

**2017 Annual Report to the USEPA
Kentucky Capacity Development Program**

**Federal Fiscal Year 2017
October 1, 2016 – September 30, 2017**



**300 Sower Boulevard
Frankfort, Kentucky 40601**

2017 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 Commonwealth of Kentucky for Federal Fiscal Year (FFY) 2017.

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 same control points first described in its 1999 Capacity Development Report to the EPA; these control points have not changed.

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.*

In September 2014, the Division of Water (the "Division") determined that Trinity Holiness School (KY0203742) was operating as a non-transient non-community water system rather than a semi-public water system as it had been classified (Table 1). Trinity Holiness School was cited for several violations as a result and was placed under an Agreed Order with the Kentucky Division of Enforcement in March 2015.

The water system developed a corrective action plan based on requirements in the Agreed Order. In June 2016, Trinity Holiness School notified the Division by letter that a permanent water treatment facility had been installed, and requested assistance in establishing monitoring requirements to fulfill stipulations in the Agreed Order. All remedial measures were completed and the enforcement case was closed on March 1, 2017.

As of September 30, 2017 there are:

- 436 regulated public water systems (PWS):
 - 386 community
 - 16 non-transient non-community
 - 34 transient non-community
- 60 state-regulated water systems:
 - 6 bottled water systems
 - 54 semi-public water systems

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

PWSID	Name	Source	Type	Date
2014 Activated				
KY0740276	McCreary County Water District	SW	C	10/7/2013
KY0043747	Daher-TLI	GW	SemiP	10/8/2013
KY0823513	Kosmos Cement Co.	GW	SemiP	11/18/2013
2014 Inactivated				
KY0650412	Southside Water Association	Purchaser	C	11/8/2013
KY0940430	Kentucky American Northern Division	SW	C	4/1/2014
KY0052054	Diamond Caverns RV Resort	Purchaser	TNC	3/15/2014
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
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.*

The following is an outline of Kentucky’s approved existing system strategy, followed by a discussion of how each strategy assisted existing PWSs 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 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 retains primacy to regulate community and non-community PWSs in Kentucky. There are currently 436 regulated PWSs, of which 77% serve communities with a population 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.

System Size by Population Served	Number of Water Systems	Percentage (%) of Total Water Systems	Population Served
≤ 10,000	337	77	1,066,237
> 10,000	99	23	3,482,558

The sanitary survey currently provides the primary means for assessing a PWS’s capacity to maintain compliance with the SDWA. Critical technical, managerial, and financial capacity criteria, developed by the division and its stakeholders, are incorporated into the sanitary survey evaluation. A PWS is deemed to lack capacity if any critical question is answered unfavorably. The capacity assessment is used in conjunction with Enforcement Targeting Tool (ETT) tracking and compliance data to prioritize and provide assistance to PWSs.

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

Capacity data collected during the sanitary survey is only available in a Portable Document Format, which is not conducive to data mining. To assess PWS capacity, a report must be extracted from the Safe Drinking Water Information System database detailing PWS deficiencies and recommendations based on the eight essential elements evaluated during the sanitary survey. Unfortunately, this report is not specific to the type(s) of deficiencies or recommendations identified within each element, and requires Division staff to manually verify data within each of the eight elements for every PWS. The process used to extract capacity data is antiquated, time consuming, labor intensive, and impairs the state’s ability to provide a higher level of assistance to PWSs.

The SDWA requires PWSs to monitor treated water for contaminants and report the 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, or when monitoring or reporting is not properly conducted. Historically, the greatest numbers of PWS violations have been administrative in nature (Figure 1). Maximum Contaminant Level (MCL) violations have risen as well since FFY 2014 due to the implementation of the Stage 2 Disinfection By-Product Rule (DBPR). The Division and its stakeholders have made a concerted effort through training and technical assistance to improve PWS compliance, resulting in a 33% reduction in the number of violations issued since FFY 2016 (Figure 2).

FIGURE 1
HEALTH_BASED vs MONITORING/REPORTING VIOLATIONS

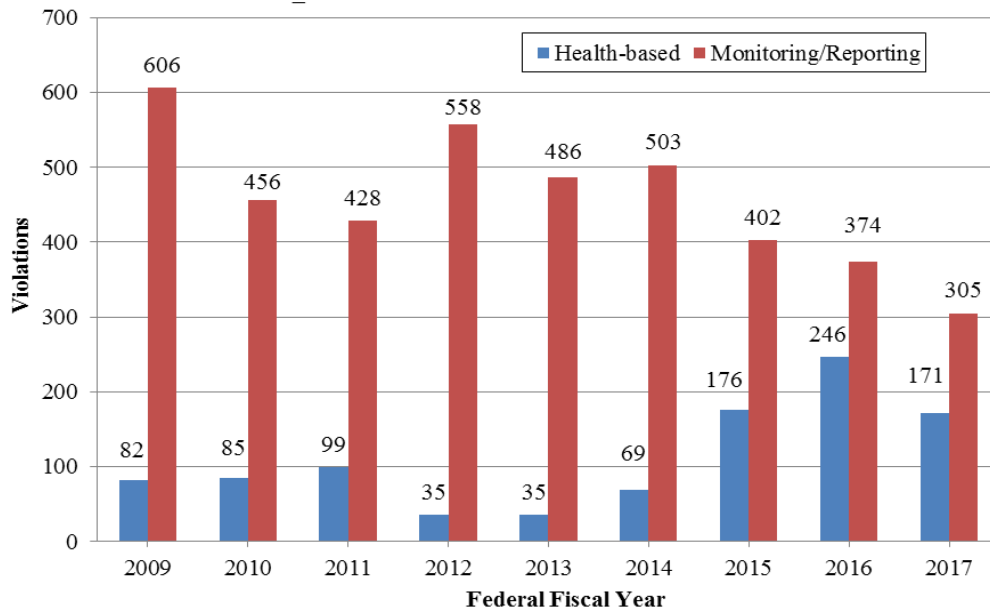
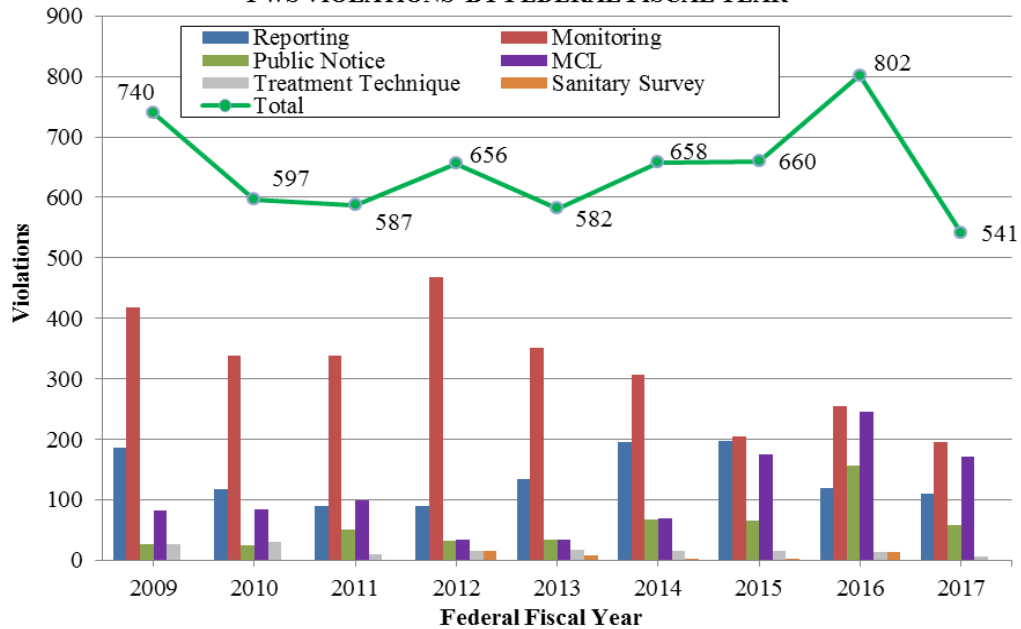


FIGURE 2
PWS VIOLATIONS BY FEDERAL FISCAL YEAR



The Area-Wide Optimization Program (AWOP) continues to be a successful component of technical assistance. The Division assesses turbidity and DBPs data against AWOP goals each calendar year. In 2016, 57 PWSs serving over 2.5 million Kentuckians met microbial AWOP goals, an increase from 54 PWSs serving 2,120,334 the previous year. PWSs that actively participate in the AWOP and meet the goals are recognized with certificates of achievement and awards.

The Division continued to focus its efforts on resolving DBP violations, and conducted 304 on-site PWS visits and four Modular Distribution System Optimization DBP Performance Based Trainings. A total of 42 PWSs attended the trainings held in the cities of Campbellsville, Hazard, Madisonville, and Morehead. Through a cooperative effort with the Kentucky Drinking Water Advisory Council (DWAC), a DBP Symposium, with speakers from the Division, its stakeholders, and industry leaders, was provided at key locations across Kentucky to educate operators on reducing DBP formation during treatment and distribution of drinking water. A total of 140 water operators from 40 PWSs attended the symposium.

The Drinking Water State Revolving Fund provides low interest loans to communities for drinking water infrastructure projects, and is administered jointly by the Division and the Kentucky Infrastructure Authority. In State Fiscal Year 2017, seven communities received a total of \$19,301,000 to improve drinking water infrastructure. Projects that received funding represent investments in regionalizing, rehabilitating, or constructing new water treatment facilities, replacing inadequate and aging water lines and tanks, and extending service to residents.

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

The effectiveness of the Capacity Development Program is currently evaluated by comparing PWS capacity data from the current sanitary survey cycle to survey data from previous cycles. This report compares technical (T), managerial (M), and financial (F) capacity data combinations among the last three sanitary survey cycles beginning in FFY 2009, FFY 2012, and FFY 2015.

The sanitary survey evaluation cycle of PWSs beginning in FFY 2009 and ending in FFY 2011 indicated that 89% of PWSs lacked some form of capacity. Of these, 35% were deficient in all three areas of capacity, jeopardizing their ability to remain compliant with the SDWA (Figure 3). Sanitary surveys conducted from FFY 2012 through FFY 2014 show that the percentage of PWSs deficient in all three areas of capacity dropped from 35% to 14%, and the number of systems with full capacity dramatically increased from 11% to 40% (Figure 4). While this data may indicate that Kentucky's strategy helped improve PWS capacity and ability to maintain compliance with the SDWA, the percentage of PWSs deficient in individual areas of financial and technical capacity increased slightly and demonstrates the continued need for assistance from the Division and its stakeholders. Data collected from FFY 2015 through FFY 2017 indicates that the number of PWSs with full capacity, and those completely lacking capacity, remains comparatively unchanged since the previous assessment period.

FIGURE 3
CAPACITY DATA FFY 2009 - FFY 2011

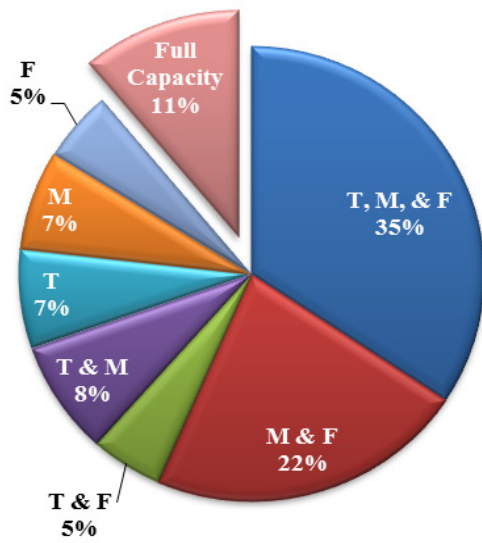
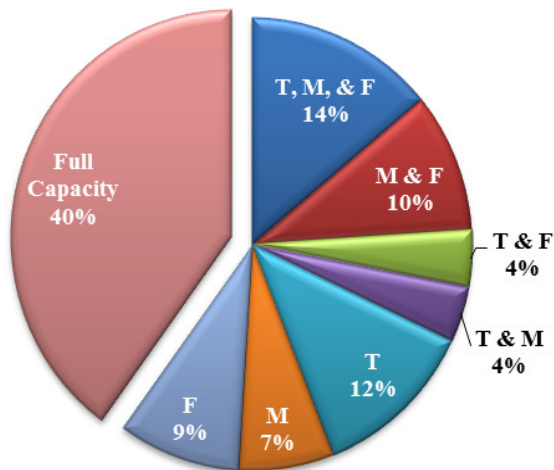
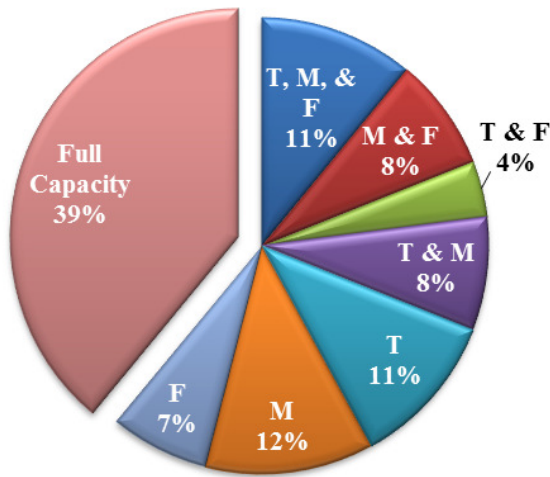


FIGURE 4
CAPACITY DATA FFY 2012 - FFY 2014



**FIGURE 5
CAPACITY DATA FFY 2015 - FFY 2017**



Historically, capacity data has been analyzed among different years and cycles. The Division recognizes that this method of analysis can be problematic due to the addition of new PWSs and regionalization. Therefore, the Division and its stakeholders are evaluating the method in which capacity is assessed at PWSs, and developing a more effective process for analyzing capacity data.

Enforcement Referral Policy/Enforcement Targeting Tool

In FFY 2017, 16 PWSs were referred to the Kentucky Division of Enforcement after accruing 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 2 summarizes those systems. The Division continues to participate in quarterly conference calls with USPEA Region 4 staff for updates and guidance on using the ETT tool.

**TABLE 2
ENFORCEMENT TARGETING TOOL REFFERALS**

PWSID	Public Water System Name	Date	Cause
KY1000050	Burnside Water Company	Oct-16	PN and DBP violations.
KY0750055	Calhoun Water Works	Oct-16	TC and DBP violations.
KY0960112	East Pendleton Water District	Oct-16	Asbestos, PN, and DBP violations.
KY0920181	Hartford Municipal Water Works	Oct-16	Chlorine, CCR, DBP, IESWTR, OEL, and TC violations.
KY0870246	Levee Road Water Association	Oct-16	Chlorine, CCR, DBP, PN, and TC violations.
KY0710707	South Logan Water Association	Oct-16	Chlorine, CCR, and DBP violations.
KY0250981	East Clark County Water District	Jan-17	DBP and PN violations.
KY0330205	Irvine Municipal Utilities	Jan-17	DBP violations.
KY0670462	Letcher County Water District	Jan-17	Chlorine, DBP, PN, RTCR, and TC violations.
KY0480265	Black Mountain Utility - Coxton	Apr-17	Asbestos, DBP, IESWTR, and PN violations.
KY0720933	Lyon County Water District	Apr-17	CCR, DBP, PN, RTCR, and TC violations.
KY0540936	Madisonville Light & Water	Apr-17	DBP violations.
KY1170073	Clay Water Works	Jul-17	CCR, DBP, PN, and RTCR violations.

KY0890302	Muhlenberg County Water District	Jul-17	CCR, DBP, IESWTR, and PN violations.
KY0570214	Jessamine County Water District #1	Jul-17	CCR, DBP, IC, and TC violations.
KY0770525	Magoffin County Water District	Jul-17	CCR, DBP, and PN violations.

CCR – Consumer Confidence Report	OEL – Operational Evaluation Level
DBP – Disinfection By-Products	PN – Public Notice
IC – Inorganic Chemicals	RTCR – Revised Total Coliform Rule
IESWTR – Interim Enhanced Surface Water Treatment Rule	TC – Total Coliform

Involve Stake Holders in State Efforts to Improve Water System Capacity

The Division continues to contract work, using Drinking Water State Revolving Fund set-asides, with the Kentucky Rural Water Association (KRWA) to strengthen DBP compliance by helping small PWSs achieve technical, managerial, and financial capacity. Based on DBP compliance data, the Division developed a list of priority PWSs which it submitted to the KRWA. In FFY 2017, the KWRA conducted 47 on-site technical assistance visits, assisted 33 PWSs with operations and maintenance issues, reviewed rates for 13 PWSs, helped 47 PWSs in preparing the Consumer Confidence Report, provided one *DBP Mitigation for Treatment and Distribution* training in the City of Grayson, and one *From the Ditch to the Desk* training in the City of Frankfort. A total of 89 people, representing 28 utilities, attended the two trainings.

The DWAC is a stakeholder panel convened several years ago by the Division Director to address issues that affect consumers and the regulated community. The DWAC is comprised of government officials and representatives of public and rural water utilities, and holds public meetings on a quarterly basis. A sub-committee of the DWAC convened 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 that prevent PWSs from achieving technical, managerial, and financial capacity.

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 technical, managerial, and financial criteria from the sanitary survey as the primary means of determining PWS capacity, but is currently evaluating other methods to assess and determine capacity. The Division continues to promote and distribute the Check-Up Program for Small Systems (CUPSS) asset management software to small systems to aid them in developing asset management programs and maintain financial and managerial capacity. Additionally, the Division uses individual PWS rated design capacity, water availability, operator certification, pressure and/or water loss, and regulatory compliance as indicators of capacity.

Through its regional offices, the Division provides technical drinking water program data through sanitary surveys and inspections. The Division uses this information to provide support to PWSs in maintaining SDWA compliance. Additionally, the Division tracks complaints which are flagged, if necessary, for investigation and resolution.

The Division interacts with PWSs at training venues, during sanitary surveys, and through its outreach program which provide opportunities to identify 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?*

Division personnel continue to provide on-site assistance to PWSs without threat of enforcement action. Additionally, the Division works with its stakeholders to provide technical, managerial, and financial training and support through the Kentucky Division of Compliance Assistance, the Kentucky Public Service Commission, Rural Community Assistance Partnership, the Kentucky Rural Water Association, and the Kentucky Water & Wastewater Operator's 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 an effort to improve workflow and efficiency, the Division and its stakeholders continued examining the current strategy. The primary goals of this process are to develop methods to improve communication, streamline the sanitary survey process, reduce staff administrative time, improve the method of identifying inadequately performing systems, and provide incentives for outstanding PWS performance.

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 2017.

C. Looking ahead – Miscellaneous Notes/Challenges

Concurrent with the strategy update, the Division is working with its partners in the Kentucky Infrastructure Authority to expand the capabilities of the Water Resource Information System (WRIS). The WRIS is a geo-database tool of Kentucky's drinking water and wastewater infrastructure and is used for planning and prioritizing infrastructure projects. The goal is to expand WRIS functionality to promote asset management planning and potentially incorporate the PWS capacity assessment. The Division anticipates pilot testing of the asset management tool in spring 2018.

The Division is developing a Drinking Water Action Plan that will identify and address key infrastructure, economic, and regulatory challenges that affect the sustainability and resiliency of Kentucky's PWSs. A Risk Assessment tool has been developed, using data from sanitary surveys, inspections, and compliance, to rate and prioritize PWS resiliency and sustainability. The tool and plan will assist the Division in addressing current and future needs of PWSs. Prior to implementation, the Division will seek comment on the plan from the DWAC.