Capacity Development & Operator Certification Collaboration

An Essential Partnership to Promote Small System Capacity

Maintaining technical, managerial and financial (TMF) capacity and having a properly certified operator in responsible charge are key components of a well-run drinking water system. Each state has a Capacity Development program to help public water systems (PWSs), and particularly small PWSs, build and maintain TMF capacity. Each state also has an Operator Certification program to ensure certification of PWS operators. Both programs have a similar goal of ensuring the provision of safe drinking water.

How can collaboration between these programs help my state? Drinking water system performance depends on many factors, including adequate infrastructure to effective management and efficient operations. Close communication and cooperation between the Capacity Development and Operator Certification programs can help determine gaps in operator skills and knowledge, promote appropriate training, assist PWSs with obtaining a qualified, certified operator and improve system performance to protect public health.

What will I find in this fact sheet? This document highlights three specific state examples of practical and effective ideas for collaboration between the Capacity Development and Operator Certification programs to address small system compliance challenges. The three examples discussed in this document are:

Example 1 — **Enhancing PWS Viability via Capacity Development and Operator Certification – The Rhode Island Approach**

Example 2 — **Applying Operator Experience to Improve Capacity – The Mississippi PWS Peer Review Program**

Example 3 — **Targeting Operator Training to Boost PWS Performance – The Colorado Experience**

Enhancing PWS Viability via Capacity Development and Operator Certification – The Rhode Island Approach

http://www.health.ri.gov/programs/publicdrinkingwater/

Challenges

- The Rhode Island Office of Drinking Water Quality (DWQ) found that small PWSs in the state commonly experienced fundamental problems that were indicative of unsustainable conditions that could lead to chronic noncompliance. Managerial and/or financial challenges often contributed to these small systems' technical challenges.
- Limited staffing and financial resources were significant contributors to noncompliance. Many small PWSs in Rhode Island struggled with the time commitment required to complete funding applications and lacked expertise required for better management practices such as asset management.
- These resource limitations also affected training of operators and system personnel. For example, it was difficult to obtain operator training for system-specific issues or capacity development-related emergency preparedness training for all system personnel.
- Historically, relationships between small system owners and contract operators in Rhode Island were not well defined. This resulted in unclear and inconsistent expectations of each party's roles and responsibilities and increased opportunities for miscommunication.

Solutions

- The Rhode Island DWQ provides training and outreach services to owners, operators and personnel of PWSs through the state's Operator Certification and Capacity Development programs. These programs offer assistance through a coordinated response and often utilize contracts with third-party professionals or organizations.
- Assistance focuses on developing managerial and operational effectiveness, and includes on-site technical assistance as well as free trainings for small system operators or individualized development of consumer confidence reports (CCRs). Assistance may address performance or compliance issues and may be initiated by the state or by a request from the PWS or other interested parties.
- The process begins when DWQ staff prioritize system needs on a quarterly basis through a ranking process that identifies PWSs that would benefit the most from the state's existing Capacity Development tools. The ranking categories allow prioritization of PWSs with the greatest need and take into consideration the level of assistance or enforcement that would be most likely to return each PWS to compliance.
- The Operator Certification program participates in the system evaluation process and produces a report of PWS violations which are most likely related to the actions of the operator-in-charge. The Operator Certification Board reviews these violations and recommends corrective actions such as specifying a schedule for additional or specialized required training. The Capacity Development program then works with the operator to ensure that the training is completed and that proper actions are incorporated into the operator's daily procedures.

- For any PWS with a chronic record of noncompliance, the DWQ provides a focused response through the "Fast Track to Compliance Program":
    - An assessment is made by DWQ staff to in order to obtain a full understanding of the PWS's challenges and determine the underlying causes of noncompliance.
    - Once the assessment is completed and deficiencies have been identified, a Corrective Action Plan is prepared applying "Effective Utility Management" attributes as measures of system capacity.
    - The Corrective Action Plan includes management strategies that are specific to the challenges and needs of the PWS and consists of a set of decisions and activities for owners, operators and DWQ staff to consider. Corrective actions often include staff training and professional development, replacing or repairing system components, implementing new operating procedures, conducting more detailed engineering evaluations and other steps.
    - Both the Operator Certification and Capacity Development programs are actively involved in the assessment, as well as in formulating and implementing corrective actions.
- Rhode Island also conducts quarterly roundtable meetings with representatives of the state's PWSs. Both the Operator Certification and the Capacity Development programs participate in these meetings where PWSs are updated on relevant topics such as required reporting forms, sampling procedures and available tools and services. The PWSs can also provide feedback on what additional tools and resources they need.

Success Measures

- Through a contract with the Atlantic States Rural Water and Wastewater Association (ASRWWA) during state fiscal year (SFY) 2011, the Operator Certification and Capacity Development programs provided training to 253 PWS representatives and operators through various courses and workshops including the Rhode Island Operator Certification Exam Preparation; Infrastructure Replacement Planning; Regionalism, Consolidation and Cost Sharing; and the Ground Water Rule (GWR).
- During the same period, ASRWWA, in collaboration with DWQ, successfully assisted 69 small community water systems (CWSs) with development and production of their CCRs.
- Rhode Island also used the ASRWWA contract to have a circuit rider visit approximately 30 to 35 PWSs each month to provide various forms of on-site assistance. Thus far, the circuit riders' on-site assistance has proven to be a valuable approach in eliminating some of the barriers that small system operators face in obtaining training. As a result of this effort, 10 operators received tutoring on-site to prepare for the very small system (VSS) exam, and 36 small system operators renewed their certifications during SFY11.
- The Capacity Development program also manages various other contracts to increase small water system sustainability and operator capacity through activities such as helping prepare facility permit plans, capital improvements plans and provide engineering assistance. The Capacity Development and Operator Certification programs continue to pursue additional collaboration opportunities to further develop and increase the availability of training and capacity assistance resources for small or continually noncompliant PWSs.

Applying Operator Experience to Improve Capacity – The Mississippi PWS Peer Review Program

http://msucares.com/water/peer/peerindex.html

Challenges

- In Mississippi the vast majority of its approximately 1,100 PWSs are small systems with limited financial and, in many cases, human resources. In comparison to larger PWSs, these small PWSs are more likely to have difficulty obtaining and maintaining TMF capacity.
- Additionally, the state found that given the highly varied needs and challenges of these small systems, it was not feasible to develop a mandatory state program that would require small PWSs to immediately make necessary capital improvements.
- The Mississippi State Department of Health (MSDH) determined that addressing technical capacity issues was often particularly challenging because technical training required more experience-based information sharing as opposed to just teaching general concepts and guidelines. Small system operators often lacked the resources and professional networks to address unique or unfamiliar challenges in the technical arena. Furthermore, operators who also held management roles often lacked managerial and financial training.
- Small systems in Mississippi recognized the need for advice or assistance on various topics, but were sometimes hesitant about reaching out to the state for non-urgent issues (i.e., those not immediately impacting public health). Some PWSs expressed an interest in having anonymous assistance options for these types of situations.

Solutions

- In 2002, Mississippi created the Peer Review Program to address some of these challenges. The Mississippi State University Extension Service (MSU-ES) coordinates the program which is made possible through collaboration between MSU-ES and MSDH. The program took one year to develop and costs the MSDH roughly $20,000 a year to implement.
- The Peer Review Program is a capacity-building program that utilizes experienced certified drinking water operators to assist Mississippi's PWSs with the TMF aspects of managing and operating a water system, particularly focusing on the technical aspects. The Peer Review team members are volunteers with experience as PWS operators or managers and are not affiliated with any regulatory agency.
- MSDH annually provides MSU-ES with a list of poorly performing PWSs that have Capacity Assessment scores of less than 3.0 (out of 5.0). MSU-ES contacts those referred PWSs in a variety of ways (by letter, through on-site visits or by phone) to determine their interest in participating in the Peer Review Program.
- Water systems that are interested in discussing TMF capacity issues with an experienced operator on the Peer Review team can contact MSU-ES to coordinate a meeting. The Peer Review team typically encourages the PWS to determine the meeting logistics (e.g., meeting location, time) to ensure that the maximum number of people representing the PWS can be present for the review.

- Those present at the meeting on behalf of the water system generally include the board members, clerical staff and the operator. Meetings can last up to 5 to 6 hours and involve a complete review of the last capacity assessment, including reviewing the system's documents and records, inspecting well and treatment site(s) and discussing specific concerns. The results of the Peer Review are confidential (unless a health concern is identified).
- The Peer Review team members then generate a report that outlines the issues raised at the meeting and provides suggestions for possible improvements that could benefit the PWS and its consumers.

Success Measures

- The Peer Review Program enhances water system performance, educates water system officials, and prepares PWSs for annual inspections and future sustainability. Most importantly, this program helps PWSs provide more efficient and effective service to their customers.
- The Peer Review is a great opportunity for PWSs with low capacity development assessment ratings to receive expert advice on their challenges, and ultimately increase their scores. This is becoming increasingly important with the implementation of the GWR.
- To date, 139 PWSs have been assisted through the Peer Review Program. The average initial capacity development assessment score of these PWSs was 3.01 (out of 5.0). After participating in the program, the average capacity development assessment score among these PWSs was 3.52, an average increase of 23.7 percent. Preliminary research indicates that the program is responsible for over 20 percent of this improvement.
- Interaction with PWS managers and operators during the Peer Review process has identified a significant number of training opportunities. In many cases, these issues are region-specific and would be difficult to identify from a state-level perspective. These identified issues then are provided to the certification training partners, and a number are addressed in specific training settings, particularly hands-on operator training sessions.
- The program has gained increased acceptance as more PWSs participate and realize its benefits. Promoting the program as a means of receiving free, confidential assistance has proven to be an effective marketing tool. Additionally, utilizing experienced regional operators has complimented the state assistance program.

Example 3

Targeting Operator Training to Boost PWS Performance – The Colorado Experience

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

Challenges

- Colorado has an inventory of over 2,000 mostly small drinking water systems. In the past, many of these PWSs did not have properly trained or certified operators.
- The state determined that there had been a lack of coordinated, targeted, high quality training for operators and other personnel.
- During one 3-year period (2005 to 2008), there were 99 acute failure incidents requiring boil water or do not use orders, impacting over 60,000 people.

Solutions

- Colorado employed a systematic planning process for evaluating and responding to training needs for PWS personnel. Major steps in the process included the following:
  - A systematic evaluation of system failures and identification of root causes stemming from operator deficiencies. This evaluation was conducted in September 2009 by the Colorado Capacity Building Unit (CBU).
    - Sources of information included sanitary survey reports, violations data, enforcement actions and acute violation incident records.
    - Major deficiencies included a lack of certified operators, as well as inadequate disinfection (due to improper disinfection equipment, inadequate residuals or a lack of cross-connection control).
  - A Baseline Assessment Report was prepared in January 2010 by the CBU to document the status of PWS training opportunities in Colorado. The report evaluated current training opportunities to identify the gaps between training needs and existing training available. A baseline was then established to measure future progress against, and recommendations were developed for improving training relevance, quality, accessibility and coordination.
  - A 1-day PWS Training Roundtable was sponsored by CBU in February 2010. The Roundtable brought together 40 participants from businesses, agencies, schools and non-profit organizations to discuss training needs for PWS personnel in the state. Recommendations from the roundtable were grouped into six major themes: 1) establishing "need to know" criteria; 2) defining a core curriculum; 3) setting standards for quality (and building a "clearinghouse" of high quality courses); 4) supporting high quality instructors; 5) coordinating training offerings and schedules; and 6) cultivating a supportive training environment.
  - A 5-year strategic plan is under development that will lay out proposed actions based on the findings and recommendations of the Assessment and Roundtable.
- Colorado provides technical assistance to PWSs through a "Coaching" unit comprised of highly-trained, certified operators who are state employees. The Coaching unit provides circuit rider technical assistance to PWSs, including on-the-job training that can be approved for continuing education units (CEUs). The state also uses summer interns, mainly to develop monitoring plans for PWSs to meet regulatory requirements.

- Integration of the Capacity Development and Operator Certification programs is further facilitated by monthly "Drinking Water Advisory Team" meetings. These regular meetings include representatives from the Capacity Building, Operator Certification, Compliance, Engineering, Financial Services and Source Water Assessment programs. The Team's immediate focus is to review available data on PWSs and address acute problems. Longer-term efforts are also discussed and coordinated.

Success Measures

- The number of CWSs and non-transient non-community water systems (NTNCWSs) with certified operators in responsible charge has increased from 89 percent in 2005 to over 98 percent in 2012. There are a total of over 7,000 certified water and wastewater operators in the state.
- Colorado plans to use the training evaluation baseline as a departure point from which to document future improvements in training.
- In the past 3 years, the Coaches have conducted over 350 technical assistance visits, including preparation of reports. With the team's assistance, 327 system monitoring plans were also developed.
- There has been a measurable improvement in compliance in the areas of disinfection operations and management, and development of water quality monitoring plans overall.
    - Approximately 98 percent of the population served by CWSs receives drinking water that meets all health-based standards. Furthermore, less than 5 percent of all CWSs have unresolved significant deficiencies.
    - Approximately 98 percent of affected PWSs are in compliance with the new requirements of the Long Term 2 Enhanced Surface Water Treatment Rule, Stage 2 Disinfectants and Disinfection Byproducts Rule and GWR.

Consider These Next Steps…

Hopefully, the ideas and examples in this document have spurred some thoughts of your own for potential program collaboration in your state. As you reflect on next steps, consider a couple of questions:

- Are there some practical new approaches you discovered that could lead to increased collaboration, effectiveness and efficiency between your Capacity Development and Operator Certification programs?
- Which examples are the most compelling for you? Is your state similar or different? How would you need to modify a particular approach in order for it to be successful in your state?

Once you have some ideas you would like to try out, consider what steps you would need to take. For example:

- Who are the key decision-makers and partners you would have to enlist to implement any new ideas you have in mind? What information would you need to provide in order to convince them of the benefits?
- What are the success measures for both the Capacity Development and Operator Certification programs? How would increased collaboration between the two programs move each program closer to its goals? How would you know if it is working?
- Are there some non-programmatic related benefits that might occur from implementing collaboration measures? For example, Capacity Development and Operator Certification program collaboration can help build lasting relationships that may provide avenues for future collaboration efforts.

State/EPA Collaboration Workgroup

This document was developed by the State/EPA Collaboration Workgroup. The Workgroup members were:

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Additional documents developed through this Workgroup effort include:

- Funding Collaboration: Maximizing the Impact of Project Funding to Increase Compliance and Enhance Public Health
- Program Collaboration: Using Teamwork and Program Staff Expertise and Authority to Assist Small Systems