CONFRONTING THE PROBLEMS PLAGUING KENTUCKY'S WATER UTILITIES

An Investigative Report by the

Kentucky Public Service Commission

November 2019

MESSAGE FROM THE CHAIRMAN

In this report, we share the results of several Commission-initiated investigations into what has become a recurring trend among rural water utilities across the Commonwealth. Reported water loss that exceeds generally accepted industry and regulatory best practices or standards is indicative of much more serious problems at these utilities—problems that pose a threat to the health and economic wellbeing of our citizens.

Per 807 KAR 5:066, Section 6(3) defining water supply measurement for ratemaking purposes, utilities cannot adjust rates for unaccounted-for water loss that exceeds 15 percent of the total water produced and purchased. Therefore, unaccounted-for water loss over 15 percent on an ongoing basis is cause for concern.[1] The Commission's recent investigations focused on water utilities that have the highest percentage of water loss among all the utilities under the Commission's jurisdiction, some in excess of 45 percent while two reported water loss approaching 70 percent. These shocking figures reveal that customers of the water utilities we investigated are paying for large amounts of treated water that never reaches their homes or businesses.

The Commission has repeatedly found that the utilities with chronic excessive water loss consistently struggle over time because their managers and board members lack the experience and training needed to maintain the operational viability of the water systems. Moreover, while Kentucky is a nationally recognized leader with regard to encouraging and promoting regionalization and consolidation of small water utilities, there is a great deal more to be done. Many small water systems lack a sufficient customer base to support their continued operations. Finally, board members and managers find themselves constrained by political and societal pressure when it comes to raising rates or exploring merger, consolidation or sale, even though taking such actions might be the best long-term solution for the water utility and its customers.

The Public Service Commission strives to foster the provision of safe and reliable service at a reasonable price to the customers of the utilities we regulate. The regulation of rates and service go hand in hand. The Commission must safeguard the financial stability of jurisdictional utilities (through the establishment of fair and just rates) in order to ensure utilities' operational competence to provide safe and reliable service to their customers. If a utility is not operating effectively because it is unwilling to set rates at a level sufficient to support daily operations and replace infrastructure as needed, then the utility cannot provide adequate and safe water service to its customers.

We recognize and appreciate the attention the Kentucky General Assembly has given to issues plaguing troubled water systems, most recently through the formation of the Public Water and Wastewater System Infrastructure Task Force. We hope sharing the results of our investigations can serve to further those efforts. Not only are we working to help right the course, but we also seek to bring attention to problems that may ultimately require action beyond the Commission's authority.

If not addressed now, the problems discussed herein will continue to mount along with the costs of remediation – costs that are already well beyond what the customer bases of these rural water utilities can bear. We must work together to find solutions for the challenges these water utilities face. And the time to act is now.

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[1] *See* 807 KAR 5:066 Section 6(3) at https://apps.legislature.ky.gov/law/kar/807/005/066.pdf.

Acknowledgements

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Executive Summary

A water utility's inability to reduce excessive water loss over time is a symptom of other significant problems plaguing the utility, such as poor financial management and operational practices. In March of 2019, the Public Service Commission launched an investigation (Case No. 2019-00041) of jurisdictional water utilities that recorded water loss of more than 35 percent in their most recent annual reports.[1] This report provides an overview of characteristics common among water utilities facing these challenges along with recommended solutions.

In addition to the 11 utilities named as parties in Case No. 2019-00041[2], the report also discusses two other water utilities, Martin County Water District and Cannonsburg Water District, which are subjects of ongoing investigations by the Commission.

During the course of its investigations, the Commission identified the following common characteristics among struggling water utilities.

Inadequate Oversight and Management

This overarching problem affects every aspect of water utility management. Untrained board members often miss the signs of financial distress that would prompt a rate adjustment to fund necessary capital investments and conduct daily operations and maintenance. The same is true if the general manager lacks training or experience. Common trends include failure to establish metrics to gauge performance, failure to adopt policies and internal controls to ensure business best practices are followed, and failure to maintain complete and accurate records relating to utility operations.

Poor Financial and Accounting Practices

A troubling practice is when water utilities file for rate increases as part of a loan process to fund capital projects and use those rate increases obtained to avoid filing a comprehensive rate adjustment with the Commission. Often, these capital projects are prepared by consulting engineering firms for approval by the water utility boards. The utilities are vulnerable when an engineering firm completes the technical project specifications along with the financial documentation supporting the loan application and then works with the funding agencies to help secure financing. This process lacks the oversight necessary to ensure project proposals address priority needs at reasonable costs.

Detrimental Extraneous Influences

Finally, board members and managers are misguided by local political and community pressure. They are pressured to keep rates at levels that are unsustainable over time. They refuse to even consider merger, consolidation or sale, and often make decisions that ultimately are counter to their duty to preserve the long-term viability of the utilities for their customers.

Recommendations

New or Enhanced Statutory or Regulatory Requirements

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[1] *Electronic Investigation into Excessive Water Loss by Kentucky's Jurisdictional Water Utilities*, Case No. 2019-00041.

[2] Big Sandy, Cawood, Estill County, Farmdale, Hyden-Leslie, Milburn, Morgan County, Rattlesnake Ridge, Southern Water & Sewer, and West Carroll Water Districts along with North Manchester Water Association.

- **Establish Minimum Qualifications for Water Utility General Managers.** Given that ineffective managerial oversight leads to a host of financial and operational problems, the Commission recommends the establishment of formal, professional requirements for the position of water district/association general manager. Water utility general managers should possess the technical knowledge needed to ensure compliance with federal and state water quality standards, as well as knowledge of business and financial processes and internal controls needed to run the day-to-day operations.
- **Employment of a Staff Engineer.** Each water district or association, individually or jointly in cooperation with other similarly situated districts or associations, should employ a qualified engineer on staff. This requirement could be met if the utility's general manager holds a degree in engineering. A resident engineer could oversee infrastructure maintenance and replacement of the system as a whole while also identifying capital projects (and associated funding sources) and overseeing construction. A resident engineer could be held accountable for ensuring the true needs of the water utility are addressed.
- **Development of a Qualified Infrastructure Improvement Plan**. Each water district and association should be required to develop a comprehensive Qualified Infrastructure Improvement Plan to be filed with and approved by the Commission. Any changes to the Plan also must be filed with and approved by the Commission
- **Qualified Infrastructure Improvement Surcharge or Rider.** The Commission recommends formal codification of its authority to establish a Qualified Infrastructure Improvement Surcharge or Rider, the proceeds of which would be devoted exclusively to infrastructure improvement and replacement.
- **Authority to Effect a Merger or Consolidation.** While Kentucky is ahead of the curve when it comes to regionalization on a national level, there is more work to be done. Barriers to merger or consolidation must be addressed as consolidation among smaller utilities can be an effective tool. Ultimately, authority may be needed to effect a merger, consolidation or other combination of utilities located in the same geographic area.

Augmented Regulatory Oversight

- **Establish Position of Infrastructure Engineer.** The Commission should establish the staff position of Infrastructure Engineer to review, approve and oversee implementation of the Qualified Infrastructure Improvement Plans filed by water districts and associations.
- **Create an Infrastructure Planning Committee.** The Commission, together with the Division of Water and the Kentucky Infrastructure Authority, should establish a joint committee to promote, design and develop infrastructure planning by water districts and associations as well as to review and enforce compliance with their respective Qualified Infrastructure Improvement Plans.
- **Consider Creation of Regional Water Boards.** Regional water boards could oversee the management of regional and local water supply, infrastructure and resources. Such a management structure could reduce duplication of services, achieve economies of scale in purchasing, and permit the employment of a professionally qualified general manager at a salary commensurate with the responsibilities of the office

Improved Oversight and Management of Water Utilities

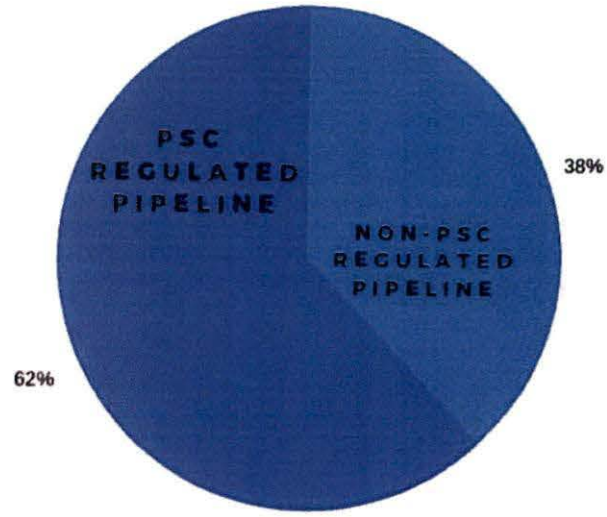
- **Eliminate Partisan Political Pressure.** Water district oversight and management should be separated from the authority of the county judge executive and fiscal court to reduce partisan political influence.

- **Modify Annual Audit Requirements.** All annual audits of water utilities should include a discussion and critical analysis of internal controls, operating procedures and perceived or potential deficiencies in management practices. Water associations also should be required to undergo annual audits.
- **Require Periodic Rate and Operations Review.** Every water district and association should be subjected to a rate and operations review every three (3) years to ensure that revenue is adequate to properly operate the system over the long term. Rate increases recommended by Commission staff should be required to be implemented in full by the utility.

The Commission welcomes discussion on the issues and recommendations set forth in this report. The Commission is committed to working with all relevant stakeholders to improve water quality and service for all Kentuckians.

Background

The Kentucky Public Service Commission (Commission) regulates the rates and services of 137 investor-owned water utilities, water districts and associations. The Kentucky Infrastructure Authority's (KIA) Water Resource Information System (WRIS) includes 426 water utilities in the state. Although Commission jurisdictional utilities represent only 32 percent of the water utilities in the state, the Commission actually regulates 62 percent of the pipelines and 45 percent of the water customers in Kentucky.[2]



All utilities under the Commission's jurisdiction are required to furnish "adequate, efficient and reasonable" service. (KRS 278.030). KRS 278.280 authorizes the Commission, on its own motion, to investigate any practice of a utility that affects or is related to the service of a utility.

On March 12, 2019, the Commission initiated an investigation to review jurisdictional water utilities that reported water loss of more than 35 percent in their most recent annual reports.[3] Water loss is defined as the difference between the quantity of water that a utility produces at its own treatment plant or purchases from another producer and the total amount of water that is sold, used by the utility, used for fire protection, or otherwise accounted for. Leaks from the system, line breaks, theft, unauthorized usage, and metering inaccuracies are common sources for unaccounted-for water loss. Unaccounted-for water loss consistently over 15 percent is considered a warning signal of possible operational and financial problems. Water loss of more than 35percent is excessive and largely indicative of significant operational deficiencies and failing infrastructure.[4]

Per Commission regulations and for ratemaking purposes, a utility's unaccounted-for water loss shall not exceed 15 percent of the total amount of water produced and purchased, excluding water used by a utility in its own operations.[5] In recent years, the Commission has been placing greater emphasis on monitoring utilities that consistently exceed the 15 percent unaccounted-for water loss threshold, strongly encouraging water utilities to take reasonable actions to reduce water loss.[6] Having found that high water loss is indicative

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[2] *See* Appendix L.

[3] Case No. 2019-00041, *Electronic Investigation into Excessive Water Loss by Kentucky's Jurisdictional Water Utilities* (*Investigation into Excessive Water Loss*) (Ky. PSC Nov. 22, 2019)

[4] All water loss percentages are calculated from the values and figures reported by the utilities that may or may not be accurate.

[5] 807 KAR 5:066, Section 6(3) provides, however, that "upon application by a utility in a rate case filing or by separate filing, or upon motion by the commission, an alternative level of reasonable unaccounted-for water loss may be established by the commission. A utility proposing an alternative level shall have the burden of demonstrating that the alternative level is more reasonable than the level prescribed in this section."

[6] *See generally* Commission Final Orders for Rate Applications from 2017-present for language explaining the greater emphasis on encouraging efforts to reduce water loss and including the approximate amount of money the lost water represented to the utility. *See, e.g.*, Case No. 2017-00176 , *Electronic Application of Estill County Water District No. 1 for Rate Adjustment Pursuant to 807 KAR 5:076*, (Ky. PSC Dec. 20, 2017), Order at 4.

of poor financial and operational well-being, the Commission became increasingly alarmed at the persistent problem of water loss among rural water utilities with sustained unaccounted-for water loss in excess of 35.00 percent, including those utilities that are the subject of the Commission's investigation in Case No. 2019-00041.[7]

The utilities subject to the March 12, 2019 Order responded to multiple rounds of discovery. The Commission conducted formal hearings during the month of July 2019. The Office of Attorney General was the only intervenor in the proceedings. The appendices to this report summarize the formal hearings—during which each utility was asked to provide evidence on issues of water loss, utility operations, and financial health. The Commission's final Order in Case No. 2019-00041 sets out the findings and specific directives each utility must take to improve their systems' operations and financial positions that are discussed in this report (which is incorporated by reference into the final Order). In addition to discussing the investigations of the utilities named in Case No. 2019-00041, this report also reviews the Commission's investigations of water loss (and related operational issues) in cases involving two other water utilities, Martin County Water District (Martin District) and Cannonsburg Water District (Cannonsburg District).[8]

Why Water Loss is a Problem

Water loss and failing water infrastructure are nationwide problems facing water utilities.[9] According to the Alliance for Water Efficiency, utility water loss can be classified into two categories: (1) apparent losses due to customer meter inaccuracies, billing system data errors, and/or unauthorized consumption (theft); and (2) real losses—water that escapes the distribution system from leaks or storage overflows. With the first category — apparent losses—utilities lose revenue, and the water loss distorts the data on customer consumption patterns. The second type of water loss—real loss—increases the water utility's production costs (energy and chemicals needed to treat water) and stresses water system resources because these losses represent water that is extracted and treated (or purchased) but generates zero revenue because it never reaches the end user.[10]

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[7] The water utilities named in Case No. 2019-00041 were Big Sandy Water District , Cawood Water District, Estill County Water District #1, Farmdale Water District, Hyden-Leslie County Water District, Milburn Water District, Morgan County Water District, Rattlesnake Ridge Water District, Southern Water & Sewer District, and West Carroll Water Districts along with North Manchester Water Association.

[8] Case No. 2018-00017, *Application of Martin County Water District for an Alternative Rate Adjustment (ARF) (Martin County Water District ARF)* (Ky. PSC Nov.15, 2019) , and Case No. 2016-00142, *Electronic Investigation of the Operating Capacity of Martin County Water District Pursuant to KRS 278.280 (Investigation of Martin County Water District)* (Ky. PSC Apr. 11, 2016).

[9] *See, e.g.*, Jose A. Del Real, *The Crisis Lurking in Californians' Taps: How 1,000 Water Systems May Be at Risk*, N.Y. TIMES (July 24, 2019), https://www.nytimes.com/2019/07/24/us/the-crisis-lurking-in-californians-taps-how-1000-water-systems-may-be-at-risk.html; *see, e.g.*, Hiroko Tabuchi, *$300 Billion War Beneath the Street: Fighting to Replace America's Pipes*, N.Y. TIMES (Nov. 10, 2017), https://www.nytimes.com/2017/11/10/climate/water-pipes-plastic-lead.html, "America is facing a crisis over its crumbling water infrastructure, and fixing it will be a monumental and expensive task." Various states have attempted to address the overwhelming number of failing water utilities in different ways. Indiana passed fair market value legislation to facilitate the purchase of distressed utilities. *See* Indiana Utility Regulatory Commission Cause No. 45050, approved Sept. 12, 2018, describing the Commission's intent to encourage Indiana-American Water Company to acquire a distressed utility. New Jersey administrative law cases describe the administrative powers that have been employed to address mismanaged facilities. *See, e.g., Matter of Valley Rd. Sewerage Co.*, 295 N.J. Super. 278, 685 A.2d 11 (App. Div. 1996), *aff'd*, 154 N.J. 224, 712 A.2d 653 (1998).

[10] *See* Alliance for Water Efficiency report, Water Loss Control Programs, https://www.allianceforwaterefficiency.org/resources/topic/water-loss-control-programs.

According to a 2013 EPA report, the United States will need to invest up to $200 billon on water systems over the next 20 years to upgrade transmission and distribution systems. The report estimates that almost 30 percent of this amount will be needed to control water loss.[11] In a 2017 report on Kentucky's infrastructure challenges, the Kentucky Chamber of Commerce estimated that $6.2 billion will be required over the next 20 years to address the state's drinking water infrastructure needs.[12]

Water Districts in Kentucky

Water districts are created by a fiscal court, subject to approval by the Public Service Commission, based on a finding that the geographical area intended to be served by a water district cannot be "feasibly serviced by an existing water supplier." (*See* KRS 74.012). Water districts are administered by a board of commissioners (board) who have the responsibility of overseeing the management of the district. Water district commissioners serve a specified term, per statute, and the number of commissioners on a Board varies depending on service territory and other factors. (*See* KRS 74.020). The boards are corporate bodies with authority to hire a general manager whose duties are delegated by the board and whose salary is determined by the board.

Newly appointed water district commissioners are required to attend training that covers the laws governing management and operation of a water district and other subjects deemed appropriate by the Commission within 12 months of the water district commissioner's appointment. In January 2019, the Commission enhanced the required coursework for newly appointed water district commissioners. The enhanced curriculum emphasizes corporate governance, financial accountability and the importance of internal controls, and the regulatory relationship between water utilities and the Commission.[13]

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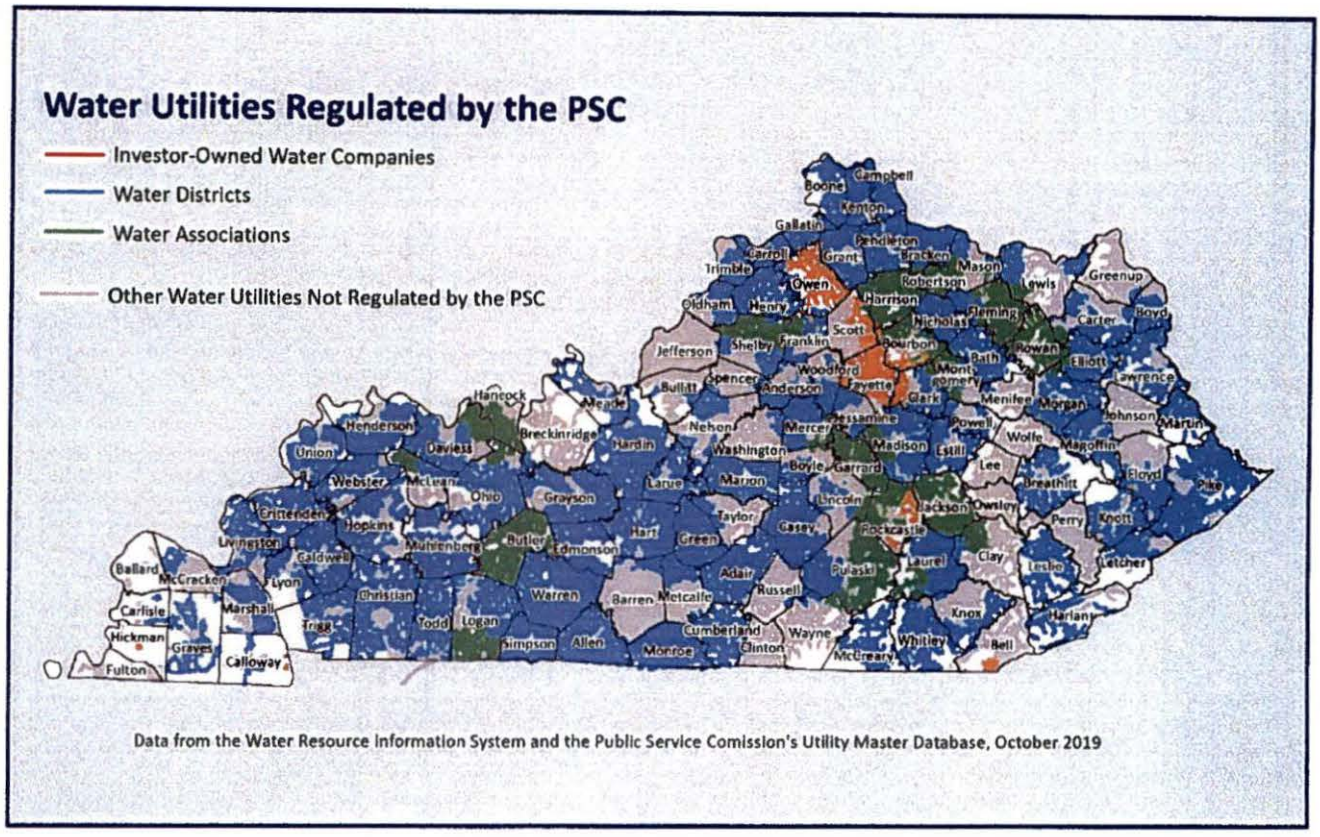
[11] Water Audits and Water Loss Control for Public Water Systems, 2013, U.S. EPA, https://www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf.

[12] In this same report, the Kentucky Chamber also estimated the state's wastewater infrastructure needs over the next 20 years to be $6.24 billion. *See* A Citizens Guide to Kentucky Infrastructure, May 2017, https://www.kychamber.com/sites/default/files/pdfs/A%20Citizens%20Guide%20to%20Kentucky%20Infrastructure%20May%202017_0.pdf.

[13] Case No. 2019-00019, *Revision of Training Required and Authorized By KRS 74.020 for the Commissioners of Water Districts* (Ky. PSC Jan. 14, 2019). Legislation enacted in 1998 amended KRS 074.020 to provide an additional $3,400 in compensation annually to water district commissioners who complete six (6) instructional hours of water district management training. The Public Service Commission was given the responsibility for regulating, as well as encouraging and promoting, such training. In response to the amended statute, the Commission developed training seminars, which typically are sponsored three times per year in different regions across the state. KRS 074.020 was amended again in 2010, with section (8) providing: "At least once annually, the Public Service Commission shall provide or cause to be conducted a program of instruction, consisting of at least twelve (12) hours of instruction, that is intended to train newly appointed commissioners in the laws governing the management and operation of water districts and other subjects that the Public Service Commission deems appropriate." Additionally, the new section requires each newly appointed water district commissioner to attend the 12 hours of training within 12 months of his or her appointment. In Case No. 2019-00019, the Commission enhanced these training requirements by ordering every newly appointed water district commissioner to complete specific courses to satisfy the requirements in KRS 74.020(8). The course topics emphasize administrative requirements, financial accountability, and the relationship of the utilities and the Commission. The Order directed that these courses be offered at every Commission-sponsored seminar.



History of Investigating Excessive Water Loss

As previously mentioned, more and more struggling water utilities were appearing before the Commission with many experiencing problems such as excessive water loss, mismanagement of finances and daily operations, unauthorized accrual of debt, and insufficient revenues. In many cases, these water utilities have customer bases that are ill suited to bear the cost of increased rates that would be sufficient to fund the necessary repairs and improvements to the water utilities' systems.

In addition to the 11 utilities the Commission is investigating pursuant to Case No. 2019-00041, two other water utilities (Martin District[14] and Cannonsburg District[15]) in Kentucky are emblematic of conditions that plague troubled water utilities. The differing responses to water loss issues by Martin District and Cannonsburg District are illustrative of many similar issues that cause some water districts to progress and others to remain tangled in troubled management issues.

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[14] *See* Case No. 2016-00142, *Investigation of Martin County Water District*, (Ky. PSC Apr. 11, 2016); *see also* Case No. 2018-00017, *Martin County Water District ARF*, (Ky. PSC Nov.15, 2019).

[15] Case No. 2014-00267, *Cannonsburg Water District's Unaccounted-For Water Loss Reduction Plan, Surcharge and Monitoring (Cannonsburg Water District Surcharge)* (Ky. PSC Aug. 7, 2014).

Martin County Water District

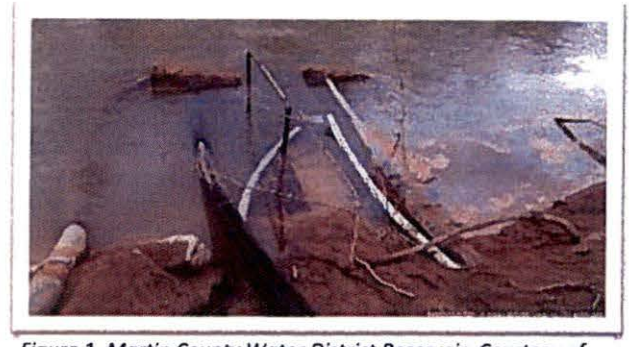

Figure 1, Martin County Water District Reservoir, Courtesy of OhioValleyResource.com

The Commission's involvement with Martin District spans over two decades, beginning with a line loss examination facilitated by the Commission in 1997 following reports of high water loss. Subsequently, an investigation was opened in 2002 following an inspection report which highlighted a pump equipment failure that forced the district to cease operations temporarily.[16] The Commission's investigation revealed Martin District had not used $2.85 million in coal severance funding as intended by the Kentucky General Assembly to make system improvements and expand capacity, but rather had constructed a raw water supply pipeline without obtaining a Certificate of Public Convenience and Necessity.[17]

In 2006, another investigation was opened to examine Martin District's management and operations and identify possible solutions to noted deficiencies.[18] The Commission ordered that a management and operations audit be conducted. The auditing firm found a number of operational deficiencies and recommended 78 changes to remedy them, with a cost-benefit analysis for each recommendation. The recommendations included, *inter alia*, requesting a rate increase because revenue was inadequate to support utility operations, developing a comprehensive water loss reduction plan, implementing a leak detection and repair plan, developing a capital improvement plan, improving procedures to identify theft of service, improving collection of past due accounts, investigating regionalization, and conducting an external audit on an annual basis.[19]

Figure 2, BarbiAnn Maynard, Martin County Courtesy of Lexington Herald Leader.com

Martin District failed to address most of the audit findings and consistently fell short on meeting many critical recommendations. A 2014 inspection of Martin District's system also identified several violations of Commission regulations. Members of Commission Staff met with Martin District in 2014 and 2015 to assess the district's progress on implementing the recommendations from the previous investigations. Finding that insufficient progress had occurred, the Commission opened another investigation into Martin District's persistent operational and managerial shortcomings in 2016. This investigation is ongoing.[20]

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[16] Case No. 2002-00116, *Investigation of the Operating Capacity of Martin County Water District Pursuant to KRS 278.280,* Opening Order (Ky. PSC Apr. 5, 2002) Appendix at 1.

[17] *Id.* at Order (Ky. PSC Nov. 17, 2003) at 2.

[18] Case No. 2006-00303, *An Investigation into the Management and Operation of Martin County Water District,* (Ky. PSC June 27, 2006).

[19] *Id.* (Ky. PSC Apr. 2, 2008) at Final Order, Appendix A.

[20] Case No. 2016-00142 *Investigation of Martin County Water District* (Ky. PSC Apr. 11, 2016).

Among the challenges it faces, Martin District has experienced unaccounted-for water loss ranging between 60and 72percent between the years 2012 to 2019. The district's fight to keep its water system functioning after years of bad management has received national media attention.[21] Martin District filed for an emergency rate increase only after the water district's equipment failed and it could not afford to make the necessary repairs because its vendors refused to continue extending credit (due to the water district already being in arrears on many of its accounts). Martin District's consultant testified its poor condition was due to "past management and past practices."[22]

In its last rate case, Martin District requested an increase of almost 50 percent that the district believed would enable it to (i) pay its principal obligations on long term debt from water sales revenue rather than from depreciation reserves, (ii) pay for the replacement of defective infrastructure from cash reserves rather than issuing new debt, and (iii) allow it to return to good standing with its creditors by paying down the high balances that had accrued during the many years that Martin District had been charging rates that were insufficient to meet its operational needs.

Figure 3, Martin County Water District, Courtesy of wfpl.org

In March of 2018, the Commission granted Martin District emergency rate relief and established a surcharge to reduce grossly past due outstanding debt to the water district's creditors. The Commission then continued its review of the rate case in order to determine the final rates necessary for Martin District's operations to remain viable.[23]

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[21] Numerous new outlets have highlighted the water crisis in Martin County, Kentucky, including but not limited to CNN, NPR, WEKU, Courier-Journal, Lexington Herald Leader, Kentucky.com, 89.3 WFPL, The New Republic and The Washington Post.

[22] Case No. 2018-00017, Martin County Water District ARF (Ky. PSC Nov. 5, 2018). When asked how Martin District came to be in as bad a state as it was in January 2018, its from Blue Water Kentucky, engineer Gregory Heiztman, explained that Martin District is as "bad as it is" due to *"past management and past practices."* (Case No. 2018-00017, January 26, 2018 Hearing Video Transcript (H.V.T.) 2:57:00-2:57:33).

[23] One significant issue for Martin District during the pendency of its rate case was the inability to provide basic financial documents stemming from the absence of proper recordkeeping policies and procedures. These issues were exacerbated by the absence of a general manager and lack of educated, skilled, or trained office personnel able to collect, maintain, and provide the requested information. Martin District still has no audit for 2017 or 2018, despite numerous attempts from the Commission to assist the utility in providing for the payment to the accountant hired to perform the work. When the Commission attempted to determine the reason for the delay, the accountant complained of not having been provided with the requisite documents needed to complete the work while the board members blamed the accounting firm, or the former accountant working with the district. When subpoenaed to testify to resolve the issue close to a year after the Commission stepped in to help, the accounting firm and the utility continued to blame one another for the failure to complete the audits. Martin District continues to work from the 2016 annual report and audit, which prevents the utility from receiving any consideration for USDA Rural Development funding or Kentucky Infrastructure Authority funding.

During the proceedings of the rate case, it became clear that Martin District's current crisis had resulted from decades of mismanagement; ignoring Commission recommendations and directives identified in multiple Commission proceedings which included the 1998 financial audit, 2002 investigative case, and 2007 management audit; and a lack of political will to request and implement rates sufficient to operate and maintain its system in a manner that would support the provision of reasonable and adequate water service.

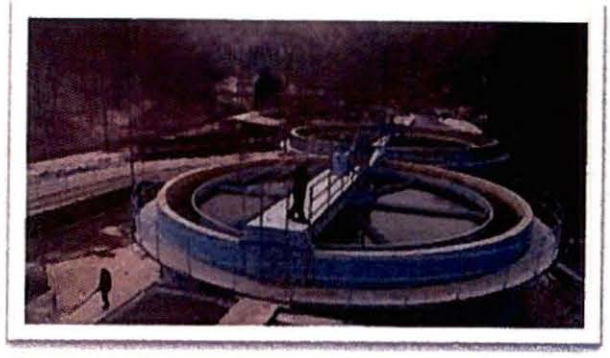

Figure 4, Martin County Water District, Courtesy of WEKU.com

In its November 5, 2018 Order on Martin District's rate application, the Commission rejected the requested rates and substituted its own; maintained the debt service surcharge to pay off unsecured debt estimated at more than one million dollars; noted that poor management was a significant factor contributing to the current crisis; and ordered the district to enter into a management contract with either another utility or a management company.[24] The Commission also established a surcharge to be utilized for retaining a management company as well as for infrastructure repair, replacement, and maintenance to address its excessive unaccounted-for water loss which would tentatively be implemented after it signed an agreement with contract management. The Commission stated that:

> This rate increase has been structured so that Martin District's current commissioners will either comply with the requirements of the rate increase and will proceed with contracted management, or the Commission will be forced to pursue even more extraordinary means through appointment of a receiver who can implement the changes needed to provide safe, clean, and reliable water service.[25]

Nearly two years after Martin District filed its rate case, there were still a number of ongoing deficiencies the Commission highlighted in its Final Order. First and foremost, its 2016 annual audit was incomplete, and the audits for 2017 and 2018 had not yet been started. Without an audit, Martin District was ineligible in some instances, to apply for and receive government loans to make necessary infrastructure investments to replace aging pipes, mains, pumps, and equipment. Second, Martin District was in violation of 807 KAR 5:006, Section 4(2), which requires Martin District to file its annual reports no later than March 31 of each year that includes in-depth financial information about the utility. Third, at least one of Martin District's commissioners were in violation of KRS 74.020(8)(b) that requires water district commissioners to complete water training within 12 months of their initial appointment. In addition to the problems highlighted above, the Commission's Final Order noted three more deficiencies that impacted Martin District's ability to provide safe, adequate and reliable water service. These were identified as high water loss, indifference to water theft, and financial problems that continued despite receiving rate increases in both March 2018 and November 2018.

Because of Martin District's continued deficiencies, the Commission ordered that Martin District execute a Management Contract with Alliance Water Resources, Inc., or forfeit its right to the debt service surcharge

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[24] Case No. 2018-00017, *Martin County Water District ARF* (Ky. PSC Nov. 5, 2018).

[25] *Id.* at 20.

established in March 2018 and the management/infrastructure surcharge established in the Commission's November 2018 Order.

Cannonsburg Water District

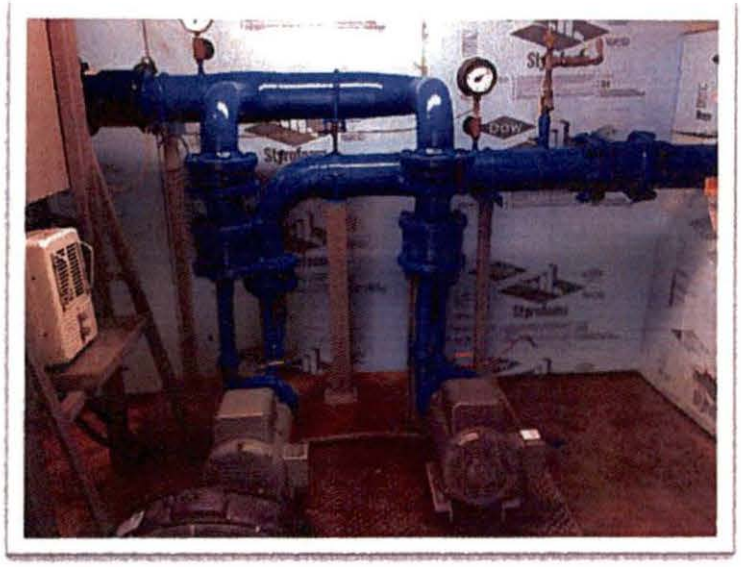

Figure 5, Cannonsburg Water District, Commission Inspections

The Commission also has taken steps to address the excessive unaccounted-for water loss of Cannonsburg District.[26] In 2011, Cannonsburg District applied to the Commission for emergency rate relief and for a dedicated surcharge to reduce unaccounted-for water loss, which at that time was almost 30 percent. The Commission approved the water district's request for a surcharge, conditioning disbursement of the surcharge funds on Commission approval.[27] The Commission also directed the water district to file a water loss plan specifying the inclusion of certain required information. Cannonsburg District filed its initial attempt at a water loss reduction plan in September 2012, but it was not until July 2014 that the water district submitted a plan that conformed to the Commission's Order in the rate case. The Commission established Case No. 2014-00267 to monitor the water district's progress with its water loss reduction plan, continuing the requirements that Cannonsburg District file monthly reports on its efforts to reduce water loss and that the water district obtain Commission approval before dispersing funds from the surcharge account.

From the initiation of Case No. 2014-00267 until 2016, when Cannonsburg District employed a new manager, the water district struggled to meet the Commission's reporting requirements. The Commission had to compel Cannonsburg District to file the required monthly reports on several occasions, and through the periodic reporting, the Commission learned that the master meters that had been installed as part of the water loss plan were not designed for the use intended, failed and had to be replaced.[28]

Under previous management, Cannonsburg District's water loss plan failed to gain traction, and its water loss actually **increased** to as high as 55.00 percent in January 2017. In Cannonsburg District's most recent rate case, however, the new manager testified that the water district's efforts to implement the plan were finally beginning to pay off and that unaccounted-for water loss had decreased to 37.09 percent.[29] As of July 2019, Cannonsburg District reported its unaccounted-for water loss was reported 29.50 percent. The Commission

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[26] Case No. 2014-00267, *Cannonsburg Water District Surcharge* (Ky. PSC Aug. 7, 2014).

[27] Case No. 2011-00217, *Application of Cannonsburg Water District for (1) Approval of Emergency Rate Relief and (2) Approval of the Increase in Nonrecurring Charges* (Ky. PSC Jun 4, 2012).

[28] Case No. 2014-00267, *Cannonsburg Water District Surcharge* (Ky. PSC Apr. 13, 2015).

[29] Case No. 2018-00376, *Application of Cannonsburg Water District for Rate Adjustment for Small Utilities Pursuant to 807 KAR 5:076* (filed Nov. 13, 2018).

acknowledged the role that the skilled and educated new manager played in Cannonsburg positive turn was invaluable. The new manager began putting basic record keeping policies in place to review water pressure on the system. The new manager initiated a plan to put in a zone metering system to improve the system, specifically designed to address the water loss issue. The manager reported these issues to the board, communicated to the Commission, and worked with an engineering firm to design a project to execute the vision.[30]

Results of the 2019 Investigations: Characteristics Common Among Struggling Water Utilities

Recognizing that excessive water loss is but a symptom of much larger operational and financial problems faced by water utilities, the Commission sought to investigate whether there are common factors among struggling water utilities that contribute to high levels of water loss.[31] Not surprisingly, the investigations revealed that it was not one but a combination of operational, managerial and fiscal deficiencies, which, over time, led to the physical and financial deterioration of the water utility. Similar to how treating a symptom will not cure a patient's disease, addressing one symptom will not necessarily cure the ailments of a distressed water utility. Only a concerted, "big picture" approach to correcting the identified problems over time will afford the water utility the opportunity to regain financial and operational integrity.

At its core, a water utility is a business and must be run as such. Successful operation of a viable business requires a certain amount of training, knowledge and experience.[32]

Implementation of sound fiscal policies and operational procedures ensures the financial health and longevity of any business. If concerns other than the health and welfare of the utility and its customers are permitted to factor into the decision-making process, the long-term viability of the utility as a business will be compromised.[33]

The ideal general manager would be "a degreed individual with a business background, management background or engineering background."

[30] Case No. 2014-00267, *Cannonsburg Water District Surcharge* (Ky. PSC Apr. 13, 2015).

[31] The Commission would like to acknowledge the cooperation of several organizations, including Kentucky Rural Water Association, Kentucky Infrastructure Authority (KIA), USDA Rural Development, Northern Kentucky Water District, and Kentucky American Water, all of which provided information and materials on best business practices and made employees available to meet with Commission Staff. Their assistance helped further the Commission's understanding of the many factors affecting water utilities and the resources available to those utilities.

[32] *See* Case No. 2018-00017, *Martin County Water District ARF*, (August 7, 2018 H.V.T. 5:49:51-5:50:10), wherein Gregory Heitzman testified that the ideal general manager would be *"a degreed individual with a business background, management background or engineering background."*

[33] The Commission sought input from the Kentucky Rural Water Association on materials available to water systems managers and boards and found that there are several user-friendly guides to which water systems can refer in addition to any in-person training received, including "The Water Board Bible: The handbook of modern water utility management" by Ellen G. Miller and Elmer Ronnebaum; "Getting Results From Your Experts: Engineers, Attorneys & More" by Ellen G. Miller and Elmer Ronnebaum; "Practical Personnel Management for Small Systems" by Ellen G. Miller; "Customers and You: Practical Communications for Small Systems" by Ellen G. Miller; and the "Financial Accounting Guide for Small Water

The water utilities subject to these investigations were presented with the same set of data requests and questions from the Commission to discern whether common problems existed. The common characteristics among the beleaguered utilities fall into three general categories: inadequate oversight and management; poor financial and accounting practices; and detrimental extraneous influences.

Inadequate Oversight and Management

The Board and the General Manager

Oversight by a knowledgeable board and competent day-to-day management are vital to the operational health of a water utility. If board members lack experience in corporate governance or have inadequate knowledge of business best practices, the board will be ill-equipped to monitor and evaluate the performance of the water utility's general manager. Untrained and inexperienced board members often will miss the signs of financial distress, which indicate the need for a rate adjustment to fund necessary capital investments, and conduct daily operations and maintenance of the water utility's system, because they do not know what questions to ask or what type of reports and other information to require from their general manager.[34]

Similarly, general managers who lack the necessary training and experience to run a water utility will usually fail to employ sound business practices that help ensure the viability of the water utility.[35] Well-run utilities establish metrics to gauge performance over time, adopt policies and internal controls to ensure that business best practices are followed, and maintain complete and accurate records relating to their operations.[36] But an untrained general manager simply does not have the insight or experience to implement such procedures.[37] For example regarding a lack of internal controls, when North Manchester Water Association's current

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Utilities" by Michael D. Peroo, CPA. These are small, manageable guides that contain basic internal controls and record-keeping practices, roles of the board and the manger, and basic business advice.

[34] *See* Appendix M and Appendix S. Because water loss reporting varies wildly and is questionable at times, the Commission opened administrative Case No. 2018-00394, Electronic Investigation into the Measuring, Recording, and Reporting of Water Loss by Kentucky's Jurisdictional Water Utilities (Ky. PSC Nov 22, 2019).

[35] *See* Appendix B, discussion of Cawood District needing to avail itself of the Water Resource Information System (WRIS), which includes mapping of state water systems in its GIS (Geographic Information System). The Area Development Districts (ADDs) are paid by the KIA to interview each water system annually to update any changes in the GIS. Utilities the size of Cawood District have had all of their valves and hydrants mapped with GPS (Global Positioning System), and the water lines have been adjusted to the location of the valves. All of this data is made available to water utilities by the local ADD. The ADD will print paper maps of the system at no cost every year. (https://kia.ky.gov/WRIS/Pages/ADD-GIS-Staff.aspx).

[36] *See* Appendix H, North Manchester Association, discussing how the utility's records were misappropriated by the association's former accountant. As such the association could not produce an annual report or use financial records to complete an application for rate adjustment. Lack of proper oversight and management leaves utilities vulnerable to being taken advantage of by the professionals they employ (North Manchester) and even by their own employees in cases like that of Southern District (*see* Appendix J).

[37] The Commission reached out to Northern Kentucky Water District (NKWD), a non-profit water district like the utilities involved in Case No. 2019-00041, and Kentucky American Water, an investor-owned water company, to review some of their best practices with regard to internal processes, including water loss detection plans, practices and employee manuals. Both utilities employ policies and best business practices in an effort to ensure the most efficient use of ratepayer funds. *See also* resources available from Kentucky Rural Water Service to inform on best business practices.

management took over in late 2017, there were virtually no records of utility operations.[38] In addition, it found that the Board President, who was also the CPA, conducted all the finances, billing, and payroll and kept all of the utility's records off site which is a violation of 807 KAR 5:006, Sec.24. When the CPA was fired, all the utility's records were thrown away or lost. Subsequently, utility management has been able to recover only a portion of those records.[39]

The water utilities were asked to provide information regarding their internal policies and procedures for such items as customer billing, record keeping, meter testing and leak detection and repair.[40] Both North Manchester Water Association and Rattlesnake Ridge Water District acknowledged the lack of and the need for a policies and procedures manual. Hyden-Leslie County Water District has no or insufficient written procedures governing its meter testing and leak detection and repair.[41]

As noted when examining the board members who testified during the Commission's investigations, though well meaning, many of the water utility commissioners lacked basic business acumen and any understanding of the importance of following industry standards and business best practices. While some utility commissioners might have been aware of their utility's high water loss, very few boards had taken action to establish a water loss reduction target or required management to establish procedures for leak detection.

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[38] *See* North Manchester Association, July 10, 2019 Hearing Transcript 84:9-85:8.

[39] *Id.* at Hearing Transcript 84:9-90:9.

[40] Case No. 2019-00041, *Investigation into Excessive Water Loss,,* The data responses reveal the disorganization of the water utilities and the inability of the water utilities to provide basic financial and operational records was revealed in Rattlesnake Ridge District's Motion for Extension (filed Apr. 10, 2019); Southern Water District' s Response (filed May 2, 2019) (Responses filed late); Southern Water District's Response (filed June 13, 2019) (Responses filed late, including statements such as "Since the PSC conducted the inspection and issued results, would those reports not already be on file with the PSC."); Milburn Water District's Response (filed April 29, 2019). See also, Case No. 2018-00017, *Martin County Water District ARF*, (Ky. PSC Nov. 15, 2019) Martin County Water District had numerous instances where it filed incomplete responses to Staff requests, incorrect financial information, and multiple instances where the Commission had to request the same information multiple times because the utility could not provide basic business records. *See also* Appendix H, North Manchester Association had the unusual circumstance that its records were missing. Appendix B, Cawood District employed an accountant for years and until recently, kept its records off-site. The board hired a different accountant to perform the tasks required of an accountant and the board did not extinguish its contract with the former accountant.

[41] *See* Appendix E, Hyden-Leslie District; Appendix H, North Manchester Association; and Appendix I, Rattlesnake Ridge District.

Some district boards have lacked the will to raise rates to generate the revenue needed to maintain system reliability, citing a concern for the impact of higher rates on low-income customers. Delaying or ignoring the need for regular, gradual rate adjustments, however, results in a deterioration of system integrity and failing infrastructure. Ultimately, customers are shocked with a much higher rate increase to fix deferred problems than they would have if the water utility had maintained the system over time.

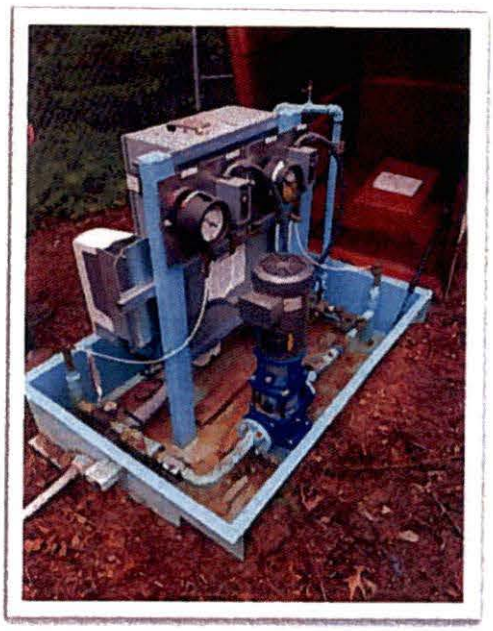

Figure 6, Morgan County District Booster Pump, 2018 Inspection

For example, in Case No. 2016-00068, Morgan County Water District (Morgan District) sought an increase in water rates of 14.97 percent. In its review of the application, Commission Staff determined that the district's operations warranted a rate increase of 26.56 percent, but Morgan District nonetheless chose only to implement the 14.97 percent rate increase sought in its application. The district board's new Chairman testified that in rejecting the higher rate increase, the board was "maybe trying to protect the citizens," many of whom he said were on fixed incomes.[42] That proved shortsighted as the district continued to struggle financially.[43] Less than two years later the district's board Chairman wrote to the Commission requesting permission to implement the 26.56 percent increase recommended by Staff, stating that the lower rate had proven to be insufficient to generate the necessary revenue for the district.[44] Prior to Case No. 2016-00068, the district had never sought a general rate increase other than a purchased water adjustment since its formation in 1992.[45]

Likewise, questioning of water utility general managers uncovered many incidents of poor recordkeeping and an absence of written policies regarding critical daily functions such as the payment of invoices, procurement processes, or customer billing procedures.[46] Failing to address under-billing of customer accounts, for example,

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[42] *See* Case No. 2019-00041, *Investigation into Excessive Water Loss* Morgan County District July 9, 2019 Hearing Transcript, 27:1-28:1 and Appendix L.

[43] *Id.* at 33:11-34:5.

[44] This request was denied because the rate case had concluded and Morgan District's request did not meet the filing requirements for a new rate case application.

[45] *See* Appendices M-P for a review of the conflicting responses provided during the discovery phase of Case No. 2019-00041, which highlights the disconnect between the critical obstacles facing the water districts and the lack of financial planning to address such obstacles.

[46] Case No. 2019-00131, *Application of Southern Water and Sewer District for an Alternative Rate Adjustment,* (Ky. PSC Nov. 7, 2019) H.V.T 2:12:30-2:26:21; *see generally* Appendices A-K for discussions of recordkeeping problems and lack of policies to produce accurate financial data or accurate water loss data as well as lack of meter testing schedules or policies. While plans to replace meters vary, utility boards need to have good business practices in place to plan financially to avoid issues such as those highlighted by Mountain Water District's application for approval of a loan to purchase meters with a life expectancy of 25 years with a 40-year loan, such that the utility will still be paying for meters after they will have needed to have been replaced. *See* Case No. 2019-00346. *See also* Opinions, *MWD's $3.1M loan must not be something taken lightly*, Appalachian News-Express, (Sept. 21, 2019).

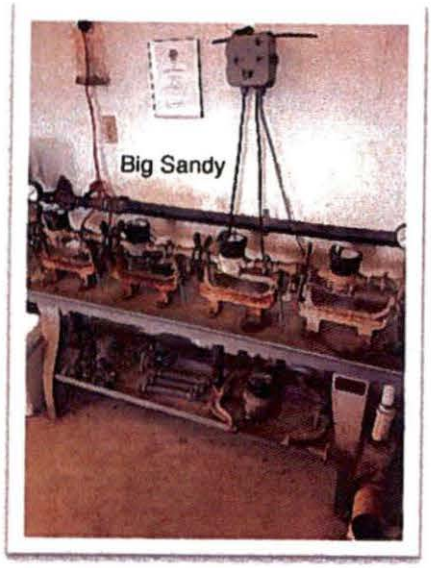

Figure 7, Big Sandy Water District Meter Testing Bench

can impede a utility's ability to provide evidentiary support for a requested rate increase and lead to or perpetuate revenue shortfalls. In addition, many of the small utilities have failed to establish procedures for water loss prevention, leak detection and strategic planning for infrastructure improvements. The Commission found that a large portion of troubled water utilities' meters are not being tested regularly, are outdated, are recording erroneous data, and, in some cases, are completely non-functional.[47] The habitual neglect of daily maintenance and long-term repair and replacement of infrastructure has left some water systems teetering on the verge of collapse. Meter replacement requires financial decisions and the use of basic financial and accounting skills.

Situations such as Mountain Water District requesting approval to sell bonds for a 40-year loan of $3.1 million to purchase replacement meters with a useful life expectancy of only 25 years, are examples of how utility boards do not plan for meter testing and/or replacement or how they will finance such required maintenance. Many times water utility boards make short-term decisions without regard for the future long-term financial obligations of the utility. It is absurd to obligate a utility to pay for meters that will likely not be in use for the better part of 20 years of the loan. This is an example of what is referred to as an 023 loan, where an applicant requests Commission approval of federal funding in 30 days and the Commission cannot reject the application to approve the funding pursuant to KRS 278.023(3).[48]

Figure 8, Mountain Water District, mountainwaterdistrictky.com

Without the guidance of knowledgeable and engaged board members, the leadership of an experienced general manager, and a trained support staff, a troubled water utility has little hope of overcoming the many challenges it must face on a daily basis.

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[47] *See* Appendix J, Southern Water District testimony regarding "neglect of testing the meters" (July 16, 2019 Hearing Transcript 17:22). Southern District explained that the amount of excess water loss was the result of years of neglect and that, under previous management, the utility did not spend the appropriate amounts on maintenance and leak detection, nor test meters for accuracy at least every ten years as required by Commission regulation. (July 16, 2019 Hearing Transcript 16:20–22, 17:11–18:1).

[48] *See* Appendix P.

Poor Financial and Accounting Practices

Infrequent Rate Increases

For a myriad of reasons, many of which will be discussed in a later section of this report, the boards and managers of small, rural water utilities will take extraordinary steps to avoid coming to the Commission for a rate increase, opting instead to try and operate on razor-thin margins. A utility that fails to increase revenues to match rising expenses cannot maintain its financial integrity, especially over the long-term. Moreover, when a utility delays increasing rates by covering operational expenses with depreciation reserves or through other funding mechanisms, true financial needs are masked. Generally, the Commission can only review a utility's financial position as part of Commission Staff's examination of the utility's books during a rate case, and when to apply for a rate increase remains within the utility's discretion. At present, there is no statutory or regulatory requirement that specifies rate review frequency or provides for any other triggers that would require when a utility should seek a rate adjustment.[49]

Unsustainable Accounting Practices

Figure 9, Big Sandy, Courtesy of wbur.org

Depreciation is a non-cash expense used in accounting to accurately match revenues to expenses in a given period by allocating the cost of an asset over its useful life.[50] Accumulated depreciation represents the total decline in an assets' value and provides management with an indication of when the utility may need to replace an asset based on the initial projected useful life. If properly utilized, depreciation provides a funding source for eventual cost recovery and replacement of the utility's original investment by permitting the utility to charge customers depreciation expense in their base rates. Rather than maintaining sufficient depreciation reserves and utilizing those funds for future capital improvements, many small water utilities use the depreciation recovery in rates for normal daily operating and maintenance expenses and incur debt or rely on grants to fund the majority of their capital spending. Typically, the amount placed into depreciation reserve accounts is just enough to satisfy loan covenants, which is significantly less than what is required if the funded amounts were calculated based upon the remaining useful lives of the utilities' assets. Unfortunately, evidence of this gross neglect is reflected in crumbling water utility infrastructure and the high water loss statistics discussed in this report.

Adequate funding of depreciation reserves for these high water loss utilities is also hindered by 807 KAR 5:066, Section (6)3, which limits a utility's recovery of expenses attributable to water loss for ratemaking proposes to 15 percent.[51] When a utility is not permitted to recover those costs associated with the excess lost water,

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[49] *See* Appendix R.

[50] Depreciation is an accounting method of allocating the cost of an asset over its useful life, which accounts for the decline in value and eventual replacement of an asset. The Uniform System of Accounts for Class A/B Water Districts and Associations defines depreciation: "as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred with connection with the consumption or prospective retirement of utility plant in the course of providing service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirements of public authorities."

[51] *See* footnote 5.

management typically relies on the non-cash depreciation rate expenses recovery to pay for routine operation and maintenance expenses.

Budgeting

Budgeting and monthly financial statements are essential items to the operation and financial health of an organization and should be a priority for water districts and associations.

The majority of the water districts and associations that are the subject of the Commission's investigation rely heavily on their external accountant for the preparation, review and presentation of an annual budget. Only two of these utilities, Big Sandy Water District (Big Sandy District) and Morgan District, rely on internal personnel to offer assistance in the budgetary process. Big Sandy District's Board Chairperson, stated that the district's secretary/office manager was responsible for preparing the annual budget.[52] Additionally, the Chairperson of Morgan District, stated that the board treasurer and general manager and he were involved in the development of the District's annual budget.[53] Board members' lack of input and knowledge of the budgetary process indicates that there is not an awareness of where revenue comes from or where and how the expenditures are made for these water districts and associations.[54]

Financial Statements

In addition to involvement in the budgetary process, board members should review on a monthly basis the financial information of the utility, specifically all revenues and expenditures from the previous month. The review should be a comparison of the budgeted line item amounts and the monthly expenditures and invoices that are incurred by the water districts and associations.

Unfortunately, the water districts and associations involved with this report have not provided adequate evidence that monthly statements or invoices are reviewed monthly by the board. Many of the water districts and associations rely heavily on the external accountants to perform the review and follow-up on the information concerning the monthly financial statements. Farmdale Water District's board treasurer testified at the hearing that the board receives and reviews a monthly financial report of all revenues and expenditures. He further testified that the monthly or quarterly analysis and comparison of actual to budgeted amounts needed more review and that the board should work on that type of review.[55]

Figure 10, Martin County Water District, kentucky.com

Failure of the water districts and associations to understand the budgetary process and the financial review process hampers their ability to properly manage the entire operation and delays the proper review of the operation to determine where areas of concern are and how to address these concerns.

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[52] Case No. 2019-00041, *Investigation into Excessive Water Loss*, July 17, 2019 Hearing Transcript 29:1–9.

[53] *Id. at* 107:19-25, 108:1-3.

[54] *See* Appendix M.

[55] Case No. 2019-00041, *Investigation into Excessive Water Loss*, July 17, 2019 Hearing Transcript 253:17-25, 254:1-25, 255:1-12.

Failure to understand budgetary process is further supported as the Commission discovered many outdated tariffs, and contracts during its investigation in Case No. 2019-00041, including leak adjustment clauses and contracts unfavorable to the utilities that current management were not aware existed in some instances.[56] Big Sandy District and Rattlesnake Ridge both had contracts on their books that allowed for a situation where a utility might sell water for less than the amount it paid to purchase the water.[57]

For example, the Emergency Supply Agreement between Big Sandy District and the city of Paintsville, dated June 21, 2004, which was not filed with the Commission as required by 807 KAR 5:011 Section 13, but discovered in the course of the investigation. Big Sandy District, because of the lower rate in the contract, will potentially sell water for less than it pays when Paintsville has an emergency event and purchases water from Big Sandy District. High water loss in Big Sandy District's system will create an even greater loss financially for Big Sandy District. The contract provides that in the event that one of the parties experiences an emergency and requires a supply of water the other party will, if capable at the time of the emergency, supply water to the party in need. The rate to be paid by the purchaser set out in the contract is $2.00 per 1,000 gallons, which is less than what Big Sandy District pays any of its suppliers.[58] Big Sandy District's chairman testified that the rate needed to be updated in the contract.[59]

Rattlesnake Ridge has a wholesale contract with the City of Grayson to both sell and purchase water for $4.30 per 1,000 gallons. Per Rattlesnake Ridge's tariff, it will sell water at wholesale to both Big Sandy District and to the City of Vanceburg for $3.82 per 1,000 gallons. Even though Rattlesnake Ridge produced the majority of its water, there are instances where at the wholesale level, it will sell water for less than it purchases water.[60]

Figure 11, Rattlesnake Ridge, Courtesy of Kentucky.com

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[56] *See* Appendix Q; *see also* Case No. 2019-00041, *Investigation into Excessive Water Loss* , Estill District, July 10, 2019 Hearing Transcript 113:1-144:12.

[57] *See* Appendix I, Case No. 2019-00041, *Investigation into Excessive Water Loss* , Rattlesnake Ridge, July 17, 2019 Hearing Transcript 51:9-16; and Appendix A, Big Sandy.

[58] Case No. 2016-00423, *Purchased Water Adjustment Filing Of Big Sandy Water District*, Exhibit 1 at 1 (Ky. PSC Jan. 4, 2017). Big Sandy District purchases all of its water from five (5) different suppliers at various rates. The city of Kenova, West Virginia's wholesale rate is $2.55 per 1,000 gallons while the city of Louisa, Kentucky's wholesale rate is $3.06 per 1,000 gallons. The city of Ashland, Kentucky charges $2.19 per 1,000 gallons, which is the same amount charged by Cannonsburg Water District for wholesale water. Finally, Rattlesnake Ridge Water District's wholesale rate is $3.82 per 1,000 gallons.

[59] *See* Appendix A, Big Sandy, Case No. 2019-00041, *Investigation into Excessive Water Loss* , July 17, 2019 Hearing Transcript 23:14–25.

[60] *See* Appendix I, Case No. 2019-00041, *Investigation into Excessive Water Loss* , Rattlesnake Ridge, July 17, 2019 Hearing Transcript 51:9-16. Rattlesnake Ridge should evaluate its contracts and tariffs on a regular basis.

Rate Increases Through Other Means

Water utilities frequently file for rate increases as part of a loan process to fund a capital project(s). These capital projects are approved by the water utility board, bundled together into a package, and submitted to various state and federal funding agencies for grants and loans. Typically, an engineering firm completes the technical project specifications along with the financial documentation[61] supporting the loan application and then works with the funding agencies to help secure financing. It is only after funding is conditionally approved that the water utility then submits these projects for Commission review and approval under either KRS 278.023 (023 Applications) or KRS 278.020 in conjunction with KRS 278.300 (020/300 Applications).[62]

In evaluating submitted projects, funding institutions, such as the KIA and the Kentucky Rural Water Finance Corporation (collectively, 020/300 Applications), or U.S. Department of Agriculture Rural Development (USDA RD) (023 Applications), limit their assessment of a water utility's financial health to the utility's ability to repay the loan at issue. [63] Not only are these assessments of the utility's financial condition by the funding agencies less extensive than the typical review Commission Staff would undertake during a rate proceeding, but also, at least in regard to projects that are federally funded (023 Applications), the Commission cannot reject the application and the Commission's scope of review is severely limited by statute.[64]

The Commission is concerned that water utilities are using rate increases obtained through 023 Applications to avoid coming to the Commission for a comprehensive rate case. This practice prevents Commission Staff from reviewing the financial state of the water utility and whether the water utility is accounting for long-term

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[61] Many small water utilities have developed relationships with a single engineering firm that has lasted for years. This is an understandable consequence of the utilities' size and its inability to afford a full-time engineer whose allegiance is to the utility. The use of engineering firms as "one-stop-shops" for capital project planning, project conception, engineering design, contracting, and construction presents an inherent conflict of interest risk on the part of the engineering firms. The engineering firms' personnel need to work on projects to generate revenue, which could lead them to put the financial wellbeing of the engineering firm ahead of that of their client, the small water utility.

[62] *See* KRS 278.023, Approval of federally –funded construction projects-Commission review of agreement and supporting documents – Surcharge; and KRS 278.020, Certificate of convenience and necessity required for construction provision of utility service or of utility –Exceptions-Approval required for acquisition or transfer of ownership – Public hearing on proposed transmission line – Limitations upon approval of application to transfer control of utility or to abandon or cease provision of services – Hearing—Severability of Provisions.

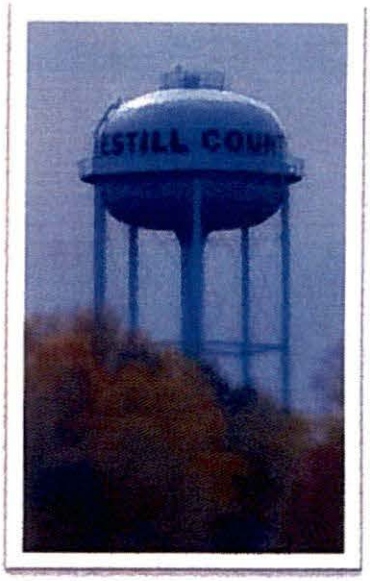
[63] It should be noted that the state and federal lending agencies properly adhere to federally mandated lending guidelines, which tend to focus more on a water utilities' short-term financial viability and the debt coverage ratio during the life of their loan. For example, KRS 278.023 applications require a depreciation reserve for short-lived assets but not for long-term assets, which understates the amount of depreciation reserve the utility should be required to maintain. Simply put, the missions of these lending agencies differ from that of the Commission, which, as a regulatory body charged with oversight of utility rates and service, must undertake a more comprehensive review of a water utilities' financial viability in both the short and long terms.

[64] KRS 278.023(3) requires the Commission to complete its review of 023 applications in 30 days, which limits the Commission's ability to thoroughly review the project(s) and the proposed rates supporting it. While the Commission may recommend changes to the utility and the federal agency, KRS 278.023(3) prohibits the Commission from modifying or rejecting any portion of the agreement. The Commission has greater discretion in analyzing the purpose, need, and rate impact of 020/300 applications, the most common of which are for capital projects but which also can be used for debt refinancing. However, unlike 023 Applications, revised rates in 020/300 Applications do not include a depreciation reserve account. Because there is no requirement for the utility adding assets to its books to make corresponding additions to its reserve accounts, depreciation reserves will be inadequate for the maintenance and replacement of these additional assets.

financial needs. The fact that the critical financial planning documents and operational planning policies identified and requested by Staff during the discovery phase of Case No. 2019-00041 were in many cases created in response to Staff's request illustrates the guidance the Commission can provide in the administrative process of review.[65]

Unauthorized Debt

KRS 278.300 requires jurisdictional utilities to obtain Commission approval prior to issuing any form of indebtedness that has a term exceeding two years.[66] Various Commission investigations have discovered instances in which water utilities have violated statute and procured loans without the required Commission approval. Water utilities enter into such loans for any number of reasons, ranging from the financing of capital projects to the payment of operating expenses or, worse yet, to fund debt payments for other prior existing loans. Investigations have revealed that despite annual water training programs many water utility board members and managers are unaware of the requirements of KRS 278.300. To compound the problem, many water utilities do not perform the necessary financial analysis to determine whether their current rates can support the debt load of the new loan. As a result, the utility finds itself in a deeper downward spiral as revenues are not sufficient to cover operating expenses and debt service. In addition, both the utility and its board members face possible fines for violating KRS 278.300.



Detrimental Extraneous Influences

As previously mentioned, boards and managers of small, rural water utilities will take extraordinary steps to avoid raising their rates. We question why would those responsible for providing safe and reliable water service to their family, friends and neighbors be so reluctant to increase rates when failure to do so potentially jeopardizes the utility's financial stability and capability to delivered good clean potable water. Or why are they so adamantly opposed to even consider alternatives such as consolidation, merger or a possible sale of their water utility, which might offer the best long-term outlook for their customers? Over the course of our investigations and numerous other proceedings involving small, rural utilities, the Commission has learned that the answer to these questions is twofold.

First, water utility board members – who are responsible for hiring water utility general managers – are appointed by local elected officials. Unfortunately the goals of local officials are often diametrically opposed to the needs of the water utility. Elected officials do not want rate increases approved by their water board appointees to become an issue during their next campaign for re-election. Second, our beloved Commonwealth with its 120 counties has a long history of favoring "local control" and of fearing anything that

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[65] *See* Appendix B, Cawood Water District, July 9, 2019 Hearing Transcript 173:6-173:19, wherein Cawood's General Manager explains that the district did not have a capital improvement plan prior to the general manager creating one in response to Staff's data request served in Case No. 2019-00041, that was then approved by the district's board approved. *See also* Appendices M–P.

[66] KRS 278.300, Issuance or assumption of securities by utilities. *See also* Appendix C.

could lead to relinquishing even a small portion of that control. Consequently, water board commissioners and managers face political, societal and even intrinsic pressures that can lead to poor decision-making. These pressures lead the commissioners to keep their rates artificially low or, in some cases, to implement a rate that is lower than what the Commission has determined necessary for them to adequately operate. These pressures ultimately inhibit their ability to objectively evaluate long-term solutions to the insurmountable challenges facing their water systems.

It is important to note here that, in making these observations, the Commission's intent is not to ignore or diminish the impact of higher water rates on economically distressed customer bases of failing water utilities. The Commission recognizes that these conditions are typically causal of each other and many in these areas are already struggling due to loss of employment opportunities and decreased funding for local government needs and the reduction or elimination of assistance services at these communities. We acknowledge the plight of these citizens as well as the injustice in the fact that they likely face higher water rates to make up for years of mismanagement and poor oversight of their local public utility. However, the fact remains that these failing infrastructure issues must be addressed, and there is simply not enough federal or state funding to complete all the repairs that need to be done. Without financial support from the local customer base, water service and water quality will continue to deteriorate.

Merger is one of the possible solutions to the state-wide deterioration of Kentucky's water systems that are too small to defer costs among their ratepayers. The obstacles to merger include the "local control" argument, but also the smallest water districts have boards of commissioners that are political appointments and carry local prestige and in some cases, benefits.[67]

Figure 12, Milburn Water District, 2018 PSC Inspections

West Carroll Water District (West Carroll District) and Milburn Water District (Milburn District) are two examples of water districts that the optimum solution to address their water loss issues is a merger or consolidation with another entity. Both West Carroll District and Milburn District stated that the primary issues affecting their systems were the age of their water mains, customer density, and topography. West Carroll District does not have any employees and is operated under a contract agreement with Carrollton Utilities. West Carroll District's Commissioners are paid a monthly fee for oversight of the operations of the water district and liability insurance expenses. Aside

[67] Case No. 2019-00041, *Investigation into Excessive Water Loss,* West Carroll District, July 11, 2019 Hearing Transcript 25:11, where West Carroll Chairperson first states she sees no benefit to merger but later acknowledges that she would consider the idea of merger as an option to help the utility. *See also id.* at 144:5-148:3, where West Carroll board advisor, Bill Osborne of Carrollton Utilities, explained that costs for liability insurance could be saved in the event of merger.

from the Commissioner's fees and insurance, the rest of West Carroll's expenses are accounted for per the contract agreement with Carrollton Utilities. West Carroll District's system is connected to Carrollton Utilities, the entity that currently operates West Carroll District's system. West Carroll would benefit from economies of scale by merging/consolidating with Carrolton Utilities.

Milburn District does not have any employees, but instead has two contract employees that are compensated on an agreed upon monthly fee with allowances for when extra work hours are required of them. Milburn District only has 136 customers. They have had estimates totaling $1.5 to $2 million to eliminate and "tie-in" line dead ends.[68] Milburn District simply does not have the customer density to be able to financially afford the repairs needed to their system.

Despite the critical state of some of the water utilities named in Case No. 2019-00041, water districts like Martin District and Southern District argued against merger or regionalization and rehabilitation through the use of a management company because they claim that their rate payers want "local control" over the water in their district. When the chairman of Southern District's board testified at its Case No. 2019-00041 hearing,[69] the chairman admitted he misunderstood what it would mean to sell the district to Kentucky American Water Company. He also admitted that if UMG management company had not been hired at Southern, the district would have collapsed, stating, "In my opinion, the district could not have survived without a private company coming in to take over the management operations.[70]

Unfortunately, in the worst instances of water system failure, the rate payers do not associate the failure with the local managers and boards of commissioners that caused the problem. Those local managers and local boards of commissioners are responsible for permitting the system to fail and making the bad decisions that led to the failure. Despite the administrative authority the Commission is granted by KRS 278, the Commission's authority is not as persuasive as the opinion of the residents of the water district or the opinion or perception of the neighboring counties. The Commission has the expertise to review a water utility's records, practices and operational failure and recommend the utility hire a management company, but the utility is influenced by its ratepayers who perceive a loss of "local control" and the board members are not savvy enough to understand their role to protect the water district would still exist if an management company was in place. The board members have a great deal of local influence, but do not understand the benefit of a management company or do not have the skills to use their role to promote the best for the water utility.

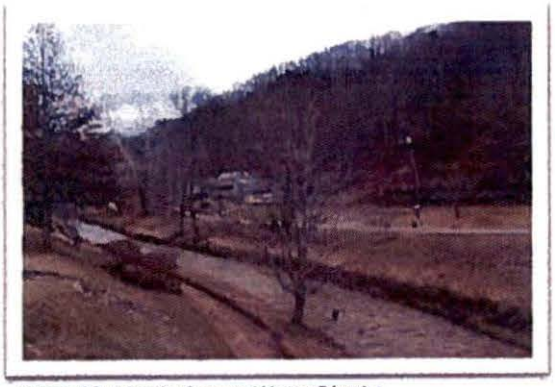

Figure 13, Martin County Water District

Again, the system relies on individuals that are not required to have education or business experience to oversee the manager. Additionally, there is a concern about a rate increase in the case of a management company and as discussed above, rate increases can be political. Many boards of commissioners have been told for years not to increase the rates or they would be replaced because the judge executive at the time made the decision that the residents could not afford a rate increase. Many systems could use a professional

[68] Milburn District, July 18, 2019 Hearing Transcript 42:11-20.

[69] *See* Appendix J and Case No. 2019-00041, Southern District, July 16, 2019 Hearing Transcript 65:18-81:9; 81:6-81:9).

[70] *Id.*

management company to provide efficiencies to put utilities like, for example, Martin District, in a financial position to make the needed improvements to its system and absorb the cost when equipment fails in the normal operation of the system. Currently, each instance of equipment failure threatens the demise of the system.[71]

Recommendations

Certain water systems in Kentucky are not performing well, and the customers of those systems are bearing the consequences, including poor water quality and paying more than they should for substandard water service. The Commission has taken steps to improve the water systems under its jurisdiction (see Appendices A-K) and it will continue to do so as outlined in this report and in its final Order issued in the water loss investigations. However, the Commission is only one of several administrative and regulatory agencies tasked with providing oversight and ensuring funding for safe drinking water throughout the Commonwealth, and each has a role to play in identifying processes and policies that led to the infrastructure challenges our water utilities now face and in finding solutions. Working together strategically, we can help these systems become operationally and financially sound once again and safeguard the health and welfare of Kentucky's citizens. The following recommendations and conclusions are intended for consideration and discussion by the general assembly, all administrative and regulatory agencies with jurisdiction over water utilities, funding entities and other stakeholders.

New or Enhanced Statutory or Regulatory Requirements

Qualifications of Water Utility General Manager. A water utility general manager must ensure compliance with federal and state water quality standards; maintain the system's infrastructure by consistently adjusting rates and successfully applying for grants and low interest loans; and oversee the provision of safe and reliable water service to the utility's customers. To adequately perform these and other duties required by the position, one must have an understanding of the need for internal controls and how to develop, adopt and enforce them; the ability to supervise both office and field personnel; and knowledge of basic accounting and budget preparation principles as well as an understanding of the legal duties attendant to the position. Yet, we have found that many general managers have little, if any, background in business management and that they lack not only the experience but also the education necessary to successfully operate a water utility. The Commission recommends statutory changes that would require water district or water association general managers to have formal educational and professional requirements (to be outlined in statute) for the position and require annual attendance of at least 12 hours at professional seminars, the course materials and instructors of which to be approved in advance by the Commission.

Employment of a Staff Engineer. Each water district or association, individually or jointly in cooperation with other similarly situated districts or associations, should employ a graduate engineer on staff.[72] This requirement could be met if the general manager holds a degree in engineering. Outside engineers identify and design capital projects, apply for grants and other funding, and oversee construction. A resident engineer

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[71] Case No. 2018-00017, *Martin County Water District ARF* (Ky. PSC Nov. 15, 2019).

[72] The 2007 Management Audit Report of the Martin County Water District conducted by the Barrington-Wellesley Group recommended employment of an engineer individually or jointly with other water districts. (*See* Management and Process Audit of Martin County Water District, Final Report Chapter 3, Recommendation D1 on page III-8, dated March 19, 2007).

could serve that function on a regular basis as well as oversee infrastructure maintenance and replacement. In addition, the resident engineer could help with supervision and management of any contracted engineering services. Water utilities sharing the services of an engineer is an example of how water districts could cooperate to share the services of an engineer to stretch their limited financial resources, as well.

Qualified Infrastructure Improvement Plan. Each water district and association should be required to develop a comprehensive Qualified Infrastructure Improvement Plan that must be filed with and approved by the Commission. Any changes to the Plan also must be filed with and approved by the Commission. Periodically – at least every 3 years – water districts and associations must report to the Commission their adherence to and compliance with the Plan as well as progress made toward infrastructure replacement provided for therein.

Qualified Infrastructure Improvement Surcharge or Rider. In order to provide clarity and remove any uncertainty surrounding requests for same, the Commission recommends formal codification of its authority to establish a Qualified Infrastructure Improvement Surcharge or Rider, the proceeds of which will be devoted exclusively to infrastructure improvement and replacement.

Authority to Effect a Merger or Consolidation. As previously discussed, while Kentucky is ahead of the curve when it comes to regionalization on a national level, there is more work to be done here at home. The Commission recommends consideration of legislation that would grant authority to involuntarily merge distressed water utilities with other, interconnected distribution systems, including municipal water utilities.

Authority to Effect a Rate Case as part of Funding Review Process. In order to maintain utilities financially and operationally, the Commission should have the authority to review the utility's financial and operational needs during its review of funding requests pursuant to KRS 278.020 or KRS 278.023. The current 30 day time period to perform the initial review of the funding request should be extended to 60 days and upon indication that a utility's financial or operational needs require an adjustment in rates, the Commission should have the authority to effect a rate case.

Augmented Regulatory Oversight

Designated Infrastructure Accounts Restricted to Water Loss Reduction. As previously discussed, for ratemaking purposes, 807 KAR 5:066, Section 6(3) does not allow an adjustment in rates for unaccounted-for water in excess of 15 percent, however, the Commission recommends allowing a utility, upon submission of an approved Qualified Infrastructure Improvement Plan, to collect the difference between 15 percent and the percentage of water loss in excess of 15 percent, to be maintained in a separate account that is restricted for Commission approved infrastructure repair intended to reduce water loss. These funds would be in addition to any Qualified Infrastructure Improvement Surcharge or Rider previously identified above.

Infrastructure Engineer. The Commission should be authorized to establish the staff position of Infrastructure Engineer with job duties exclusively devoted to the review, approval and oversight of the implementation of the Qualified Infrastructure Improvement Plans filed by water districts and associations.

Infrastructure Planning Committee. The Commission together with the Division of Water should establish a joint committee to promote, design, and develop infrastructure planning by water districts and associations as well as to review and enforce compliance with their respective Qualified Infrastructure Improvement Plans.

Improved Oversight and Management of Water Utilities

Regional Water Boards. Consideration should be given to the creation of regional water boards to oversee the management of regional and local water supply, infrastructure and resources. Such a management structure would serve to reduce duplication of services, achieve economies of scale in purchasing, and permit the employment of a professionally qualified general manager at a salary commensurate with the responsibilities of the office. Regional Water Board Commissioners would be appointed by the Governor to staggered four-year terms with appointments to be confirmed by the Senate. Such boards would be subject to Commission jurisdiction and the Commission would retain jurisdiction over the construction of facilities, financing and rates.

Eliminate Partisan Political Pressure. Water district oversight and management should be separated from the authority of the county judge executive and fiscal court so as to reduce local partisan political influence. Such interference compromises timely infrastructure maintenance and replacement by impeding necessary and periodic rate increases, leading to the use of funds that should be dedicated to infrastructure needs to cover current operating expenses. Water district commissioners should be appointed by Regional Water Board Commissioners, subject to the qualifications of holding a college degree and to passing an examination developed and administered by the Commission. Appointing water commissioners by the Regional Water Board and enhancing the qualifications for the position should attract better candidates and remove a level of partisan political pressure from the appointing process.

Annual Audit Requirements. All annual audits of water utilities should include a discussion and critical analysis of internal controls, operating procedures and perceived or potential deficiencies in management practices. Water associations also should be required to undergo annual audits. (They are not required to do so under current law). Water districts and associations should be required to bid out auditing services contracts and change auditing firms at least every three years. Consideration should be given to establish a common database of periodic utility filings that can be shared across the state agencies that would reduce the redundant reporting burden and facilitate cooperation with various state regulatory agencies.

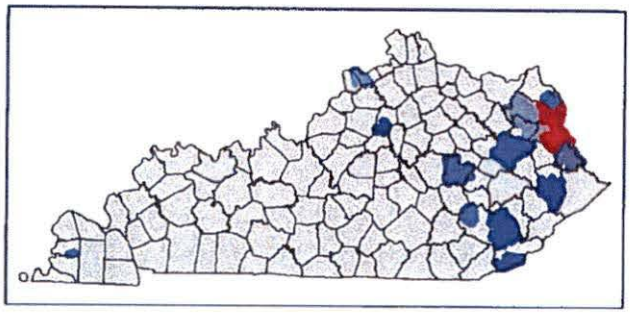
Periodic Rate and Operations Review. Every water district and association should be subjected to a rate and operations review every three years to ensure that revenue is adequate to properly operate the system over the long term. Rate increases recommended by Commission Staff should be required to be implemented in full by the utility. The Commission further recommends that its authority to require that the portion of rates applicable to infrastructure replacement be utilized only for that purpose and be specifically codified.

Conclusion

Ready to work as part of a united force to improve water quality and service. The Commission recognizes and appreciates the attention the Kentucky General Assembly has given to issues plaguing troubled water systems. In addition to the investigations of water utilities with excessive water loss, the Commission has been collaborating with the funding agencies to confront some of the problems identified. The Commission also is examining its own regulations, specifically the one that disallows recovery for water loss that exceeds 15 percent (807 KAR 5:066, Section 6(3)). As the infrastructure problems faced by Kentucky's water and wastewater utilities vary in nature and degree, solutions have to be considered in broad terms. The Commission hopes sharing the results of its investigations can serve to further the efforts that all interested parties are making to implement better processes for water utilities.. Soon, the Commission will be issuing a formal order directing the water utilities investigated in Case No. 2019-00041 to take specific action to right the course. The water utilities will be expected to report their progress to the Commission within specified timeframes. Examples of actions the Commission will be requiring include establishing policies and procedures for leak detection, developing written customer billing policies, and completing water audits. The Commission is releasing this report contemporaneous with the issuance of the formal Order in Case No. 2019-00041, to capture all elements of these investigations—complete with findings, conclusions and recommendations. One thing on which we can all agree is that, if not addressed now, these problems will continue to mount along with the costs of remediation—costs that are already well beyond what the customer bases of these rural water utilities can bear. We must work together to find solutions for the challenges these water utilities face. The Commission welcomes your feedback and stands ready to work with any and all relevant stakeholders to improve water quality and service for all Kentuckians.

APPENDIX A

Big Sandy Water District



Organized in 1977, Big Sandy Water District (Big Sandy District) serves 4,794 customers. It purchases all of its water from five different suppliers: city of Kenova, West Virginia, city of Ashland, city of Louisa, Rattlesnake Ridge District, and Cannonsburg District. Big Sandy District reported a 40.77 percent water loss for 2018. (2018 Annual Report at 57, line 33). Based on Big Sandy District's most recently filed Annual Report, reducing water loss to 15 percent, it could reduce its cost of water by $328,389. (2018 Annual Report at 50 and 57).

The utility's last general rate case was Case No. 2012-00152, in which the district requested an 11.70 percent increase but due to adjustments for excessive water loss, depreciation, unauthorized debt, a purchased water adjustment, and other routine adjustments received a 5.10 percent increase. Big Sandy District consistently files purchased water adjustments as its suppliers increase their wholesale rates. Big Sandy District increased rates in Case No. 2016-00423, a purchased water adjustment due to a wholesale supplier increase in its wholesale rate. The final Order issued in Case No. 2016-00423 calculated that reducing water loss to 15 percent would potentially reduce purchased water expense by $192,105. (*Id., Purchased Water Adjustment Filing Of Big Sandy Water District* (Ky. PSC Jan. 4, 2017)). Big Sandy District recently increased rates effective October 7, 2019, in Case No 2019-00275, a case filed pursuant to KRS 278.023. The total water improvement project cost is $3,040,000. (*Application Of Big Sandy Water District For A Certificate Of Public Convenience And Necessity To Construct A System Improvements Project And An Order Approving A Change In Rates And Authorizing The Issuance Of Securities Pursuant To KRS 278.023* (Ky. PSC Oct. 7, 2019)).

A letter from the Boyd County Attorney, Daniel King III, informed the Commission of a vacancy on Big Sandy District's Board of Commissioners. The Commission initiated an investigation, Case No. 2019-00187, to determine whether a vacancy existed. (*Id., An Investigation Of Possible Vacancy On The Board Of Commissioners Of Big Sandy Water District* (Ky. PSC Jul. 10, 2019). The final Order in this proceeding has not been issued as of the time of this report.

Paul Thomas Big Sandy District's current board chairman was appointed to the board in 1981. (July 17, 2019 Hearing Transcript 9:17–18). Mr. Thomas testified at the formal hearing that the district does not have a general manger. He stated the district relies on a field manager and office manager that work closely with each other and the board. He stated that this arrangement works well for their system, and that the board is not currently planning to fill the general manager position. (*Id. at* 17:11–18:21). The Commission believes that Big Sandy District would be better served with a qualified general manager. The field manager and office manager focus on the day to day operations, a general manager would provide broader oversite of the utility and the issues facing Big Sandy District.

During the course of this proceeding, multiple issues regarding the operations of the utility highlight the challenges faced by a small rural water utility. Big Sandy District provided to the Commission a list of its top

three obstacles that the utility believes are preventing or slowing its progress in reducing water loss. They are (1) aging infrastructure, (2) lack of valves to isolate leaks, and (3) lack of training in leak detection techniques. (Response to Commission Staff's Request for Information Dated May 31, 2019). The utility has not tested all of its meters within the requirements as set out in the regulations, (807 KAR 5:066 Section 16) does not have a meter testing schedule, and has financially been unable to maintain sufficient meters in stock for replacement. (July 17, 2019 Hearing Transcript 116:3-5). Mr. James Blanton, former field operations manager, testified that 2,100 meters have been in service for more than ten years without being tested. (*Id. at* 99:17-100:8). Commission Staff periodic inspections in June 2015 and June 9, 2017 cited the utility for having meters in service that had not been tested. (*Id. at* 39:1-41:25). As meters age, especially after reaching an age in excess of ten years their accuracy is questionable and may read up to 20 percent below the actual water that is consumed. Big Sandy District's wholesale suppliers have tested their master meters and provided the test results, except for the City of Ashland. Ashland has informed Big Sandy District in the past when internal parts are replaced but have not provided test information concerning the master meters. (*Id. at*21:7–22:21).

Mr. Thomas testified that Big Sandy District has an Emergency Supply Agreement with the city of Paintsville. The signed contract, dated June 21, 2004, has no recent amendments. The contract is for the provision of water to either party in the event one of the parties has an emergency event. The rate in the contract is $2.00 per 1,000 gallons. Big Sandy District purchases all of its water from five different suppliers. The various wholesale rates that Big Sandy District pays to the five suppliers are all higher than the $2.00 per 1,000 gallon rate in the Emergency Supply Agreement. Big Sandy District will potentially sell water for less than it pays when Paintsville has an emergency event and purchases water from Big Sandy District. Mr. Thomas further testified that the two entities have not purchased or sold any water between themselves since the agreement was signed. Mr. Thomas acknowledged that the rate needs to be updated in the contract. (July 17, 2019 Hearing Transcript 23:14–25). All special contracts are required to be on file with the Commission. (807 KAR 5:011 Section 13.) The Emergency Supply Agreement between Big Sandy District and the city of Paintsville is not on file with the Commission. Big Sandy District should file the original agreement and an amendment updating the rate to a more reasonable amount that covers the costs incurred.

Mr. Thomas further testified that the district had directed their engineer to develop a project that would address Big Sandy District's water loss. On September 12, 2019, Big Sandy District filed an application pursuant to KRS 278.023 for a CPCN to construct system improvements and for approval to increase rates and issue securities. (Case No. 2019-00275, *Application Of Big Sandy Water District For A Certificate Of Public Convenience And Necessity To Construct A System Improvements Project And An Order Approving A Change In Rates And Authorizing The Issuance Of Securities Pursuant To KRS 278.023* (Ky. PSC Oct. 7, 2019)). This project will replace aging infrastructure and materials such as blue max PVC that have contributed to the district's high water loss.

Big Sandy District's system is adjacent to the systems of the cities of Louisa, Ashland, Paintsville, Cannonsburg District and to the Rattlesnake Ridge District. Consolidation of systems could provide efficiencies and economies of scale and should be considered.

Big Sandy District repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, Big Sandy District does not have a policy for analyzing whether a rate increase is needed and typically relies on rate increases that result from 023 loans for federally-funded construction projects. (July 17, 2019 Hearing Transcript 35:15–36:25). The lack of business acumen regarding Big Sandy District's financial position adversely impacts its ability to render safe, adequate, and reliable service.

As a result of its investigations, the Commission directed Big Sandy District within six months of the Final Order in Case No. 2019-00041 to:

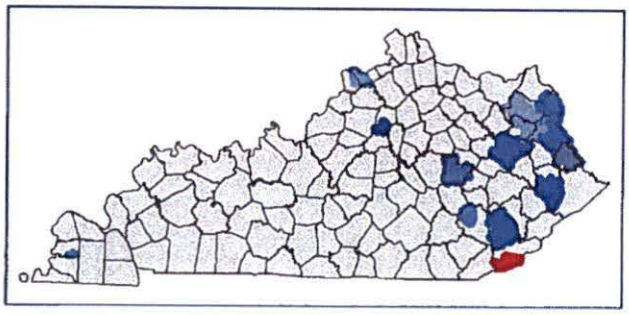
a. Develop and implement a plan to test the 2,100 meters that are ten years old or older that have not been tested.

b. Develop a set schedule for meter and valve testing as part of its leak detection and water loss mitigation plan and to comply with the requirements of 807 KAR 5:066, Section 16., on a going forward basis.

c. Fill the vacant general manger position with a qualified person.

APPENDIX B

Cawood Water District



Organized in 1964, Cawood Water District (Cawood District) owns and operates a water distribution system through which it provides water service to 1,680 customers in Harlan County, Kentucky. Cawood District produces most of its water; however, it also purchases some of its water from the Pineville Utility Commission. For the calendar year ended December 31, 2018, Cawood District reported 37.84 percent water loss. Based on Cawood District's most recently filed Annual Report, reducing water loss to 15 percent, it could reduce its cost of water by $32,353. (2018 Annual Report at 50 and 57).

Cawood District's last adjustment of rates pursuant to 807 KAR 5:076 was in Case No. 2017-00309. During the course of the proceedings in that case, a water outage occurred in Cawood District from November 13, 2017, through November 15, 2017. A letter written by Brent D. Roark, Superintendent of Harlan County Board of Education, described a "serious pattern of problems" and multiple instances of dismissing school early or closing schools due to water outages or health hazards created by water services provided by Cawood District. In the final Order to Case No. 2017-00309, the Commission noted that Cawood District's water loss in excess of the 15 percent allowable for ratemaking purposes was 31.04 percent, and that if Cawood District were to decrease its water loss, it would reduce its cost of water by $42,780.

Cawood District's system is not currently GPS mapped, and utility personnel stated that the only existing maps were physical copies. If a call for 811 is made to locate a line, utility personnel is tasked with locating the line. (July 9, 2019 Hearing Transcript 152:2 – 152:15). Cawood District states that it would cost $4,200 to initially GPS map its system, and $750 annually in order to maintain it on the cloud. (*Id.* at 154:15 – 155:6).

The Water Resource Information System (WRIS) has mapped all of the water systems in the state into their GIS (Geographic Information System). This includes water lines, meters, pumps, tanks, and treatment plants. The Area Development Districts (ADDs) are paid by the KIA to interview each water system annually to update any changes in the GIS. Additionally, those water systems that serve a population of 10,000 or less have had all of their valves and hydrants mapped with GPS (Global Positioning System) and the water lines have been adjusted to the location of the valves. All of this data is available to the water system from the local ADD and the ADD will print paper maps of the system at no cost every year. This is a service that small rural water systems, such as Cawood Water District, should use.

If a call is made to 811 to locate a line, then utility personnel are tasked with locating the line. If the water lines are located accurately in the WRIS, then the 811 call system can use those lines with a buffer of, for example, 200 feet, to delineate the area for the 811 call. This way utility personnel are not sent out on every 811 call in southern Harlan county, but only to those areas with a nearby water line. Again, the ADD GIS staff can help a

small utility with this. The WRIS has contact information for the ADD GIS staff on their web page (https://kia.ky.gov/WRIS/Pages/ADD-GIS-Staff.aspx).

Should Cawood Water District perform a survey of its meters, it should include GPS locations as part of its survey. Cawood should consider investing in an option such as CDP Engineers Geospatial Tools to use the available GIS data in their operations.

In addition to not having GPS mapping, Cawood District has been unable to stay in compliance with meter testing requirements, and this has been a recurring deficiency during the utility's periodic inspections performed by the Commission. At the July 9, 2019 hearing, Cawood District's general manager testified that changing out meters is one of the priorities that he has, and that the Cawood District field crew spends its mornings three days a week changing out meters. (July 9, 2019 Hearing Transcript 121:12 – 122:3).

Cawood District has hired three new employees, two of which are dedicated to leak detection. (July 9, 2019 Hearing Transcript 122:18 – 122:23). The general manager also personally performs leak detection. Since this crew was hired and several major leaks were found, Cawood District personnel stated that they have been able to shut their plant down between seven and a half and eight hours per day. (*Id. at* 124:11 – 125:5). In addition to hiring three new employees, Cawood District has purchased a flow meter for leak detection and has been trained by Kentucky Rural Water Association on the use of the device. (*Id.at* 140:6 – 140:10). Cawood District is currently a party to Case No. 2018-00068, An Investigation into the Feasibility of Proposed Merger of Cawood Water District and Black Mountain Utility District (Black Mountain District) Pursuant to KRS 74.361, which is still pending. The case was originally opened because after review of Cawood District's procedures in Case No. 2017-00309, Commission inspections, Commission Staff interviews, and other publicly available information, it has given the appearance that Cawood District is not providing reasonable and adequate water service. When questioned at the hearing on July 9, 2019 about a possible merger, Cawood District's chairman responded that he felt that it wouldn't be good for Cawood District's customers to have a merger, because Black Mountain District has its own set of problems. (July 9, 2019 Hearing *Transcripld.at* 90:12 – 90:22). He also stated that he felt that the changes that Cawood District has made in the last year has gotten them on the right track to improving their system.

Cawood District's chairperson explained the board's activities included resolving an issue with the state regarding an area of its pipes that is unapproachable due to debris piled on in the course of state road work; that the board sanctioned more leak detection efforts; and has approved the purchase of more leak detection equipment. Cawood District repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, Cawood District's chairperson testified he did not know whether there is a budget or whether a budget was approved by the water district commissioners. (July 9, 2019 Hearing Transcript 87:4–12) and admitted he had no business experience. The chairperson was previously a coal miner for 24 years and was not employed in management and the rest of the board did not have a background in business. The lack of business acumen regarding Cawood District's financial position adversely impacts its ability to render safe, adequate, and reliable service. (*Id. at* 87, 104-108).

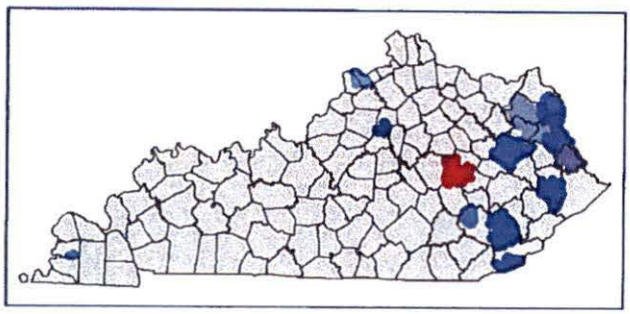
Since the Final Order in Case No. 2017-00309 was issued, and Case No. 2018-00068 was opened, Cawood District has had turnover with its management. Cawood District's chairman testified at the hearing that the previous management had been let go, subsequent to the water outage that occurred in November 2017. Shortly thereafter, Cawood District hired a second manager that remained employed by the District for about a year before he tendered his resignation and was replaced. Additionally, Cawood District's financial officer was asked to resign and her last day at the District was December 31, 2018.

During the investigation in Case No. 2019-00041, it became clear that Cawood District suffered from the lack of training of its board members in best business practices for water utility board and its current manager, though willing, had no training on basic best practices for management of a water utility. There was a shocking lack of policies and procedures to insure adequate record keeping for operations and for customer billing. Finally, despite several years of notice that it needed a meter testing schedule or replacement procedure, it has numerous meters that are ten years or older and require testing or replacement. The Commission directed Cawood District to file with the Commission within six months of the Final Order in Case No. 2019-00041:

a. a revised leak adjustment policy;
b. its 2018 audit and annual report;
c. the results of the tests of its meters that are ten years old or older or in the alternative, obtain and provide estimates to replace those meters;
d. a meter testing schedule;
e. documentation of fire department water usage;
f. a standard written procedure for when there is a line break due to excavation damage that ensures that line break repairs are charged to the appropriate offender;
g. a written policies and procedures manual;
h. a written safety training schedule;
i. a written policy regarding theft of water service; and
j. the results of the comprehensive water audit.

APPENDIX C

Estill County Water District Number 1

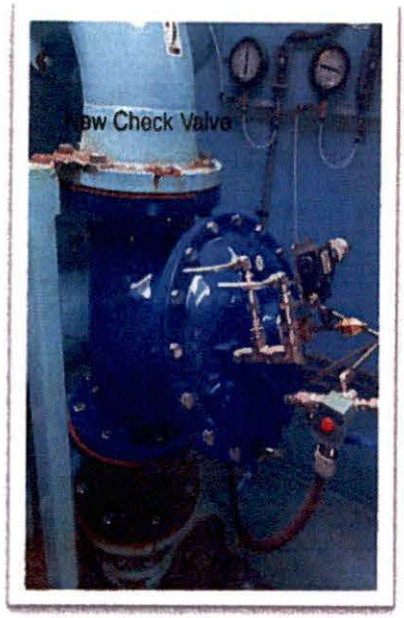


Organized in 1964, Estill County Water District Number 1 (Estill District #1) serves 3,763 customers. It purchases all of its water from Irvine Municipal and Jackson Water and, in 2017, reported 37.65 percent water loss. Its last rate case was Case No. 2017-00176. Here, the water district requested a 22.50 percent increase but due to adjustments for excessive water loss, depreciation, unauthorized debt, a purchased water adjustment, and other routine adjustments received an 11.57 percent increase. The Staff Report issued in Case No. 2017-00176 calculated that ratepayers are paying $0.79 per 1,000 gallons purchased for expenses associated with unaccounted-for water loss greater than 15 percent. Based on Estill County District's most recently filed Annual Report, reducing water loss to 15 percent, Estill County District could reduce its cost of water by $213,868. (2018 Annual Report at 50 and 57).

Through Case No. 2017-00176, Staff discovered that Estill District #1's board was in violation of KRS 278.300 for three unauthorized loans totaling $410,940. The Commission initiated a show cause in Case No. 2017-00467 where the board admitted to executing the loans without prior authorization.

During the evidentiary hearing in Case No. 2017-00176, testimony was given that the utility lacked proper oversight of water loss and that only visual inspection detected most leaks. The two major sources of leaks was malfunctioning valves and improperly laid lines. (*Id., Electronic Application of Estill County Water District No. 1 for Rate Adjustment Pursuant to 807 KAR 5:076,* Nov. 1, 2017 Hearing Transcript 1:18:15 – 1:21:00). The board resigned through an Offer of Settlement. Soon after, the operations manager resigned and the general office manager became the interim general manager. In the hearing for this case, the interim general manager testified that one of the reasons water loss was such a problem was a disagreement between the management and board over a water loss plan. (July 10, 2019 Hearing Transcript 41:13 – 46:5).

The hearing in the administrative case also revealed reluctance to merge with a neighboring water utility. (July 10, 2019 Hearing Transcript 97:18 – 98:4). With regard to a merger with Irvine Municipal, from whom Estill District #1 purchases the majority of its water, the interim general manager stated she felt that her main concern would be representation on the board. (*Id. at* 98:12 – 98:20). She also stated that Estill District #1 had been contacted by Kentucky American Water at some point in order to discuss a purchase of the system. (*Id. at* 100:2 – 100:20).



Since, Estill District #1 has taken steps towards reorganizing and has filed several cases regarding financing. Estill District #1 filed Case No. 2017-00058, *Application Of Estill County Water District No. 1 to Issue Securities in the Approximate Principal Amount of $2,745,000 for the Purpose of Refunding and/or Re-Amortizing Certain Outstanding Obligations of the District Pursuant to the Provisions of KRS 278.300 and 807 KAR 5:001* and Case No. 2018-00276, *Electronic Application of Estill County Water District No. 1 for Authorization to Consolidate its Existing Loans With Citizens Guaranty Bank*. The utility also filed Case No. 2019-00087, *Electronic Application of Estill County Water District No. 1 to Amend the Order of December 21, 2018 in Case No. 2018-00276*.

The utility has also proposed a water loss surcharge in conjunction with a new water loss plan in Case No. 2019-00119, *Electronic Application of Estill County Water District No. 1 for a Surcharge to Finance Water Loss Control Efforts* and Case No. 2019-00252, *Investigation of the Reasonableness of the Tariff Filing of Estill County Water District No 1 to Add a Surcharge to Finance Water Loss Control Efforts*.

The new board is comprised of business professionals who wish to usher Estill District #1 into the future by making conscious decisions with the interest in the water utility's survival, participating in Commissioner training, hiring certified operators with the required skills to improve the technical operations, and educating their interim general manager. The interim general manager testified at the administrative hearing of the instant case that there has been a shift at the district with the new board. She stated that "they're not afraid to raise rates, they are not afraid to expect customers to pay for a service, quality service, but a service, and I think they're wanting to change the dynamic of the district." (July 10, 2019 Hearing Transcript 91:18 – 91:23).

This Commission applauds Estill District #1 for recognizing and tackling its management and operating issues. The new board functions with a better business understanding of the water operations, communications between management and the board flow, and strategic plans are in place. Continued education and required training of the board, the general manager, and key operators is essential to continued improvement. Further, updates to the water loss plan and monitoring of the financial status of the utility through reports and periodic updates to the Commission can allow Estill District #1 to be an example for other water utilities to emulate. The Commission noted that any remedial action regarding the loss prevention or leak detection programs will be directed in Case No. 2019-00119, *Electronic Application of Estill County Water District No. 1 for a Surcharge to Finance Water Loss Control Efforts*. Further, the Commission directed Estill District #1 shall file with the Commission, within six months of the date of entry of the Final Order in Case No. 2019-00041:

a. the results of the tests of its meters that are ten years old or older or in the alternative, obtain and provide estimates to replace those meters;

b. a meter testing schedule;

c. documentation of fire department water usage;

d. a standard written procedure for when there is a line break due to excavation damage that ensures that line break repairs are charged to the appropriate offender;

e. a written policies and procedures manual;

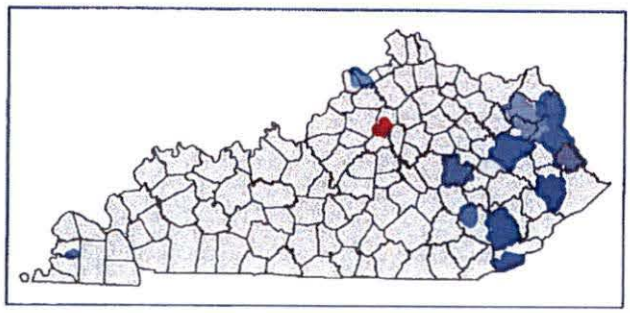
f. a written safety training schedule;

g. a written policy regarding theft of water service; and

h. the results of the comprehensive water audit.

APPENDIX D

Farmdale Water District



Organized in 1961, Farmdale Water District (Farmdale District) owns and operates a water distribution system through which it provides water service to 2,655 customers in Anderson, Franklin, and Shelby counties, Kentucky. Farmdale District purchases all of its water from the Frankfort Plant Board. For the calendar year ended December 31, 2018, Farmdale District reported 30.17 percent water loss. Based on Farmdale District's most recently filed Annual Report, reducing water loss to 15 percent, Farmdale District could reduce its cost of water by $94,283. (2018 Annual Report at 50 and 57).

Farmdale District's last adjustment of rates pursuant to 807 KAR 5:076 was in Case No. 2013-00485. In the Staff Report, Commission Staff disallowed recovery of $28,788 in expenses related to water loss in excess of 15 percent. At the time of Staff's Report, Farmdale District's water loss was 21.10 percent.

At the hearing held on July 11, 2019, Farmdale District representatives stated that their biggest obstacle in combating their water loss issues was lack of trained personnel. (July 11, 2019 Hearing Transcript 34:11 – 35:5). Farmdale District's only employees are its two field employees, including its field supervisor, and two full time and one part time office employee. (*Id. at* 30:1 – 32:10). The general manager stated that while he holds this title, he generally oversees the duties of the field employees, but relies on the office manager to perform the duties in the office. (*Id. at* 32:11 – 33:6). Farmdale District's field supervisor also indicated that there were intentions of hiring an additional full time employee, but it was hard to find someone with experience. (*Id. at* 34:11 – 35:5).

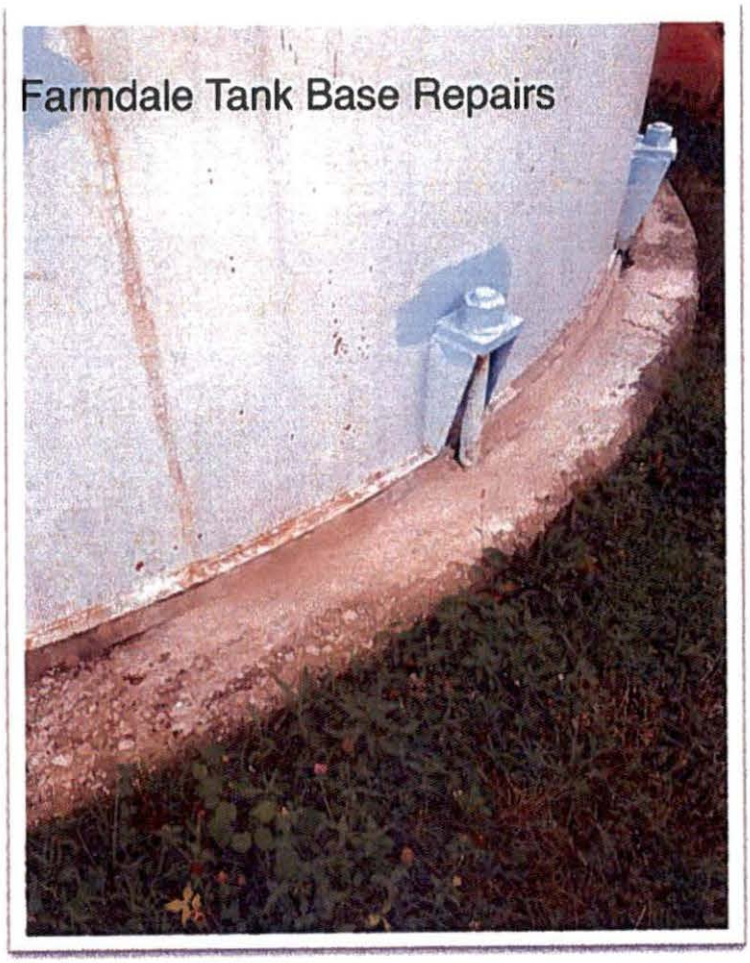
Farmdale District's board of commissioners is very involved with the day-to-day operations of the District. (July 11, 2019 Hearing Transcript 204:17 – 204:21). The division between management and the duties of the board appear to be unclear. There are no written parameters established with regard to spending policies, or the duties of the general manager. (*Id. at* 210:17 – 212:12).

In addition to the lack of personnel, Farmdale District had not developed a capital improvement plan, and only had one major project scheduled in the future in order to replace aging infrastructure. The project will replace 5 1/2 miles of Farmdale District's line. (July 11, 2019 Hearing Transcript 48:10 – 48:14). A large part of Farmdale District's infrastructure is constructed of asbestos concrete pipes, which are brittle, and can be broken without undue pressure. (*Id. at* 47:8 – 48:2). Farmdale District admitted that it is not sustainable to only rely on finding large leaks in its infrastructure, and that more preparation for the future would be prudent practice. (*Id. at* 190:22 – 191:16). Farmdale District indicated that it was using its depreciation reserve in order to pay for current operating expenses. (*Id.at* 188:20 – 188:23). Farmdale District's contracted outside accountant has indicated that Farmdale District should apply for a rate increase in the near future (*Id. at*188:25 – 189:3). Farmdale District repeatedly demonstrated that it does not have sufficient business acumen to

analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. The lack of business acumen regarding Farmdale District's financial position adversely impacts its ability to render safe, adequate, and reliable service.

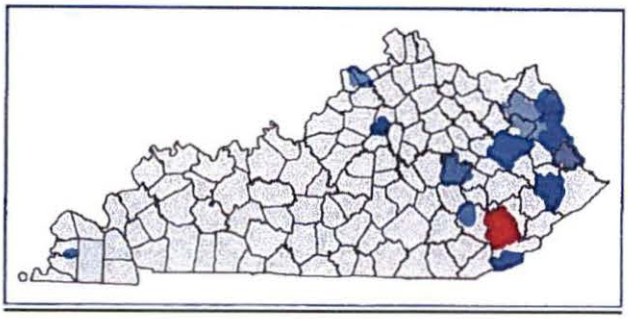
Based upon the testimony and findings during the investigation in Case No. 2019-00041, Farmdale District had one commissioner that performed the majority of duties at the utility and it had no policies or procedures in place to operate beyond the current board. The Commission directed Farmdale District, within six months of the Final Order in Case No. 2019-00041 to file the following:

a. the results of the tests of its meters that are ten years old or older;
b. a meter testing schedule;
c. documentation of fire department water usage;
d. a standard written procedure for when there is a line break due to excavation damage that ensures that line break repairs are charged to the appropriate offender;
e. a written policies and procedures manual;
f. a written safety training schedule;
g. a written safety manual;
h. a written policy regarding theft of water service; and
i. the results of the comprehensive water audit.



APPENDIX E

Hyden-Leslie Water District



Organized in 1968, Hyden-Leslie County Water District (Hyden-Leslie County District) serves 3,594 customers. It has no wholesale agreement to purchase or sell water and produces virtually all of its own water. In 2018, it reported water loss of 32.87 percent. For the month of September 2019 the water district reported water loss of 19.30 percent. The drastic change in water loss reporting without more information is questionable. Based on Hyden-Leslie County District's most recently filed Annual Report, reducing water loss to 15 percent, Hyden-Leslie County District could reduce its cost of water by $65,781. (2018 Annual Report at 50 and 57). Hyden-Leslie County District has not entered into any discussions regarding consolidating with another water district despite having a shrinking customer base. (July 16, 2019 Hearing Transcript 81:11–82:18).

Hyden-Leslie County Water District's last rate adjustment was effective October 29, 2010, in Case No. 2010-00384. The adjustment was made pursuant to KRS 278.023. Hyden-Leslie County District has identified several capital improvement projects that have been entered into the Water Resource Information System (WRIS) but there has been very little activity regarding the funding of the projects in WRIS that have been there since 2014. Hyden-Leslie County District repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, Hyden-Leslie County District has not had the benefit of Commission Staff to assist the utility to determine its appropriate revenue requirement and corresponding rates due to its reliance on 023 cases for its rate increases. The lack of business acumen regarding Hyden-Leslie County District's financial position adversely impacts its ability to render safe, adequate, and reliable service.

On May 10, 2018, the water district submitted a loan application to the United States Department of Agriculture to repair its water treatment plant dam and for water system improvements. Rural Development has approved the application for financing for the water construction project and has issued a letter of conditions to Hyden-Leslie County District regarding the proposed financing. (Response to Commission Staff's Request for Information July 18, 2019).

Hyden-Leslie County District has a limited number of employees and has not assigned specific personnel to detect and repair leaks. (July 16, 2019 Hearing Transcript 40:22–41:25). It has no written policy or operating procedure in place that addresses the process and length of time it should take for the utility to fix a known or reported leaking water line. (*Id. at* 61:24–62:16). Hyden-Leslie County District has never conducted a comprehensive water audit. (*Id. at* 38:13–16, 78:6-16).

Hyden-Leslie County District has no master meters and thus does not utilize master meter zones in leak detection. (July 16, 2019 Hearing Transcript 37:17–38:12). It has no written procedures regarding the testing of its customer meters. Hyden-Leslie County District records are incomplete and do not enable the water district

to determine the age of its meters. The water district estimates that one hundred of its meters that are currently in service have been in service for ten years or longer and have not been tested. (Response to Commission Staff's Request for Information July 18, 2019). Hyden-Leslie County District does not currently have a written policy regarding theft of water service and has never assisted in the prosecution of anyone for theft of water. (July 16, 2019 Hearing Transcript 74:01–76:14). Hyden-Leslie County District has taken no action as of this date against noncompliant fire departments that do not report their water usage and has assessed no penalties. (*Id.at* 33:8–37:16).

The water district provided to the Commission a list of its top three obstacles that the utility believes are preventing or slowing its progress in reducing water line loss. They are (1) the frequency of water main breaks; (2) the lack of established district metered areas and zone meters; and (3) the lack of personnel to establish a dedicated leak detection team. (Response to Commission Staff's Request for Information May 3, 2019). Hyden-Leslie County District allocates funds in its annual operation budget for water personnel training. Employees have attended training programs sponsored by Kentucky Rural Community Assistance Program, Kentucky Rural Water Association, and Kentucky Division of Water. (*Id.*).

As a result of its investigations, the Commission directed Hyden-Leslie District to file with the Commission within six months of the Final Order in Case No. 2019-00041:

a. A written status report regarding funding for the Phase IIIA, Phase IIIB, Phase IV, and Phase VI water system improvements, and SR 1850 Cove Waterline Extension project currently in the Water Resource Information System (WRIS) that has been in WRIS since 2014;

b. Documentation that it is enforcing its tariff regarding fire department usage reporting and assessing fines against any fire department that does not report its usage amounts;

c. Documentation that it completed a comprehensive water audit;

d. A written leak detection policy that includes a timeline stating the length of time any discovered leaks should be repaired;

e. A written policy regarding missed or under billings for its customers;

f. A revised tariff that includes the written policy regarding missed or under billings for its customers;

g. A written update regarding obtaining funding and repairing two current leaks at two tanks;

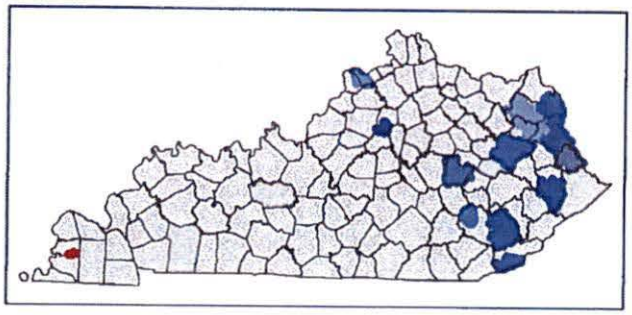
h. A written update on its progress on the upgrade of its billing software;

i. A written policy regarding theft of water service (possibly requiring collaboration with the County Attorney); and

j. A revised tariff that includes a policy regarding theft of water services.

APPENDIX F

Milburn Water District



Organized in 1968, Milburn Water District (Milburn District) serves 136 customers in Carlisle County, Kentucky. It purchases all of its water from the Graves County Water District. Milburn District reported a water loss of 34.84 percent in 2018. Based on Milburn District's most recently filed Annual Report, reducing water loss to 15 percent, Milburn District could reduce its cost of water by $5,877. (2018 Annual Report at 40 and 46). Milburn District is adjacent to the Graves County Water District that is operated by the City of Mayfield. Milburn District's board is open to merging with Graves County Water District. (July 18, 2019 Hearing Transcript 73:24-74-05).

Milburn District has no employees. The district's operator and bookkeeper provide services to the district on a contract basis. The operator has a full-time job, and only works for the district after hours. He is assisted by others in the community on an as-needed basis. (July 18, 2019 Hearing Transcript 12:20-14-11).

All of Milburn District's underground mains are asbestos-cement (AC) lines and were installed when the district was formed in 1968. According to the district's operator, the pipes have reached the end of their useful life. (July 18, 2019 Hearing Transcript 16:9-17:11). The age of the pipes is the primary cause of the district's excess water loss, and a solution would entail replacing the pipes.

Figure 14, Miburn District exhibit to illustrate its failing infrastructure.

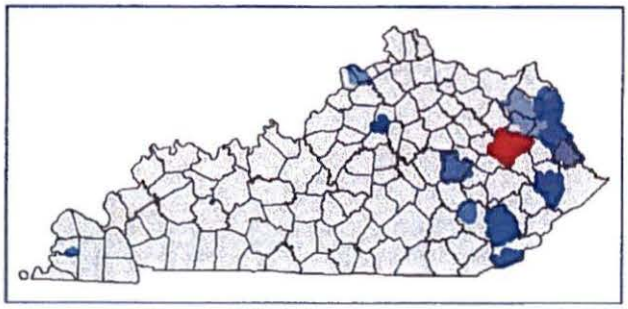
Milburn District repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, approximately 10 years ago, Milburn District developed a project that would replace the district's aging AC lines at a cost of $1.5 million. In response to Staff's post-hearing data request, Milburn District submitted a Drinking Water Project Profile from KIA's Water Resource Information System. According to the Project Profile, all of Milburn District's AC lines are either failing or are expected to fail in the near future. The Project Profile estimates that the AC line replacement project would cost $10,714 per household in the district. This cost estimate was based on the number of households in the district at the time the proposal was developed. The number of households served by the district has declined since then, so the estimated cost per household currently in the district would be higher. (August 27, 2019 Hearing Transcript 21:18-21:42). Milburn District's customer base cannot

afford to borrow this amount. (*Id. at* 23:16-23:28). The lack of business acumen regarding Milburn District's financial position adversely impacts its ability to render safe, adequate, and reliable service.

The Commission directed Milburn District within six months of the Final Order in Case No. 2019-00041 to consider and pursue merger or consolidation with Graves County Water District (Graves District); and file with the Commission a written report on the status of its discussions with Graves District regarding a possible merger or consolidation of the districts. Milburn was very open to merger or consolidation.

APPENDIX G

Morgan County Water District



Morgan County Water District (Morgan District) organized in 1992, serves 2,743 customers in Morgan County, Kentucky. It purchases all of its water from West Liberty Water Works and the Cave Run Water Commission. Morgan District reported a water loss of 41.41 percent for 2018. Based on Morgan County District's most recently filed Annual Report, reducing water loss to 15 percent, it could reduce its cost of water by $208,046. (2018 Annual Report at 50 and 57). Morgan District's last general rate case was Case No. 2016-00068. In its application, Morgan District sought an increase in water rates of 14.97 percent. (*Id.* Application, Exhibit 1, Customer Notice). In its review of the application, Commission Staff determined that the district's operations warranted a rate increase of 26.56 percent, (*Id.* Staff Report filed July 11, 2016 at 17) however; Morgan District chose only to implement the 14.97 percent rate increase sought in its application. (*Id.,* District Response to Report filed August 1, 2016) at 1).

Shannon Elam, Morgan District's new board chairman, testified at the formal hearing that the board rejected the higher rate increase "maybe trying to protect the citizens," many of whom he said were on fixed incomes. (July 9, 2019 Hearing Transcript, 27:1-28:1). When the utility could not meet its obligations, the board sent a letter to the Commission's Executive Director to ask if they could accept the rest of the rate increase. (Case No. 2016-00068, Post Case Files, Letter filed June 18, 2018). The letter sent almost two years after the utility rejected the recommended rate increase stated, "this rate increase has proven to be insufficient to generate the necessary revenue for the water district."(*Id.)* Morgan District was advised that it would need to file a new rate case if it were requesting a new rate increase because the 2016 rate case was closed. Additionally, when Commission Staff investigated Morgan District's funding, it reviewed Morgan District's application for a federal Rural Development loan and discovered that Morgan District had failed to account for depreciation in the calculation of its rate schedule. (Case No. 2008-00242, Preliminary Engineering Report filed Jul. 30, 2008 at 5). This is an example of poor planning and poor choices, even when Commission Staff advised that Morgan County Water required a rate increase of 26.56 percent, they chose to reject it and soon discovered that their plan to circumvent a rate increase put the utility in financial crisis.

Morgan District repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, Mr. Elam testified at the formal hearing that that in the past, Morgan District's board and former manager had not focused on water loss and its effect on the district's finances, but that there had been a change of culture with the new board. (July 9, 2019 Hearing Transcript 22:21-24:18). Morgan District's Chairman stated that the district needs a rate increase (*Id. at* 165:12-166:4), and that it intends to submit its application for a rate increase by the end of the year. (*Id. at* 68:18-68:25). On May 28, 2019, Morgan District's commissioners held a special called meeting where they, among other things, discussed Morgan District's dire cash flow position and approved a motion to take out a

one year note so that the District could make its July Rural Development bond payment. (Case No. 2019-00041, Morgan County Water District Response to Data Request per Order of July 1, 2019 (filed Jul. 17, 2019) at 80). The lack of business acumen regarding Morgan District's financial position places it in financial jeopardy and adversely impacts its ability to render safe, adequate, and reliable service.

After the initiation of this case, Morgan District hired Nesbit Engineering to develop projects to reduce line loss. On May 31, 2019, Morgan District filed into the record of this proceeding direct testimony of Paul Nesbitt, from Nesbitt Engineering, Inc. Mr. Nesbitt stated in his testimony that Nesbitt Engineering has been authorized to prepare an application for project funds that will be used to replace lines with the highest leakage and to purchase leak detection and flow monitoring equipment. (*Id.* Direct Testimony of Morgan County Water District Engineer, Paul Nesbitt (filed May 31, 2019) at 3). Morgan District will seek financing in the total amount of $1.2 million from both USDA-RD ($280,000 loan and $120,000 grant) and the Appalachian Regional Commission ($800,000 grant) Mr. Nesbitt noted Morgan District should consider a rate increase to stabilize its financial condition and that the district intends to seek a rate increase in conjunction with Commission approval of the Rural Development loan.

Figure 15, Morgan District Pump Station, Commission Inspection 2018

In addition to aging infrastructure and a lack of management focus, there are other factors contributing to the district's high water loss. These include: a customer leak adjustment policy that does not recover the actual cost to the district of the water lost, meters that have been in service for more than 10 years without having been tested, and inadequate reporting of water use by fire departments and road contractors.

Morgan District's system is adjacent to water systems of the city of West Liberty, Magoffin County Water District, the city of Frenchburg and the city of Campton. Consolidation of systems could provide efficiencies and economies of scale and should be considered.

As a result of its investigations, the Commission directed Morgan District within six months of the Final Order in Case No. 2019-00041 to:

a. Develop a written meter testing schedule;

b. Document that it tested all of its meters that are ten years old or older, and file the results of these tests;

c. Provide documentation that it is enforcing its tariff regarding fire department usage reporting and assessing fines against any fire department that does not report its usage amounts;

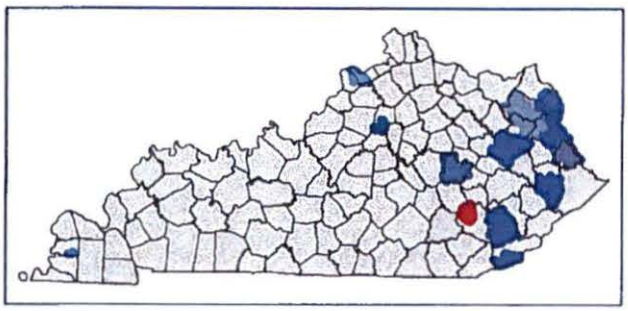
d. Revise its leak adjustment policy to clearly establish the rate charged for water usage over the average;

e. Prepare and file an application for alternative rate adjustment, pursuant to 807 KAR 5:076; and

f. Consider or pursue merger with adjacent water systems.

APPENDIX H

North Manchester Water Association



Organized in 1971, North Manchester Water Association (NMWA) serves 1,923 customers. NMWA purchases its water from Manchester Municipal Water Works. As of 2018, its water loss stood at 38.36 percent. (July 10, 2019 Hearing Transcript 56:16-23). Based on North Manchester Association's most recently filed Annual Report, reducing water loss to 15 percent, it could reduce its cost of water by $87,911. (2018 Annual Report at 50 and 57). In NMWA's latest rate case, Case No. 2019-00052 filed February 15, 2019, NMWA requested a $109,097 increase in revenues based on a 2017 test year. The utility has not filed a construction financing case in the last 10 years. However, NMWA has been a utility in turmoil.

NMWA's current management and personnel have been in place about a year and a half. (July 10, 2019 Hearing Transcript 84:2-8). They inherited a utility in very poor condition, both operationally and financially. New management discovered that the utility had seven bank accounts with only $400 total and virtually no equipment. The Manager had to ask a personal friend to extend credit to put tires on a truck until the utility could pay the bill. (*Id. at* 92:9-93:1, 163:8-12). In addition, there were virtually no records of meter reads, testing, or even maps showing the locations of outside plant. (*Id. at* 83:23–84:1, 84:9–85:6). The utility's accountant who performed all the billing and payroll also held the position of Board President. He was fired when new management took over. (*Id. at* 86:3 - 88:3, 89:4-6). One example of poor management decisions is that the accountant was allowed to keep many utility records at his office. When he was fired, 25 years of records were either thrown away or lost. (*Id. at* 85:11–86:21, 89:19–90:9). Another problem NMWA's new management faced was a KIA loan that the County had taken out because water associations are not eligible for those loans. When new management took over and realized that it had no money, it ceased making payments which caused problems for the County and KIA. NMWA working with KIA has an arrangement with the fiscal court and has since begun making payments again. (*Id. at* 99:7-101:2). At the hearing, management reported that it had worked to recover missing records (*Id. at* 86:8-17) and that it had built its finances up to over $200,000. (July 10, 2019 Hearing Transcript 93:25). Poor management and billing practices are being addressed. (*Id. at* 142:18-145:3). Currently, NMWA realizes the need for and is working with KRWA to put together a policies and procedures manual. (*Id. at* 122:23-20, 132:6-135:5, 145:6-9).

NMWA provided to the Commission a list of its top three obstacles that the utility believes are preventing or slowing its progress in reducing water loss. They are (1) funding for line replacement, (2) aging infrastructure, and (3) personnel turnover. (Response to Commission Staff's Request for Information, May 3, 2019). In addition, the water association is in the process of obtaining and implementing a new billing system that will allow customer meter information to be tied to billing records. (July 10, 2019 Hearing Transcript 103:12-16). Other problems management is working to overcome include employee retention due to low wages. (*Id. at* 110:14-111:10). NMWA's system is engineered such that the entire system has to be shut down for leak detection. A primary goal of the utility is to install more valves, meters, and line replacement. (*Id. at* 18:16-21,

104:12-25, 109:3-18). The utility is working to change its manually read meters over to Badger radio read meters to improve efficiency. (*Id. at* 26:5-24, 71:16-72:13).

Finally, due to a lack of records, NMWA has been unable to file its 2017 and 2018 annual report. At the hearing, the utility reported that it expected to file its 2017 report in the next three months and that information for the 2018 annual report was being gathered. (July 10, 2019 Hearing Transcript 167:7-22). NMWA has been working on a loan application to proceed with several projects that will in part begin to address its infrastructure problems. (*Id. at* 54:15-56:15). The application has been delayed due in part to not having the records to complete its 2017 audit. Once the 2018 audit is complete, the loan application process will be completed. (*Id. at* 172:3-174:18, 179:4-182:4). It should be noted that NMWA is unique among the utilities that are the subject of this report in that it is a nonprofit association as opposed to a quasi-governmental entity as are the water Districts. KRS 65.065 applies to the water districts and KRS 65.065(3), (4), and (5) require the Districts to perform an audit using an independent Certified Public Accountant. (See KRS 65.065 Budgets – Application only to fiscal periods ending before July 1, 2014 – Transition to requirements of KRS 65A.010 to 65A.090 – Filing – Financial statements – Audits – Enforcement. https://apps.legislature.ky.gov/law/statutes/statute.aspx?id=41692). As a nonprofit company, NMWA is not subject to these audit requirements. However some lenders such as RD and KIA, but not all, require an annual audit as a part of their loan covenants.

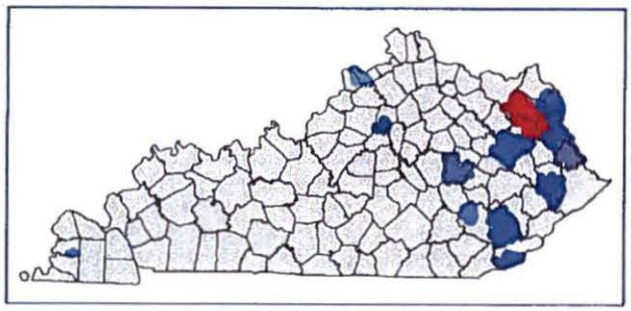
At the hearing, NMWA indicated that the rate case would be withdrawn and refiled, if necessary, once the 2018 annual report was filed. (July 10, 2019 Hearing Transcript 142:3-11). The rate case was subsequently withdrawn and the case was closed on July 31, 2019.

As a result of its investigations, the Commission directed NMWA within six months of the Final Order in Case No. 2019-00041 to:

a. Develop and implement a written policy regarding theft of water service;
b. Amend its tariff to include the water theft policy and ensure that the tariff is enforced;
c. Develop and implement a set schedule for meter and valve testing as part of its leak detection and water loss mitigation plan;
d. Test all of its meters that are ten years old or older;
e. Complete a comprehensive water audit;
f. Provide documentation that it is enforcing its tariff regarding fire department usage reporting and assessing fines against any fire department that does not report its usage amounts;
g. Develop and implement a written policies and procedures manual to include office and financial internal controls and protocols;
h. Develop and implement a written employee vehicle usage policy;
i. Develop and implement a written safety training schedule; and
j. Conduct safety training at regular intervals.

APPENDIX I

Rattlesnake Ridge Water District



Organized in May 3, 1983, Rattlesnake Ridge Water District (Rattlesnake Ridge) serves 4,015 customers. It produces virtually all of its own water. In 2018, it reported water loss of 62.98 percent. Its last full rate case was Case No. 2013-00338 based upon a 2012 test year resulting in a 29.02 percent rate increase to customers using 5,000 gallons per month. Rattlesnake Ridge's 2012 water loss was 36.92 percent. Rattlesnake Ridge District's most recently filed Annual Report fails to provide sufficient detailed information to determine the potential reduction in cost of water the utility could experience by reducing water loss to 15 percent. Since the last rate case, it has had two construction financing cases, Case Nos. 2015-00040 and 2018-00371. The latter two cases included loans from the United States Department of Agriculture Rural Development, (RD) and mandatory rate increases to all customers to cover loan servicing obligations.

During the course of this proceeding, multiple issues regarding poor management practices and board oversight came to light. In some instances, the utility sells water wholesale for less than it purchases water wholesale. (July 17, 2019 Hearing Transcript 51:9-16). Rattlesnake Ridge does not have a contract for meter reading. (*Id.* at 32:21-25). The utility has not tested all its meters within the 10 year requirement, has no meter testing schedule and has insufficient meters in stock for replacement. (*Id.*at 26:21-25, 27:14-28:11, 21:1-24). Several fire departments have not been reporting water use. In addition, the utility has not aggressively pursued the fire departments for past due amounts for up to fifteen years. (*Id.* at 73:9-81:25). The utility has not been consistently pursuing theft. (*Id.* at 148:7-25, 173:5-174:8). However, in the utility's defense for not pursuing theft of service, it reported that the county attorney told them that it would cost more to pursue theft than it was worth. (*Id.*at 149:1-15). The utility stated recovering the repair costs for 811 call line breaks would also cost more than the recovered repair costs. (*Id.* at 82:21-86:4).

The chairman of the bin addition to the general manager, takes an active role in the management of the utility. (July 17, 2019 Hearing Transcript 187:16-188:9). The current general manager's background was in highway construction and in utility's field operations prior to becoming field superintendent and then as the general manager. (*Id.* at 12:5-13:5, 130:4-130:18). The general manager's responsibilities still include managing field operations. (*Id.* at 109:11-23, 188:22-190:14). The utility has had trouble filing required reports since 2016. (*Id.* at 55:1-9). There is no manual for policies and procedures, though there is an employee handbook and safety manual. (*Id.* at 99:8-24). The employee evaluations are not reviewed with employees, however the employees generally receive a raise annually. At the time of the hearing, they had not received a raise since January of 2018. (*Id.*at 110-112). The general manager does the daily entries and the accountant who receives a monthly fee, does all journal entries, taxes and retirement. (*Id.*at 106:10-22, 110:1-8). The utility pays 100 percent of health care benefit costs, but the general manager does not know how much it costs the utility on an annual

basis. (*Id.* at 104:17-105:9). The relationship between the utility management and the bBoard of directors has not been effective. The general manager has not been actively suggesting policy improvement to the board and in the absence of management effectiveness, the board has not been giving guidance to the general manager. (*Id.* at 115:7-116:4).

Leaks in service lines are believed to be the primary source of lost water. However, the utility also believes that the timing between reading of meter and reporting may also be a contributing factor. (*Id.* at 113:4-114:12). Despite the high water loss, there is no dedicated leak detection / repair crew and training is on the job. (*Id.* at 88:14-89:16). At the hearing, the utility admitted that it has not been fully funding its depreciation reserve and sinking fund accounts as required in its RD loan covenants. (*Id.* at 134:17-135:4). However, the utility has begun funding its reserve accounts again. (*Id.* at 97:8-98:13).

In its most recent financing case, the utility is funding several projects through grants and loans. Some of the projects could have been delayed given its current financial state, however pursuant to KRS 278.023, the Commission cannot reject the application for federal funds and has no mechanism to open a rate case to investigate further. (Case No. 2018-00371, *Application of the Rattlesnake Ridge Water District for a Certificate of Public Convenience and Necessity to Construct, Finance and Increase Rates Pursuant to KRS 278.023,* (Ky. PSC Nov. 5, 2018)). The final engineering report contained five contracts, three for infrastructure related projects, one for a new office facility and one for line extensions for an additional 34 residential customers. The budget for the three infrastructure projects is $1,440,950 (The $679,005 for the office and $626,250 for the line extensions.) (*Id.,* Final Engineering Report Rattlesnake Ridge Water District 2016 Water System Improvements date October 2018. (Filed Nov. 5, 2018)). In addition to $1,631,400 in grants, the utility is borrowing $2,490,000 to fund the projects. *(Id.* Application at 2).

Rattlesnake Ridge repeatedly demonstrated that it does not have sufficient business acumen to analyze its financials or use financial tools available to it in terms of financial forecasting, budgeting, or even the review of financial statements presented at monthly board meetings. For example, Rattlesnake Ridge has one of the highest rates in Kentucky due to water loss and rely on depreciation reserves to pay operating expenses, but the water district commissioners typically do not ask questions about financial reports at the monthly board meetings. (July 17, 2019 Hearing Transcript 165:24–166–24). The lack of business acumen regarding Rattlesnake Ridge's financial position adversely impacts its ability to render safe, adequate, and reliable service.

The Commission directed Rattlesnake Ridge District within six months of the Final Order:

a. File its 2018 audit and annual report;

b. Provide a written meter testing schedule and the results of testing its meters that are ten years old or older;

c. Provide documentation that it is enforcing its tariff regarding fire department usage reporting and assessing fines against any fire department that does not report its usage amounts;

d. Develop a written procedure ensuring that repairs are charged to the appropriate offender if a line break occurs due to excavation;

e. Develop a written manual to include office and financial internal controls and protocols;

f. Develop and provide a written safety training schedule and implement safety training ;

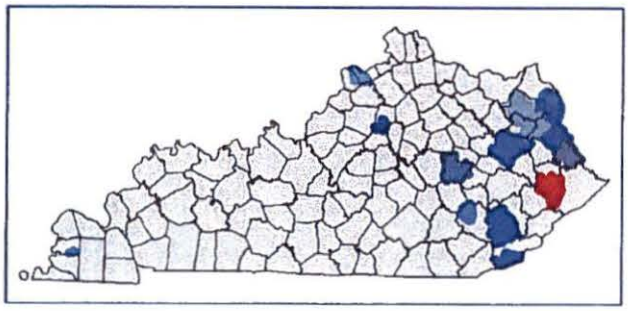
g. Provide a new tariff sheet setting forth a written policy regarding theft of water service;

h. Provide the results of a comprehensive water audit; and

i. Provide a new tariff sheet setting forth its leak adjustment policy clearly establishing the rate charged for water usage over the average.

APPENDIX J

Southern Water and Sewer District



Southern Water and Sewer District (Southern District) was organized in 1999 as a result of the merger of two water districts. Southern District owns and operates a water distribution system through which it provides water service to 5,399 customers in Floyd and Knott counties, Kentucky. Southern District produces most of its water; however, it also purchases water from the city of Pikeville and the Prestonsburg City Utilities Commission (PCUC). Based on Southern Water and Sewer District's most recently filed Annual Report, reducing water loss to 15 percent, it could reduce its cost of water by $424,887. (2018 Annual Report at 50 and 57).

On October 30, 2019, Southern District was granted a rate increase in Case No. 2019-00131, *Application of Southern Water and Sewer District for an Alternative Rate Adjustment* (Ky. PSC Oct. 30, 2019) and was granted a Certificate of Public Convenience and Necessity (CPCN), Case No. 2019-00328, *Electronic Application of Southern Water & Sewer District for a Certificate of Public Convenience and Necessity to Install Automatic Meter Reading Meters* (Ky. PSC Oct. 30, 2019) to purchase and install new meters.

Southern District's last adjustment of rates pursuant to 807 KAR 5:076 prior to the October 30, 2019 rate increase was in Case No. 2012-00309 *Application of Southern Water and Sewer District for an Adjustment in Rates Pursuant to the Alternative Rate Filing Procedure for Small Utilities* (Ky. PSC July 12, 2013). Southern District filed a rate adjustment case, Case No. 2018-00230 on July 12, 2018, which was denied due to lack of reliable information provided by Southern District, *See Electronic Application of Southern Water and Sewer District for an Alternative Rate Adjustment* (Ky. PSC Jan. 31, 2019). For example, Southern District was unable to provide an accurate billing analysis with the specific number of bills and water usage because it failed to electronically archive records prior to changing to a new billing system, *See Id.* Southern District's then-board asserted that it was in dire financial condition due to the sale of sewer assets and a portion of its water system to PCUC. The Commission raised significant concerns regarding the then-board's and then-manager's management practices, including failure to address high water loss and unauthorized loans. Subsequently, all members of the then-board and then-manager resigned.

In February 2019, the current board was appointed and in March 2019, Southern District contracted with a third party management company, Utility Management Group, LLC (UMG). Southern District board members testified that UMG was hired because there was a breakdown in the operation and management of the utility. Southern District's board determined that UMG had the expertise to conduct a "complete overhaul of the organization" and establish sound business practices for managing Southern District. (July 16, 2019 Hearing Transcript 14:5–12; 59:14–60:9). According to Southern District, UMG had the personnel, expertise, and knowledge "to turn the district around." (*Id.* at 14:12–15). During the show cause proceeding hearing, there was discussion that the current board and UMG were undertaking a reorganization of Southern District, which is expected to take between 12 to 24 months to complete. (*Id.* at 58:5–60:9).In Case No. 2019-00131, Southern District requested an expedited review of its request for a 32.30 percent increase in water rates to due to its

dire financial condition, which included a water loss of 62.52 percent. Southern District explained that the amount of excess water loss was the result of years of neglect and that, under previous management, the utility did not spend the appropriate amounts on maintenance and leak detection, and had not tested meters for accuracy in at least ten years as is required by Commission regulation. (July 16, 2019 Hearing Transcript 16:20–22, 17:11–18:1).

Since being hired in March 2019, UMG personnel discovered 750 of Southern District's meters were zero-read meters. Because Southern District had not tested meters for over ten years and did not have an inventory of reliable meters, the zero read meters could not be replaced with functioning, accurate meters. Until Southern District was financially able to replace its current meters, at least 15 percent of its customers paid only the minimum bill, and thus receive a financial benefit by consuming more water than they are paying for. Based upon the large number of zero read meters, the Commission approved an interim flat monthly rate of $58.82 for residential customers rather than a volumetric rate to ensure that all of Southern District's residential ratepayers received a fair, just, and reasonable rate. The Commission approved an interim volumetric rate for commercial and wholesale customers.

Southern District did not implement a leak detection plan or capital improvement plan until it hired UMG. (July 16, 2019 Hearing Transcript 129:1–9). Under UMG, Southern District has addressed water loss by teaching utility staff how to detect leaks, increasing leak detection, and developing a leak detection plan and zone metering plan. (*Id.* at 19:11–13; 161:10–162:1). Working with UMG to develop selection criteria, Southern District issued a request for proposals (RFP) and selected a vendor who will sell and install new radio read meters. (*Id.*at 17:21–20:24; Case No. 2019-00328, Final Order at 1–2). UMG testified that water loss would not be resolved until the current meters were replaced, but that with the leak detection program implemented by UMG, unaccounted for water loss had been reduced from 62.52 percent to 49.00 percent. (*Id.* at 72:25–73:3, 143:4–12).

Due in large part to managerial and operational improvements attributable to UMG, Southern District's financial position is sufficiently improved that, in the final Order in Case No. 2019-00131, the Commission lowered the flat monthly rate for residential customers to $49.48, with residential customers returning to a volumetric rate once new meters are installed. The Commission approved volumetric rates for Southern District's commercial and wholesale customers.

As a result of its investigations, the Commission directed Southern District to file with the Commission in compliance with the Final Orders in Case Nos. 2019-00041 and 2019-00131:

a. File its 2018 audit report with the PSC.

b. Replace its metering system pursuant to the final Order in Case No. 2019-00328

c. Develop a written meter testing schedule;

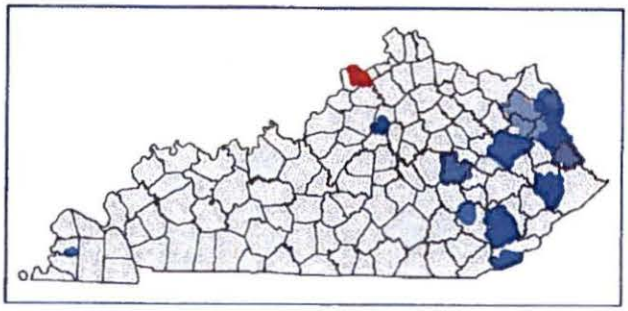
d. Provide documentation that it is enforcing its tariff regarding fire department usage reporting and assessing fines against any fire department that does not report its usage amounts;

e. Develop a written procedure for when there is a line break due to excavation damage that ensures that line break repairs are charge to the appropriate offender; and

f. Revise its written policies and procedures manual to include office and financial internal controls and protocols.

APPENDIX K

West Carroll Water District



Organized in July 1, 1960, West Carroll Water District (West Carroll District) serves 972 customers. It purchases all of its water from four different suppliers, Carrollton Utilities, Henry District #2, Milton Water and Sewer, and Trimble County Water District. In 2017, it purchased a total of 69,935,000 gallons and reported a water loss of 38.46 percent water loss. Its last full rate case was Case No. 2017-00244 based upon a 2016 test year resulting in a 17.57 percent rate increase. West Carroll District's water loss in that case was 32.33 percent. Based upon West Carroll District's most recently filed Annual Report, reducing water loss to 15 percent, West Carroll District could potentially reduce its cost of water by $33,420. (2018 Annual Report at 50 and 57).

Since its last rate case, it has had two purchased water adjustment cases, Case Nos. 2019-00070 and 2019-00207.

West Carroll District has no employees and is operated pursuant to contract with Carrollton Utilities. (July 11, 2019 Hearing Transcript 15:12-17). The current contract compensates Carrollton Utilities $249,362 annually and the contract is re-negotiated once a year. (*Id.* at 17:3-7). West Carroll District has a water loss detection program that was developed in January of 2015. Carrollton Utilities developed the water loss detection program with input from the Commissioners of West Carroll. Currently there is no incentive or disincentive included in the water loss detection program for Carrollton Utilities to reduce the water loss of West Carroll. (*Id.* at 23:5-8). Carrollton Utilities stated that at one time the water loss of West Carroll was close to 15.00 percent. West Carroll District stated that the main drivers of its water loss are the age of the system, topography (rocky areas similar to Eastern Kentucky regions and low lying areas that are prone to flooding), density of customers, faulty line installations. (*Id.* at 35:25-37:1). Resolving the district's excess water loss would require replacement of service line mains.

West Carroll District stated that the district would be interested in a surcharge for water loss repairs and detection. (July 11, 2019 Hearing Transcript 58:14-19). Additionally, West Carroll and Carrollton Utilities both expressed a willingness to consider Carrollton Utilities taking over the West Carroll water district. (*Id.* at 24:1-23). Carrollton Utilities' primary concern with absorbing West Carroll is that its current customers would bear a portion of the cost to repair the West Carroll's system. (*Id.* at 144:12-145:15).

As a result of its investigations, the Commission directed West Carroll District within six months of the Final Order in Case No. 2019-00041 to:

a. Revise its overly generous leak adjustment policy; and
b. Undertake discussions with Carrollton Utilities regarding a possible merger or consolidation of the two systems and file a written report on the status of the discussions.

APPENDIX L

PSC Regulated	Pipeline Miles	Not Regulated by PSC	Pipeline Miles
Investor-Owned Utilities	2,076	Municipal Wholesale selling to PSC Regulated Utilities	17,370
Water Districts	31,837	Other	7,303
Water Associations	5,815		
Total PSC Regulated	**39,728 or 62%**	**Total Not Regulated by PSC**	**24,673 or 38%**

APPENDIX M

Boards of Commissioners

Utilities' responses make clear that the utilities' boards are very aware of their respective water loss numbers. Most regularly receive water loss reports at their monthly meetings. Only North Manchester Water Association's Board stated that it didn't receive water loss reports on a regular basis, but it was informed about water loss measures that need to be taken. Most of the utilities included copies of board meeting minutes documenting that the water loss report was presented. However, the record does not reflect the extent to which specific water loss issues were discussed.(Case No. 2019-00041, Staff's Data Request 1:28, Were the boards of commissioners being informed of water loss reduction efforts on a regular basis).

Of the eleven respondents, only Hyden-Leslie responded that its Board had set a specific water loss reduction target, i.e. achieving 20percent water loss by December 31, 2020. Two additional utilities, Farmdale District and North Manchester Association, responded that they were working to reduce water loss. The remaining utilities responded that their boards had not set any specific targets or deadlines. (Case No. 2019-00041, Staff's Data Request 1: 29, What is the extent to which utilities' boards set specific goals or targets to address water loss?).

APPENDIX N

Staff's Second Data Request Question No. 3, Case No. 2019-00041, Utilities Most Critical Obstacles to Water Loss Reduction	
Obstacles to Reducing Water Loss	**No. of Responses**
System Age / Location	8
Lack of Dedicated / Trained Personnel	6
Lack of Money	4
Meters - Old or Too Few in System	4
Valves - Too Few in System	3
Old Asbestos Concrete Mains	1
Terrain	1
Customer Make-Up - Residential	1
Customer Density	1
Lack of Equipment	1
Old Service Lines	1

The major obstacles given to reducing water loss, can be broken down into two primary categories; those the utility has some measure of control and those that are largely beyond control. Eight utilities listed system age and location as a critical obstacle to reducing water loss. Six utilities listed a lack of dedicated or trained personnel as an obstacle. A lack of funds, the number and condition of system meters, and too few valves in the system received the third highest votes as critical obstacles. Old asbestos concrete mains, old service lines, lack of equipment, terrain, customer make-up and density each received a single vote as an obstacle to reducing water loss. (Case No. 2019-00041, Staff's Data Requests 2:2-3, What were the utilities' major obstacles to reducing water loss).

As a group, the utilities listed factors over which they have no control, such as system age, location, terrain, customer make-up and density, as obstacles. This could be even more of a hardship for utilities with relatively new management. While only four utilities listed a lack of funds as a major obstacle to water loss, having funds sufficient to effectively carry on daily operations, carry out leak detection and repair, and to undertake system investment is a necessary, but not sufficient condition to bring water loss to an acceptable level. The lack of funds (cash flow) is directly tied to a lack of material, personnel, and equipment. Alleviating the lack of trained personnel and equipment is the necessary next step. Without an adequate number of trained personnel, the utility will be unable to carry out the necessary operations on a timely basis. The current state of the utilities' outside plant and water loss statistics is evidence enough of this fact. In the near term, utility boards and management are well aware that they have the ability to control a demonstrated lack of funds through financing and rate case filings with the Commission.

With proper rate case planning, expenses for additional equipment and dedicated personnel, water loss can be known and measurable and incorporated into utility rates. In addition, personnel training and retention can be alleviated. Finally, through sound management and investment practices, the utility can affect the number and placement of various types of meters and valves, and the make-up and placement of mains and service lines.

APPENDIX O

Staff's First Data Request Question No. 30, Case No. 2019-00041, Utilities' top 5 most critical projects to address water loss.	
Utility Manager's Top Critical Projects	**No. of Responses**
Replace Customer Meters	5
Install Master, Zone, Leak Detection Meters	5
Replace AC / Mains	5
Replace Service Lines	2
Replace Lines	2
Better Leak Detection	1
Install / Upgrade Telemetry	1
Install Back Flow Preventers	1
Comprehensive Leak Study	1
Refurbish Pump Station	1
Install Additional Valves	1
Upgrade Billing System	1
Tank Replacement	1
Treatment Plant Improvement	1

The replacement of customer meters, the installation of master, zone and leak detection meters, and the replacement of mains (including asbestos concrete) each received 5 responses as top critical projects to reduce water loss. Two respondents listed replacement of service lines as a critical project. Similarly, two respondents listed replacement of lines generally as a critical project. Taken together, the replacement of lines including mains and service lines was the top critical project for most utilities with a total of 9 responses. Not surprisingly, the replacement of lines and meters is paramount for most utilities. The installation of telemetry, back flow preventers, refurbish pump stations, installing valves, upgrading billing systems, tank replacement and treatment plant improvement each received a single vote. Better leak detection and implementing a comprehensive leak study also received a single vote.

Several points stand out when the top critical obstacles to water loss reduction are compared to managers' top priority projects. Five utilities listed replacing customer meters as a top priority project and 5 utilities listed the replacement of all other types of meters as a top priority. Yet only four listed meter replacement as a critical obstacle. Six utilities listed a lack of dedicated personnel and one utility listed a lack of equipment as a critical obstacle, yet no utility listed these as a top priority project. As stated above, the current state of the utilities' outside plant and water loss statistics highlights the utilities' past boards' and management's reluctance or inability to make the hard decision to increase rates to the levels to enable the effective operation of the utility.

Only three utilities listed valve replacement as an obstacle and only one utility listed that item as a top priority project. It should be noted that when new lines are installed or old lines replaced, valves are usually included as a part of the installation. The ability to effectively isolate parts of the system is a critical aspect of any effective leak detection program. In addition, though only four utilities listed a lack of funds as an obstacle and no utility listed acquiring adequate financing or the filing of a rate case with the Commission as a top priority. Having sufficient funds is a prerequisite condition for all other utility operations and programs. Of the critical projects listed, most are outside plant related. These capital projects are frequently financed through grant and financing packages and filed with the Commission under KRS 278.023 or 278.020 in conjunction with 278.300.

APPENDIX P

Decisions to take out loans.

Generally, the water utility's general manager working closely with an engineering firm to put together a list of capital projects. Upon approval from the utility's board of commissioners / Directors, the various individual projects are bundled together into a package and submitted to various funding agencies for grants and loans. The engineering firm completes the supporting engineering and financial documentation supporting the capital projects and works with funding agencies to help secure funding.

Water utilities that have filed rate and financing cases with the Commission under KRS 278.023 (023 cases) and 278.020 / 278.300 (300 cases) over the last 10 years.

Water Utility	**023 CPCN with Financing and Rates**	**020/300 CPCN with Financing**
Big Sandy Water District	2013-00400	
Cawood Water District	2009-00499	
Cannonsburg Water District	2015-00181	2018-00247
Estill County Water District #1	2013-00339	2019-00119, 2018-00276
Farmdale Water District	2012-00178	
Hyden-Leslie County Water District	2019 application process incomplete, 2010-00384	2012-00316, 2013-00388
Martin County Water District		2015-00095
Milburn Water District		
Morgan County Water District		2016-00342
North Manchester Water Association		
Rattlesnake Ridge Water District	2018-00371, 2015-00040, 2010-00458	
Southern Water & Sewer District	2015-00192, 2012-00165, 2009-00398	
West Carroll Water District		2014-00053, 2012-00386

Both Rattlesnake Ridge District and Southern Water & Sewer District have each filed three 023 applications in the last 10 years. Hyden-Leslie Water District is in the process of finalizing its second 023 application. Big Sandy District, Cawood District, and Cannonsburg District have each filed one application. Estill Water District #1, Hyden-Leslie District, and West Carroll District have also filed 300 financing application. Estill County District #1's 2019-00119 was filed under KRS 278.030 and is requesting a surcharge to finance water loss control efforts. Martin District and Morgan Districts each filed a single 300 application in the last 10 years. Only Milburn District and NMWA have not filed either a 023 or 300 application over the 10 years period.

It is interesting to note that despite being aware of excessive water loss and that line and meter replacement or new additions to the system are listed as top priorities, most of the utilities have not utilized the 023 application process to a great degree. Only one and possibly two applications have been filed in 2019, one in 2018 and then three were filed in 2015. Recent capital projects that have been submitted to the Commission as 023 applications include construction of water storage tanks, main extensions, main replacement, new and upgraded pumping stations, installation and upgrading telemetry systems, new office buildings, and the purchase of various types of meters. However, the replacement of mains and service lines that utilities contend are the main source of leaks were sometimes, but typically not listed as part of 023 capital project loan packages. This is in spite of the fact that as discussed previously, line replacement was listed as a top priority by most utilities.

The United States Department of Agriculture – Rural Development (RD) finances the loans in 023 applications. Generally, after having worked with an engineering firm and other capital project planning resources, the engineering firm on behalf of the utility submits a list of projects along with supporting information to RD for consideration. RD then decides through its underwriting process which projects to fund through loans. RD commitment letters are sent to utilities after loans have been conditionally approved for selected projects. The commitment letters typically contain a standard list of conditions including new rates that will cover the servicing of the loan and funding depreciation reserve and short-lived asset accounts that the utility must agree to fulfill in return for accepting the loan.

One of the conditions in the RD commitment letter is the filing of a rate application with the Commission. Under KRS 278.023, the Commission cannot adjust the proposed rate(s) and has 30 days to approve the rate application, thus ensuring that the utility has sufficient funds with which to service the RD loan. The total cost of the projects contained in 023 applications are typically funded through a combination of grants, a contribution by the utility and an RD loan. Loan covenants require that a depreciation reserve account and a short lived asset account be maintained at a specified level. The RD required contribution to the depreciation reserve and short-lived asset accounts is for that portion of the assets financed through the specific RD loan only and does not include also those assets financed through grants and the utility's contribution toward the total project cost.

The KIA, and Kentucky Rural Water Finance Corporation (KRWFC) are typically the lending agencies for 300 applications. Of the utilities that filed financing applications with the Commission, Cannonsburg District, Estill District, Hyden-Leslie District, Morgan District and West Carroll District were primarily financing construction projects. Construction projects include line extensions and replacement, booster pump stations, master meters, and storage tanks. Of the cases listed, 2018-00276, 2012-00316, 2015-00095, and 2016-00342 are seeking to refinance debt only.

A distinction between 300 financing applications and 023 applications is that the Commission has greater discretion over the 300 applications. However, 300 applications do not involve any changes to the utility's existing rates. Thus, while 023 applications require rates that contain some minimal contribution toward reserve accounts for new additional assets, there is no such requirement in 300 financing applications. Thus, as the utility adds assets to its books through 300 applications, there is no requirement to make corresponding

additions to its reserve accounts. An examination of recent annual financial audits filed with the Commission, clearly show that the reserve accounts are largely being funded by most utilities and maintained at levels required by bond covenants, but insufficient to actually replace assets at the end of their useful lives. The audit reports of Estill District #1 and Rattlesnake Ridge District stated that they were not in compliance with required funding levels. Big Sandy District's annual report stated that it had a surplus in its reserve account. Over time, the utilities with insufficient funding will find it ever more difficult to replace worn out or damaged assets, hampering the utilities' ability to reduce its water loss, which is borne out by the utilities' persistent water loss percentages.

Sound business practices and responsible accounting principles dictate that reserve accounts be adequately funded. In the present case, the lack of adequate reserve account funding, bond covenants notwithstanding, is arguably a strong contributing factor to the utilities' sustained water loss problems. Without sufficient reserve funds, the utility is faced with possibly delaying repairs and replacement of assets, continually competing for limited grant funding, and going deeper into debt. In the case of filing a full rate case, as opposed to filing a 023 application, the Commission's Staff will assist the utility in determining its appropriate revenue requirement and corresponding rates. However, there is no requirement that the utility file its rate application with the recommended level of revenue requirement and rates.

APPENDIX Q

Leak Adjustments

Kentucky statutes and regulations permit a water utility to provide a leak adjustment to a customer's bill when a leak occurs on the customer's side of the meter. A water utility is not required to provide a leak adjustment. Three of the Districts in this proceeding, Farmdale District, Hyden-Leslie District, and Milburn District, do not provide a Leak Adjustment for their customers. However, if the utility choses to provide an adjustment then the utility must list the policy and rate to be charged in its tariff on file with the Commission.(KRS 278.160 (2))

A leak adjustment rate is a non-recurring charge as defined by 807 KAR 5:011 Section 1 (4). A non-recurring charge should recover sufficient revenues to pay the expenses incurred by the utility that otherwise would result in a monetary loss by the utility or necessitate the increase of rates to other customers.(807 KAR 5:006 Section 9) The utility is responsible for updating its non-recurring charges to reflect the changing expenses that are incurred to provide the service. Some of the water districts leak adjustment policies and rates have not been revised for many years. For example, the effective date of the tariff sheets for Cawood District and Estill District #1 were effective in the 1990's. The lack of periodic revision to the policies creates concern for the level of oversite of the Districts policies, rates, and charges by their boards.

A typical Leak Adjustment Policy determines a customer's bill that has requested a leak adjustment in two steps. First, the customer's average monthly usage is determined and this average usage is applied to the general service rates of the utility. Next, the remaining usage above the average is applied to a discounted rate. The customer is responsible for the combined amount. Some utilities apply a different leak adjustment. For example, Cawood District and Estill District #1 determine the customer's average bill and then forgive half of the bill. Morgan District and West Carroll District apply the general service rates to the average usage, then the excess usage is charged at the wholesale purchased water rate. The systems in this proceeding have high water loss and have not considered the additional costs when determining a leak adjustment policy, resulting in charges that do not sufficiently recover expenses.

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Utility type Code	Util_Id	utility	Date Formed	Loss_2018	Loss_2017	Loss_2016	Loss_2015	Loss_2014	Loss_2013	Loss_2012	Loss_2011	Loss_2010	Loss_2009	Loss_2008	Loss_2007	Loss_2006
700	18800	Big Sandy Water District	7/6/1977	40.7654	30.0023	34.0213	32.7729	31.1089	27.8197	31.595	32.098	26.689	25.217	26.983	26.867	7.8256
700	19650	Cawood Water District	12/10/1964	NULL	46.4365	49.1701	45.0578	42.5193	40.8086	39.474	36.579	39.984	33.813	30.52	32.393	34.9847
700	21500	Estill County Water District #1	1964	NULL	37.6514	35.2625	35.4294	36.4579	32.0143	23.612	27.446	25.571	24.896	24.275	27.99	27.9189
700	21700	Farmdale Water District	5/13/1961	NULL	35.9154	39.1625	41.6501	22.6641	26.126	20.536	27.54	24.471	20.062	18.347	18.128	21.7399
700	23300	Hyden-Leslie County Water District	1968	32.8656	35.7394	34.9021	34.5985	38.5026	35.7551	35.848	30.802	31.91	32.422	29.852	32.496	36.2853
700	25400	Milburn Water District	1968	34.8391	37.7287	17.4134	20.0582	15.4364	13.6132	16.892	14.721	13.861	11.403	13.497	12.357	14.8193
700	25603	Morgan County Water District	2/1/1992	NULL	38.0387	29.9265	37.0904	39.2959	42.3213	36.136	41.171	43.085	28.608	27.025	27.129	17.3822
700	28600	Rattlesnake Ridge Water District	5/23/1983	NULL	62.9753	56.3189	50.5203	46.1614	38.927	24.97	14.445	23.167	14.325	14.48	9.5425	14.3378
700	7000900	Southern Water & Sewer District	3/15/2000	62.517	42.1781	42.8533	42.8379	39.4311	41.0501	44.082	22.658	30.102	19.142	20.591	24.979	28.3628
700	31900	West Carroll Water District	7/1/1960	32.9874	38.4599	32.3284	37.1949	30.1119	35.2246	31.077	32.053	21.621	19.617	20.008	21.288	17.1943
800	35300	North Manchester Water Association	1/13/1971	NULL	36.2665	18.3578	16.7346	15.7543	22.9625	32.889	30.69	39.335	3.8564	3.8705	3.804	4.7724

(Continued)

Utility type Code	Util_Id	utility	Loss_2005	Loss_2004	Loss_2003	Loss_2002	Loss_2001	Loss_2000	Loss_1999	Loss_1998	Loss_1997	Loss_1996	Loss_1995	Loss_1994	Loss_1993
700	18800	Big Sandy Water District	1/26/1900	30.5943	25.7694	16.6451	17.9891	14.3615	21.5122	17.502	20.3556	27.5884	24.0381	29.8721	25.4862
700	19650	Cawood Water District	1/30/1900	19.1939	15.5301	33.5687	19.7452	29.0487	28.7087	18.4715	25.0152	6.3542	18.8397	0.7775	13.1427
700	21500	Estill County Water District #1	23.9124	23.4096	17.8141	11.9998	0	0	18.7768	20.7893	16.0439	24.5069	19.8479	18.2885	13.541
700	21700	Farmdale Water District	1/25/1900	24.5211	0	7.9219	5.03	13.0542	10.1563	7.2759	10.3276	8.9167	9.693	6.6521	0.8796
700	23300	Hyden-Leslie County Water District	33.4726	34.0167	34.9109	32.9292	34.6062	37.2824	40.3449	38.6439	39.8023	46.9417	46.844	46.9064	44.5122
700	25400	Milburn Water District	6.7409	3.2818	16.1977	4.6592	12.1407	13.41	13.7949	16.3884	15.066	12.5064	17.2588	19.8642	16.1471
700	25603	Morgan County Water District	1/22/1900	28.0553	15.2024	17.6842	15.9265	18.2303	27.1419	16.4928	22.4508	27.8499	19.4937	8.9078	NULL
700	28600	Rattlesnake Ridge Water District	1/23/1900	21.2231	11.544	9.2341	12.9356	11.5227	12.9217	11.4818	10.8854	10.3545	8.7572	15.1184	14.1293
700	7000900	Southern Water & Sewer District	2/1/1900	43.6153	34.8325	32.426	33.2213	32.3005	NULL	NULL	NULL	NULL	NULL	NULL	NULL
700	31900	West Carroll Water District	1/17/1900	19.8863	16.6004	15.4147	20.7679	24.4657	28.6492	33.1272	12	15.9774	15.3483	21.0062	23.8055
800	35300	North Manchester Water Association, Inc.	1/2/1900	4.1945	4.9996	3.9998	5.9997	8	7.9997	7.9993	7.8207	5.9993	9.9001	11.9999	15.165