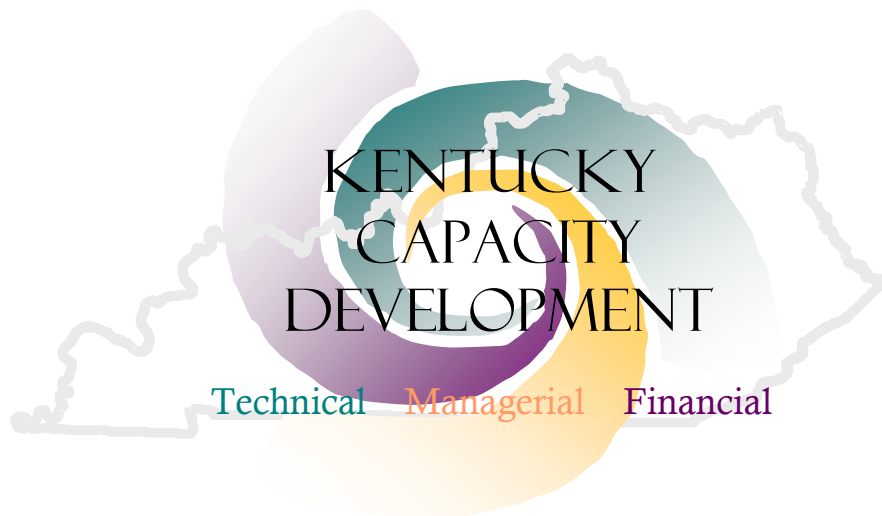


COMMONWEALTH OF KENTUCKY
TRIENNIAL REPORT TO THE GOVERNOR

October 1, 2008 – September 30, 2011

Capacity Development Program
For Kentucky Drinking Water Systems



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Drinking Water Capacity Development Staff

Executive Summary

Capacity Development Program

For Kentucky Drinking Water Systems

The Safe Drinking Water Act (SDWA) amendments of 1996 included provisions for the establishment of a Drinking Water State Revolving Fund (DWSRF) to finance construction and improvements to new and existing Public Water Systems (PWS). To receive the full allocation of DWSRF funds, the SDWA requires that states develop and implement a Capacity Development (CD) program to ensure that all PWSs have the technical, managerial and financial (TMF) capacity necessary to meet state and federal regulatory requirements. Another requirement under the Act is the submittal of this triennial report detailing the effectiveness of our CD strategy, and progress made toward improving the TMF capacity of PWS.

Subsequent to the SDWA amendments, Kentucky's Capacity Development Program was formed, and a strategy developed with stakeholder input. During this reporting period, that strategy has been revised and accepted by the United States Environmental Protection Agency.

During the past three state fiscal years, an emphasis has been placed on:

- ◆ Revisions to the Capacity Development Strategy
- ◆ Developing and Deepening Working Relationships with PWSs across Kentucky
- ◆ Increased Educational Outreach
- ◆ Targeted Outreach to Management and Governing Entities
- ◆ Elucidation of CD deficiency trends
- ◆ Strategies to address those trends
- ◆ Increasing Internal Knowledge re: TMF Capacity

Most of the managerial and financial capacity indicators are non-regulatory, therefore the CD program has explored drafting new regulations, dovetailing non-regulatory concerns into milestones included in Agreed Orders and other avenues to compel water systems to improve TMF capacity. There are systems in Kentucky, however, that lack the means to improve even if their governing entities have the will. With this in mind we have also begun formulating a small system strategy in an effort to “give a leg up” to those systems.

The Cabinet continues to provide training and issue certifications to ensure that individuals who operate drinking water systems are capable of performing their duties and protecting public health. Several technical assistance providers also provide continuing education on regulatory and other capacity development topics.

Kentucky continues to successfully manage its statewide and system wellhead protection programs, and apply effective source water protection strategies. Numerous examples of direct and indirect TMF CD assistance are presented in this report which demonstrate the efficacy of the CD program, and progress made toward improving TMF capacity.

Triennial Report to the Governor Capacity Development Program For Kentucky Drinking Water Systems

Background and Capacity Development Strategy

The Safe Drinking Water Act (SDWA) amendments of 1996 included provisions for the establishment of a Drinking Water State Revolving Fund (DWSRF) to finance construction and improvements to new and existing Public Water Systems (PWS). To receive the full allocation of DWSRF funds, the SDWA requires that states develop and implement a Capacity Development (CD) program to ensure that all PWSs have the technical, managerial and financial (TMF) capacity necessary to meet state and federal regulatory requirements. Another requirement under the Act is the submittal of this triennial report detailing the effectiveness of our CD strategy, and progress made toward improving the TMF capacity of PWS.

In September 2000, the Commonwealth submitted its CD strategy to the United States Environmental Protection Agency (USEPA). To fulfill SDWA requirements, the plan included two elements: a description of Kentucky's legal authority to require new PWS to show technical, managerial and financial ability to meet regulatory requirements, and a strategy to assist existing PWS in developing or improving TMF capacity. These objectives were created to fulfill requirements of Section 1420 of the SDWA and KRS 151.632.

Kentucky's initial prioritization of systems most in need of improving capacity was based on the results of public meetings that were held in 1999. Additional public meetings involving core stakeholders were held in 2008 to re-examine this prioritization. As a result, Kentucky has elected to identify systems' needs using all available information rather than using an empirical scoring method it initially implemented, which may not fully reflect system needs.

As Kentucky's CD program has evolved, our CD Strategy has also evolved. Following multiple meetings of our stakeholder group, a revised CD Strategy was submitted to EPA Region IV in September 2008, and the Commonwealth was notified of its acceptance in July 2009. The letter of acceptance included the following:

“Revisions to the Strategy appear to present a sound, well-thought-out approach to improving the capacity of water systems in Kentucky. The revised Strategy is responsive to each of the five key elements identified ... in the Safe Drinking Water Act, and it is apparent that the revisions resulted from a robust stakeholder and public involvement process”

The following is an outline of Kentucky's approved existing systems' strategy:

- Prioritize systems most in need of improving capacity.
- Identify the factors that encourage or impair the capacity of water systems.
- Use the authority and resources of the SDWA to enhance technical, managerial and financial capacity.
- Establish a baseline and measure the capacity improvements of systems in the state.
- Involve stakeholders in state efforts to improve water system capacity.

These tenets, and the effectiveness of our strategy, are incorporated in the discussion that follows.

Capacity Assessment and Assistance

Kentucky utilizes the Sanitary Survey (SS) process to assess TMF capacity, with each PWS being subject to a SS every three years. Technical capacity is largely measured via regulatory compliance, and indeed most DW regulations, whether federal or state, address technical elements rather than managerial or financial. The CD stakeholder group held multiple discussions to determine the capacity benchmarks for managerial and financial capacity. Questions intended to capture whether or not a system met those benchmarks were incorporated into the existing SS beginning in 2008. As systems are identified as lacking capacity, as assessed through this evaluation process, CD staff begin working with them on improvements. This is pursued via direct assistance, consultation with other Technical Assistance Providers and organized trainings. PWS with unresolved Significant Deficiencies noted are referred to the Division of Enforcement.

Information collected during the SS is helping Kentucky to identify systems most in need of improving capacity. At this time, a project is underway to enable empirical analysis of this data, to move beyond anecdotal impressions to a more scientifically-based assessment of capacity, and subsequent system prioritization.

Since the overwhelming majority of all PWSs in Kentucky are classified as small (serving less than 10,000 people), it then follows that capacity development activities will likely have their greatest effect on small systems, and particularly on those small water systems that are currently out of regulatory compliance, or may be in the future. With the inclusion of groundwater (GW) systems in the past two year's SS schedule, we have targeted the smallest GW systems first, as it is believed they will be most in need of assistance.

Through the SS process, we have determined there is a need to develop a small system strategy, as a subset of the larger CD Strategy. The first major activity we are pursuing is using CD set-aside monies from the State Revolving Loan Fund (SRF) to provide assistance to small systems (those serving fewer than 10,000 customers). The DOW is entering into a Memorandum of Agreement with the Rural Community Assistance Program (RCAP) to establish a Small Systems Assistance Program. This program will fund projects which will help systems improve their capacity, within SRF guidelines.

Partnering with RCAP enhances the program in many ways. As non-regulatory technical assistance providers, RCAP staff may be viewed in a more favorable light by deficient systems, which may then be more likely to seek funding, rather than being afraid to call attention to their deficiencies. There are currently over 460 PWS in Kentucky, 414 of them qualifying as small, and the DOW is not adequately staffed to develop more than cursory relationships with all of them. Combining RCAP and DOW staff knowledge of individual systems and their needs tends to fill gaps, or even be synergistic. This knowledge base is important as we anticipate applications will exceed available funding, and ranking of projects will be necessary.

During this reporting period, staff noticed an increase in the number of systems that simply did not respond to their sanitary survey deficiencies (systems are required to respond within a certain number of days, depending on the severity of the deficiency). Non-response can lead to a Notice of Violation (NOV), and potentially escalating enforcement. Since we have been incorporating small groundwater systems into our SS universe, we recognized the persons in charge of these systems might not recognize the gravity of not responding. Three practices were implemented during this reporting period to reduce the number of systems in violation. Each program manager places a reminder call a week in advance of the response due date, if a response has not yet been received (implemented July 2010). In addition to their main purpose, these calls sometimes provide an opportunity for informal conversations between operators and CD staff, during which we may assist with other concerns or needs they have. Another

practice we have started is each envelope that contains the deficiency letter and results of the SS is stamped "Response Required" (implemented February 2011).

The SS results have historically been sent to the operator or plant manager. This person isn't always the primary decision-maker for the system, that role typically resides with a Board, Commission, Mayor, or other governing body. Members of these entities are not typically well-versed in water plant operations. The SS and cover letter contain information regarding water loss figures, managerial deficiencies and other potential "red flags" that only the governing entity can fully address. In fact, there have been occasions operators have complained to our staff that they cannot get what they need from their governing entities. With this in mind, and to further address the non-response trend, we have started copying those persons in an effort to call their attention, as the decision-makers, to system needs which may not be obvious to them (implemented May 2010).

It is difficult to assess exactly what influence each of these practices has had, but during the time frame October 2010 - April 2010 (before implementation), the rate of non-response was 26%; since these three practices have been implemented the non-response rate has dropped to 14.9%.

Training and Outreach

Along with Compliance and Technical Assistance staff of the DOW, CD staff have delivered multiple trainings statewide during this reporting period. Topics were selected based on trends noted during the SS process and emerging regulatory concerns. Trainings during FFY 2009-2011 are summarized in the table on the next page.

Table 1. Trainings Delivered During FFYs 09-11

Title Of Presentation	Date	Location
Capacity Development	October 2008	PSC/KRWA Jenny Wiley State Park
Capacity Development	October 2008	Annual CTAB Training Barren River SRP
CD Past, Present & Future	February 2009	Eastern Chapter of KWWOA London
CD Past, Present & Future	March 2009	KWWOA Lexington
CD Past, Present & Future	July 2009	KWWOA Richmond
Microbial/Turbidity Performance-Based Training (PBT)*	August 2009	Big Sandy Watershed
Managerial Capacity	September 2009	KWWOA Madisonville
CD Past, Present & Future	September 2009	KWWOA Madisonville
CD 101 And Small System Challenges	October 2009	National Association of Water Companies Annual Conference, Orlando, FL
Capacity Development	October 2009	PSC Board Training Carter Caves SRP
Managerial Capacity	November 2009	KWWOA Radcliffe
Disinfection By-product Performance-Based Training*	November 2009	Bluegrass Area
Capacity Development	November 2009	PSC Board Training, KY Dam Village SRP
Capital Improvement Plans	November 2009	Division of Compliance Assistance
Asset Management/Water Loss	January 2010	Joint Training With RCAP Barren River SRP
Disinfection By-product PBT*	March 2010	Western KY
KY DOW Update*	March 2010	Erlanger, KY
Capital Improvement Plans	April 2010	KWWOA Annual Meeting Louisville
Calculating Water Loss	April 2010	KWWOA Annual Meeting Louisville
New Regulations*	April 2010	KWWOA Annual Meeting Louisville
Enforcement Targeting Tool*	April 2010	KWWOA Annual Meeting Louisville
Small Water System Challenges	August 2010	EPA Annual CD Conference Dallas, TX
KY DOW Update*	August 2010	PSC Board Training Pine Mountain SRP
KY's Evolving Small System Assistance Program	October 2010	ASDWA National Conference Pittsburgh, PA
SS Training For Field Staff	November 2010	Madisonville
SS Training For Field Staff	November 2010	London
KY DOW Update*	December 2010	PSC Board Training Frankfort, KY
Microbial/Turbidity Comprehensive Performance Evaluation*	January 2011	Olive Hill, KY
KY DOW Update	March 2011	PSC Board Training N KY
Asset Management	March 2011	Cumberland Valley ADD
Sanitary Survey Findings	March 2011	KWWOA Louisville
Financial And Managerial Capacity Trends	March 2011	KWWOA Louisville
Area-Wide Optimization Program*	March 2011	KWWOA Louisville
KY DOW Update*	May 2011	PSC Board Training General Butler SRP
CUPSS Demonstration	June 2011	Cumberland Valley ADD
KY DOW Update*	August 2011	PSC Board Training Dale Hollow SRP
KY DOW Update*	August 2011	KRWA Annual Conference Lexington
KY DOW Update*	September 2011	Central Chapter KWWOA Fall School
<i>* Training conducted by DW Compliance and Technical Assistance Staff</i>		

In addition to formal training events, the Capacity Development Section also pursues direct outreach opportunities. During the last calendar year, staff workplans, upon which they are evaluated, have included as a milestone identification of at least two DW systems in their respective areas to concentrate direct outreach efforts. It is not always the case that the neediest systems will accept offers of help, thus some of these direct efforts have been more successful than others, but we know that we tried.

One staff member selected McLean County Drinking Area Water Needs (DAWN) as her avenue for direct assistance. McLean County DAWN is a joining of forces for county-wide improvement of public drinking water service. The McLean County DAWN initiative consists of North McLean County Water District, Beech Grove Water Board, Island Water Department, Livermore Water Works, Calhoun Water Works, and Sacramento Water Works. Short-term goals of the McLean County DAWN are improvements in water quality, water pressure, and, hopefully, lower rates for consumers. Positioning the county for future economic growth is considered the long-term goal of the McLean County DAWN. Representatives from the Division of Water Capacity Development Section and Compliance & Technical Assistance Branch routinely provide assistance with the McLean County DAWN effort. The Capacity Development Program Manager of this region has attended multiple meetings and has provided insight on water purchase contracts, water system operating capacity, examples from other regionalization models.

Another workplan item required attending at least two Water Management Council meetings, held at the various Area Development District (ADD) offices across the Commonwealth. These meetings offer an opportunity for our staff to get to know operators and upper management outside of an inspection setting, as well as ADD planning staff. Building these relationships enhances our ability to assist systems, and, as noted in the training table above, attendance at these meetings also provides a venue for targeted training.

During this reporting period, the CD Section developed a compendium of CD tools on compact disc (the Cd cd). These cds are distributed at the time of the SS, and the system representative is advised of specific tools they may find particularly useful, based on the SS findings. The CD cd is one more effort to maximize our effectiveness as we meet with systems.

Kentucky's Operator Certification Program (Op Cert) resides in the Division of Compliance Assistance (DCA), and is an important partner in building TMF capacity. The Op Cert program provides training and issues certifications to ensure that individuals who operate drinking water systems are qualified and capable of performing their duties. In addition to the technical focus of the certification program, Op Cert offers trainings in topics related to managerial and financial aspects of running a water system. The program presents a number of training opportunities for water treatment and distribution system operators throughout the Commonwealth. Op Cert program staff also assist the Kentucky Board of Certification of Water Treatment and Distribution System Operators. The following table summarizes activities and achievements for state fiscal years 2009 - 2011:

Table 2. Operator Certification Activities During FFYs 09-11

	SFY09	SFY10	SFY11
Active Certifications	2646	2715	2820
Training Hours Conducted (preparatory and continuing education)	330	420	324
Individuals Trained	447	812	615
Exams Administered	427	496	391

As we strive to better inform DW systems and their management entities regarding CD best practices, CD staff continue to build our knowledge base, via training events, webinars, sharing

articles and other means.

The Capacity Development Section Supervisor has been active at the national level during this reporting period. She presented information on Kentucky's program at three separate national conferences, and moderated a session at one. Subsequently, she was invited to participate in three EPA Workgroups (Assessing Managerial Capacity, Water System Partnerships and Outreach Materials) and has been an active participant. Via these professional development activities, the Section Supervisor's base of knowledge has been enhanced.

Enforcement Activities

At the beginning of this reporting period, PWS had been allowed to enter into a "Voluntary Agreed Order" that addresses capacity development. However, these "Voluntary Agreed Orders" were informal and not legally binding. During this reporting period, management has determined all AOs should be prepared by our Division of Enforcement. Many tenets of TMF capacity are not covered in state or federal regulations, therefore, while capacity deficiencies are frequently noted, formal enforcement action cannot be taken. While systems may still elect to enter into an AO in the absence of regulatory deficiencies, it would seem unlikely any would, in the absence of some incentive. However, when AOs are drafted to address regulatory non-compliance, an attempt is made to blend non-regulatory capacity concerns into the compliance milestones.

In addition to expanding our outreach and education efforts to fill these capacity gaps, Kentucky DW and CD staff have begun determining critical TMF indicators, and drafting additional regulatory language to encourage improvements in PWS capacity. These indicators include excessive water loss, operating near rated design capacity and lack of emergency response and asset management plans. Additionally, we are considering offering priority points for systems wishing to apply for Small System Assistance funding if they enter into a voluntary AO, which the project addresses.

Systems that are placed under Sanction (prohibited from extending water lines (WLE), or in some cases a complete "tap-on" ban) via AO may be allowed a "water budget", if there is available plant production capacity. The water budget allows for limited, managed growth as deficiencies are addressed, in contrast to a complete ban on growth. Also, if capacity issues are limited to certain geographic areas of a system (e.g. low pressure areas), then only those areas are under Sanction.

At this time, nine PWS are under sanctions (either line extension or tap-on bans are in place), via formal or informal AO. Twenty systems which had been under sanctions have been allowed to come off sanctions due to resolving their capacity issues and satisfying the terms of their AO.

Table 3. Systems Currently Under Sanctions

System Name	Type of Sanction	Reason
Campton Water Works	Water Budget	Capacity and Pressure Issues
Cawood Water District	Water Budget	Operations & Maintenance issues
Centertown Water System	WLE and Tap-on	Water pressure issues and some service outages during high demand. High water loss from Hartford transmission line.
Cumberland Co. Water District	Water Budget	Outdated plant; O & M issues
Greenup Water System	WLE and Tap-on	Pressure issues
Hyden-Leslie Co Water District	WLE	Waterline Extension Sanction until they have completed plant upgrade.
Liberty	Water Budget	Plant upgrade needed
Martin Co. Water District	Water Budget	High water loss, other CD issues
Wheelwright Utility Commission	WLE	Plant upgrade/repairs needed
Wurtland Water Dept	WLE	Pressure issues

The new EPA Enforcement Referral Policy (ERP), implemented in October 2010, re-defined persistent violators as “priority systems” based on a point system that now crosses all regulations. The ERP/ETT assigns points to violations across all regulations with points based on the severity of those violations. The points assigned follow the current Public Notification Tiers:

- Acute health-based violations 10 points
- Chronic health-based violations 5 points
- Monitoring and reporting violations 1 point

Any public water system with a score of eleven points or higher must be returned to compliance or under formal enforcement within six months of being identified on the ETT. As of September 2011, KY DOW has sixteen public water systems in the process of returning to compliance through this process. The recent increase in priority systems is a result of the new ERP and on-going challenges with disinfection by-product control.

Impediments to PWS Capacity Development

The DOW recognizes a number of factors that impede developing capacity in PWSs. They continue to face increasing regulatory requirements which makes compliance challenging in terms of both monitoring costs and technical resources. As systems start looking to the future and we start asking them to think about sustainable infrastructure, more systems are looking at raising rates to cover their costs. In many areas, rates may not have been raised in years or even decades, and the political risks associated with raising rates deters mayors, city councils, water system boards or other PWS decision makers from moving forward with rate increases. But as federal funds continue to diminish, systems must determine how failing infrastructure will be replaced. Grants and low interest loans encourage facilities to maintain their capacity and improve it in areas where stability is uncertain. Lack of funds impairs these same facilities from improving their technical, managerial and financial capacity. Since most of the systems in Kentucky are classified as small, securing an affordable funding package will always be a challenge. Lastly, an emerging issue Kentucky faces is the loss of trained, knowledgeable and experienced water system operators. Some are retiring, while others are accepting jobs at larger systems that offered them higher pay and better benefits.

Public Water Systems in Kentucky

Table 4. Number of Public Water Systems and Population Served 2002 - 2011

Year	Number of Public Water Systems	Population Served (in millions)*
2002	595	3.6
2005	521	3.7
2008	492	4.9
2011	461	4.5

**For the triennial periods ending 2002-2008, these numbers were determined by multiplying the number of residential connections by a factor of 3.3 people per household. In 2009, this factor, as listed in 401 KAR 8:200, Section 1, was revised downward to 2.97 and generates a more representative population served number .*

Values in the table above show the reduction in the number of public water systems since the beginning of the CD program in 1999. During the same period, the number of people served by public water systems increased by over one million. The large reduction in PWSs over the past number of years has been due primarily to the state's encouragement for PWSs to combine resources and capacity by regionalizing and expanding service areas. Through technical assistance and occasional enforcement processes, persistent non-compliers are pressured to either attain and maintain their TMF capacities to meet state and federal laws, or merge with other PWSs that have the capacity to better serve customers and meet drinking water laws. An example follows.

The Cumberland County Water District (CCWD) Water Treatment Plant has a history with the Division of Water. Located in southern Kentucky, CCWD not only produces water, but also purchases from Albany Water Works and Burkesville Water Works. For many years, operation and maintenance issues have been documented at the CCWD WTP, and in 2005, the District entered into an Agreed Order. Under this Agreed Order, all additional line extensions were required to be reviewed and approved by the Division of Water. Upon review of such an exemption request, it was determined that CCWD was exceeding the plant's rated design capacity by operating at 121% of its design flow rate in gallons per day. In September 2010, Division of Water representatives determined that the 2005 Agreed Order should be updated to reflect the most current needs of the system. Also in 2010, Burkesville Water Works, a supplier to CCWD, expanded its own WTP. Based on an interlocal agreement, signed in 2003 by both parties, CCWD intended to shut its plant down upon completion of Burkesville's plant expansion, thereby becoming a distribution-only system. In 2011, the updated Agreed Order was signed stating that CCWD will decommission its plant upon the completion of an interconnect pump station to Burkesville WW, which is currently under construction, and the 2 systems have entered into a water purchase contract under this premise. The regionalization of these two plants shows great cooperation and foresight between the utilities and is considered a success by everyone involved.

Water Quantity and Source Water Protection

In 1990, Kentucky began a program for the purpose of developing long-range water supply plans for each county that included all municipalities and public water systems. The plans include an assessment of the existing public and private water resources, an examination of present water use and projections of future needs and a determination of viable alternative strategies, including regionalization that can be implemented in order to meet future water supply needs. This process has also led to the development of numerous plans to extend drinking water service to unserved areas and underserved areas.

In 2010, Kentucky had approved water supply plans for each of its 120 counties. The plans were

developed by state and local agencies and water systems cooperating to achieve the best in quantity and quality for their area and to put in place regionalization of infrastructure to obtain the benefits of 'economy of scale' where feasible. The plans are in electronic format and housed in the Water Resources Information System (WRIS), which is maintained online at <http://kia.ky.gov/wris/Portal/> by the Kentucky Infrastructure Authority (KIA). Portions of the plans are currently accessible to the public, and the entire plan will be accessible in the future. Interactive maps in the Geographic Information System (GIS) portion of WRIS support planning and regionalization efforts.

Geographic Information Systems (GIS) have become an invaluable tool in planning and considering water infrastructure on a watershed basis. GIS allows public water systems and state agency staff to digitally display, manipulate, and monitor infrastructure in a geospatial context. GIS may be used to aid CD program staff and others in several areas, including, but not limited to:

- ◆ Identifying additional source water availability
- ◆ Identifying underserved areas
- ◆ Identifying, locating, and cross-referencing resources and infrastructure during droughts, in preparation for PWSs which run the risk of raw water shortage
- ◆ Determining the most logical sources and the most practical direction to transport raw water and/or finished water when considering mergers or regionalization
- ◆ Monitoring trends in capacity development as systems grow/expand
- ◆ Understanding the challenges some systems face with pressure zones, distribution routes, and watershed management

The strength of GIS is also being used to develop more effective tools to manage water resources in ways that will ensure adequate quality and quantity of drinking water sources. Efforts to delineate and study critical source water protection areas have been substantially improved with the application of spatial analysis and mapping available through GIS applications. Source water protection areas for both surface water and groundwater have been prepared for every public water supplier in Kentucky using GIS.

Kentucky's source water assessment and protection efforts have been very successful during this three-year reporting period, despite vacancies in both wellhead protection positions throughout the term. The DOW continues with work to update the statewide and system specific wellhead protection programs, and encourage the application of effective source water strategies for both surface and groundwater fed systems. The following is a summary of these programs including their overall effectiveness:

Statewide wellhead protection efforts during the three-year period include:

- Developing 5 year updates for the wellhead protection plans currently in place in accordance with the water supply planning regulations. Thirty-one 5 year updates were completed in the last three years and 30 more are in progress.
- Signage: Source water protection signs with emergency response phone numbers are located along major roadways and intersections that transect the wellhead protection areas. Signs that are missing or vandalized are being replaced.
- The wellhead protection program continues to develop wellhead protection plans for any new public water systems that are groundwater fed. Nearly all systems have a plan in place or are in the process of developing one.

- A statewide GIS layer of potential contaminant sources located in both surface water and wellhead protection areas is currently being developed.

System wellhead protection efforts during the three-year period include:

- County wide Wellhead Protection meeting for Ballard County in Wickliffe, KY, the county seat. City council members and representatives from Wickliffe, Kevil, Barlow, and La Center were present to discuss each systems 5 year update and groundwater protection in the area.
- Public meetings were held to discuss wellhead protection for Columbus Water Works, Western Mason and Western Lewis Rectorville Water Districts, systems in Marshall County, and many others.
- Five year updates or new Wellhead Protection Plans were completed for water systems serving over 15,000 customers including Elizabethtown, Owensboro, Hardin County Water District # 2, and North Marshall Water District.
- Louisville Water Company published information about the benefits of using native species to reduce the amount of pesticides and herbicides introduced into the water supply. Many educational brochures, DVDs, and other publications are available to the public about the use of native species.

Louisville Water Company is working to reduce the amount of storm water that passes through its combined sewer systems during storm events, often leading to overflows. The use of rain barrels, rain gardens, rooftop gardens, permeable pavement, and other green infrastructure options are being promoted to homeowners and business owners. There will be tax credits available for homeowners that use rain gardens or other systems to prevent storm water runoff. These initiatives will reduce the amount of combined sewer overflow events and also provide natural filtration to storm water as it infiltrates the ground.

Hardin County Water District #1 has conducted yearly field days at the water treatment plant to show where the water treatment plant derives its source water from and how the landowners' actions affect the source water.

Trimble County Water District has been working with the DOW and LG&E with stream riparian work in their well field.

Louisville Water Company utilizes both surface water intakes and a radial collector well located in the alluvium of the Ohio River. The system has worked with the Louisville Metropolitan Sewer Department to obtain a portion of the wellhead protection area to schedule sewer service that was not scheduled for several more years. Information pamphlets were distributed to all residents in the wellhead protection area concerning groundwater contamination issues. Louisville Water Company is currently adding 5 new collector wells to their water supply source. Their wellhead plan will be updated accordingly.

Louisville Water Company also received a federal grant to work on a native species initiative so that pesticides will not be used in the wellhead protection area that is owned by Louisville Water Company.

Statewide and local source water protection efforts during the three-year reporting period include defining substantial protection implementation for surface water systems and building a database for the contaminant source inventory with regards to the delineation of surface water systems.

DWSRF Set-Asides

The Capacity Development Program is funded from the Drinking Water State Revolving Fund (DWSRF). The DWSRF is a low-interest loan program that originated in 1996, as recognition of Safe Drinking Water Act compliance costs led to support for a national DWSRF program. States are given the authority to disburse funds with annual oversight by EPA, and are allowed “set-aside” funds to assist with the administration of the fund and other environmental initiatives. As such, the Capacity Development Program, Small Systems Technical Assistance Program, Operator Certification Program, and Wellhead Protection Program, and Source Water Protection Program, among others, are all funded with federal set-aside funds from the DWSRF, to carry out and meet the goals of capacity development strategy.

Kentucky continues to utilize set-aside funds from the DWSRF for Technical Assistance and for Capacity Development (in accordance with SDWA Section 1452[k][2][c]), as follows:

Year	Personnel & Travel	Contracts	Equipment
2001	\$122,886	\$124,500	\$0
2002	196,102	0	0
2003	0	0	0
2004	179,780	214,331	0
2005	131,731	181,617	78,139
2006	464,389	80,000	16,581
2007	300,950	0	0
2008	250,186	0	0
<i>To date, there has been no expenditure of 2009 – 2010 set-asides funds</i>			

- ◆ 2004 – Funded contracts for United States Geologic Society (USGS) water budget analysis work and continued development of Safe Drinking Water Information Systems (SDWIS) database
- ◆ 2005 – Funded contracts for USGS water budget analysis work and continued development of SDWIS database
- ◆ 2006 - \$80,000 has been set aside to use on the USGS phase II water budget analysis work. The equipment and travel funds for the 2006 grant are still available as well.
- ◆ Utility Optimization Program - \$150,000 for recurring 2-year contracts with KY Rural Water Association; currently in 3rd 2-year cycle.
- ◆ 2007 - \$80,609 was used for water budget analysis contract.
- ◆ 2008 pending - \$130,000 for Small System Assistance Program, in partnership with the KY Rural Community Assistance Program.

The DOW has committed a dedicated staff to provide Technical Assistance and Outreach (TAO) to PWSs that request guidance in improving technical capacity. On-site assistance is offered to PWSs without the threat of enforcement action, giving PWSs an opportunity to be proactive in optimizing technical capacity. From October 2008 through September 2011, staff associated with the Technical Assistance activities of the Kentucky drinking water program utilized set-aside dollars from the DWSRF for support. The primary set-aside used was for Small System Technical Assistance with the PWS Supplemental used for drinking water oversight activities. Following is a summary of those activities:

- ◆ Through the KY Area-Wide Optimization Program (AWOP), 3 Performance-Based Training (PBT) events and 1 Comprehensive Performance Evaluation (CPE) were conducted. Two (2) of the PBT events focused on disinfection by-product control and involved 15 water systems,

with 5 of those serving less than 10,000 in population. In the summer of 2008, a watershed-based microbial PBT began, focusing on water systems in the Big Sandy watershed—a total of 7 water systems will be involved, 3 of which are small water systems. The CPE was also conducted at a small drinking water system and was part of compliance enforcement actions.

- ◆ 3286 small system contacts were made during this reporting period, with the focus on Stage 2 DBP rule requirements, on-going DBP compliance and overall capacity issues.
- ◆ The Stage 2 Disinfection By-Products Rule and the Long Term 2 Surface Water Treatment Rule (Stage2/LT2) went into effect in January 2006 with early implementation activities that lasted until 2011. The early implementation activities were staggered by water system population size. KY entered into an agreement with EPA Region IV to implement many of the early activities associated with these 2 rules, including training, tracking of submissions and approving monitoring plans. Schedules 1-3 include all systems that are associated with a PWS that serves more than 10,000 in population; Schedule 4 systems serve less than 10,000. For this triennial period, the compliance and technical assistance efforts focused on Stage 2 report preparation and review, evaluating compliance options and providing one-on-one direct assistance. Kentucky DOW is concerned with the potential non-compliance that may occur as a result of the Stage 2 Rule and had re-affirmed its commitment to finding solutions and assisting with attaining compliance.
- ◆ In December 2009, the Groundwater Rule (GWR) was effective and applied to 140 true groundwater systems (both producing and purchasing systems) in the state. The GWR focuses on the microbial quality of the water provided by these systems; Kentucky groundwater systems have historically provided disinfection and therefore the GWR impacts were minimal. Staff time was dedicated to educating the systems, assessing disinfection efficiency, developing new compliance and Sanitary Survey forms and providing technical assistance.
- ◆ In addition, Technical Assistance staff presented similar training at 3 KY Water and Wastewater Operator Association annual conferences and 6 sectional meetings in addition to 2 annual KRWA conferences and 8 KY Public Service Commission (PSC) board/commissioner training events.
- ◆ The KY drinking water program also maintains a website that includes a wide variety of information from technical documents to regulations to compliance forms. An email distribution list is maintained and used to disseminate information to the regulated public. In 2010, the DW compliance program began distribution of a quarterly newsletter via email.

Stakeholder Involvement

Another key to successful implementation of Kentucky's CD strategy are the partnerships that have formed between the DOW and other parties interested in capacity development of Kentucky's PWSs. Below is a list of active stakeholders who have contributed to the success of Kentucky's CD Program.

- Kentucky's Public Water Systems
- PWS consumers and potential consumers
- Kentucky League of Cities
- Kentucky Rural Water Association
- Kentucky Cabinet for Health Services
- Kentucky Infrastructure Authority

Kentucky Division of Local Government
Kentucky Geological Survey
Rural Community Assistance Program
Kentucky Municipal Utilities Association
Kentucky Water and Wastewater Operators Association
American Water Works Association
Kentucky Division of Plumbing
Kentucky Public Service Commission
Western Kentucky University
U.S. Environmental Protection Agency
U.S. Department of Agriculture, Rural Development
Area Development Districts
City Governments
County Governments

In addition to their work on the CD prioritization approach, the stakeholder group met multiple times during the early portion of this reporting period with the intention of crafting CD regulations. There is a feeling within much of the membership of the stakeholder group that true gains in capacity may not be achieved without a regulatory mechanism with which to compel TMF improvements. A comprehensive draft CD regulation was crafted by CD staff based on the group's discussions and input. The framework for this draft regulation was formally presented during a meeting of the group and was met with favorable comments, however at this time management has not elected to pursue a comprehensive regulation. As discussed earlier, DOW staff are at work on a more limited regulatory which addresses a critical subset of the capacity issues we have identified, and will be seeking stakeholder input in the near future.

“Orphan Systems”

One of the challenges Kentucky has faced in the past while ensuring all PWSs have the capacity to meet drinking water laws and regulations is “Orphan” Drinking Water Systems. These small water systems are, by regulatory definition, PWSs based on the population that they serve. However, these systems have no responsible managing body or legal status. At the time of our 2005 report, 3 orphan systems had been identified in the Commonwealth. In the past six years, we have achieved the inactivation of two of these and only one remains. Since the mid 70's, Kentucky has successfully inactivated over 1,300 PWSs, 387 of these since the inception of the CD Program in 1996. Small ineffective PWSs realized they could not afford to continue operating their systems in compliance with SDWA requirements, decommission their systems and let systems with adequate TMF capacity serve their customers.

Conclusion: Successes and Challenges

The CD program in Kentucky continues to grow and evolve as we interact more with PWS. Due to the complexity of TMF capacity, it is somewhat difficult to identify discrete, water system-level “successes”. “Capacity” is a concept, not an endpoint, and building capacity involves dedicating staff time and other resources to education (both external and internal) and outreach. Through the SS process, organized trainings and other opportunities we are able to build relationships with water system personnel at the operational level. We have increased our efforts in recent years to connect and communicate with management and the governing bodies of PWS as well. These relationships help inform our program as we discern issues and trends. They also build trust, and, hopefully, cooperation, which will help us as we strive to build capacity.

PWS in Kentucky face many challenges when it comes to developing capacity, and our CD program

shares many of these challenges. Funding, particularly grant funding, is an ongoing issue, and our neediest systems have difficulty qualifying for loans. Local political climates can adversely affect water system operations. For instance, we often see a reluctance to raise rates, even when an increase is critical to sustainability, as this would be politically unpopular. In some communities, the water system is the only source of revenue, thus PWS monies subsidize other governmental functions, rather than being used to maintain and improve infrastructure.

Aging infrastructure is posing an additional challenge to water systems across the United States, including Kentucky. Much of our below-ground infrastructure was installed during the middle part of the 20th Century, and we have treatment plants across the Commonwealth that are operating in suboptimal condition.

DOW's Compliance and Technical Assistance staff are critical as we strive to assist PWS with new regulatory requirements. Stakeholder input to any proposed CD-related regulation will be actively solicited.

Due to state furloughs over the past state fiscal year, the CD program has had to ratchet down some of our outreach and educational efforts. In coming years Kentucky's Capacity Development program will continue to seek out ways to provide direct and indirect assistance to our PWS to maximize PWS capacity across the Commonwealth.

Report Availability to Public

This Triennial Report to the Governor on Kentucky's CD Program for October 1, 2008 – September 30, 2011 is a requirement of the USEPA for primacy states. Under this requirement, this report must be made public. The DOW makes this report available to the citizens of Kentucky by:

- ◆ Posting the report online at <http://water.ky.gov/DrinkingWater/Pages/CapDev.aspx>
- ◆ Issuing a news release.
- ◆ Making the report available at DOW central and regional offices.

Anyone with comments, concerns or questions regarding this report may contact Julie Smoak at (502) 564-3410, extension 4842 or julie.smoak@ky.gov.