

**2018 Annual Report to the USEPA
Kentucky Capacity Development Program**

**Federal Fiscal Year 2018
October 2017 – September 2018**



**300 Sower Boulevard
Frankfort, Kentucky 40601**

2018 Annual Report to the USEPA

Kentucky Capacity Development Program

Kentucky's Drinking Water Capacity Development Program Implementation Report is intended to provide the U.S. Environmental Protection Agency, Region 4, with pertinent updates covering all capacity development activities within the State of Kentucky for Federal Fiscal Year (FFY) 2018.

A. New Systems Program Overview

1. *Has the State's legal authority (statutes/regulations) to implement the New Systems Program changed within the previous reporting year?*

Kentucky's legal authority (KRS 151.630) to implement the new systems program has not changed.

2. *Have there been any modifications to the State's control points?*

Kentucky uses the control points first described in the 1999 Capacity Development Report to the EPA which have not changed since that time.

3. *List new systems (PWSID & Name) in the State within the past three years, and indicate whether those systems have been on any of the annual Significant Non-Compliers (SNC) lists.*

There have been no new systems on the annual Significant Non-Compliers lists within the last three years.

As of September 30, 2018 there are:

- 435 federally regulated public water systems (PWS):
 - 385 community
 - 16 non-transient non-community
 - 34 transient non-community
- 61 state-regulated water systems:
 - 6 bottled water systems
 - 55 semi-public water systems

**TABLE 1
NEW PUBLIC WATER SYSTEMS ACCORDING TO FEDERAL FISCAL YEAR**

PWSID	Name	Source	Type	Date
2015 Activated				
KY0203742	Trinity Holiness School	GW	NTNC	11/16/2014
KY0043507	Southland Ranch	GW	TNC	3/27/2015
2015 Inactivated				
KY0470118	Elizabethtown Water Department	SW	C	1/8/2015
KY0462024	Aleris Rolled Products INC.	GW	NTNC	2/6/2015
KY1180962	Whitley Co. Water District #2	Purchaser	C	2/6/2015
KY1180999	Whitley Water/Fairview- KY Hill	Purchaser	C	2/6/2015
KY0040259	Lovellaceville Water Company	GW	C	3/17/2015
KY0010702	Columbia/Adair Utilities District	Purchaser	C	3/24/2015
KY0573746	Camp Nelson Bottling	GW	BW	4/7/2015
KY0180309	Murray Water District #3	Purchaser	C	5/21/2015
KY0043371	Trails End Ranch	GW	TNC	5/29/2015
2016 Activated				
KY0573746	Misty Artesian	GW	BW	7/28/2016
2016 Inactivated				
KY0192732	Nienaber Property Public Water	GW	C	1/6/2016
KY0980898	Mosley Properties LLC	GW	C	2/12/2016
KY0673238	Kings Creek Senior Citizens Center	GW	NTNC	3/25/2016
KY0673052	Oven Fork Senior Citizens Center	GW	NTNC	3/25/2016
KY0792883	Southern Komfort Resort	GW	TNC	3/25/2016
KY0100004	Overland Development/Lockwood Estates	Purchaser	C	6/7/2016
KY0082248	Rivershore Sports Park	GW	TNC	6/8/2016
KY0603287	4 Star Village Apartments	GW	C	8/1/2016
2017 Activated				
KY0183519	New Concord Dollar General Store	GW	TNC	2/22/2017
KY0253535	Liberty Bible Church	Purchaser	SemiP	3/28/2017
KY0182822	Sunset Harbor Hill Campground	GW	TNC	5/31/2017
KY0730522	Locust Valley Mobile Est	GW	C	8/7/2017
2017 Inactivated				
KY0533195	Nickys Bar-B-Que	GW	TNC	1/17/2017
KY0050490	Cave City Water System	Purchaser	C	2/17/2017
KY0532233	Harpers Country Ham	GW	NTNC	2/8/2017

TABLE 1 CONTINUED				
NEW PUBLIC WATER SYSTEMS ACCORDING TO FEDERAL FISCAL YEAR				
PWSID	Name	Source	Type	Date
2018 Activated				
KY0753505	McLean County Regional Water Commission	SW	C	3/22/2018
KY0183457	Murray-Calloway Co Fairgrounds	GW	SemiP	4/10/2018
2018 Inactivated				
KY0593423	Rosedale Water District LLC	Purchaser	C	11/30/2017
KY0370607	Imperial Mobile Home Park	Purchaser	C	1/22/2018
GW – Groundwater	SW – Surface Water			
C – Community	NTNC – Non-Transient Non-Community			
SemiP – Semi-Public	TNC – Transient Non-Community			
	BW – Bottled Water			

B. Existing System Strategy

1. *In referencing the State’s approved existing systems strategy, which programs, tools, and/or activities were used, and how did each assist existing PWSs in acquiring and maintaining TMF capacity? Discuss the target audience these activities have been directed towards.*

Kentucky’s approved existing system strategy is outlined below, followed by a discussion of how each strategy assisted existing systems in acquiring and maintaining technical, managerial, and financial capacity:

- 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 Safe Drinking Water Act (SDWA) to enhance technical, managerial and financial (TMF) capacity.
- Establish a baseline and measure the capacity improvements of systems in the state.
- Involve stakeholders in state efforts to improve water system capacity.

Prioritize systems most in need of improving capacity

The Division of Water (“the Division”) retains primacy under the SDWA rules to regulate a total of 435 community and non-community PWSs in Kentucky. The majority of PWSs (78%) serve communities with populations of less than 10,000 (Table 2). Although these PWSs serve a small portion of Kentucky’s overall population, historically they have the greatest need for assistance.

TABLE 2				
PUBLIC WATER SYSTEMS BY POPLUATION SERVED				
System Size by Population Served	Number of Water Systems	Percentage (%) of Total Water Systems	Population Served	
≤ 10,000	338	78	1,076,852	
> 10,000	97	22	3,436,039	

The sanitary survey is the primary means for assessing PWS capacity to maintain compliance with the SDWA. Field inspectors from the Division, located in each of Kentucky’s ten regional offices, perform the technical portion of the sanitary survey. Capacity development personnel in the Division’s central office

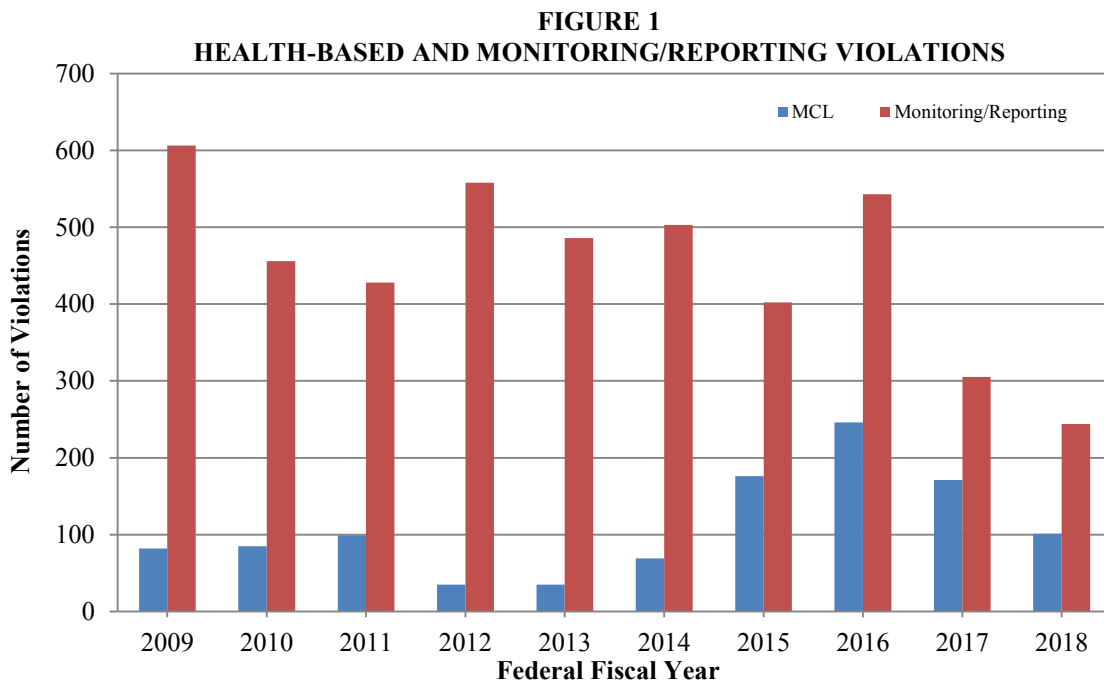
perform the managerial and financial portions of the survey. The technical and managerial/financial surveys are conducted within the same month according to a schedule developed by the Division.

The sanitary survey evaluation incorporates critical TMF capacity criteria developed by the Division and its stakeholders. A PWS is deemed to lack capacity if any response to a critical question is unfavorable. The capacity assessment is used in conjunction with Enforcement Targeting Tool (ETT) tracking and compliance data to prioritize and provide assistance to PWSs to return to compliance and to optimize treatment processes.

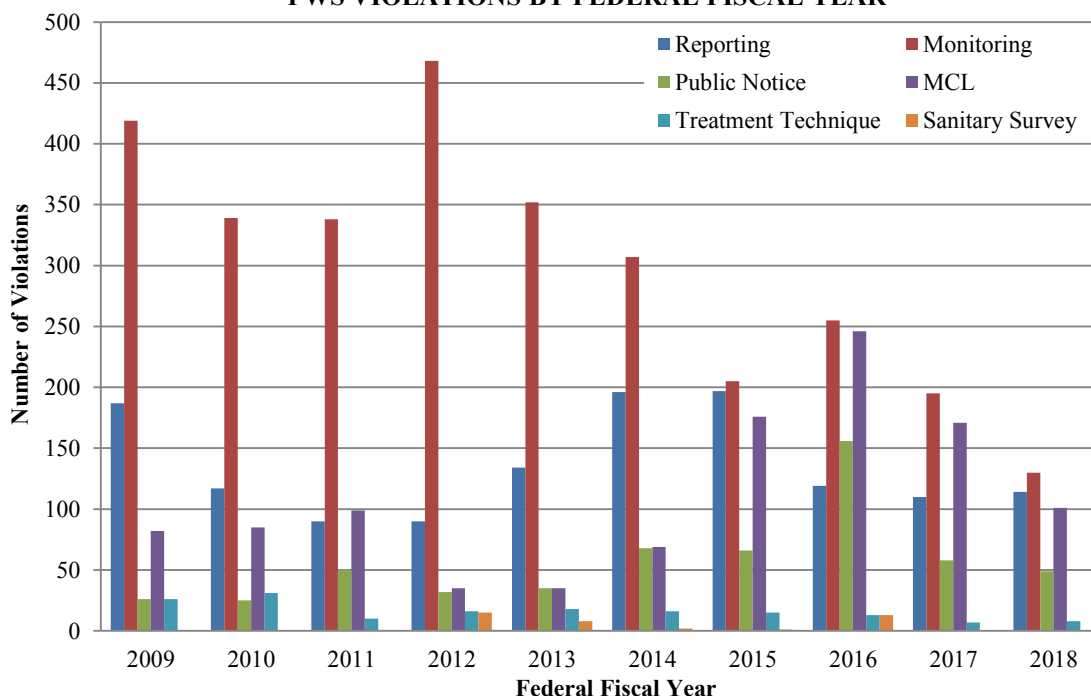
Identify the factors that encourage or impair the capacity of water systems

Data from the survey is currently available only in a Microsoft Word document or Portable Document Format. The Division utilizes a rudimentary report extracted from the Safe Drinking Water Information System database which details PWS deficiencies and recommendations based on the eight essential elements (source water, treatment, distribution, finished water storage, pumps and controls, monitoring, reporting, and data verification, management and operations, and operator compliance) evaluated during the sanitary survey. Unfortunately, this report is nonspecific regarding the type(s) of deficiencies or recommendations identified within each element which requires Division staff to manually verify data within each of the eight elements for every PWS to assess capacity. The process is antiquated, time consuming, and labor intensive. The Division is exploring new applications to utilize and address the issue with data extraction which will improve the Division’s ability to prioritize and target assistance to PWSs.

The SDWA requires PWSs to monitor treated water for contaminants and report results to the Division at regular intervals during the year. Compliance data is assessed against SDWA requirements and a Notice of Violation is issued when contaminant levels exceed specific limits, treatment techniques are not met, or when monitoring or reporting is conducted improperly. Historically, the greatest numbers of PWS violations have been administrative in nature (Figure 1). Division personnel have worked closely with industry stakeholders and PWSs to substantially reduce the number of health-based and monitoring and reporting violations. Since federal fiscal year (FFY) 2017, the number of health-based violations, primarily DBPR violations, has decreased by 41%, while monitoring and reporting violations have decreased by 20%. Total violations have also dropped by 26% since FFY 2017 (Figure 2).



**FIGURE 2
PWS VIOLATIONS BY FEDERAL FISCAL YEAR**



The Area-Wide Optimization Program (AWOP) continues to be a successful component of technical assistance. In calendar year 2017, 66 PWSs serving 1,583,893 Kentuckians met microbial AWOP goals. Systems that actively participate in the AWOP and meet the goals are recognized with certificates of achievement and awards. In addition, AWOP efforts have contributed significantly to reducing the number of violations of the DBPR.

Division personnel completed 162 sanitary surveys and 435 instances of on-site assistance and training covering all aspects of TMF capacity. The Division continued to implement and support the Microbiology, Chemistry, and Cryptosporidium Laboratory Certification programs by conducting six chemistry and 42 microbiology lab audits. Division personnel conducted modular Distribution System Optimization trainings in two locations (the cities of Campbellsville and Frankfort), with a total of thirteen systems participating in the trainings. Along with the trainings, Division personnel conducted 14 presentations and workshops across the state on a wide range of topics, including lead, regulations and compliance, water quality and age, AWOP, and the Consumer Confidence and Public Notice rules. The Division continued its partnership with USEPA's Technical Support Center by hosting an AWOP Region 4 Meeting and Training with Corrosion Control Workshop, participating in a multi-state Comprehensive Performance Evaluation in Concord, North Carolina, and attending the AWOP National Conference and Training in Cincinnati, Ohio. Working cooperatively with the Rural Community Assistance Partnership in Kentucky, Capacity Development personnel presented information on asset management planning at trainings in the cities of Hazard, Maysville, Morehead, and Russell Springs.

The Division of Water and the Kentucky Infrastructure Authority jointly administer the Drinking Water State Revolving Fund (DWSRF) program in Kentucky via a Memorandum of Agreement. In 2018, Kentucky made nine new binding commitments and three commitment increases for a total of \$19,539,504 to provide assistance for construction of drinking water projects. The average interest rate on funds committed during the year was 1.00%. Binding commitments for small systems totaled \$12,320,433 or 63% of total binding commitments. Binding commitments for disadvantaged communities totaled \$15,539,504 or 80% of total binding commitments.

Establish a baseline and measure the capacity improvements of systems in the State

One method of measuring improvements in PWS capacity is evaluating the number of annual violations. A dramatic reduction in the number of Kentucky PWS violations over the last two years demonstrates substantial improvement in PWS capacity. However, this metric is imperfect especially given that the Division has concerns that the age and condition of infrastructure is affecting compliance with the SDWA.

Another method is analyzing deficiencies identified in the sanitary survey, which is examined concurrently with the TMF capacity of PWSs. However, this method can be problematic, time consuming, and difficult to derive conclusions from since specific critical capacity criteria cannot be assessed. Therefore, the Division is in the process of updating the strategy in part to more accurately measure improvements of PWSs.

Beginning in FFY 2016, non-community (NC) PWSs transitioned to a five-year sanitary survey cycle, while community water systems (CWSs) remained on a three-year cycle. This transition allowed the Division to organize new PWS sanitary surveys with current surveys conducted in regions across the state which improved travel efficiency and increased on-site assistance time. Since CWSs and NCs sanitary surveys are no longer conducted in the same cycle, data from each type of system will be analyzed independently from one another.

In FFY 2016, 29% of CWSs had the TMF capability to maintain compliance with the SDWA (Figure 3). The percentage of CWSs with full capacity has steadily increased in the last three fiscal years from 29% to 35% and 38%, respectively (Figures 4 and 5). Specific indicators contributing to improved capacity cannot be ascertained due to the rudimentary form of data availability. However, it can be surmised that the increase in CWSs with full capacity could be attributed to targeted technical assistance, as the percentages of CWSs with incomplete technical capacity has dropped in the last three fiscal years. This data also indicates that a greater percentage on CWSs have incomplete, or lack, both the managerial and financial (M & F) capability to maintain compliance. The Division has begun taking steps to assist CWSs in areas of management and finances through on-site assistance during the sanitary survey, presenting asset management and the Check Up Program for Small Systems (CUPSS) USEPA asset management tool at trainings across the state, and providing financial means for CWSs to rehabilitate or replace aging infrastructure through the DWSRF program.

FIGURE 3
FFY 2016 PERCENTAGES OF CWSs WITH INCOMPLETE CAPACITY

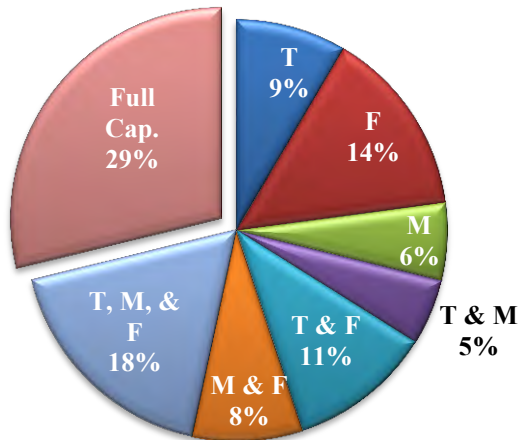
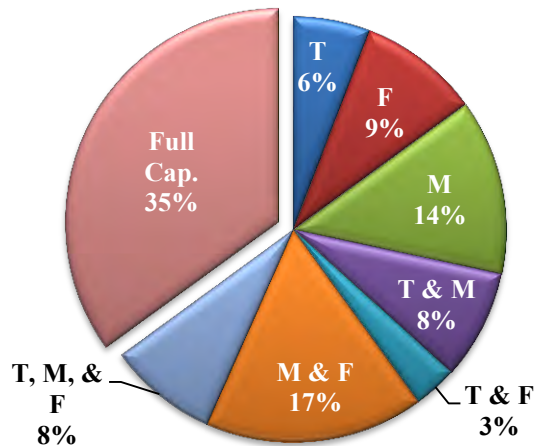
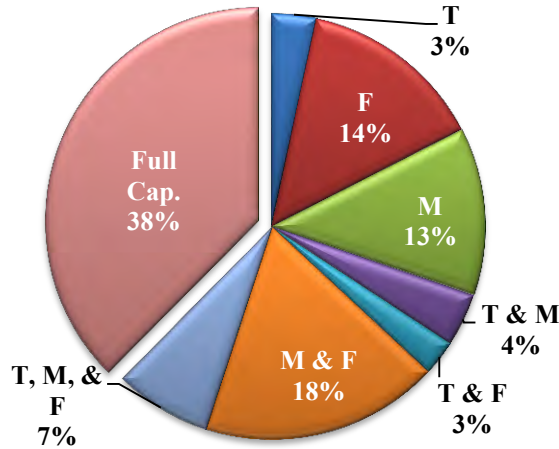


FIGURE 4
FFY 2017 PERCENTAGES OF CWSs WITH INCOMPLETE CAPACITY

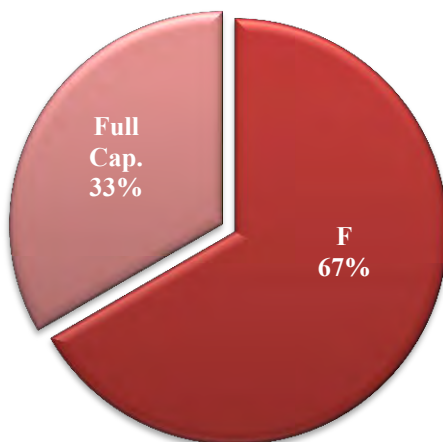


**FIGURE 5
FFY 2018 PERCENTAGES OF CWSs
WITH INCOMPLETE CAPACITY**

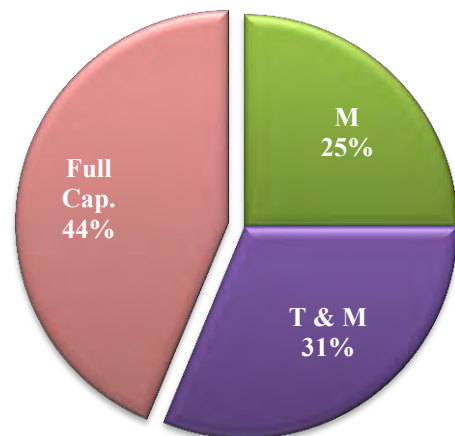


Since the Division altered its schedule of NC water system sanitary surveys from that of CWSs three years ago, data analysis for a full five-year cycle of all NC water systems cannot yet be conducted. However, data from the last three fiscal years indicate that a large percentage of NCs (67%) lack the financial means to maintain compliance with the SDWA (Figure 6). A total of 62% lack a combination of technical and managerial (T & M) capacity, and 25% lack managerial capacity (Figures 7 and 8). These NC water systems include schools, camps, resorts, and businesses which may not have the managerial experience to operate a treatment facility or the financial capital to maintain it, and are therefore encouraged to regionalize with local PWSs. When regionalization cannot occur, the Division and its stakeholders provide training and on-site assistance. Although there is great need for assistance at NC water systems, it is encouraging that the percentage of systems with complete capacity continues to increase each fiscal year.

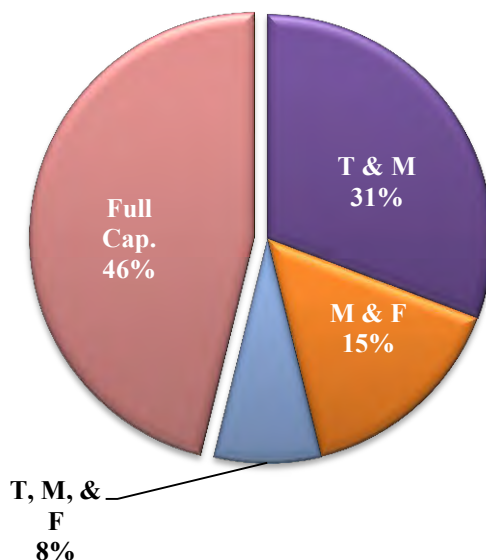
**FIGURE 6
FFY 2016 PERCENTAGES OF NCs
WITH INCOMPLETE CAPACITY**



**FIGURE 7
FFY 2017 PERCENTAGES OF NCs
WITH INCOMPLETE CAPACITY**



**FIGURE 8
FFY 2018 PERCENTAGES OF NCs
WITH INCOMPLETE CAPACITY**



Enforcement Referral Policy/Enforcement Targeting Tool

In FFY 2018, sixteen PWSs were referred to the Division of Enforcement after they accrued eleven or more points as calculated by the ETT. If a system cannot return to compliance within six months of being identified by the ETT, formal enforcement action is initiated. Table 3 represents a summary of those systems. Kentucky drinking water and enforcement personnel continue to participate in the quarterly conference calls with USPEA Region 4 staff for updates and guidance on using the ETT.

**TABLE 2
ENFORCEMENT TARGETING TOOL REFFERALS**

PWSID	PUBLIC WATER SYSTEM NAME	CAUSE(S)
KY0610016	Barbourville Utilities	CCR, DBP MCL, PN, TCR violations
KY0140079	Cloverport Water & Sewer System	CCR, PN, MOR, RTCR violations
KY0690089	Crab Orchard Water District	CCR, DBP MCL, MOR, PN violations
KY0480092	Cumberland Municipal Water Works	CCR, DBP MCL, PN, SWTR, TCR violations
KY0300109	E Daviess Co Water Assoc Inc	DBP MCL violations
KY1000124	Eubank Water System	DBP MCL, PN violations
KY0430616	Grayson Co Water District	CCR, DBP MCL, PN, SOC violations
KY0870212	Jeffersonville Water System	CCR, DBP MCL, PN, TCR violations
KY0770525	Magoffin County Water District	DBP MCL, PN violations
KY0870290	Montgomery Co Water District #1	CCR, DBP MCL, RTCR violations
KY0980575	Mountain Water District	CCR, DBP MCL violations
KY0260266	North Manchester Water Assoc	DBP MCL, PN violations

TABLE 2 CONTINUED
ENFORCEMENT TARGETING TOOL REFFERALS

KY0220335	Olive Hill Municipal Water Works	CCR, DBP MCL, PN, RTCR, TOC violations
KY0880452	West Liberty Water Company	CCR, DBP MCL, PN, SWTR violations
KY1183728	Whitley Co Water District 92 West	DBP MCL violations
KY0450479	Wurtland Water Department	CCR, DBP M&R, DBP MCL, PN, TCR violations
CCR - Consumer Confidence Report		RTCR - Revised Total Coliform Rule
DBP M&R - Disinfection By-Product Monitoring & Reporting		SWTR - Surface Water Treatment Rule
DBP MCL - Disinfection By-Product Maximum Contaminant Level		TCR - Total Coliform Rule
MOR - Monthly Operating Report		TOC - Total Organic Carbon
PN - Public Notice		

Involve Stake Holders in State Efforts to Improve Water System Capacity

The Division continues to contract work with the Kentucky Rural Water Association (KRWA) using DWSRF technical assistance set-aside funds. The contract emphasizes Disinfection By-Product (DBP) compliance assistance to small PWSs to achieve compliance via TMF capacity. A list of priority PWSs, based on DBP compliance data, is developed annually by the Division and provided to the KRWA. Although DBP compliance remains a priority, the KWRA expended 3,841 hours building capacity in key areas of operation and maintenance, compliance, planning, and rate studies at 146 PWs in FFY 2018. Along with supporting nine drinking water trainings with stakeholders across Kentucky, the KRWA conducted three trainings in FFY 2018, including: *From the Ditch to the Desk* in the City of Campbellsville, *DBP Mitigation for Treatment and Distribution* in the City of Ashland, and *Control Valves & GIS for Asset Management* in the City of Hazard. A total of 95 people attended these trainings.

The Joint Drinking Water/Wastewater Advisory Council (“the Council”) is a stakeholder panel convened by the Division Director beginning several years ago to address issues affecting consumers and the regulated community. The council is comprised of government officials and representatives of small, medium and large water utilities, and holds quarterly public meetings. The council established an ad-hoc workgroup in early 2017 to modernize the Capacity Development Strategy and sanitary survey evaluation. The goal of this initiative is to enhance the efficiency and efficacy of the program and address current challenges prohibiting PWSs from achieving TMF capacity. The Division drafted a new Capacity Development strategy which is currently under internal review, and will be presented to the Council for comment prior to implementation.

2. *Based on the existing system strategy, how has the State continued to identify systems in need of capacity development assistance?*

Kentucky continues to use critical TMF criteria from the sanitary survey as its primary means for determining PWS capacity. The Division and its stakeholders re-evaluated TMF criteria as part of updating the Capacity Development Strategy. Water system capacity will be assessed using the updated criteria once the new strategy is implemented (possibly in FFY 2020). The Division continues to promote and distribute the CUPSS asset management software to small systems to aid them in developing asset management programs and maintain financial and managerial capacity. The Division also uses a PWS’s rated design capacity, water availability, operator certification, pressure and/or water loss, and regulatory compliance as indicators of capacity.

The Division provides technical data on the drinking water program through sanitary surveys and inspections, and uses this information to provide support to PWSs to maintain compliance with the SDWA. In addition, complaints are tracked and flagged, if necessary, for investigation and resolution.

Kentucky's Capacity Development Program interacts with PWSs at training venues, during sanitary surveys, and through on-site outreach. During these interactions, personnel often discern issues and trends that the Capacity Development Program should target.

3. *During the reporting period, if statewide PWS capacity concerns or capacity development needs (TMF) have been identified, what was the State's approach in offering and/or providing assistance?*

The Division continues to provide on-site assistance to PWSs without threat of enforcement action. Additionally, the Division works with its stakeholders to provide TMF training and support through the Kentucky Division of Compliance Assistance, the Kentucky Public Service Commission, Rural Community Assistance Partnership, Kentucky Rural Water Association, and Kentucky Water & Wastewater Operators Association.

4. *If the State performed a review of implementation of the existing systems strategy during the previous year, discuss the review and how findings have been or may be addressed?*

In 2017, the Division convened bi-monthly meetings with a stakeholder workgroup from the Council to review and update the Capacity Development Strategy. The workgroup considered both the criteria which determine capacity and the method by which capacity is assessed for PWSs. The new strategy is currently being reviewed internally and has not yet been implemented.

5. *Did the State make any modifications to the existing system strategy?*

There were no changes made to the existing Capacity Development Strategy in FFY 2018. However, a new strategy has been drafted and is currently being reviewed internally.

C. Looking ahead – Miscellaneous Notes/Challenges

Earlier in 2018, the Division developed a rating index to measure the resiliency and sustainability of all CWSs in Kentucky. The CWS rating index includes operation and maintenance activities, compliance with federal and state regulations, water supply quality and reliability, future planning activities, and the average age of physical infrastructure. Data for the rating index came from sanitary surveys, inspection reports, compliance monitoring, and infrastructure data from the Water Resource Information System, which is maintained by the Kentucky Infrastructure Authority. Rating index data was applied to Geographical Information System (GIS) software to produce a map that shows the rating for each CWS within each category. Energy and Environment Cabinet officials presented this data to state legislators to emphasize the need for, and encourage investment in, water infrastructure. The Division will further use this data to identify future needs of water systems, strategic planning, and future regulatory requirements.