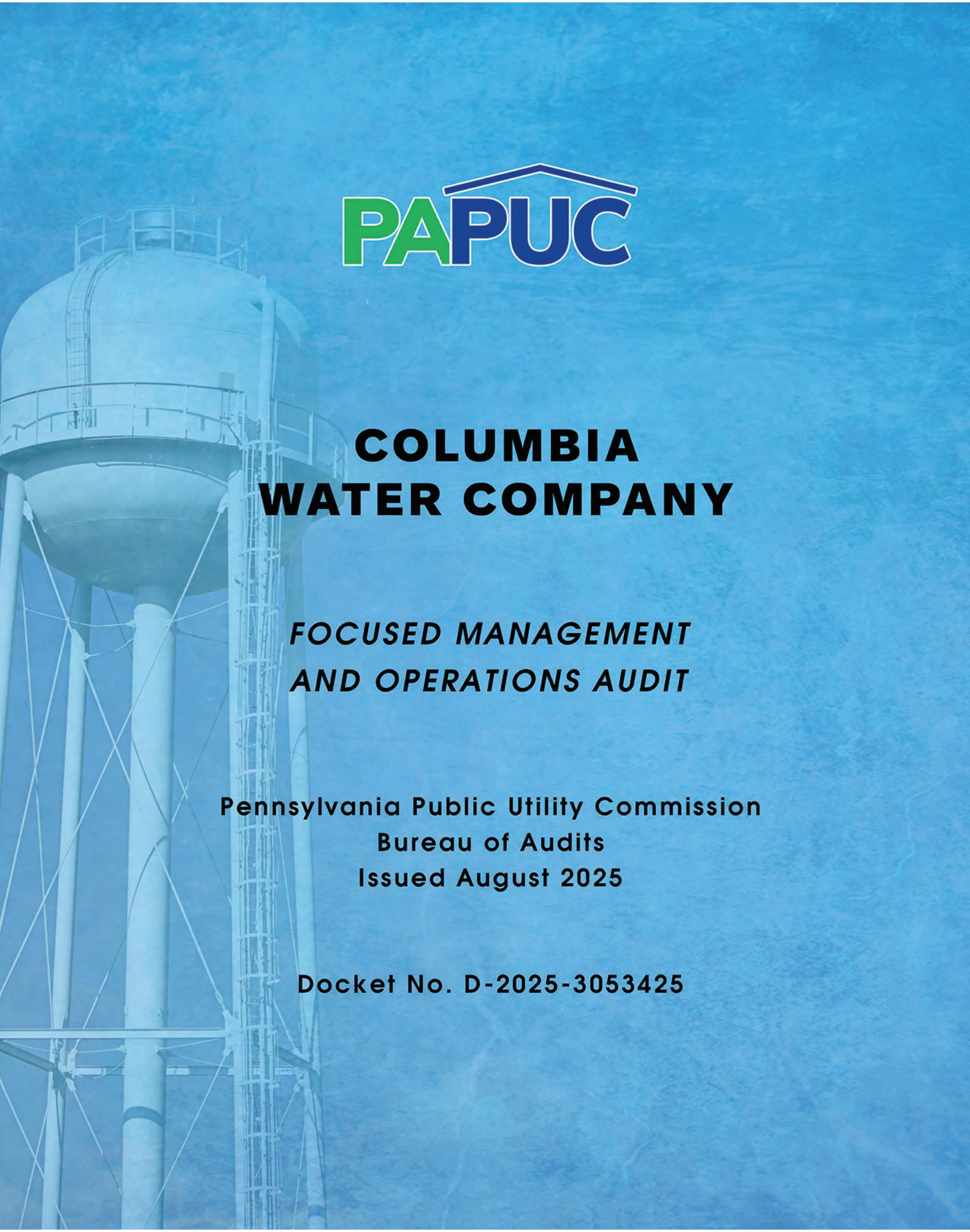

COLUMBIA WATER COMPANY

FOCUSED MANAGEMENT AND OPERATIONS AUDIT

Pennsylvania Public Utility Commission
Bureau of Audits
Issued August 2025

Docket No. D-2025-3053425

COLUMBIA WATER COMPANY
MANAGEMENT AND OPERATIONS AUDIT

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COLUMBIA WATER COMPANY
MANAGEMENT AND OPERATIONS AUDIT

LIST OF EXHIBITS

I – INTRODUCTION

Pennsylvania law grants the Pennsylvania Public Utility Commission (PUC or Commission) the general administrative power and authority to supervise and regulate public utilities within the Commonwealth of Pennsylvania per 66 Pa.C.S. § 501(b). The Commission can investigate and examine the condition and management of any public utility, 66 Pa.C.S. § 331(a). Management and operational audits are required of certain Pennsylvania-based utility companies pursuant to 66 Pa.C.S. § 516(a).

In accordance with the PUC's ongoing program to identify improvements in the management and operations of fixed utilities under its jurisdiction, it was determined that a focused management and operations audit should be conducted of Columbia Water Company (CWC or Company). A management audit investigates the Company's operational efficiency and effectiveness. It focuses on how decisions are made and processes are accomplished, which includes reviews of policies and procedures, use of informational systems, incorporation of strategic planning, compliance efforts, etc.

This report summarizes the PUC Management Audit Division's audit work and outlines its conclusions. The findings presented in the report identify areas where weaknesses or deficiencies exist. Recommendations are offered to improve, correct, or eliminate these conditions. The final step in the management audit process is to initiate actions toward implementation of the recommendations.

A. Objectives and Scope

The objectives of this focused management and operations audit were:

- To provide the Commission, CWC, and the public with an assessment of the efficiency and effectiveness of the Company's operations, management methods, organization, practices, and procedures
- To identify opportunities for improvement and develop recommendations to address those opportunities
- To provide an information base for future regulatory and other inquiries into the management and operations of CWC

The scope of this audit was limited to certain areas of the Company as explained in Section B. Audit Approach.

B. Audit Approach

The focused management and operations audit was performed by the Management Audit Division of the PUC's Bureau of Audits (PUC Auditors or Audit Staff). The audit process began with a pre-fieldwork analysis as outlined below:

- Input was solicited from PUC bureaus and offices regarding concerns or issues they would like addressed during our review.

- Prior management and operations audits, follow-up management efficiency investigations, implementation plans, implementation plan progress reports, other Commission-conducted audits, annual diversity reports, and other available documents were reviewed.

This information was used to focus the PUC Auditors' work efforts. Specifically, the listed functional areas were selected for in-depth analysis and are included in this report:

- Corporate Governance
- Financial Management
- Water Operations
- Emergency Preparedness
- Customer Service

The pre-fieldwork analysis should not be construed as a comprehensive evaluation of the management or operations in the functional areas not selected for in-depth examination. Had we conducted a thorough review of those areas, weaknesses or deficiencies may have come to our attention that were not identified in the limited pre-fieldwork review.

A management audit is not designed to verify or validate all information provided by the utility. Much of the data provided by the utility and presented within this report was not thoroughly tested to ensure it is free from errors. However, in the course of the Audit Staff's work, some numbers, company systems, processes, etc. were tested as needed or concerns arose. Audit findings and recommendations are based upon data company management should have had or were using. Therefore, the conclusions reached within this report aim to fairly present the utility's performance in the areas reviewed but no assurance is offered by the Audit Staff or PUC.

Fieldwork began on April 15, 2025 and continued intermittently through June 18, 2025. The principal components of the fact gathering process included:

- Interviews with Company personnel as well as other Commission Bureaus

- Analysis of records, documents, and reports of a financial and operational nature focused primarily on the period 2020-2024

- Visits to select Company facilities and observation of work practices

C. Functional Area Ratings

For the functional areas selected for in-depth examination, the PUC Auditors rated the operating or performance level relative to the expected performance level at the time of the audit. This expected performance level is the state where each functional area should be operating given the Company's resources and general operating environment. Expected performance is not a "cutting edge" operating condition; rather, it is management of a functional area such that it produces reasonably expected operating results.

Listed below are the evaluative categories used to rate each functional area's operating or performance level:

- Meets Expected Performance Level
- Minor Improvement Necessary
- Moderate Improvement Necessary
- Significant Improvement Necessary
- Major Improvement Necessary

Our ratings for each reviewed functional area can be found in Exhibit I-1.

Exhibit I-1
Columbia Water Company
Management and Operations Audit
Functional Rating Summary

Functional Area	Meets Expected Performance Level	Minor Improvement Necessary	Moderate Improvement Necessary	Significant Improvement Necessary	Major Improvement Necessary
Corporate Governance		X			
Financial Management	X				
Water Operations		X			
Emergency Preparedness			X		
Customer Service			X		

D. Benefits

When making recommendations, Audit Staff considered the qualitative aspects of the recommendations in determining the rating severity for the functional areas above. Quantitative factors were reported where practical. For example, it is difficult to estimate the actual benefit where new management practices or procedures are recommended where such did not previously exist or were not fully functional. Changes in workflow or implementation of good business practices could result in improved effectiveness and efficiency of a function but cannot be easily quantified.

The Company will have options to implement the recommendations, and as a result, the PUC Auditors have not estimated the cost of implementation for recommendations where no savings were quantified. However, it should be noted that the cost of implementing some recommendations could be significant.

E. Recommendation Summary

Chapters III through VII provide findings, conclusions, and recommendations for each function or area reviewed in-depth during this focused audit. Audit Staff recognize that Company priorities will influence the time frame that each recommendation can be implemented. Each recommendation should be initiated within 12 months of this report being released or as soon as practical. Exhibit I-3 summarizes the recommendations with the following priority assessments for implementation:

Net quantifiable benefits have been provided where they could be estimated or calculated as discussed in Section D. Benefits. Our overall rankings are not solely based on quantifiable dollars but rather our professional judgment of the potential overall impact of the recommendation on the efficiency and/or effectiveness of the Company and/or the services it provides. The benefit ranking is based on Audit Staff's professional judgement given the information available at the time.

- HIGH BENEFITS – Implementation of the recommendation would result in major service improvements, substantial improvements in management practices and performance, and/or significant cost savings.

- MEDIUM BENEFITS – Implementation of the recommendation would result in important service improvements, meaningful improvements in management practices and performance, and/or meaningful cost savings.

- LOW BENEFITS – Implementation of the recommendation is likely to result in service improvements, management practices and performances, and/or enhance cost controls.

COLUMBIA WATER COMPANY
Management and Operations Audit
Summary of Recommendations

Rec. No.	Recommendation	Page No.	Benefits (including $ estimates)
Chapter III – Corporate Governance			
III-1	Establish version controls and periodic reviews of all CWC documentation including charters, policies, procedures, manuals, etc.	9	Medium
Chapter IV – Financial Management			
	None		
Chapter V – Water Operations			
V-1	Ensure main replacement rates are adequate and periodically reassess replacement rates to align with infrastructure needs.	19	High
V-2	Incorporate identification of unknown material types into main replacement activities and CWC's work order process when applicable.	20	Low
Chapter VI – Emergency Preparedness			
VI-1	Correct minor deficiencies in physical security.	25	Medium
VI-2	Leverage additional cybersecurity tools and resources to enhance applicable security systems and security posture.	25	Medium
VI-3	Incorporate emergency preparedness tests, tabletop exercises, or scenarios into CWC's annual testing routine.	26	Medium
VI-4	Establish a mobile device policy outlining acceptable use on CWC networks and review on an annual basis.	27	Low
Chapter VII – Customer Service			
VII-1	Continue implementing automated metering technology to eliminate manual processes, optimize operations, improve performance, and reduce billing lag.	29	Medium
VII-2	Implement a comprehensive theft of service program.	30	Low

II – BACKGROUND

Columbia Water Company (CWC or Company) is a privately held water utility providing service to over 12,200 customers in Pennsylvania, including: West Hempfield, Rapho, East Donegal, and Manor Townships and the Boroughs of Columbia and Mountville, and Marietta in Lancaster County and Hellam Township in York County. CWC operates under three districts: Columbia, Marietta, and East Donegal. The East Donegal district was added in 2022 when CWC acquired the East Donegal Township Municipal Authority[1].

Exhibit II-1 summarizes CWC's customer statistics, including number of customers, water usage, and associated revenues as of December 31, 2024.

Exhibit II-1
Columbia Water Company
Customer Statistics
For the Year Ended December 31, 2024

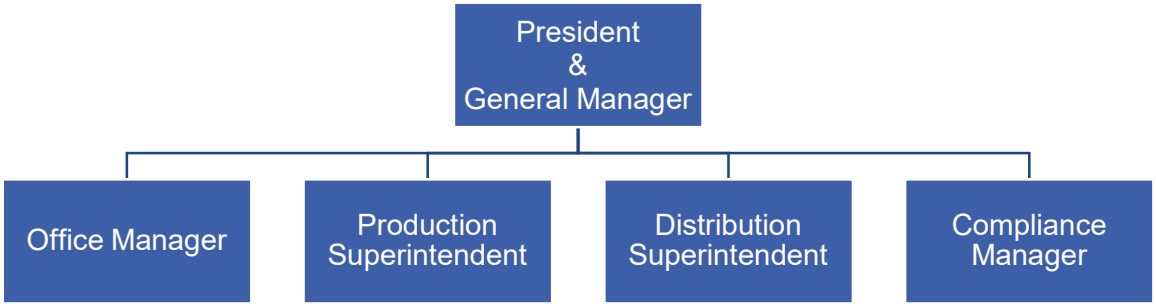
Customer Class	# of Customers	% of Total Customers	Gallons Sold (000)	% of Sales	Revenues	% of Revenues
Residential	11,600	93.8%	582,747,600	63.0%	$5,294,826	70.3%
Commercial	551	4.5%	170,777,200	18.5%	$1,037,044	13.8%
Industrial	37	0.3%	171,155,400	18.5%	$694,099	9.2%
Other^	173	1.4%	778,389	0.1%	511,147	6.8%
Totals	**12,233**	**100.0%**	**936,594,189**	**100.00%**	**$7,537,116**	**100.0%**

^ Other includes public, farm, and fire protection customers
Source: CWC's 2024 Annual Report to the PUC (unaudited company reported data)

As of December 31, 2024, CWC had 25 employees. CWC's President & GM (President/GM) is also an officer on the CWC Board of Directors. Exhibit II-2 illustrates CWC's leadership organization as led by the President/GM, who has four direct reports, including CWC's Office Manager, Production Superintendent, Distribution Superintendent, and Compliance Manager. The CWC Office Manager is responsible for all billing, collections (discussed in more detail in Chapter VII – Customer Service), and record keeping, including financial reporting (see Chapter IV – Financial Management) and human resources. The Production and Distribution Superintendents are responsible for their respective water operations functions (see Chapter V – Water Operations for additional information). CWC's Compliance Manager is responsible for all regulation and compliance activities, including water quality, project management, permitting, etc.

[1] See Docket No.: A-2021-3027134

Exhibit II-2
Columbia Water Company
Abbreviated Organization Chart
As of April 14, 2025



Source: PUC Interview WO-1

III – CORPORATE GOVERNANCE

Background

As mentioned in Chapter II – Background, CWC is a privately held utility. As a private company, CWC is not subject to many Securities and Exchange Commission (SEC) regulations, including requirements of Sarbanes Oxley Act of 2022 (SOX). CWC is also not subject to the corporate governance rules of the New York Stock Exchange (NYSE) or other listing markets. However, although not required, CWC follows the spirit of many of the corporate governance practices established by the SEC, SOX, and NYSE.

CWC's Board of Directors is composed of six members. As noted in Chapter II – Background, CWC's President/GM is both an employee and an officer of the Company, however the remainder of the Board members are independent. The CWC Board meets monthly and leverages three committees to help conduct business, as follows:

Audit Committee – Responsibilities include oversight of CWC's accounting and financial reporting processes, including: the integrity of financial statements, CWC's systems of internal accounting and financial controls, the selection, retention, independence of CWC's independent auditor, and CWC's compliance with financial, accounting, legal, and regulatory requirements. The Audit Committee is composed of three independent Board members and meets 4 – 5 times a year. In 2024, the Audit Committee met four times.

Executive Committee – Responsibilities include directing CWC's general business, operational, administrative, and legal affairs of the company, consulting on the development of CWC's policies, and other business matters as delegated by the full Board of Directors. The Executive Committee is composed of four members of mixed independence, including three independent members and CWC's President/GM. The Executive Committee meets at least monthly, in 2024, the committee met 12 times.

Pension and Property Committee – Responsibilities include review and monitoring of the CWC employee pension/retirement plan and review of CWC real estate as necessary. The Pension and Property Committee meets with CWC Management and the pension plan trustee a minimum of annually and is composed with mixed independence, including CWC's President/GM and three independent Board members. In 2024, the Pension and Property Committee met four times.

The Pennsylvania Public Utility Commission (PUC or Commission) has encouraged utilities to proactively improve diversity in their workforce and procurement for more than two decades. Commission regulations at 52 Pa. Code § 69.801 - §69.809 encourage utilities to include diversity efforts as a component of their business strategy and file annual reports describing their diversity program activity. CWC has complied with 52 Pa. Code § 69.809, filing annual reports on diversity with the PUC for each year covered in the audit period (reports filed in 2021 through 2025 for the years ended 2020 through 2024). Included in its diversity report are sections pertaining to the Company's diversity policies related to human resources and procurement. The Company's diversity

filing also contains a copy of its Code of Business Conduct and Ethics, which addresses conflicts of interest, fair dealing, discrimination and harassment, proper use of company assets, and reporting of concerns.

Findings and Conclusions

Our examination of the Corporate Governance function included a review of CWC's Board of Directors' organization, including committee structure and charters; board fee structure; director independence; related documents to principles of corporate governance and oversight; relations with CWC's independent auditor, performance of non-audit services by the independent auditor; code of business conduct and ethics; annual financial statements; annual diversity filings, etc. Based upon our review CWC should initiate or devote additional efforts to improving the efficiency and/or effectiveness of its corporate governance functions by addressing the following:

- **Finding III-1: CWC's policies and supporting documentation lack version controls.**

Discussion

Finding III-1: CWC's policies and supporting documentation lack version controls.

Best practices for maintaining accurate and reliable policies, procedures, and manuals include establishing periodic review timeframes and documentation of version controls to capture a history of changes (who, when, and why changes were made). During review of CWC's documentation, Audit Staff found that most documentation did not contain dates for implementation, last review, or update. Version control information was absent from most corporate governance related documentation (bylaws, charters, etc.). Audit Staff also noted that in some instances, documentation was outdated. For example, CWC's meter reading process has not been updated to include CWC's integration in 2022 of the Maytown system's meter reading and billing processes.

In other cases, Audit Staff found that certain critical processes lacked any documentation. Several customer-related procedures were not addressed in existing documentation, including CWC's service order process, return of customer deposit, bill estimation, complaint handling process, among others. CWC should expand documentation to provide support for key customer service activities and would benefit from implementation of a comprehensive theft of service program (see Finding VII-2 within Chapter VII – Customer Service for additional details).

Audit Staff also found that CWC's dividend policy lacked provisions concerning excessive dividends. During the audit period, CWC's dividends were consistent, with no dividend representing more than 42% of net income. However, CWC's dividend policy fails to direct CWC employees to contact the PUC prior to issuing any dividends in excess of 85% of net income, should the Company declare dividends at or above that threshold.

The PUC has a regulatory obligation to promptly review excess dividends to ensure that service, safety, and reliability are not negatively affected. Therefore, dividend policies should direct employees to notify the PUC with an explanation in advance of issuing any dividends that exceed 85% of net income.

Outdated or undocumented processes increase the risk for inaccuracies and inefficiencies and may create an environment where actual activities fail to align with Management's vision. Audit Staff observed two instances in CWC's annual report to the PUC that contained inaccuracies, where a documented procedural walkthrough could have prevented the errors. Therefore, Audit Staff recommends CWC implement routine reviews for all documentation and includes standardized version control information to ensure accuracy and consistency. Audit Staff notes that CWC has begun migrating from paper-based, manual activities to electronic and automated tasks, which also serves as an opportunity to update documentation as new processes are implemented. Additionally, routine evaluation of existing documentation helps to identify any discrepancies due to changing conditions/requirements (e.g., technology, methodology, compliance, operational, etc.) to ensure that documentation provides the necessary guidance for new and future staff.

Recommendation III-1: Establish version controls and periodic reviews of all CWC documentation including charters, policies, procedures, manuals, etc.

IV – FINANCIAL MANAGEMENT

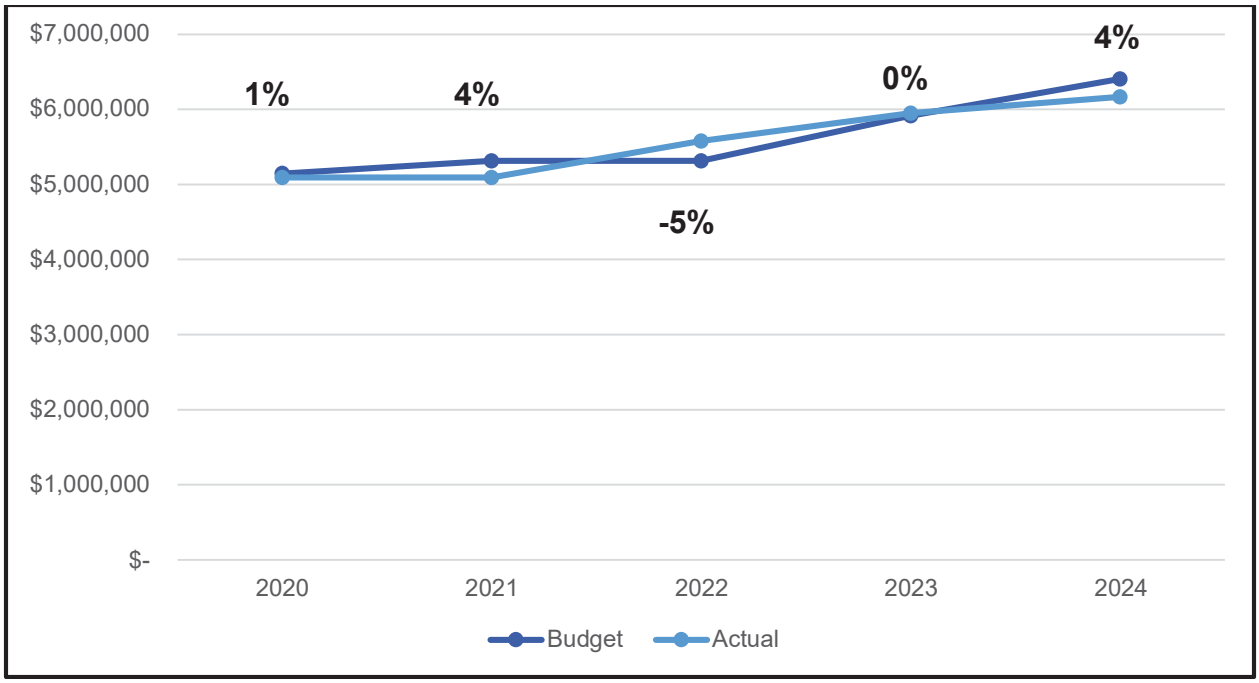
Background

CWC's financial management function is overseen by the CWC President and General Manager (President/GM) and is supported by an office staff that includes an Office Manager and two Customer Service Representatives (CSR). The Office Manager is responsible for billing, accounts receivable, payroll, and bookkeeping. In addition, the Office Manager has direct oversight of the two CSRs who are responsible for handling walk-in customer payments and inquiries, customer billing, service orders, collections, telephone calls, and other office duties. The Office Manager also supports all customer service functions and assists as needed. Additional details related to CWC's customer service function are detailed in Chapter VII – Customer Service.

The Company's fiscal year corresponds with the calendar year, thus CWC develops its operating and capital budgets in the fourth quarter (typically beginning in October). The upcoming year's operating budget is prepared first, beginning with review of the prior year and current year-to-date operating expenses. Known and/or potential pricing increases or decreases for expenses (vendors, operational requirements, etc.), and personnel expenses (salaries, payroll taxes, benefit costs, etc.) are reviewed. Similarly, revenue adjustments are projected based upon new customer growth or reduction (due to business closures, etc.). CWC's President/GM meets with the Compliance Manager, Office Manager, and the Production and Distribution Superintendents to assess known and proposed CWC maintenance and operation requirements, list of needed tools and equipment, etc. After the operating budget is established, the capital budget is developed based upon CWC's long-term infrastructure improvement plan (LTIIP), necessary tools and equipment from the respective CWC departments, and road improvement project information received from local municipalities (to capture cost savings when CWC aligns projects with borough or township projects). The budgets are reviewed and approved by the CWC Board of Directors. Concurrent with the capital budget, CWC's President/GM along with the CWC Board evaluates if the operating cash is adequate to complete all capital budget items or if additional cash is needed via borrowings.

CWC conducts monthly reporting and review of its financials, including variance reporting on differences between projected income and expenditures versus actual spend. Additionally, CWC variance reports are reviewed quarterly by the CWC Board (see Chapter III – Corporate Governance for more information about the CWC Board of Directors). As reflected in Exhibit IV-1, CWC's operating expenses were closely aligned with the Company's projected budget.

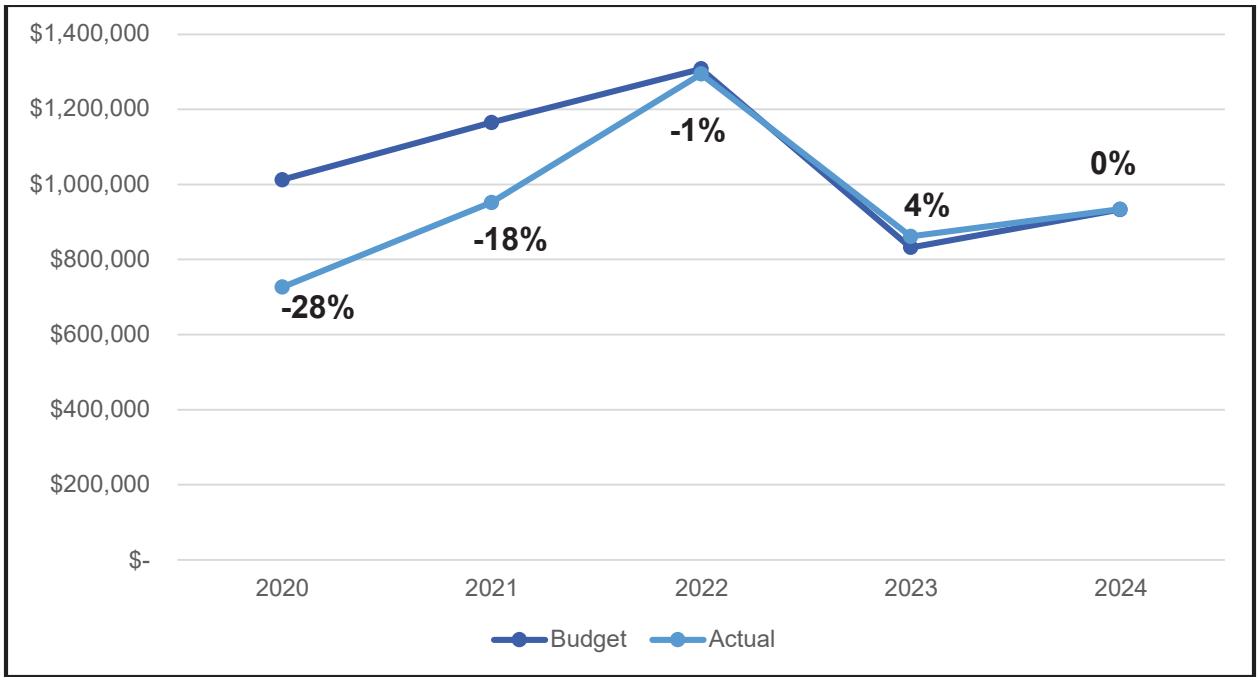
Exhibit IV-1
Columbia Water Company
Operating Budget to Actual
2020 – 2024



Source: PUC Data Request FM-3

As shown in Exhibit IV-2, CWC's capital expenses were aligned closely with its projected spending between 2022 and 2024. The COVID-19 pandemic and overwhelming inflation experienced in 2020 and 2021 affected the timing and progress of CWC's capital projects, resulting in the underspending reflected in 2020 and 2021.

Exhibit IV-2
Columbia Water Company
Capital Budget to Actual
2020 – 2024



Source: PUC Data Request FM-4

Findings and Conclusions

Our examination of the Financial Management function included a review of the Company's accounting policies and procedures, budget process, variance reporting, short- and long-term financing activities, capital structure, dividend process, cash collection and disbursement process, etc. Based upon our review, it appears that proper controls are in place and that the Financial Management-related functions are being performed in a satisfactory manner; therefore, no recommendations have been developed for this area.

V – WATER OPERATIONS

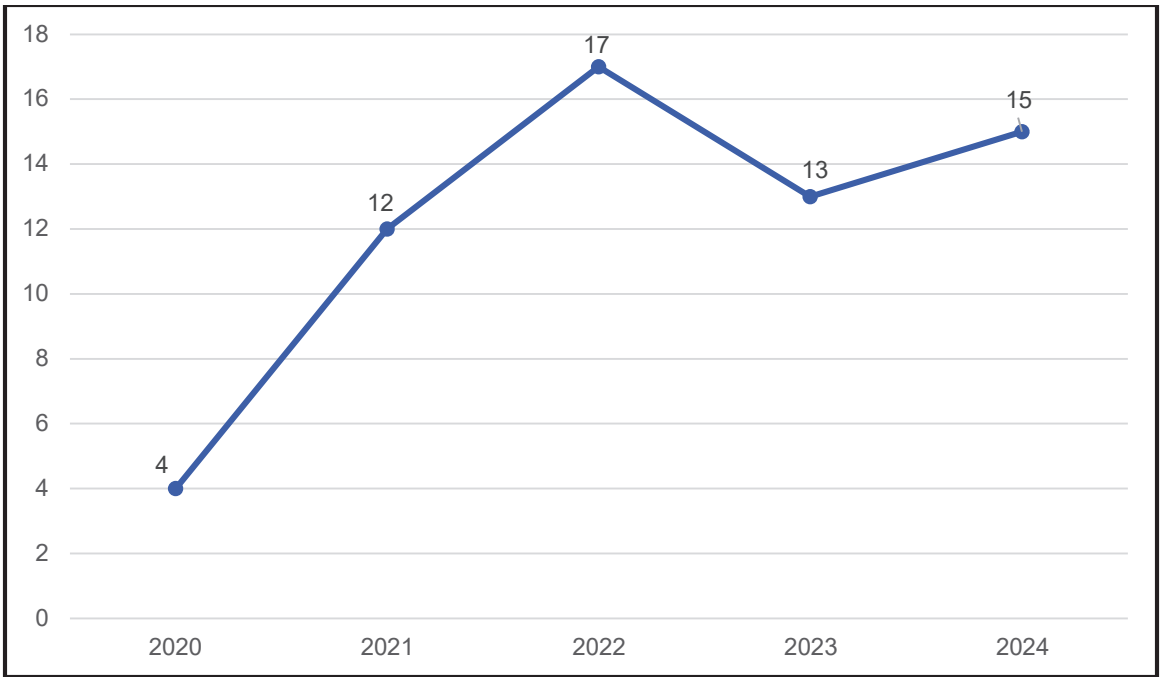
Background

CWC serves approximately 12,200 drinking water customers in the Columbia, Marietta, and Mountville Boroughs and the West Hempfield, Manor, Rapho, and East Donegal Townships of Lancaster County as well as York County's Hellam Township. The Company generates its water from a combination of surface water and ground water sources; the largest of these sources is the Susquehanna River. CWC has four water treatment facilities and a distribution system comprising approximately 164 miles of main, 11 pressure zones, and 12 storage tanks to deliver drinking water to customers. 95% of the Company's customer base is residential, with the remaining 5% consisting of commercial, industrial, and public customers. As of April 2025, CWC has a maximum treatment capacity of approximately six million gallons per day (MGD) and a storage capacity of approximately 10.5 MGD.

CWC's water operations is led by the Company's President and General Manager (President/GM). The President/GM's responsibilities include preparing engineering permits, overseeing utility upgrades or installations, and reviewing Company reporting for regulatory agencies. CWC's President/GM has three direct reports responsible for the Company's water operations: Compliance Manager, Production Superintendent, and Distribution Superintendent (see Exhibit II-2 for an abbreviated organization chart for CWC). The Compliance Manager is responsible for managing laboratory test results, preparing CWC regulatory reporting, and helping support the Production and Distribution department as needed (see Chapter VI – Emergency Preparedness for additional information on the Compliance Manager's duties). The Production Superintendent manages the Company's Production staff and oversees operation of CWCs' treatment plants. The Distribution Superintendent manages the Company's distribution staff, who are responsible for operating and maintaining CWC's distribution system.

CWC's Distribution department employees conduct annual leak surveys to help mitigate water loss throughout its distribution system. The Company uses a combination of portable listening equipment and ultrasonic meter technology to identify and repair leaks. From 2020 – 2024, CWC successfully detected and repaired 61 leaks throughout its annual leak survey. Exhibit V-1 shows the number of leaks identified and repaired annually from the Company's leak surveying efforts during the audit period. This initiative contributed to CWC's reasonable levels for unaccounted-for-water (UFW). UFW is the volumetric difference between the water introduced to a distribution system and the water billed to customers. Exhibit V-2 displays CWC's UFW (as a percentage of water volume produced) for the audit period.

Exhibit V-1
Columbia Water Company
Repaired Leaks
2020 – 2024



Source: PUC Data Request WO-11

Exhibit V-2
Columbia Water Company
Unaccounted-for-Water Levels
2020 – 2024

Year	UFW (%)
2020	11.80%
2021	6.50%
2022	11.20%
2023	12.00%
2024	13.50%

Source: CWC's 2020 – 2024 Annual Reports to the PUC

CWC's Distribution department locates and repairs emergent main and service line breaks when discovered (system alerts, service calls, etc.) to control the Company's UFW and minimize customer disruptions. Exhibit V-3 displays the number of main and service breaks occurring along CWC's distribution system on an annual basis and the customers affected by those breaks. To inform customers of breaks, water quality alerts, and other issues, CWC uses an alert system to send out pertinent information to all or a subset of customers.

Exhibit V-3
Columbia Water Company
Main and Service Break Data
2020 – 2024

Year	Main Breaks	Service Breaks	Customers Affected
2020	2	1	13
2021	6	1	90
2022	10	0	134
2023	6	1	128
2024	9	3	140
Average	7	1	101

Source: PUC Data Request WO-9

As of April 2025, the Company employed 23 personnel; 15 of these employees have roles in CWC's water operations. CWC employees perform routine maintenance, complete work orders, and address emergency repairs. Due to limited staffing, project scheduling, or emergency situations, employees may incur overtime hours. Exhibit V-4 shows overtime usage for the Company's Production and Distribution departments. From 2020 – 2024, CWC's overtime usage for both departments is within acceptable limits which Audit Staff define as below 15%. The increase in the Production department's overtime was attributed to employee separations in 2020 and 2024 and training for new employees.

Exhibit V-4
Columbia Water Company
Department Overtime Usage
2020 – 2024

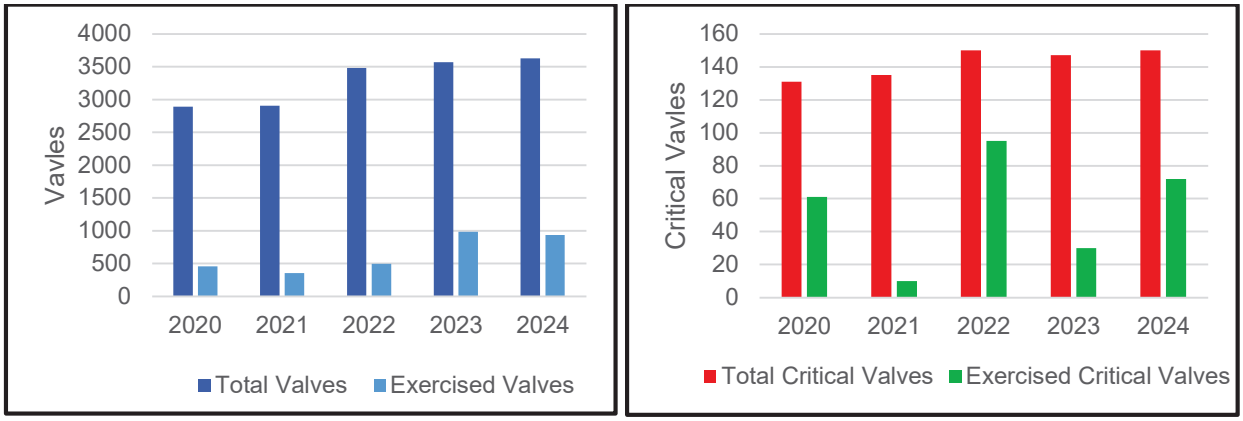
Department	2020	2021	2022	2023	2024
Overtime Hours					
Production	1271	1093	946	1199	1532
Distribution	493	1462	1307	801	819
CWC Employees					
Production	7	6	6	6	6
Distribution	9	9	10	10	11
Overtime/Regular Time Hours (%)					
Production	8.73%	8.76%	7.58%	9.61%	12.28%
Distribution	2.63%	7.81%	6.28%	3.85%	3.58%

Source: PUC Data Requests WO-4 and WO-5

CWC's valve exercising program checks that valves are operating effectively and addresses any maintenance issues discovered. The Company utilizes several valve types (e.g., in-line isolation, pressure reducing, check valves, etc.) and categorizes valves

crucial to continuous system operations as a critical valve. All valve information, including characteristics and maintenance, is recorded in CWC's Geographic Information System (GIS) (see Finding V-2 below for more information on the Company's GIS system). Exhibit V-5 compares total valves with exercised valves by year, and total critical valves with exercised critical valves on an annual basis.

Exhibit V-5
Columbia Water Company
Valve and Critical Valve Totals and Number Exercised
2020 – 2024

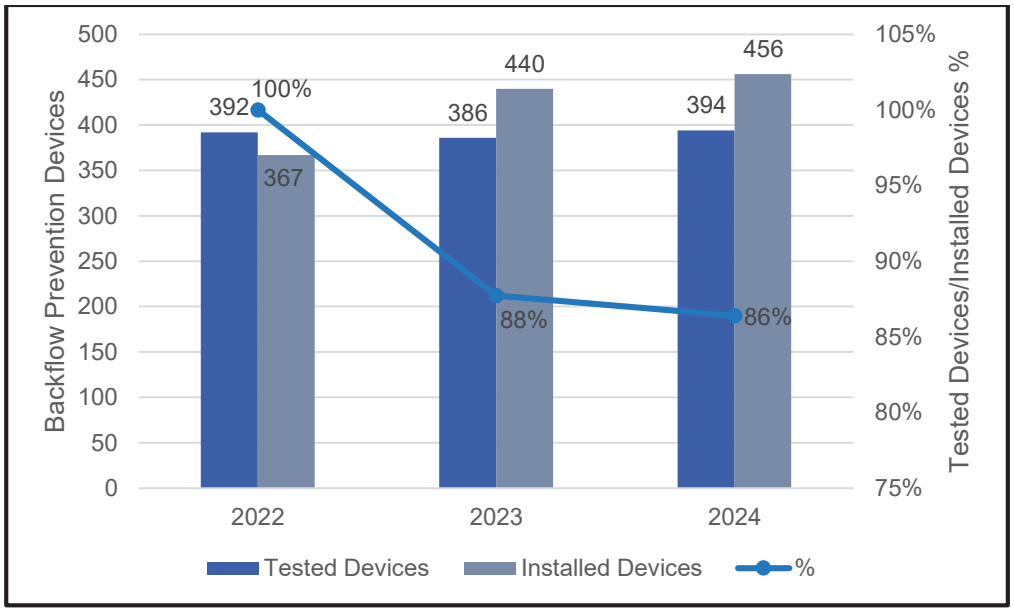


Source: PUC Data Request WO-20

CWC has a cross-connection control program to inspect and minimize contamination risk of its potable water supply. While a drinking water distribution system is designed for one-way flow, conditions could arise where flow is reversed, potentially contaminating the water supply. To prevent this, CWC's industrial, commercial, and public customers have their facilities inspected routinely. Beginning in 2022, the Company entered into an agreement with a third-party to manage its backflow prevention program.

The Company's cross-connection control program is a shared responsibility between CWC and its applicable customers. While the Company or its authorized representative will investigate potential cross-connections, a customer is responsible for conducting periodic surveys on their property to assess water use practices. When an unprotected cross-connection is discovered, the customer is responsible for installing a CWC-approved backflow prevention device. The device-type is based on the hazard level posed by the cross-connection and is inspected on a recurring basis. Exhibit V-6 shows CWC's customer backflow prevention device data. A larger test number than compliant devices in 2022 can be explained by follow-up tests on previously non-compliant devices and a larger compliant device number in 2023 and 2024 can be explained by an increase in newly installed devices.

Exhibit V-6
Columbia Water Company
Backflow Prevention Device Data
2022 – 2024



Source: PUC Data Request WO-22

Findings and Conclusions

Our examination of the water operations function included a review of policies and procedures, capacity planning, drought contingency planning, engineering and construction, maintenance, production, main replacement, non-revenue water, damage prevention, and the cross-connection program. Based on our review, CWC should devote additional efforts to improving the effectiveness of its water production, transmission, and distribution operations by addressing the following:

- **Finding V-1: CWC's main replacement activity fails to address its oldest pipe at an adequate rate.**

- **Finding V-2: CWC has a significant amount of main categorized as an unknown material type in its GIS mapping system.**

Discussion

Finding V-1: CWC's main replacement activity fails to address its oldest pipe at an adequate rate.

As of April 2025, CWC has approximately 164 miles of main in its distribution system. Exhibit V-7 shows the Company's miles of main by decade of installation. The majority of CWC's main is relatively new, with almost 60% of main less than 35 years old and approximately 83% is less than 55 years old. The Company still has older main in its system; with 6% of CWC's installed pre-1950 and less than 1% of main installed pre-1900. Most of the Company's cast iron main was installed prior to the 1960s.

Exhibit V-7
Columbia Water Company
Miles of Main by Decade of Installation
As of April 2025

Decade of Installation	Miles of Main	Percentage
Pre-1900	0.80	0.48%
1901-1910	2.52	1.54%
1911-1920	0.43	0.26%
1921-1930	0.75	0.46%
1931-1940	0.41	0.25%
1941-1950	5.08	3.09%
1951-1960	4.15	2.52%
1961-1970	7.64	4.65%
1971-1980	18.96	11.54%
1981-1990	18.78	11.43%
1991-2000	39.08	23.78%
2001-2010	36.25	22.06%
2011-2020	17.00	10.34%
2021-2030	6.84	4.17%
Unknown	5.66	3.44%
Total	164.35	100%

Source: PUC Data Request WO-27 and auditor analysis

CWC's main replacement activity from 2020 – 2024 is displayed in Exhibit V-8. During this period, the Company averaged replacement of approximately 0.3 miles of main annually, which translates to a 570-year replacement rate for the distribution system. From 2025 – 2029, CWC plans to replace 0.23 miles of main annually which equates to roughly a 715-year replacement rate for the distribution system. With approximately 14 miles of cast iron main in the Company's system (see Exhibit V-9 showing CWC main by material type), if CWC chose to solely replace cast iron main it would take roughly 60 years to remove cast iron from the distribution system at its current rate.

Exhibit V-8
Columbia Water Company
Main Replacement Activity
2020 – 2024

Year	Main Replaced (mi)	Replacement Rate (years)
2020	0.24	688
2021	0.22	748
2022	0.49	334
2023	0.19	885
2024	0.30	549

Source: PUC Data Request WO-16 and auditor analysis

Older cast iron main is prone to leaking and breaking because of pitting, graphitic corrosion, and ground movement. In a report published by the United States Environmental Protection Agency in May 2002 on "Deteriorating Buried Infrastructure Management Challenges and Strategies", the concern in the water industry revolves around replacing the three older vintages of cast iron pipe (i.e., pit cast, spun cast, and spun cast with leadite joints) that were primarily installed prior to the 1960s. These three vintages of cast iron pipe, which were installed in different time periods (i.e., late 1800s until late 1960s), may be reaching the end of their respective service lives. The industry standard for the life expectancy of cast iron pipes is 75-100 years.

As detailed in the Company's long-term infrastructure improvement plan (LTIIP), CWC uses many factors to determine what main to replace; these factors include third-party infrastructure improvements (e.g., state, municipality, other utilities, etc.), water main break frequency, and material quality. While age is not the only indicator of potential failure, an older pipe (i.e., main in excess of 75 years of age) has a statistically higher chance of failure. Although the replacement rate is impacted by cost, Audit Staff reasons that CWC should continue to accelerate the replacement of older cast iron mains to mitigate future catastrophic failure, emergency repairs and water quality degradation.

Recommendation V-1: Ensure main replacement rates are adequate and periodically reassess replacement rates to align with infrastructure needs.

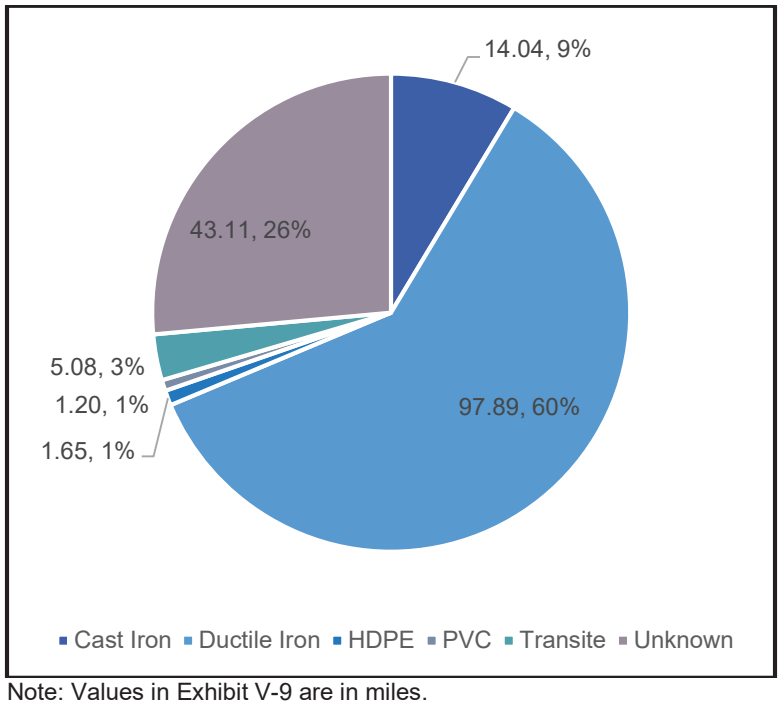
Finding V-2: CWC has a significant amount of main categorized as an unknown material type in its GIS mapping system.

CWC started its GIS initiative in 2005. At that time, there was minimal data in the Company's GIS system for its effective use. Once the Company started to compile and input its infrastructure into the GIS system, CWC began to incorporate the GIS system into its operations. Presently, CWC's GIS system is used to catalog system characteristics, track routine maintenance work, and document work orders. System characteristics cataloged by the Company's GIS include address location, physical

dimensions, and asset type while maintenance work that is tracked in CWC's GIS system include valve exercising and pressure survey testing. Lastly, the Company's GIS system documents work orders such as curb stop, hydrant, and main line repair.

As of April 2025, CWC's distribution system is composed of a combination of cast iron, ductile iron, plastic, and transite pipe. Exhibit V-9 displays the Company's main by material type (in miles). Ductile iron constitutes much of CWC's distribution system, accounting for 60% of main. Cast iron, ductile iron, and plastic (PVC, HDPE) pipe make up 14% of the Company's main.

Exhibit V-9
Columbia Water Company
Miles of Main by Material Type
As of April 2025



Note: Values in Exhibit V-9 are in miles.
Source: PUC Data Request WO-27 and auditor analysis

From the data presented in Exhibit V-9, 26% of CWC's main is of an unknown material type. However, the Company clarified that the unknown material amount is a function of the GIS system and not bona fide unknown material to CWC employees. Company personnel explained that as drawing information has been digitized into the GIS system, over time there have been incongruities between its paper maps and the GIS system. These incongruous sections make up the GIS's unknown material. CWC explained that Company employees will verify the material type of these incongruous sections during field work.

It is an industry best business practice to input accurate and known system information into a GIS system. Doing so can minimize risk and cost for a utility and can help a utility's main replacement program, utility-line locating, and maintenance efforts to be more efficient. Having missing data in the GIS system increases dependency on historical documents or institutional knowledge from CWC staff, thereby making utility processes less efficient and elevates the risk of losing information when employees retire or leave CWC. Audit Staff recognize that Company employees currently resolve incongruities in the GIS system when identified during normal operations but recommends CWC incorporate verification of material type into all applicable work on unknown sections. Whenever a work order, process, or main replacement type work occurs, a work task should be added to try to identify the unknown material. By expanding its efforts, the Company can expedite the elimination of incongruities and increase the GIS's accuracy.

Recommendation V-2: Incorporate identification of unknown material types into main replacement activities and CWC's work order process when applicable.

VI – EMERGENCY PREPAREDNESS

Background

On June 11, 2005, Regulations at 52 Pa. Code § 101 (Chapter 101) took effect which require jurisdictional utilities to develop and maintain written physical security, cyber security, emergency response, and business continuity plans to protect infrastructure within the Commonwealth of Pennsylvania and to ensure safe, continuous, and reliable utility service. A jurisdictional utility is required to maintain these "emergency preparedness" plans and annually file a Self Certification Form to the Pennsylvania Public Utility Commission (PUC or Commission) documenting compliance with Chapter 101. This form, available on the PUC website, is comprised of 13 questions as shown in Exhibit VI-1.

Exhibit VI-1
Pennsylvania Public Utility Commission
Public Utility Security Planning and Readiness Self Certification Form

Item No.	Classification	Response (Yes–No–N/A)
1	Does your company have a physical security plan?	
2	Has your physical security plan been reviewed in the last year and updated as needed?	
3	Is your physical security plan tested annually?	
4	Does your company have a cyber security plan?	
5	Has your cyber security plan been reviewed in the last year and updated as needed?	
6	Is your cyber security plan tested annually?	
7	Does your company have an emergency response plan?	
8	Has your emergency response plan been reviewed in the last year and updated as needed?	
9	Is your emergency response plan tested annually?	
10	Does your company have a business continuity plan?	
11	Does your business continuity plan have a section or annex addressing pandemics?	
12	Has your business continuity plan been reviewed in the last year and updated as needed?	
13	Is your business continuity plan tested annually?	

Source: Public Utility Security Planning and Readiness Self Certification Form, as available on the PUC website at https://www.puc.pa.gov/documents/utility-files/279/Security_Planning_Self-Cert_Checklist2021-F.pdf

The PUC Auditors use a NIST (National Institute of Standards and Technology) Cybersecurity Framework-based audit plan, modified to address the needs and capabilities of the PUC and the Pennsylvania utility companies. Our examination of CWC's emergency preparedness included a review of the Company's Physical Security Plan (PSP), Cyber Security Plan (CSP), Emergency Response Plan (ERP)/Business Continuity Plan (BCP), and the Company's security measures associated with these plans. In addition, the Audit Staff performed inspections at a sample of CWC facilities, including treatment facilities, pumping stations, well houses, and storage facilities. Due to

the sensitive nature of the information reviewed, specific information is not revealed in the audit report; instead, the generalities of the information reviewed are discussed.

CWC's President/GM and Compliance Manager are responsible for the Company's security and preparedness posture. The Compliance Manager is responsible for reviewing the Company's emergency preparedness policies whereas the President/GM is responsible for approving the updated policies. Additionally, both CWC's President/GM and Compliance Manager are responsible for planning and implementing emergency preparedness measures throughout Company facilities. Major emergency preparedness initiatives will require approval from CWC's Board.

The Company's facilities are equipped with physical security measures, and each facility is visited by CWC staff routinely. Additionally, CWC's ERP advises Company staff on how to mitigate a variety of emergencies should they occur. The Company's CSP details CWC's objectives as they relate to cybersecurity and what equipment, systems, and services the Company has in place to safeguard its infrastructure. The Company utilizes third parties to support its cybersecurity efforts, and the Company conducts cybersecurity awareness training annually. Lastly, CWC's BCP and other associated documentation highlights steps the Company will take to recover after an emergency and to resume its normal business operations.

CWC monitors their emergency preparedness plan through an annual review process performed by the Company. The plans are updated to reflect these reviews and any other input from relevant Company employees. Physical inspections and cybersecurity scanning are routinely conducted to identify deficiencies in CWC's security. Opportunities for improvement identified from the reviews are evaluated for implementation and the manuals are updated as needed.

Findings and Conclusions

Our examination of emergency preparedness at CWC included a review of the Company's PSP, CSP, ERP, BCP, risk assessments, and other associated security measures. Based on our review of the Company's emergency preparedness efforts, CWC should devote additional efforts to improving its security planning and preparedness procedures by addressing the following:

- **Finding VI-1: Minor security and/or safety deficiencies were identified at CWC facilities.**

- **Finding VI-2: CWC has not effectively utilized all available cybersecurity resources to safeguard its infrastructure.**

- **Finding VI-3: CWC does not routinely perform tabletop exercises of its emergency preparedness plans.**

- **Finding VI-4: CWC does not have a mobile device policy.**

Discussion

Finding VI-1: Minor security and/or safety deficiencies were identified at CWC facilities.

Various minor physical security deficiencies were noted during inspection of CWC's facilities. Most of these deficiencies were due to facility age, oversight, weather, or general wear and tear. These included concerns such as barbed wire problems, fencing issues, foliage concerns, gate misalignments, etc.

Physical security should be continuously addressed, and any deficiencies should be remediated in a timely manner. Deficiencies in a layer of security can render that layer ineffective. Therefore, any deficiency should be repaired or mitigated in the interest of maintaining multiple, functional layers of security throughout CWC's facilities.

Recommendation VI-1: Correct minor deficiencies in physical security.

Finding VI-2: CWC has not effectively utilized all available cybersecurity resources to safeguard its infrastructure.

CWC continues to use cybersecurity resources to mitigate potential vulnerabilities and protect its infrastructure. These resources have been either from government agencies or CWC's contracted third parties. In addition, CWC conducted a risk and resilience assessment in 2021 to comply with regulations put forth by America's Water Infrastructure Act (AWIA) of 2018 and plans to review its assessment in 2026 per those regulations. Moreover, to protect its infrastructure, CWC has implemented degrees of separation along its various networks.

While Audit Staff recognizes that the Company currently uses resources to minimize risk to its infrastructure, Audit Staff assert that CWC is not using all available cybersecurity resources to secure its networks. One cybersecurity resource that CWC could use is Cybersecurity and Infrastructure Security Agency's (CISA) Vulnerability Scanning Tool to scan the Company's applicable networks. Another best practice includes establishing a cybersecurity maturity model. The cybersecurity maturity model, developed by the Department of Defense, assists organizations in assessing their cybersecurity levels and identifying security weak points by ranking cybersecurity measures into three tiers[2].

Industry best practices require utilities to use available cybersecurity tools and resources to safeguard their assets. By not employing available cybersecurity resources, CWC could be exposed to cybersecurity risks and threats. By using these tools and resources, the Company can have additional insight and perspective on how to optimize

[2] The three tiers are based on NIST cybersecurity standards.

against potential vulnerabilities, thereby further securing CWC's delivery of drinking water to its customers.

Recommendation VI-2: Leverage additional cybersecurity tools and resources to enhance applicable security systems and security posture.

Finding VI-3: CWC does not routinely perform tabletop exercises of its emergency preparedness plans.

During audit fieldwork, CWC personnel were asked about testing of the Company's emergency preparedness plans. The Company indicated that many aspects of its emergency preparedness plans are discussed among CWC employees. Often, these discussions revolve around the Company's normal course of business or emergency situations that occur occasionally like floods, droughts, etc. Additionally, while the Company did develop two mock scenarios to test its response to unique emergencies, these scenarios were never exercised by CWC. Furthermore, the Company mentioned that there has been no specific testing of its business continuity plan, since many of its aspects have shifted to Software as a Service (SaaS) platform.

The 52 Pa. Code § 101.3 (c) states that, "a jurisdictional utility shall maintain and implement an annual testing schedule of these plans". Additionally, testing its own emergency preparedness plans allows a utility to recognize the strengths and weaknesses of its security and can help to train and prepare staff to respond to emergency situations. Audit Staff recognize that the Company's size impacts the scope and depth of testing needs. However, Audit Staff contends that by establishing clear testing objectives, involving staff directly responsible for administering plan response, and capturing input, CWC can perform in-depth and unobtrusive testing for both normal and abnormal operating conditions. Public resources to aid utilities in the testing of emergency preparedness plans include the Environmental Protection Agency's Tabletop Exercise Tool for Drinking Water and Wastewater Utilities, FEMA's Exercise and Preparedness Tools, and CISA's Exercise Packages.

Recommendation VI-3: Incorporate emergency preparedness tests, tabletop exercises, or scenarios into CWC's annual testing routine.

<u>Finding VI-4</u>: CWC does not have a mobile device policy.

Management indicated that employees have the option to use a Company-provided mobile device or use their own device. However, CWC does not have a written policy regarding the use of Company-provided or personal mobile devices while accessing Company networks.

A leading practice for utilities is to establish a formal mobile device policy that informs employees of acceptable behavior and use of mobile devices while accessing Company networks. The establishment and review of a mobile device policy adds an additional safeguard to existing security infrastructure by reducing cybersecurity risks at the end-user level. Potentially, this policy review could coincide with CWC's annual cybersecurity awareness training.

<u>Recommendation VI-4</u>: Establish a mobile device policy outlining acceptable use on CWC networks and review on an annual basis.

VII – CUSTOMER SERVICE

Background

As detailed in Chapter II – Background, CWC is a water utility that provides water service to more than 12,200 residential, commercial, and industrial customers in York and Lancaster counties. CWC's customer service functions are provided primarily through its Office Manager, who has supervisory oversight of two customer service representatives (CSR). As noted in Chapter IV – Financial Management, the Office Manager and CSRs also support financial activities (i.e., accounts payable, financial reporting, etc.). The Office Manager and CSRs' customer service responsibilities include responding to customer inquiries (in-person, phone, electronic communication), processing payments, handling service orders (e.g., new applications, service orders, etc.), customer billing, collections, payment arrangements, and responding to customer complaints.

CWC's meter reading function is supported through radio frequency (RF) and traditionally read meters (i.e., touchpad). As discussed in Finding VII-1, although CWC is in the process of migrating all customer meters to RF, a portion[3] of CWC customer meters require manual meter reading collection. CWC's Distribution department is responsible for collecting all manual readings. Manual meter readings are completed by two Distribution department employees through three monthly billing cycles. As discussed in Chapter II – Background, CWC acquired its East Donegal division in 2022. CWC's East Donegal division customers are billed on a quarterly basis, in accordance with CWC's tariff. However, the quarterly readings primarily are collected remotely, as CWC's East Donegal division's conversion to RF meters is nearly complete.

CWC customers have multiple payment options, including one-time or recurring electronic payment offerings (i.e., credit card, app services, or electronic check), via US mail, pay by phone, or in-person. CWC accepts customer payments directly during regular business hours (8 am – 4:30 pm) on weekdays, or through their mail slot after business hours. CWC also offers online account options for customers to establish autopayments, receive an e-bill, and opt in for text messages. In response to CWC's electronic service provisions, the majority of customers pay via CWC's electronic options. As of March 2025, approximately 60% of all customer payments were received by CWC electronically. Emergency notices and urgent messages (i.e., outages, boil water advisory, etc.) are posted to the CWC website and texts are sent to customers who opt in. Customers may also sign up directly on CWC's website at https://www.columbiawaterco.com/emergency-signup/.

Findings and Conclusions

Our examination of the Customer Service function included a review of CWC's customer service organization, policies and procedures, customer satisfaction surveys and complaint data, accounts receivable, bad debt levels, billing, payment and collection

[3] As of June 2025, CWC customer meters included 9,398 RF meters and 2,883 touchpad meters.

cycles, etc. Based upon our review CWC should initiate or devote additional efforts to improving the efficiency and/or effectiveness of its corporate governance functions by addressing the following:

- **Finding VII-1: CWC is using manual read metering technology.**
- **Finding VII-2: CWC does not maintain theft of service policies or procedures.**

Discussion

Finding VII-1: CWC is using manual read metering technology.

As discussed in this chapter's Background section, CWC's service territory is composed of a mixture of meter types. Nearly a quarter of CWC's total customer meters are touchpad meters (i.e., require manual meter reading activities to obtain customer usage). Audit Staff's review of a sample of CWC's customer bills reflected excessive billing lag (e.g., 6 – 12 days between reading date and invoice date) in the monthly billing cycles. Meanwhile, billing lag for the East Donegal district's automated quarterly billing cycle was significantly lower (two days between reading and invoicing) due to RF meters deployed throughout most of the system.

CWC experiences excessive billing lag for a significant number of customer accounts, which delays the inflow of customer payments. Billing lag can limit flexibility in optimizing cash flows, furthermore, manual operations are inefficient and error prone. Specifically, the process hinders the optimal use for Distribution department staff, who could be leveraged for full-time maintenance and inspection activities, rather than primarily tasked with manual meter reading collection. Full deployment of automated meter reading, such as RF, will provide additional benefits through automated alerts to detect leaks and will help CWC target problems more expediently and accurately within the service territory, potentially reducing overall replacement and maintenance costs.

CWC's President/GM estimated an 8 – 10-year period for completion of the migration to full RF meter deployment. However, at the average RF meter conversion rate observed between 2020 and 2024[4], CWC would require more than 15 years to complete its RF conversion. As such, CWC would need to increase its meter replacement rates to achieve full deployment within its anticipated timeframe. Unfortunately, RF conversion can be costly and CWC must prioritize capital investment across a number of needs ranging from infrastructure replacement to compliance to water quality improvements. Therefore, CWC should continue to seek opportunities to expediate its conversion to RF meters as a long-term goal.

Recommendation VII-1: Continue implementing automated metering technology to eliminate manual processes, optimize operations, improve performance, and reduce billing lag.

[4] Meter replacement rate based upon CWC's Annual Asset Optimization Plan data

<u>Finding VII-2</u>: CWC does not maintain theft of service policies or procedures.

As highlighted in Finding III-1 within Chapter III – Corporate Governance, CWC lacks documentation on certain key customer service-related activities, including its prevention activities related to theft of service. Theft of service is ultimately a burden on ratepayers who would cover the cost of unaccounted-for-water. CWC identifies theft when inactive accounts are reactivated (i.e., usage on an inactive meter) where lost revenues are billed upon reactivation of the meter. Additionally, CWC's tariff acknowledges that customers are subject to termination for meter or equipment tampering. However, no comprehensive theft of service program has been established by CWC.

Due to the rare occurrences of theft, CWC has not developed a formal theft of service program. A comprehensive theft of service program supports all components of the process, including detection, remediation, recovery of lost revenues, and/or legal remedies to effectively pursue theft, reduce costs, and maximize revenues. For example, utilities can leverage the following aspects for theft of service/revenue protection:

- Customer education/awareness
- Identification of employees' roles/responsibilities related to theft to service
- Employee training administered periodically to all field employees
    - Visual examples (damaged or bypassed meters)
    - Review of remediation and notification procedures
- Procedures for suspected theft of service
    - Contact information for area police
    - Identification of reports, forms, or other tools used during the process
- Guidelines for remediation once theft is confirmed
    - Immediate termination process
    - Customer notification
- Framework for revenue recovery
    - Calculation of lost revenues
    - Assignment of remediation costs
    - Restoration requirements (i.e., inspection, use of meter pits, etc.)

Furthermore, as a best practice, CWC should routinely collect readings for all customer meters, including inactivated meters, to confirm zero usage or proactively detect unexpected usage for expediated resolution.

<u>Recommendation VII-2</u>: Implement a comprehensive theft of service program.

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