

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

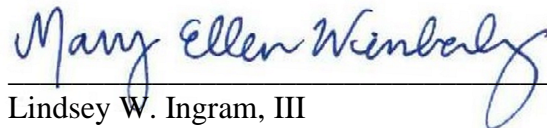
ELECTRONIC APPLICATION OF KENTUCKY-)	
AMERICAN WATER COMPANY'S ALLEGED)	
VIOLATION OF A TARIFF AND COMMISSION)	CASE NO. 2022-00299
REGULATIONS REGARDING METERS AND)	
MONITORING CUSTOMER USAGE)	

KENTUCKY-AMERICAN WATER COMPANY'S
PROOF OF PUBLICATION

Pursuant to the Kentucky Public Service Commission's ("Commission") June 5, 2023 Order, Kentucky-American Water Company hereby provides the items denied confidential protection. Attached are revised versions of the responses to AG 1-20, AG 2-14, and AG 2-15 reflecting as unredacted the information that has been denied confidential treatment.

Dated: July 5, 2023

Respectfully submitted,



Lindsey W. Ingram, III
Mary Ellen Wimberly
Stoll Keenon Ogden PLLC
300 West Vine Street
Suite 2100
Lexington, KY 40507
Telephone: (859) 231-3000
Facsimile: (859) 246-3672
l.ingram@skofirm.com
maryellen.wimberly@skofirm.com

*Counsel for Kentucky-American Water
Company*

CERTIFICATE OF COMPLIANCE

In accordance with the Commission's Order of July 22, 2021 in Case No. 2020-00085 (Electronic Emergency Docket Related to the Novel Coronavirus COVID-19), this is to certify that the electronic filing has been transmitted to the Commission on July 5, 2023; and that there are currently no parties in this proceeding that the Commission has excused from participation by electronic means.

A handwritten signature in blue ink that reads "Mary Ellen Winberly". The signature is written in a cursive style and is positioned above a horizontal line.

Counsel for Kentucky-American Water Company

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2022-00299
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: David Hill

20. Explain whether KAW, or any contractors on its behalf, conducted any type or sort of report(s), study (or studies), or audit(s) to investigate the cause(s) of the AMR meter reading issues at issue in this case. If so, provide a copy of all such reports / studies / audits.

Response:

Kentucky American Water is providing this response pursuant to a contemporaneously filed Petition for Confidential Protection.

More broadly than just this case, American Water does seek efficiency improvements in delivering safe, affordable and reliable service to our customers.

KAW has reviewed, in early 2021, select data logs for both random meters and meters which had a process exception. The results are summarized below:

Category	Sub-Category	# Valid Data Logs Received	# Demonstrated BounceBack Behavior	# Demonstrated Zero Consumption
Meters with BPEM Cases	Mueller meters with BPEM cases	33	19	7
	Neptune meters with BPEM cases	31	0	4
Randomly Selected Meters	Randomly selected Mueller Meters	53	17	4
	Randomly selected Neptune Meters	20	1	1

Category	Sub-Category	Percentage with bounceback behavior observed*	Percentage with zero consumption (sticking) observed
BPEM Cases	Mueller meters with BPEM cases	58%*	21%*
	Neptune meters with BPEM cases	0%	13%
Random Samples	Randomly selected Mueller Meters	32%*	8%*
	Randomly selected Neptune Meters	5%	5%

* Mueller percentages revised upward to exclude dead RFs from sample count

Additionally, please see Attachment 1, which is a January 7, 2022 Internal Audit Report on Customer Meters which includes observations, risks and recommendations to improve the meter set up process, monitoring of meter processes, and guidance for the installation and testing/replacement of large meters.



Internal Audit Report

Customer Meters Audit

Issue Date: January 7, 2022

Background

American Water's customer metering process is a core function of the business. Multiple departments within the company contribute to the purchasing, installing, reading, and servicing of customer meters. American Water reads approximately 3 million meters per month and replaces approximately 350,000 meters annually in accordance with state specific requirements.

Audit Objective

Evaluate the effectiveness of certain controls for American Water's customer meters.

Scope




Internal Audit (IA) reviewed customer meter set up in SAP and meter exception resolution and reporting for the following functions/states: Customer Relations, Kentucky, Indiana, and Pennsylvania. The scope excluded meter inventory.

Key Business Risk

Meters not appropriately set up and monitored may result in improper customer billing, noncompliance with meter length of service requirements and inaccurate recording of revenue.

Overall Conclusion - Needs Some Improvement / Medium Priority

Opportunities for improvement exist related to the meter set up process, monitoring of meter processes, and guidance for the installation and testing/replacement of large meters.

Audit Focus Area	Observations	Conclusion
1. SAP Customer Meter Set Up	SAP is not configured to identify meter data exceptions during the initial meter set up process. There is limited monitoring and reporting to identify data errors after the meter is set up in SAP. SOX controls exist to perform certain validation checks or review meter reading exceptions. Management has not recently reviewed the design of the controls.	
2. Customer Meter Reporting	End-to-end reporting for the meter to cash process does not exist. In addition, there is an opportunity to improve meter Business Process Exception Management (BPEM) reporting.	
3. Large Customer Meters	Company guidance and SAP system configuration for large meters changes could be enhanced.	

1 – SAP Customer Meter Set Up

Observation –

SAP is not configured to identify meter data exceptions during the initial meter set up process, such as meter replacement frequency and revenue impacting fields (meter dials). There is limited monitoring and reporting to identify data errors after the meter is set up in SAP. SOX controls exist to perform certain validation checks or review meter reading exceptions. Management has not recently reviewed the design of the controls.

Errors identified (See Appendix 1):

- Meters with an incorrect testing/replacement frequency.
- Meters with an incorrect number of dials (impacts revenue) programmed in SAP causing over/underbilling of customers.

Risk – Meter data not appropriately set up may result in improper customer billing, compliance with length of service requirements, and inaccurate recording of revenue.

Recommendation –

- a. Develop SAP system controls to identify incorrect meter set up for billing and compliance impacted fields. In addition, review existing SOX controls related to meters and meter exceptions to determine if adequate assurance is provided to prevent or detect material impact to revenue.
- b. Correct identified meter exceptions and perform a company-wide review for incorrect meter data impacting customer billing and meter testing/replacement compliance.

Management Action Plan

a1. In collaboration with IT, establish standard data quality reporting.
Management Action Owner: David Hill, Sr. Director Meter Operations
Remediation Date: 3/15/2022

a2. In collaboration with the SOX Compliance and Internal Controls Team, review and/or enhance existing meter controls to determine if adequate assurance is provided to prevent or detect material impact to revenue. If not, make a proposed enhancement to the control environment by June 2022 and tested in 2022.

a3. In collaboration with the Meter to Cash Committee and IT, develop a project plan for potential automation and technology solutions related to meter data load to validate specific values and prompt users to validate incorrect data entries based on established rules for a district to prevent errors.
Management Action Owner: David Hill, Sr. Director Meter Operations
Remediation Date: 12/15/2022

b1. Correct meter exceptions identified during the audit and determine if billing adjustments are needed.

Management Action Owner: David Hill, Sr. Director Meter Operations
Remediation Date: Complete

b2. Perform a company-wide review to identify existing meters with similar anomaly exceptions and create plan to make corrections with state operations.
Management Action Owner: David Hill, Sr. Director Meter Operations
Remediation Date: 12/15/2022



Needs Some Improvement / Medium Priority

2 – Customer Meter Reporting

Observation – End-to-end reporting for the meter to cash process does not exist. In addition, there is an opportunity to improve meter Business Process Exception Management (BPEM) reporting.

- a. American Water does not have reporting for key components of the metering process, such as determining if all active meters generate a meter reading order and if the meter is invoiced to customers.
- b. The current system reporting does not provide visibility to multiple issues that may be occurring with a meter or premise. SAP automatically generates a BPEM case when a meter validation check fails. Currently the Customer Relations team manually reports BPEMs and BPEM metrics. There are opportunities to improve these processes to create efficiencies and better visibility.

Risk – Meter exceptions not identified or appropriately processed may result in invalid/inaccurate recording of revenue or inefficient operational processes.

Recommendation – Develop reporting to monitor key metering processes, including meter exception management.

Management Action Plan

- a. In collaboration with the Data Governance and Meter to Cash Committees, key validation steps will be identified, and reporting or workflows will be developed for customer meter reading.

Management Action Owner: David Hill, Sr. Director Meter Operations

Remediation Date: 3/15/2022

- b. Meter1View is in development and will provide company-wide visibility on meter exceptions with multiple issues and will assist with meter BPEM prioritizations and visibility.

Management Action Owner: David Hill, Sr. Director Meter Operations

Remediation Date: 6/15/2022

 Needs Some Improvement / Medium Priority

3 – Large Customer Meters

Observation – Company guidance and SAP system configuration for large meters changes could be enhanced.

American Water does not have formal guidance for maintaining, installing, and accounting for large meters (larger than 2 inches) causing inconsistencies across states, including how meter parts are accounted for and tracked in SAP. SAP’s current configuration is not optimal to track and identify large meter part replacements.

Risk – Failure to establish an asset management program and ensure employees are aware of company requirements could result in noncompliance, inconsistent meter testing and replacement. In addition, inconsistent capitalization of meters could cause inaccurate financial reporting.

Recommendation –

- a. Develop guidance and training on the proper installation, testing, and accounting for large meters.
- b. Enhance tracking and identification of large meter part replacements.

Management Action Plan

- a. Document business requirements, including process design and system requirements. Review the process with Accounting, Finance, and Regulatory departments.


Management Action Owner: David Hill, Sr. Director Meter Operations

Remediation Date: 3/15/2022

- b. In collaboration with Supply Chain and IT, leverage a third-party vendor to develop a technology roadmap to accommodate the re-certification of large meters using certified Unitized Measuring Elements (UME’s) and develop better tracking as a serialized component of a larger system. Guidance and training will be provided to employees.

Management Action Owner: David Hill, Sr. Director Meter Operations

Remediation Date: 3/15/2023

 Needs Some Improvement / Medium Priority

- Risk Culture Recommendations
- Appendix 1 – Customer Meter Exception Testing
- Audit Opinion Ratings
- Signature Page

Risk Culture - deeply held values and beliefs about risk management shared by employees

- For audit plan year 2020, audit reports will include risk culture-related observations/recommendations.
- 2020 is a learning year as Internal Audit develops a program to observe and report American Water's risk culture, as perceived during each audit engagement.
- This particular report is for a 2020 audit, but for audits that commence in audit plan year 2021, each audit report will include culture-related observations, and in addition, a standardized rating.

Risk Culture Observations/Recommendations:

- Corporate Meter Operations should better define ownership of meter issues between corporate and state functions.
- Develop a more proactive environment company-wide to address meter performance.

Appendix 1 – Customer Meter Exception Testing




Audit Observation	Observation Summary
Meters with an incorrect testing/replacement frequency.	1,919 meters with calibration year exceptions; 2 meters are overdue for replacement and/or testing. <ul style="list-style-type: none"> • KY – 1,857 meters* • IN – 60 meters • PA – 2 meters
Meters with an incorrect number of dials programmed in SAP.	6 meters with meter dial exceptions. The exception caused under or overbilling of customers. <ul style="list-style-type: none"> • KY– No exception • IN – 5 meters • PA – 1 meter

- Internal Audit reviewed the full meter population in three states for meter data anomalies (7,400 (testing years), 81 (dials) within SAP).
- Internal Audit sampled from the potential error report. IA confirmed exceptions in the sample quantities (1,944 (testing years), 10 (dials)). In some instances, the meter had been set up and billed incorrectly since the prior Customer Relationship Management system (ECIS).

*Most of the KY calibration year exceptions resulted from two different incorrect batch uploads from September 2017 and October 2018. Both batches were part of a manual review process and management confirmed they improved their controls.

Audit Opinion Ratings

IA considers the following guidance in conjunction with the impact to the company or business process(es) of all identified issues, other observations of the in-scope processes, and employs professional judgment when determining the overall assessment of the audit.

	Effective / Low Priority	Processes and controls evaluated are adequate and effective to provide reasonable assurance that risks are being appropriately managed and business objectives should be met. Some process or control enhancement opportunities may exist for which management attention is recommended.
	Needs Some Improvement / Medium Priority	Some process and/or control weaknesses were noted, some of which may be significant, that require timely management attention; generally, however, most processes and controls evaluated are adequate and effective in providing reasonable assurance that most risks are being appropriately managed and business objectives should generally be met.
	Needs Significant Improvement / High Priority	Process and/or control weaknesses were identified that, when accumulated, could cause unacceptable risk impact to the company. Current state unlikely to provide assurance over risk management effectiveness and achievement of business objectives. Management prioritization of issue resolution is recommended.

Note: Developed using guidance from the Institute of Internal Auditors and COSO

Internal Audit Report: Customer Meters Audit

Issue Date: January 7, 2022

Issued By: Jimmy Sheridan, VP Internal Audit



Business Confidential – Proprietary Information

This report contains business confidential and proprietary information. Please do not share or otherwise disseminate the contents of this report with any individual or entity internal or external without first contacting Internal Audit and receiving permission.

Conformance Statement

Internal Audit conforms with the International Standards for the Professional Practice of Internal Auditing

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2022-00299
ATTORNEY GENERAL'S SECOND REQUEST FOR INFORMATION

Witness: David Hill

14. Reference the response to AG-DR-1-20, the confidential attachment entitled
KAW_R_AGDR1_NUM020_021023_CONFIDENTIAL
- a. At pp. 1-2, explain the meaning of the following:
 - (i) Valid data logs received;
 - (ii) BPEM Cases;
 - (iii) Bounceback behavior observed
 - b. Explain whether the Company has concluded that its Mueller meters have proven more problematic than its Neptune meters. If so, provide a narrative description of the problems encountered, and how they led to consecutive estimates.
 - c. Provide a discussion regarding corrective actions the Company has taken to date, and those it intends to take.
 - d. Identify the manufacturer of the 2,000 meters discussed in the Company's response to AG-DR-1-13.

Response: Certain information provided below is subject to KAW's February 10, 2023 Petition for Confidential Treatment.

- a. Explanation
 - i. Valid Data Logs: Data Logs can be retrieved physically by visiting the meter and MIU where it is installed and triggering the data log through software. Typically, meter reads are captured once a month, but data logging can retrieve about 90 days of 15-minute readings. Meter reading data is transmitted through radio frequency (RF) to the meter reading collection unit.
 - ii. BPEM cases: Business Process Exception Management (BPEM) Cases are automated and semi-automated validation checks our systems performs on various forms of data. Meter Reading has numerous meter reading validations and resulting BPEM cases if any data is not in line with expectations.
 - iii. Bounceback behavior is a term used during the analysis on the Mueller anomalous read behavior conducted in Feb 2021. It described a read pattern that oscillated between negative and positive numbers in a very short time interval as observed during data logging.
- b. Mueller meters have been more problematic than Neptune meters. Mueller meters have had issues with stuck meters (not reading flow), dead radio frequency (RF) transmission, and inconsistent readings (sticking dials), all of which have led to increased automatic and office estimations. These issues with the reliability of the automatic reading transmission

during the reading cycle forces manual reading of the meter. Mueller meters can also be difficult to collect a manual reading due to LCD display issues. These issues delay reads and therefore increase the risk for an estimated read and resulting consecutive estimates. In addition, physical construction issues with some Mueller meters may have also impacted the reliability of reading devices.

- c. Please refer to KAW responses to PSC 1-6 and AG 2-9(c).
- d. The manufacturer of the 2,000 meters noted in AG 1-13 is Neptune.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2022-00299
ATTORNEY GENERAL'S SECOND REQUEST FOR INFORMATION

Witness: David Hill

15. Reference the response to AG-DR-1-20, the confidential attachment entitled “Internal Audit Report, Customer Meters Audit, dated January 7, 2022, in the following confidential attachment: [KAW_R_AGDR1_NUM020_021023_ATTACHMENT_1_CONFIDENTIAL](#)
- a. Discuss the issues, factors and reasons that led the Company to conduct this internal audit.
 - b. At p. 2, confirm the following statement: “Opportunities for improvement exist related to the meter set up process, monitoring of meter processes, and guidance for the installation and testing/replacement of large meters.”
 - c. If the statement in subpart a., above is confirmed, provide a detailed narrative of the actions the Company is taking to implement these corrective measures.
 - d. Identify the meaning of the acronyms “SAP,” and “SOX.”
 - e. State whether KAW’s affiliates in Pennsylvania and Indiana have been experiencing similar meter problems.
 - f. At p. 4, under the heading “Risk,” confirm the following statement: “Meter data not appropriately set up may result in improper customer billing, compliance with length of service requirements, and inaccurate recording of revenue.” If this statement is confirmed, provide a detailed narrative of the actions the Company is taking to implement corrective measures.
 - g. At p. 5, in the right column, explain whether the “Meter1View” will alleviate the issue of consecutive meter estimates and any related issues, and if so, how.
 - h. At p. 9, in the right column, confirm that in Kentucky, 1,857 meters were found to have “calibration year exceptions.” Explain what this quoted phrase means, and how it can affect the Company’s revenue streams.
 - (i) Explain why the “calibration year exceptions” for KAW exceed those for both the Indiana and Pennsylvania affiliate companies.
 - (ii) Confirm that the figure of 1,857 Kentucky meters with calibration year exceptions is only a sample, and that therefore the actual total number of meters with this issue could be significantly greater.
 - i. Explain whether the increase in expired work orders from 2021-2022 is affecting the Company’s revenue streams, and if so, how. Discuss also what actions the Company is taking to address this issue.
 - j. Explain whether the Company has concluded that based on the audit, the performance of the Company’s meters has led to increased O&M, A&G, and any other types of costs. If so, provide quantifications of the cost increases.
 - k. In the event that the meter issues have caused or could be found to have caused decreases in KAW’s revenues, explain whether that loss would be covered under

any insurance policy, including Directors & Officers coverage, and/or stop loss coverage.

Response:

a. The Company's customer metering process is a core function of the business. Multiple departments within the company contribute to the purchasing, installing, reading, and servicing of customer meters. The Internal Audit department will often include different aspects of the metering process in the yearly plan for internal audits. The purpose of this internal audit was to evaluate the effectiveness of certain controls for American Water's customer meters.

b. Confirmed.

c. KAW assumes this question meant to seek confirmation of the statement in subpart b above, not subpart a. The following is summary of the actions the Company is taking to implement these corrective measures.

Meter Setup Process

The Company uses SAP, an enterprise application software, to support many aspects of its business and operations. For example, we manage information in SAP about our metering assets, our inventory process, our meter reading process, and our billing process. The Meter Set Up process can be described as defining a particular meter with a particular serial number to the correct set of attributes within our SAP system that matches the physical meter. For example, a physical meter may be a 5/8" meter that measures the flow of water in gallons and has a resolution of 100 Gallons represented by the 5th dial. We map the meter serial number and the correct set of attributes through the file upload process into the Company's SAP enterprise software. We accomplish this by uploading the flat file spreadsheets received for every meter shipment from the meter vendors as part of the Goods Receipt Process into our software application. On rare occasions, attributes associated to the meter are inconsistently represented in SAP, and need to be corrected. The Internal Audit Team audited the effectiveness of the controls for this process and found *no material deficiencies*, but did find areas for improvements. The recommended improvements included: automating the flat file upload and automatically checking submitted data against known values to see if any submitted data is inconsistent with what is expected. Another recommended improvement was to conduct a national review against key data elements within the data set up list establishing a data quality dashboard to prioritize and correct any anomalies.

Monitoring of Key Meter Processes

Meter Reading exception management is a critical process for the Company as well as a "SOX control." SOX controls are generally narrow in scope, targeting financial reporting specifically. Non-SOX controls are generally more comprehensive, covering a variety of areas such as financial and operations security, data integrity, and compliance. Further, SOX controls are mandated by law, while non-SOX controls are not. The Internal Audit team again, *did not find material deficiencies within this process*, but again did find areas

of improvements. The recommended improvements included building an automated dashboard to make visible to key stakeholders and operational leaders when and how many important exceptions are generated within SAP. These exceptions included: (1) Unexpected Zero Consumption – this exception could indicate that a meter is stuck and is not registering water consumption although water consumption could be actually happening; (2) Consecutive Estimates – this exception is triggered when the meter reading could not be obtained during the time of periodic billing; and (3) Inactive with Consumption – this exception is triggered when the meter registers consumption, but the premise or location does not have a customer associated to that location.

Guidance to Testing and Replacement of Large Meters

During the Internal Audit it was observed that American Water affiliates were using slightly different processes to update system information as it pertains to replacing Unitized Measurement Elements (UMEs) for large meters in the field. Unitized Measuring Elements are the parts of the meter that can be independently tested, replaced, and certified to be accurate and when the UME is replaced it can re-certify the meter more efficiently without disconnecting the entire meter body and connecting flanges. This approach allows the unit to be certified accurate in much less time, which means little or no downtime for customers as the Company meets its regulatory testing requirements for large meters. The area identified for improvement was to document a standard process and then map that process to the Work Management System that the Company uses for meter work.

d. Definitions of SAP & SOX:

SAP is an enterprise application software.

SOX is an acronym for Sarbanes Oxley Act, a complex law with 11 sections, each delineating mandates including oversight, auditor independence, and corporate responsibility.

e. The Internal Audit observations and recommendations were applicable to all 3 States sampled by the Internal Audit team.

f. The statement is confirmed. See the response to subpart c above for a summary of the Company's corrective measures.

g. Meter1View is an interactive web-based tool being developed to help Field Operations identify, prioritize and initiate action on meter related issues. At the time of the Audit, Meter1View was identified as the tool to best help operations reduce estimates and get better visibility across the enterprise. Since the conclusion of the Audit, Meter1View has been released to help the business study "inactive with consumption" codes and the Company will evaluate future use cases (like estimates) when the study of "inactive with consumption" concludes.

h. The "Calibration Year Value" is the time in years that a particular meter can be in operation between re-certification tests. This value can change in different states and it can change by Meter Size. If that value is incorrect, then the schedule for retesting or

recertification could be incorrect. If it is later than it should be, then the risk is that meter can be measuring water inaccurately and impacting the amount of the bill associated with consumption charges. Typically, however, when meters get older, they tend to slow down, so the charge would be less than expected for a unit of water delivered to the customer which would impact revenues negatively.

(i)At the time of the audit, the process that checks the values before entering them into the system was a completely manual process, and it can be prone to error if people or requirements change. We are without sufficient data to determine why KAW had more exceptions than its Indiana or Pennsylvania affiliates.

(ii)The 1857 exceptions identified in Kentucky were all of those found with the exception out of the “full” meter population.

i. The increase in expired work orders has not been shown to impact the company revenue streams. However, estimating bills for longer than necessary does put added strain on costs and impacts customer satisfaction.

j. As a result of the audit there were no results or observations that would have materially impacted costs. The audit resulted in several recommended improvements that the Company is implementing.

k. KAW does not have insurance that would cover decreases in revenues due to meter issues.