules and Laboratory Quality Control and Quality Assurance Requirements. These contractors, with input from the program staff, prioritized water systems depending on the effective dates of the new regulations considering water system population served. This trend will continue with the Division hiring contractors to develop needed training as determined by the SSTA work group and Drinking Water Program staff. Third party providers generally determine the content, frequency and location of other training events supported by the capacity development program. The Drinking Water Program intends to continue supporting such efforts through capacity development set-aside funding as long as the training is relevant and focuses on improving actual workplace practices to ensure delivery of continuously safe drinking water.

Technical Assistance

Multi-event performance-based process control instruction will be made available to those systems that desire to participate in an excellence program based on performance criteria supported by the Drinking Water Program. These efforts will involve both Drinking Water Program staff and contractors with instructional and programmatic skills.

DEVELOP PROGRAM AND SYSTEM PARTNERS

With respect to training, the prevention strategy relies on recommendations from the Small System Technical Assistance (SSTA) workgroup and the third party training providers, some of which were specifically hired by the Drinking Water Program to conduct training on new rules. Participants of this

workgroup include Drinking Water Program staff as well as training providers and representatives from various sized utilities. Together they work to define the goals of training efforts and evaluate training needs throughout Colorado. The SSTA Workgroup members and additional interested parties assisting the Division to develop a training work plan have discussed and support using the SSTA set-aside to provide technical assistance to water systems by various means including the use of planning, and design grants. However, priority for use of these resources will be accorded to the systems of concern.

The SWAP program was developed with public involvement through the appointment of three citizen advisory teams that advised the Water Quality Control Division staff on the development of the state strategy. The three advisory teams included: a design team to construct a workplan; a citizens advisory team to help ensure that the assessment techniques are practical, easily understood, and could be readily implemented; and finally, a technical advisory team to advise staff on assembling and integrating the various databases needed for SWAP and to provide technical support.

The Capacity Development program has developed a project to work with the Consumer Protection Division, local health departments, and the Colorado Rural Water Association to conduct sanitary surveys of non-community system using groundwater. Normally these water systems would receive a sanitary survey every five years, but this project allows evaluations to occur every two years with problem systems receiving evaluations annually.

Finally, the Division meets regularly with representatives of other organizations to gather their feedback and suggestions for capacity assistance efforts. For example, the Division meets with public water system representatives and consultants at monthly Water Utility Council meetings and with water system representatives and Department of Local Affairs representatives and Colorado Water Resources and Power Development Authority representatives at monthly meetings of the Authority Board.

PROVIDE ASSISTANCE

Capacity Assessments

Under the prevention portion of the capacity development strategy, TMF capacity assessments may be conducted as part of a routine sanitary survey conducted by Drinking Water Program staff, depending on the availability of resources to support this activity. Comprehensive Performance Evaluations (CPE) may be made available to a limited number of systems (subject to funds availability) that request assistance to assess treatment facility performance as part of an excellence program using performance criteria supported by the Drinking Water Program.

Compliance Assistance

Compliance assistance activities to be conducted will include:

- Providing Drinking Water Program staff to respond to inquiries from systems
- Preparation and dissemination of guidance materials including (but not limited to):
 - Requirements specific to selected types of public water systems (purchased water systems, surface and ground water community, non-transient non-community and transient non-community systems)
 - Guidance materials covering many aspects of technical, managerial, and financial capacity. These previously collected resources are available to assist water systems to address capacity issues and alone, may be sufficient to assist some water systems to address capacity issues
- On site sanitary surveys conducted by Drinking Water Program staff and for non-community ground water systems, sanitary surveys conducted at increased intervals by the Consumer Protection Division, and local health agencies.
- Preparation and dissemination to public water systems of consumer confidence report information to better enable public water systems to develop and publish their consumer confidence reports based on the monitoring information contained in the State's data system.

- Electronic publishing of system specific source water, compliance, capacity or water quality information (this will require capacity development program funds both to modify the existing Drinking Water Program data system and staffing to develop and implement internal processes to store, access, format and publish appropriate information of value to public water systems and their consumers).

Training

A major portion of the prevention strategy relies on providing low-cost training for owners, managers, and operators of public water systems. Training supported by SSTA and capacity development set-asides is provided throughout Colorado on technical, managerial, and financial issues and is conducted by third party providers and internal program staff. Training is provided for system representatives on regulatory compliance, initial certification, certification renewal or skills improvement at a lower cost than would otherwise be possible. Funding from the Small System Technical Assistance (SSTA) set-aside is used to reduce the cost of training for operators serving facilities with populations of 10,000 or less, but operators and water system staff are free to attend any of the training workshops regardless of the size of the system where they are employed.

In addition to the SSTA activities, third party contractors using funding from the Capacity Development set-aside will conduct training on Colorado Primary Drinking Water Regulations including, but not limited to new rules such as the new rules e.g. Disinfectant, Disinfection ByProduct Rule and Interim Enhanced Surface Water Treatment Rule. The Drinking Water Program anticipates continuing existing efforts to support training for system representatives as part of the capacity development strategy and expanding efforts to provide essential capacity information to system owners and managers. This expanded effort will take two forms: 1) A training for transient non-community water system owners coupled to the associated guidance document that provides them all the information and templates they need to comply with Primary Drinking Water Regulations 2) A training event for system managers and Board members that explains requirements and responsibilities to ensure compliance and delivery of continuously safe drinking water. The need for additional future training (type, location, duration, etc.) will be determined by Program staff with input from the SSTA work group and other stakeholders.

Technical Assistance

Multi-event performance-based process control instruction will be made available to all interested surface water systems with priority to those that have identified performance limiting factors that would be addressed by the instruction. These efforts will involve both Drinking Water Program staff and contractors with instructional and programmatic skills. On-site assistance to implement TMF capacity improvements will be provided to systems of concern or other systems with violations first, and made available to other systems depending on the extent of resources available. The prevention portion of the capacity development strategy will provide funding for the ongoing SWAP program for surface water systems. Funding from the capacity development set aside will be used for the surface water portion of Colorado's SWAP program until such time as the Safe Drinking Water Act is amended to allow better utilization of Wellhead set-aside funds for surface water systems. It will fund activities to update source water assessments and to integrate the SWAP program with the Wellhead protection program, encourage development of protection programs and program reporting and oversight efforts consistent with the SWAP strategy approved by EPA.

Financial Assistance

The financial assistance resources described previously for the systems of concern would be available to all systems but on a reduced priority as compared to the systems that have a health-based violation and associated capacity issues.

EVALUATE RESULTS

With the exception of systems provided assistance through the S of C process, it will be very difficult to directly measure the results of capacity development efforts made on behalf of public water systems. However, the Drinking Water Program is committed to supporting the 2003 – 2008 EPA Strategic Plan and

its associated performance targets and program effectiveness measures. Towards this end, the Drinking Water Program will annually report its progress to EPA and the public in accordance with requirements established in the Colorado Performance Partnership Agreement. To the extent that it is possible to measure outcomes, the Drinking Water Program is committed to so doing. For example, training providers use a variety of evaluation techniques including pre and post testing, course evaluation forms, and student feedback to assess the value and effectiveness of training events. The results are used to refine future training events. In addition, as new training events are developed, the Drinking Water Program staff seeks to ensure that participants come away from the event with the skills to deploy the necessary practice back on the job. For example, the Disinfection Byproduct training was structured such that participants developed a monitoring plan for their system as part of the training curriculum. Likewise, the Laboratory QA/QC training supported by capacity development set-aside funds employs both lecture and actual hands-on laboratory analyses to develop operator skill and proficiency that can immediately be applied by the operator upon his or her return to their job site.

The SSTA workgroup has discussed the effectiveness of the training activities and believes the success of training events can be measured based on certification examination passing rates. While this may hold some validity, the Drinking Water Program does not have the tracking tools or resources to implement such a measurement scheme.

III. STRATEGY REVISION SCHEDULE

The Division has formed a workgroup to develop and revise the capacity development strategy. Currently the work group is made up of representatives from: Colorado Rural Water Association, Rural Community Assistance Corporation, EPA Region VIII, Colorado Department of Local Affairs, League of Women Voters, Small Water Systems, Large Water Systems, Colorado County Environmental Health Directors, Colorado Department of Public Health and Environment Water Quality Control Division, and Colorado Department of Public Health and Environment Consumer Protection Division. This workgroup meets periodically to evaluate and provide recommendations to the Division on the following:

- a. Public Water System areas of need that, if addressed, would improve system capacity.
- b. Effective use of Capacity Development resources to meet the identified goals of the program, including investigation of partnership opportunities.
- c. Evaluation of the overall effectiveness of the program and identification of improvements to better implement the program.
- d. Revision of Capacity Development documents such as the strategy, the new water system capacity planning manual, the annual work plan, and other program documents.

The Drinking Water Program envisions a continuing role for the strategy work group and will convene the group at least annually and more frequently if the work group as a whole believes that additional meetings would be valuable to gauge strategy implementation success or difficulties, or if revisions to the strategy or associated work plan would benefit from work group deliberation. The annual Capacity Development Work plan will be developed by Drinking Water Program staff with the Strategy as the guiding document, and will specify the efforts to be implemented in the coming year(s). It will be provided to the workgroup for their review and recommendations prior to submittal for approval to EPA.

IV. FACTORS THAT ENCOURAGE OR IMPAIR CAPACITY

State Factors that Encourage Capacity

Cooperative Relationships - Excellent relationships exist between the local governments, the state government, and other assistance providers. These relationships will allow a cooperative effort to identify capacity problems, find solutions, and implement these solutions to provide the most reliable drinking water supply to the public.

Certification Requirements - The existing statute (CRS 25-9-101 to 110) and regulations require all operators of public water systems to be certified. Accordingly the State has constituted a governor-appointed certification board to oversee the classification of drinking water and wastewater treatment facilities and to certify operators based on experience and knowledge requirements established by the Board of Certification which are keyed to the complexity of the facilities for which certification is desired.

Design Review Requirements – Article 1, Section 1.11 of the Colorado Primary Drinking Water Regulations authorizes the Department to review and approve plans and specifications for the construction of new, or improvements to existing, waterworks. This authority predates the SDWA capacity development provisions and has been and will continue to be used to ensure that the physical facilities that are installed at water treatment facilities, if properly operated, will ensure that the facility is capable of supplying water that complies with maximum contaminant levels as mandated by the SDWA.

Legislative Issues - With revisions to the Colorado drinking water statute in 1998, and through use of the document: New Water System Capacity Development Planning Manual and associated state regulations (Colorado Primary Drinking Water Regulations), the Division's authority was expanded to approve not only the technical design, but the managerial and financial capacity of new public water systems to comply with SDWA regulations. Division staff will apply the criteria contained in the plan to assure that all new systems have technical, managerial and financial capacity to comply.

Planning - State statutes allow the Division to review subdivision plans during their initial planning stages. The Division, due to resource constraints, does not universally use this opportunity to raise capacity issues during the planning phases of project development. Use of DWSRF capacity development funds and associated resources could make use of this existing statutory authority to further educate and assist owners at the earliest possible phase of a project planned for the construction of a public water system. This effort may identify physical or managerial consolidation opportunities during the planning stages of a project.

Public Awareness - The use of Consumer Confidence Reports (CCR) to raise the awareness of the consumer is making the paying customer more aware of the quality of drinking water, and the problems that may exist with the water supply. This awareness results in pressure on the water system to eliminate problems and violations, while also creating a desire for better water quality. Pressure by the consumer will result in the water system looking for ways to better achieve long-term capacity.

Capacity Development Program - The initiation of the Capacity Development Program, including the New System Capacity Planning Manual, the Capacity Development Strategy, available funding, and the efforts of the assistance providers will provide an ongoing means of increasing the capacity of water systems throughout the state.

State Factors that Impair Capacity

Legislative Issues - The lack of legislative authority to address water system infrastructure problems has hindered the ability to create adequate capacity in small, privately owned water systems that need infrastructure improvements to resolve health-based violations of the Colorado Primary Drinking Water Regulations.

Privately owned and not-for-profit systems cannot receive public funds from the state revolving fund, by legislative mandate, unless such funding is awarded directly to a public entity making application on behalf of the private system. This requirement severely hampers the ability of small private systems from upgrading the water system to meet current and new treatment requirements. While a significant amount of new funding has been made available to publicly owned systems through both state funded sources and the DWSRF, this money is not reaching many of the systems with serious problems because of their ownership category.

Operator Certification Issues - A number of operator certification issues have been addressed, that in the past have hindered systems in maintaining full capacity and long-term compliance. Only a few issues remain including:

1. Current certification examinations are proctored and scored by volunteer participants who have limited time and resources to devote to this effort.
2. Current lists of public water systems that lack properly certified operators, their levels of certification, and expiration dates of their certifications are not available to the public. This information should be available on the Internet as public information.

Regulatory Compliance Issues - The state drinking water program regulatory position has historically been one of regulatory oversight and compliance assurance. While much effort has gone into assisting systems with voluntary compliance, there are a number of areas that the state program has been unable to assist systems in obtaining and maintaining capacity. Some of these include:

1. Immediate compliance information such as monitoring and inspection results are not available to consumers thereby allowing problem systems to operate with less consumer knowledge and involvement than would result if such information were readily available.
2. The isolated location of many rural systems is so distant from state offices that a considerable portion of the state resources is used getting to and from the water system. This restricts the Division's ability to interact with many remote systems, except under the most serious situations.
3. Current staffing levels for the state drinking water program, sufficient to maintain regulatory requirements, are stretched thin in order to provide assistance to systems. State efforts for technical assistance are planned to increase in the near future, but new regulatory requirements will result in additional challenges to water systems for which assistance resources are not currently available.
4. Technical assistance providers have not been provided the opportunity to achieve an overall picture of the drinking water initiatives, such as capacity development or significantly more complicated new regulations that have been initiated by the re-authorized Safe Drinking Water Act. In order to provide a high level of technical assistance, the providers need to be trained in the many new requirements and programs that affect all public water systems.

Local Factors Impairing Capacity

There are a number of factors that inhibit small water systems from easily achieving TMF capacity. A review of some of those factors shows that:

1. Existing information designed to assist new businesses with public water supplies in the start-up of operations does not prepare the owner to understand and appreciate the requirements associated with providing consistently safe water to the public. Information geared to this audience that specifically

identifies the technical, managerial and financial aspects of the drinking water issues that must be addressed is currently lacking.

2. The provision of drinking water is generally ancillary to the main purpose of the business and revenues are not generated by the sale of water. Appropriate financial criteria to measure and encourage financial capacity need to be developed and distributed in an effective manner.
3. In rural areas, the distance between systems tends to be large, thus discouraging physical and managerial integration.
4. Water rights issues may discourage integration efforts. Failure to use a water right can result in permanent loss of the authority to use the water. This discourages consolidation of water systems due to the potential loss of water rights.
5. Organized local health departments are few in number. Most of the state does not have access to such departments, and must rely on county sanitarians, planners, and state personnel to provide assistance with non-community water systems. Local health departments generally have a higher level of expertise in environmental matters, and staffing levels that allow for greater outreach and assistance efforts.
6. Training of water system managers and board members in the requirements and responsibilities of public water systems is not required. This type of training is almost non-existent, yet it is of vital importance for the people responsible for the provision of safe water to understand the many issues related to managing a public water supply.
7. Economy of scale issues result in higher costs to small systems. Certified operator costs, costs of chemicals, and equipment needs are examples of areas where small systems must pay higher costs due to the limited quantity of resources necessary to operate the water system. These problems can be offset, somewhat, by cooperative efforts involving system management, operations, and purchasing, there is no concerted effort to develop or expand such cooperation between small systems.