



**NEWTOWN ARTESIAN  
WATER COMPANY**

***MANAGEMENT AND OPERATIONS AUDIT***

**Pennsylvania Public Utility Commission  
Bureau of Audits  
Issued February 2025**

**Docket No. D-2024-3049372**

**NEWTOWN ARTESIAN WATER COMPANY  
MANAGEMENT AND OPERATIONS AUDIT**

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**NEWTOWN ARTESIAN WATER COMPANY  
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## 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). Management and operational audits are required of certain Pennsylvania-based utility companies pursuant to 66 Pa. C.S. § 516(a). Specifically, the Commission can investigate and examine the condition and management of any public utility, 66 Pa. C.S. § 331(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 management and operations audit should be conducted of Newtown Artesian Water Company (NAWC or Company).

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

### A. **Objectives and Scope**

The objectives of this management and operations audit were to:

- Provide the Commission, NAWC, and the public with an assessment of the efficiency and effectiveness of the Company's operations, management methods, organization, practices, and procedures
- Identify opportunities for improvement and develop recommendations to address those opportunities
- Provide an informed basis for future regulatory and other inquiries into the management and operations of NAWC

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

## **B. Audit Approach**

The 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 the PUC's bureaus and offices, external parties, and NAWC 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 determine the scope of the management audit. Specifically, the following 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. If we conducted a thorough review of those areas, additional weaknesses or deficiencies may have come to our attention.

Fieldwork began on August 19, 2024 and continued intermittently through January 6, 2025. The principal components of the fact gathering process included:

- Interviews with the Company's personnel as well as other Bureaus of the Commission
- Analysis of records, documents, and reports of a financial and operational nature focused primarily on the period 2019-2023
- Visits to select Company facilities with observations and walk-throughs of work practices

**C. Functional Area Ratings**

For the functional areas selected for in-depth examination, the PUC auditors rated the area relative to the expected performance level at the time of the audit. This expected performance level is the state at which 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 the operating or performance level in each functional area:

- 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  
Newtown Artesian 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**

Our standard procedure is to quantify potential savings expected from implementing the recommendations in our report. However, for this audit it was not possible. The anticipated benefits are of a qualitative nature and/or there was insufficient data available to quantify the effects. 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. Similarly, changes in workflow or implementation of good business practices could result in improved effectiveness and efficiency of a function but cannot be easily quantified.

## **E. Recommendation Summary**

Chapters III through VII provide findings, conclusions, and recommendations for each functional area reviewed in-depth during this audit. Exhibit I-2 summarizes the recommendations with the following priority assessments for implementation:

- **INITIATION TIME FRAME** – Estimated time frame on how quickly the Company should be able to initiate its implementation efforts given the Company’s resources and general operating environment. The time necessary to complete implementation is expected to vary depending on the nature of the recommendation and the scope of the effort necessary and resources available to effectively implement the recommendation.
- **BENEFITS** – Net quantifiable benefits have been provided where they could be estimated as discussed in Section D - Benefits. Our overall rankings are not solely based on quantifiable dollars but rather our assessment of the potential overall impact of the recommendation on the efficiency and/or effectiveness of the Company and/or the services it provides.
  - **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.

**Exhibit I-2  
Newtown Artesian Water Company  
Management and Operations Audit  
Summary of Recommendations**

Rec. No.	Recommendation	Page No.	Initiation Time Frame	Benefits
<b>Chapter III – Corporate Governance</b>				
III-1	Prepare and file annual diversity reports with the Commission according to the most recently issued guidelines.	9	0-6 Months	Low
<b>Chapter IV – Financial Management</b>				
None				
<b>Chapter V – Water Operations</b>				
V-1	Create a 50-year prediction for replacement needs and use this to accelerate from current main replacement rates in the Company's next LTIP.	14	9-12 Months	Medium
V-2	Review and regularly update the Damage Prevention Manual.	17	0-6 Months	Low
V-3	Verify the material type of the remaining unknown service lines and continue to remove any lead from the distribution system.	17	0-6 Months	High
<b>Chapter VI – Emergency Preparedness</b>				
VI-1	Correct minor deficiencies in physical security.	21	0-6 Months	High
VI-2	Improve physical security for control rooms and SCADA system equipment.	21	0-12 Months	High
VI-3	Install sprinkler systems at regularly occupied facilities where feasible.	21	9-12 Months	Medium
VI-4	Develop a mobile device security policy that requires specific security criteria be met for employee-owned devices to be allowed to connect to the Company's intranet.	22	6-9 Months	Low
VI-5	Develop and maintain incident response plans focused on physical security, cybersecurity and emergency response.	22	0-6 Months	Low
<b>Chapter VII – Customer Service</b>				
VII-1	Implement routine customer feedback surveys to ensure customer expectations are met and opportunities for improvement are identified.	24	6-9 Months	Medium
VII-2	Standardize and formalize documentation to include version controls on all standard operating procedures and use processes or tools to ensure documentation is kept up to date.	24	0-6 Months	Low

## II – BACKGROUND

Newtown Artesian Water, Inc. (NAWC or Company) was incorporated in Pennsylvania in 1888 and is a regulated public utility headquartered in Newtown, Pennsylvania. NAWC serves approximately 10,500 customers in Newtown Borough, Newtown Township, and the northern portion of Middletown Township, Bucks County. The water distribution system is supplied by five groundwater sources located throughout the NAWC service territory and through interconnections with the Bucks County Water and Sewer Authority (BCWSA) and Pennsylvania American Water Company (PAWC). See Chapter V – Water Operations for more information about NAWC’s water distribution system.

At year-end 2024, NAWC’s organization structure was comprised of 12 full-time employees, one part-time employee and a six-member Board of Directors (Board). Four Board members also serve as the corporate officers (i.e., President, Vice President, Treasurer, and Secretary) (see Chapter III – Corporate Governance for additional information about the Board). The Chief Executive Officer (CEO) directs the day-to-day operations of the Company, reports to the Board of Directors, and serves as the Secretary of the Board. The CEO supervises the Accounting Manager, Office Manager (who oversees three customer service representatives), and Director of Operations (who oversees four operators<sup>1</sup>, a part time maintenance technician, and two field technicians).

Exhibit II-1 summarizes NAWC’s customer statistics as of December 2023.

### Exhibit II-1 Newtown Artesian Water Company Customer Statistics For the Year Ended December 31, 2023

Customer Class	No. of Customers	Percent of Total Customers	Gallons Sold (1,000)	Percent of Gallons Sold	Revenue	Percent of Revenue
Residential	9,692	91.7%	460,312	67.1%	\$ 4,008,739	65.4%
Commercial	619	5.9%	129,646	18.9%	912,974	14.9%
Industrial	47	0.4%	66,222	9.7%	444,161	7.3%
Other ^	208	2.0%	29,872	4.3%	762,405	12.4%
<b>Totals</b>	<b>10,566</b>	<b>100.00%</b>	<b>686,052</b>	<b>100.00%</b>	<b>\$ 6,128,279</b>	<b>100.00%</b>

^ Other includes public and fire protection customers

Source: Newtown Artesian Water Company’s 2023 Annual Report to the PUC

<sup>1</sup> One of the operators also acts as an inspector. A second operator also acts as a maintenance technician.

### III – CORPORATE GOVERNANCE

#### **Background**

Newtown Artesian Water Company (NAWC or Company) operates with a six-member Board of Directors (Board). Four directors also serve as corporate officers (i.e., President, Vice President, Treasurer, and Secretary) overseeing the Company's management and operations. The Board meets regularly on the second and fourth Wednesday of each month. The Board operates through the use of the following committees:

- **Audit** – accounting, reporting, and auditing practices
- **Strategic Planning** – long-range planning, budgeting, financial planning, surcharge analysis, supply sourcing, and capital projects
- **Compensation, Governance and Personnel** – executive and employee base salary and incentives, and the employee handbook
- **Infrastructure and Risk** – all insurance including health, maintenance equipment purchases, and cybersecurity

Excepting the Audit committee, which is unchanged, the number and purpose of the committees underwent significant changes in March 2023. Strategic Planning succeeded both the Long-Range Planning and Budget committees. Compensation, Governance and Personnel succeeded both the Compensation / Personnel and Corporate Governance committees, and Infrastructure and Risk succeeded both the Insurance and Maintenance committees. In addition, the Board added financial planning & analysis as a responsibility of the Strategic Planning committee and assigned cyber-risk (cybersecurity) to the Infrastructure and Risk committee. All committees are comprised of three Board members, with each director sitting on two committees.

Each director receives fees for their service on the Board. The prior President and Secretary/Treasurer received a salary as part of their compensation package. In January 2023, the Company initiated a reorganization due to the retirement of its President and upcoming retirement of the Secretary/Treasurer. This resulted in naming a new President and assigning the Secretary responsibilities of the Secretary/Treasurer to a separate board member<sup>2</sup>. In September 2024, the former Secretary/Treasurer, then solely Treasurer, retired, and the Company elected a new Treasurer in December 2024. As of January 2025, the President, Secretary, and Treasurer do not receive a salary as part of their Board compensation. Compensation paid to the Board of Directors in 2024 is shown in Exhibit III-1.

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<sup>2</sup> Chief Executive Officer serves as Secretary.

**Exhibit III-1  
Newtown Artesian Water Company  
Board of Director's Fees  
As of December 31, 2024**

Director	Fees
President/Chairman	\$ 54,075
Vice President	43,575
Treasurer	32,681
Secretary	21,788
Director	43,575
Director	43,575
Total	\$ 239,272

Note: The Treasurer received annual salary as part of compensation during 2024.  
Sources: Data Requests CG-4 and CG-12

As a privately held company, NAWC is not subject to regulation by the Securities and Exchange Commission (SEC) and therefore, is not required to comply with the corporate governance requirements outlined in the Sarbanes-Oxley Act of 2002 (SOX) or the corporate governance rules of the New York Stock Exchange (NYSE). However, the Company demonstrated its intent to follow best practices where practical, for example, by maintaining a charter for the Audit committee.

NAWC uses established competitive bid procedures for major purchases. At least three bids are solicited for capital projects, vehicle acquisitions, and major equipment purchases with the bid awarded to the lowest qualified bidder. The Company also secures price quotes periodically for on-going services such as accounting, legal, banking, insurance, etc. to gauge whether services are being obtained in a cost-effective manner and, in 2024, switched external auditors.

**Findings and Conclusions**

Our examination of the corporate governance function included a review of the Company's ethics and conflict of interest policies; Board of Directors' organization including committee structure and charters; Directors' responsibilities, salary and fee structure; price solicitation and bid policies; employee handbooks; annual diversity reports; etc. Based on our review, the Audit Staff recommends that the Company initiate or devote additional efforts to improving the efficiency and/or effectiveness of its corporate governance practices by addressing the following:

- **Finding III-1: Newtown Artesian Water Company has not submitted annual diversity reports, as encouraged by the Commission, since 2019.**

## **Discussion**

### **Finding III-1: Newtown Artesian Water Company has not submitted annual diversity reports, as encouraged by the Commission, since 2019.**

The PUC has encouraged utilities to proactively improve diversity in their workforce and purchasing efforts for more than two decades. In March 1992, the PUC issued a Secretarial letter directing all jurisdictional utilities affected by Section 516 of the Public Utility Code (i.e., utilities whose plant-in-service exceeds \$10 million) to file quarterly diversity status reports with the PUC. In May 1994, the Commission issued an Order directing Section 516 utilities to file diversity status reports semi-annually rather than quarterly, to submit Equal Employment Opportunity (EEO) plans annually, and to file specified diversity procurement data. In February 1995, the PUC adopted Chapter 69 regulations that encouraged utilities to include diversity efforts as part of their business strategy. Later, in March 1997, the PUC's diversity filing requirements changed from semi-annual to annual. After reviewing its diversity requirements, the Commission issued its final rulemaking order at Docket No. L-2020-3017284 at its April 14, 2022 Public Meeting.

NAWC last filed an annual diversity report with the PUC in 2019. In subsequent years, the Company indicated the office closure resulting from the COVID-19 pandemic, departures of personnel historically responsible for filing the report, changes in external auditors, and turnover on the Board of Directors all contributed to not being able to complete and file a diversity report from 2020 through 2024. NAWC, as with all PUC regulated utilities, is encouraged to file an annual diversity report containing both human resources and procurement efforts, including:

- A tabulation of the utility's workforce composition for the previous five years;
- A narrative describing any of the utility's diversity initiatives concerning recruiting, advertising, training, promotion and retention;
- A comparison of the utility's workforce utilization to service territory's workforce availability from the prior year;
- Narratives on the utility's internal, external, and subcontractor efforts aimed at increasing diversity among vendors; and
- A tabulation of procurement purchases by classification (minority-, women- and persons with disability-owned business enterprises (MWDBE), vendors and total procurement.

### **Recommendation III-1: Prepare and file annual diversity reports with the Commission according to the most recently issued guidelines.**

## IV – FINANCIAL MANAGEMENT

### **Background**

Newtown Artesian Water Company (NAWC or Company) employs an office staff consisting of the Accounting Manager, Office Manager, and three full-time customer service representatives (further discussed in Chapter VII – Customer Service). The customer service representatives report to the Office Manager. Both the Accounting Manager and Office Manager report to the Chief Executive Officer (CEO). Office personnel are responsible for billing, accounts receivable, accounts payable, customer service, general office, and accounting duties.

The Company prepares one-year operating and capital budgets, annually. Preparation begins in September, and budgets are submitted to the Board of Directors (Board) around mid-October. The Accounting Manager, Office Manager, and CEO initially meet as a team to prepare and develop the operating budget and individual income statement account forecasts, which includes estimates for insurance; water purchases from Bucks County Water & Sewer Authority (BCWSA) and Pennsylvania-American Water Company (PAWC); operating revenue; water treatment expenses; administrative expenses; etc. The capital budget is prepared by the CEO and Office Manager, who first identify main replacement projects, equipment purchases, and capital improvement projects anticipated to be completed during the upcoming year.

In addition to annual budgets, the CEO and Office Manager compile a five-year capital improvement plan that includes individual and total estimated costs for capital projects expected to occur within the next five years. (See Chapter V – Water Operations for more information about NAWC’s Long-Term Infrastructure Improvement Plan.) All budgets are reviewed by the Board and approved during the December Board meeting. Exhibit IV-4 below shows total budgeted and actual capital expenditures for 2019 through 2023. The significant budget variances for 2020 and 2021 are the result of lower expenditures towards meter replacements. Performing more work in the first year of a planned three-year project caused the variance in 2023.

**Exhibit IV-1  
Newtown Artesian Water Company  
Actual Capital Expenditures versus Budget  
For the Years 2019 through 2023**

	2019	2020	2021	2022	2023
Budget	\$ 1,118,000	\$ 800,000	\$ 823,000	\$ 903,520	\$ 813,041
Actual	1,062,299	609,748	552,018	888,310	1,066,925
Variance	\$ 55,701	\$ 190,252	\$ 270,982	\$ 15,210	\$ -253,884
Variance %	5.0%	23.8%	32.9%	1.7%	-31.2%

Sources: Data Requests FM-4 and FM-6

The Office Manager compiles monthly budget variance reports that management reviews and presents to the Board. These reports compare monthly and year-to-date budgeted versus actual spending, including percentage of budgeted amount expended. Monthly, the Board requests explanations from the Office Manager for large variances in the operating budget. Although budget variance reports are produced monthly, variance reports can be run ad-hoc at any time if desired by management or the Board.

NAWC began and implemented significant changes to its accounting systems and processes during the audit period. The Company implemented new cloud-based enterprise software for accounting and inventory in 2021, replacing the decades old DOS-based system used previously. In addition, in 2022, the Company discussed and ultimately decided to select a new external auditing firm for 2023.

### **Findings and Conclusions**

Our examination of the financial management function included a review of NAWC's accounting policies and procedures, internal controls, capital and operating budgets, competitive bidding practices, and audited financial statements. Based on our review, nothing came to our attention that would lead the PUC auditors to conclude that areas reviewed were not being addressed adequately; therefore, no recommendations have been developed for this area.

## V – WATER OPERATIONS

### **Background**

The Newtown Artesian Water Company (NAWC or Company) supplies water service to approximately 10,500 customers in Newtown Borough, Newtown Township and the northern portion of Middletown Township located in Bucks County, Pennsylvania.

NAWC is in the planning stages to build a PFAS<sup>3</sup> treatment plant in order to comply with the EPA<sup>4</sup> and DEP regulations. On April 10, 2024, the EPA announced the final National Primary Drinking Water Regulation for PFAS, which limits PFAS levels in drinking water to a maximum of 4.0 parts per trillion (ppt) for PFOA and PFOS. Initial monitoring and public reporting must be completed by 2027, and ongoing monitoring and reporting must continue thereafter. Public water systems have until 2029 to implement measures to reduce these PFAS and must provide public notice of any violations. As of Q3 2024, PFOA at the two sample locations were at 9.4 ppt and 11 ppt, and PFOS were at 4.8 ppt and 5.5 ppt at those same sample locations.

NAWC provides water service within a fully integrated, three-pressure zone distribution system. The three pressure zones are identified as the “low service system”, the “high service system” and the “Durham Road boosted service system”. The low service system is supplied by five wells and two purchased water supply interconnections. Two of these wells are currently out of service though NAWC is considering rehabilitating the wells once the PFAS treatment plant is built. The Company’s distribution system consists of four storage tanks with a total storage capacity of 4.4 million gallons. The low service system consists of a 0.54 million gallon standpipe and a 2.36 million gallon ground storage reservoir, whereas the high service system includes two elevated tanks with capacities of 1.0 and 0.50 million gallons, respectively.

In addition to water produced at its wells, NAWC supplements its water supply with two purchased water agreements. These interconnections are from Bucks County Water and Sewer Authority (BCWSA) and the Pennsylvania American Water Company (PAWC). The water purchased from BCWSA is surface water originating from the Delaware River and treated at the Forest Park Water Treatment Plant. The water purchased from PAWC is a mixture of groundwater and surface water originating from the Delaware River and treated at the Yardley Water Treatment Plant. Between the two interconnections, NAWC purchased a total of 446.041 million gallons of water in 2023. As of year-end 2023, the average daily water supplied to the system was 2.004 million gallons per day (mgd).

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<sup>3</sup> A generic term referring to a group of chemicals (per- and polyfluoroalkyl) that are considered forever chemicals because they do not break down easily in the environment.

<sup>4</sup> U.S. Environmental Protection Agency, ‘PFAS National Primary Drinking Water Regulation, 89 FR 49101 published April 26, 2024.

Amongst other responsibilities, the Company's Chief Executive Officer (CEO) is responsible for all water operation activities. Reporting directly to the CEO, the Director of Operations supervises the day-to-day water operations. The Director of Operations oversees six full-time field employees. The field employees are responsible for all distribution operation activities such as valve inspection and maintenance, residential meter testing, line locating, main/service repair, fire hydrant painting, pump station maintenance, tank inspection, meter reading, etc. Due to various constraints on time, expertise and resources, NAWC outsources several services related to major construction, commercial/industrial meter testing, tank cleaning, main replacements, etc. For construction work and new installations, NAWC uses a pre-approved list of contractors.

NAWC has acoustic equipment that it uses to perform in-house leak detection on an as-needed basis, and the Company has several data loggers installed throughout its distribution system used to execute nighttime leak detection. These data loggers are used to survey specific sections of the distribution system at a time, and as of June 2024, the Company was almost done surveying its system for the third time.

The Company's non-revenue water (NRW) and Unaccounted-for-water (UFW) data is shown in Exhibit V-1. NRW is the difference between water supplied and billed authorized consumption (or water sold) whereas UFW is the difference between water supplied and sold minus allowable exclusions. NAWC has maintained minimal water losses and has kept its NRW under 7% over the last five years.

**Exhibit V-1  
Newtown Artesian Water Company  
Non-Revenue and Unaccounted-for-Water Percentage  
For the years 2019 through 2024**

	2019	2020	2021	2022	2023	2024
UFW (%)	4.96%	4.53%	4.20%	3.06%	3.38%	4.74%
NRW (%)	6.72%	5.44%	6.13%	4.54%	4.96%	6.25%

Sources: Data Request WO-4 and Company provided data

**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, NAWC should devote additional effort to improve the effectiveness of its water production, transmission, and distribution operations by addressing the following:

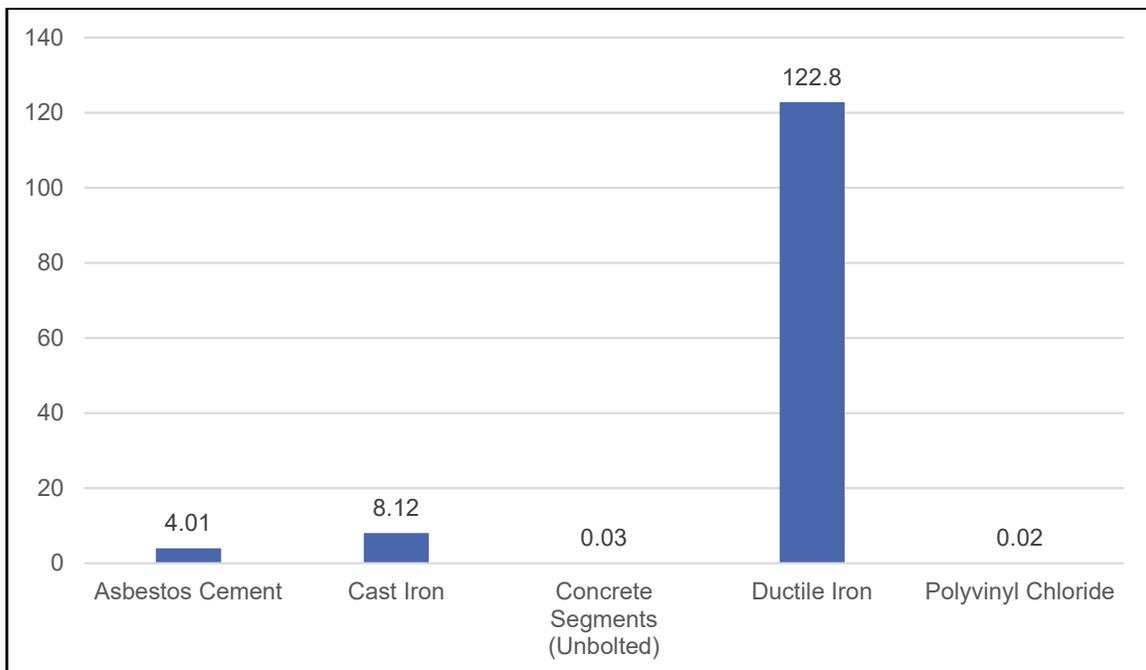
- **Finding V-1**: NAWC’s main replacement rate is not sufficient.
- **Finding V-2**: NAWC’s Damage Prevention Manual has not been reviewed or updated since 2012.
- **Finding V-3**: NAWC has customer-owned lead service lines in its distribution system.

**Discussion**

**Finding V-1**: NAWC’s main replacement rate is not sufficient.

Exhibit V-2 shows the lengths of the various types of water main in NAWC’s distribution system. Most of NAWC’s main is ductile iron, but there are about four miles of asbestos cement, eight miles of cast iron and very small amounts of non-ductile iron pipe. Asbestos cement and cast iron are prioritized in the Company’s Long-Term Infrastructure Improvement Plan<sup>5</sup> (LTIIP).

**Exhibit V-2  
Newtown Artesian Water Company  
Main Lengths in Miles by Material Type  
As of December 31, 2023**

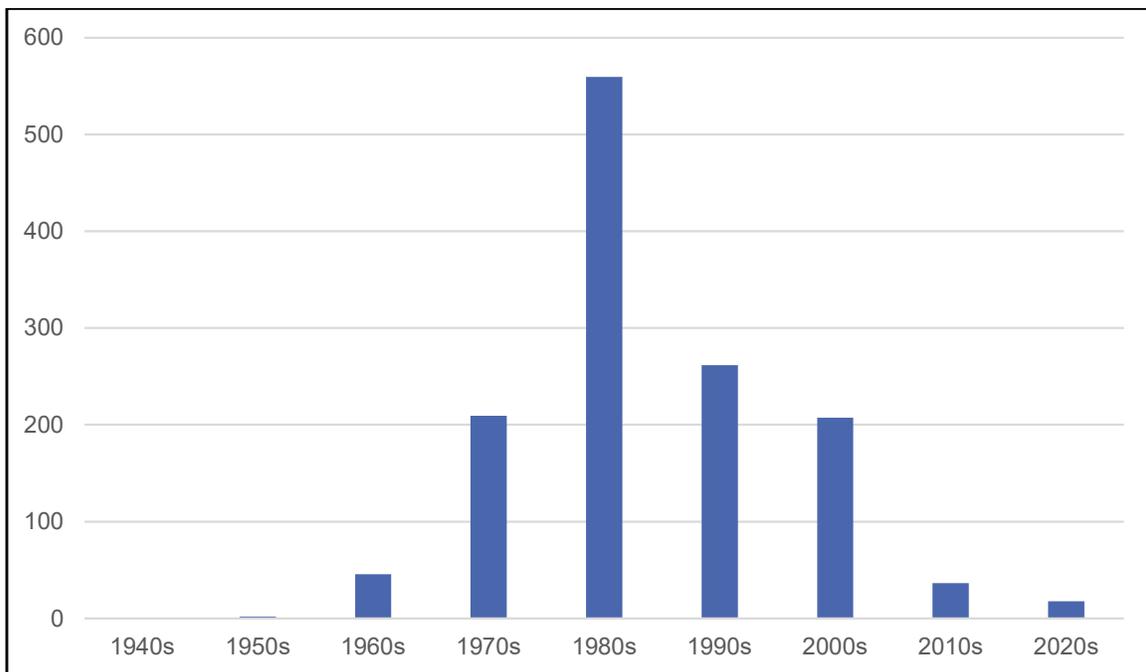


Source: Data Request WO-2

<sup>5</sup> The Long-Term Infrastructure Improvement Plan, or LTIIP, is a 5-year plan for capital improvements to the production and distribution systems’ infrastructures. It is required by the PUC as a prerequisite for imposing a DSIC (Distribution System Improvement Charge) charge on the customer base. LTIIPs are usually used by the utilities who have them to develop their capital budgets each year as well.

As shown in Exhibit V-3, most of the main (96.4%) are from the 1970s or later. Almost all main (99.8%) was installed after 1960. Only 5.40 miles of main were installed within the last 15 years. (i.e., 2010s or 2020s). This represents roughly 4.0% of the system comprising of newly installed main. This is a replacement rate of 0.36 miles per year, or 0.27% of the system, per year which equates to a replacement period (or time it takes to replace the entire system) of 372 years at the Company's pace over the last 15 years.

**Exhibit V-3  
Newtown Artesian Water Company  
Main Lengths in Miles by Decade  
As of December 31, 2023**



Source: Data Request WO-2

Exhibit V-4 shows the Company's main replacement activities from 2019 through 2023. The average main replacement rate from 2019 through 2023 was slightly elevated compared to the 15-year average, at 0.38 miles per year. Given the total of 135 miles of main in the distribution system, this is an equivalent replacement period of 355 years at the current (last five-year) replacement rate.

**Exhibit V-4  
Newtown Artesian Water Company  
Main Replacement Activities  
For the Years 2019 through 2023**

Year	Estimated (Planned) Mileage to Replace	Actual Mileage Replaced	Estimated Costs	Actual Costs
2019	0.6	0.6	\$568,000.00	\$602,051.00
2020	0.4	0.4	320,000.00	370,170.30
2021	0.1	0.1	195,000.00	140,997.50
2022	0.4	0.4	491,620.00	411,052.07
2023	0.4	0.4	\$343,791.00	\$517,458.90

Source: Data Request WO-5

The Company's current LTIP filed with the Commission projected 1800 linear feet of main replaced per year in *Table 9: Projected Capital Improvements on an Annual Basis*; however, the actual planned improvements for this LTIP period (2022 through 2026) averages only 1,290 linear feet replaced per year. That being said, the actual mileage replaced in 2022 and 2023, the first two years in this LTIP period, was 0.4 miles per year<sup>6</sup>, which is a replacement period of 337.5 years. Therefore, NAWC is currently exceeding the replacement rate planned in its LTIP and slightly ahead of replacement rates for the last 15 years.

Nonetheless, it is a best practice for water utilities to maintain a replacement period equal to or less than the expected service life of the pipes in their distribution systems. Given the expected service life of ductile iron of about 100-120 years, NAWC's current replacement rate of over 300 years is worth investigating. The Company indicated that its focus was on the cast iron and asbestos cement at the moment. At current replacement rates, it will take at least 30 years to replace the remaining cast iron and asbestos cement main. At which point, the average age of remaining mains in the distribution system will be roughly 70 years old. More alarmingly, approximately 56 miles of main would be due for replacement all in one decade if age is the primary replacement driver. While none of the ductile iron main, or a majority of NAWC's system, is at or near end-of-service life currently, if NAWC does not begin to accelerate main replacement, it may find it needs to drastically increase replacement efforts just to maintain the system. This could put a huge strain on the Company's capabilities and could significantly increase costs for the customers. Therefore, it is prudent to take a longer view of replacement needs.

NAWC's relatively young system and primarily ductile iron pipe seems to support its replacement rate exceeding the normal 100-120 year period. However, given the Company's main profile, the Company will face substantial increases in main replacement in the future possibly even reaching 20 times current replacement rates. Age is not the only factor influencing main replacement, but for this analysis, it serves as a good indicator for future replacement needs. Naturally, premature replacement of

<sup>6</sup> Per Data Request WO-5

main before its useful life is sub-optimal. However, given future needs, an acceleration of replacement efforts could prevent the worst repercussions of an aging infrastructure. Therefore, the Company should create a long-term prediction on how it proposes to handle future replacement needs and start to increase its replacement efforts over the next LTIP period.

**Recommendation V-1: Create a 50-year prediction for replacement needs and use this to accelerate from current main replacement rates in the Company's next LTIP.**

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**Finding V-2: NAWC's Damage Prevention Manual has not been reviewed or updated since 2012.**

NAWC's personnel perform emergency work excavation and service replacement excavation, whereas contractors perform main replacement excavation. They use on-the-job education for excavators, utilizing their inspectors. The Company does have a damage prevention manual, but it was written in July 2011 and last updated in July 2012. In addition, the Company's standard operating procedures or excavation procedures do not include damage prevention concepts. Much has changed since July 2012. In particular, on April 28, 2018, the PUC was authorized to enforce the provisions of Act 287, also referred to as the Underground Utility Line Protection Law or Act 50. As a result, NAWC's entire damage prevention manual is outdated and needs to be revised to reflect current reporting requirements.

It is a best practice to review and update manuals and procedures on a schedule of once every 1-3 years, depending on the criticality of the procedure and if there are any changes in statutory requirements or best practices. A change in leadership meant that the damage prevention manual was forgotten about before the current CEO and Director of Operations were in position. Because of this, the damage prevention manual was not reviewed or updated for the last 12 years and should be corrected.

**Recommendation V-2: Review and regularly update the Damage Prevention Manual.**

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**Finding V-3: NAWC has customer-owned lead service lines in its distribution system.**

As of the end of fieldwork in January 2025, NAWC had filed a petition at Docket No. P-2023-3041859 for PUC approval of a Lead Service Line Replacement Program in accordance with 52 Pa. Code § 65.54. Even though the program has not received

approval yet, NAWC indicated it plans to replace 100% of its customers' lead services by year-end 2036. NAWC has no lead services on its side of the service meters, but the Company has confirmed that there are at least 12 customer-owned lead service lines in the distribution system, and the Company estimates that there may be as many as 50 remaining in the system.

Furthermore, the EPA Lead and Copper Rule required water utilities to report all lead services lines, including customer-owned lines, to the DEP by October 16, 2024. Part of establishing a lead service line inventory is investigating service line records to establish if they have lead and verifying, by inspection, if the records are insufficient. (This is recommended but not required by the EPA.) In addition, lead service lines must be replaced within 10 years, according to the EPA's Lead and Copper Rule Improvement, published in October 2024, with an effective date of December 30, 2024. Given the toxic nature of lead, it is a best practice to remove lead service lines as soon as possible. NAWC has complied with the EPA reporting requirement but has not yet verified the material type of all unknown customer-owned service lines.

**Recommendation V-3: Verify the material type of the remaining unknown service lines and continue to remove any lead from the distribution system.**

## VI – EMERGENCY PREPAREDNESS

### Background

Effective June 2005, the Public Utility Commission’s (PUC or Commission) regulations at 52 Pa. Code § 101 (Chapter 101) require jurisdictional utilities to develop and maintain written physical security, cybersecurity, emergency response, and business continuity plans so as to protect the infrastructure within the Commonwealth of Pennsylvania and ensure safe, continuous and reliable utility service. Along with the requirement to establish these “emergency preparedness” plans, a utility is required to annually file a Self-Certification Form to the Commission documenting compliance with Chapter 101. This form, available on the PUC’s website, includes 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 cybersecurity plan?	
5	Has your cybersecurity plan been reviewed in the last year and updated as needed?	
6	Is your cybersecurity 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?	

\* Attach a sheet with a brief explanation if N/A is supplied as a response to a question.  
Source: Public Utility Security Planning and Readiness Self-Certification Form, as available on the PUC website at [http://www.puc.state.pa.us/general/onlineforms/pdf/Physical\\_Cyber\\_Security\\_Form.pdf](http://www.puc.state.pa.us/general/onlineforms/pdf/Physical_Cyber_Security_Form.pdf).

During the course of our fieldwork, the Audit Staff reviewed the most recent (i.e., 2023) Self-Certification Forms submitted by Newtown Artesian Water Company (NAWC or Company) to determine the status of its responses. Our examination of NAWC’s emergency preparedness included a review of physical security plans, cybersecurity

plans, emergency response plans (ERP), business continuity plans, and associated security measures. Furthermore, the Audit Staff performed inspections at a sample of the Company's facilities including: the main office, well houses, pump stations, and storage tanks. Due to the sensitive nature of the information reviewed, any specific information is not revealed in this report, but rather, the generalities of the information reviewed are summarized.

The Company maintains a well-documented ERP that includes relevant emergency response documentation such as a customer and general public notification plan for emergencies, and emergency contact information for employees, media, regulatory agencies, etc. To supplement the ERP, the Company developed a Crisis Communication Plan in 2008 to identify a crisis management team and formulate strategies to address specific situations (i.e., terrorism, natural disasters, etc.).

The Company's physical security plan includes documentation for all of its facilities such as well houses, pumping stations, interconnects, storage tanks, etc. In addition to the physical security plan, the Company hired a consultant in 2021 to perform the American Water Infrastructure Act-required risk and resilience assessment, which includes vulnerability assessment. This assessment was updated in 2024.

NAWC has a continuity of operations plan in lieu of the business continuity plan. The continuity of operations plan includes an overview of the system and identifies various vulnerabilities such as loss of water supply, loss of administrative facilities, etc. and outlines contingencies for vulnerabilities. NAWC also maintains a cybersecurity plan, which includes several elements related to security and safeguarding of its computer network.

## **Findings and Conclusions**

Our examination of NAWC's emergency preparedness included a review of the physical security plan, cybersecurity plan, emergency response plan, business continuity plan, vulnerability assessment and all associated security measures. Based on our review of NAWC's emergency preparedness efforts, the Audit Staff recommends that the Company should initiate or devote additional efforts to improving its security planning and preparedness procedures by addressing the following:

- **Finding VI-1: Minor deficiencies in physical security were noted during inspections of NAWC's facilities.**
- **Finding VI-2: There are opportunities to improve control center security.**
- **Finding VI-3: Several facilities lack sprinkler systems.**
- **Finding VI-4: NAWC lacks a personal mobile device security policy.**

- **Finding VI-5: NAWC lacks an incident response plan focused on physical security and emergency response.**

## **Discussion**

### **Finding VI-1: Minor deficiencies in physical security were noted during inspections of NAWC's facilities.**

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

Addressing physical security vulnerabilities reduces the risk of security incidents and protects equipment from damage and outages. Moreover, proactive remediation of safety concerns ensures personnel can perform job functions effectively and consistently. Therefore, NAWC should repair, remediate, or mitigate the identified minor deficiencies.

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

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### **Finding VI-2: There are opportunities to improve control center security.**

Vulnerabilities were noted in control center and SCADA equipment security. It is an industry best practice for SCADA controls to be located within a separate layer of increased physical security within the primary physical security layer for the facility. NAWC has not established and maintained a distinct layer of physical security for its SCADA controls. While SCADA controls are located within buildings with perimeter physical security layers, they do not have their own dedicated layers of physical security.

### **Recommendation VI-2: Improve physical security for control rooms and SCADA system equipment.**

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### **Finding VI-3: Several facilities lack sprinkler systems.**

NAWC's buildings do not have fire suppression sprinkler systems. According to the Society of Fire Protection Engineers, wet pipe sprinkler systems reduce fatality rates in a fire by 85% and are effective in 98% of incidents where only one sprinkler is activated. It is therefore a best practice to have wet pipe sprinkler systems installed in

all buildings regularly used by employees. NAWC has older buildings that do not have sprinkler systems. Consequently, in the event of a fire at one of these facilities, the likelihood of fatality is increased by 689%<sup>7</sup> over facilities that do have wet pipe sprinkler systems, and the damage to property is likely to be much more significant. Not all of NAWC's facilities are regularly occupied by employees or contractors. Therefore, the Company should prioritize all facilities that both lack a sprinkler system and are occupied regularly. This standard should be documented and facilities without sprinklers should be reevaluated routinely.

**Recommendation VI-3: Install sprinkler systems at regularly occupied facilities where feasible.**

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**Finding VI-4: NAWC lacks a personal mobile device security policy.**

NAWC has a rule about not making personal phone calls in the employee handbook, but it does not have a policy on use of personal devices to connect to the network. NAWC's network has built-in security requirements to connect to it. Nonetheless, it is a best practice to take measures to ensure the security of any devices connecting to the network. Therefore, NAWC should have a policy defining, at a minimum, that devices should be patched and have an up-to-date antivirus installed if they connect to the Company's intranet. If possible, the Company should use software to enforce these requirements. Currently, there is a risk that an unsecured mobile device will be able to connect to the Company's intranet if it is connected by an unauthorized person.

**Recommendation VI-4: Develop a mobile device security policy that requires compliance with specific security criteria for employee-owned devices to be allowed to connect to the Company's intranet.**

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**Finding VI-5: NAWC lacks an incident response plan focused on physical security and emergency response.**

52 Pa code § 101.1 requires a utility to develop and maintain appropriate written physical security, cybersecurity, emergency response, and business continuity plans to protect this Commonwealth's infrastructure and ensure safe, continuous and reliable utility service. A good physical security plan will either include or refer to incident

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<sup>7</sup> James A. Milke, Ph. D., P.E., FSFPE, "Effectiveness and Reliability of Fire Protection Systems." SFPE, Society of Fire Protection Engineers, 2014; [https://www.sfpe.org/page/2014\\_Q4\\_4/Effectiveness-and-Reliability-of-FireProtection-Systems.htm](https://www.sfpe.org/page/2014_Q4_4/Effectiveness-and-Reliability-of-FireProtection-Systems.htm)

response plans designating how to respond in specific likely scenarios as well as during any general security or emergency incident. NAWC has good specifications for physical security of its facilities defined in its physical security plan, but NAWC's physical security plan and emergency response plan both lack requirements for training and directions on how to handle a physical security incident. NAWC does not have an incident response plan focused on physical security. They are currently developing an incident response plan for cybersecurity but not for physical security.

**Recommendation VI-5: Develop and maintain incident response plans focused on physical security, cybersecurity and emergency response.**

## VII – CUSTOMER SERVICE

### **Background**

Newtown Artesian Water Company's (NAWC or Company) customer service (CS) function is performed at its headquarters in Newtown, PA. The CS function is staffed by three customer service representatives (CSRs). Their duties include answering customer service calls, making payment agreements, handling billing and accounts payable issues, and processing customer complaints. The CSRs report to the Office Manager who oversees customer service with assistance from the Accounting Manager and Chief Executive Officer (CEO).

Field service personnel read the residential meters quarterly using computer tablets. The Company uses three billing cycles, and approximately one-third of residential customers' meters are read each month. In contrast, commercial and industrial meters are read and billed monthly. Once meter reads are gathered and meter data is uploaded to the Company's billing system, a report is generated to identify estimated bills and errors, and another report is generated to identify high- and zero-usage accounts. Adjustments are made as needed, and a revised billing report is run. Finally, the revised billing report is converted to the appropriate format and sent to a third-party who prints and mails the bills to customers.

NAWC's collection efforts for delinquent accounts begin when accounts are 45 days in arrears. A late payment notice is sent to customers, and if payment is not received within 10 business days, a 10-day shut-off letter is mailed. If no payment is received after the 10-day shut-off letter, the customer then receives a telephone call notification that water service will be shut-off in three days. If payment has not been received by the day prior to scheduled water service shut-off, NAWC makes a second telephone call to the customer.

The Company does not use any collection agencies to pursue collections for delinquent accounts but rather relies primarily upon setting up payment arrangements with delinquent customers. The only noticeable period of significant overdue account balances occurred during the COVID-19 pandemic. In response and in addition to working with customers, the Company's Board of Directors (Board) began reviewing arrearages at the regularly scheduled Board meetings that occur twice per month. Bad debt expense has not increased from the minimal amounts found in prior audits.

### **Findings and Conclusions**

Our examination of the customer service function included a review of the Company's policies and procedures, goals and objectives, billing and collections and customer surveys. Based on our review, the Audit Staff recommends that the Company should initiate or devote additional efforts to improving the efficiency and/or effectiveness of its customer service function by addressing the following:

- **Finding VII-1: Newtown Artesian Water Company does not routinely conduct customer feedback surveys.**
- **Finding VII-2: Newtown Artesian Water Company’s customer service policies and procedures are very informal and lack any version control or review mechanism.**

## **Discussion**

### **Finding VII-1: Newtown Artesian Water Company does not routinely conduct customer feedback surveys.**

NAWC conducts targeted surveys of customers who received a service from the Company (i.e., meter replacement, service call, etc.). The survey consists of five questions, four of which are multiple choice questions requesting the customer rate their experience regarding the recent service. Each question is rated on a 4-point scale from “Poor” to “Above & Beyond”. The final fifth question is a written section requesting feedback on how NAWC can improve performance. A total of 78 surveys were returned from 2022 through August 2024.

NAWC’s approach to customer surveys ensures that they obtain feedback throughout the year, every year. However, the feedback is restricted to interactions with the Company and do not capture feedback from the attitudes and perceptions of the general customer base. In addition, the Company is forgoing opportunities to gain valuable insight into ways to improve customer service initiatives and processes. For example, the Company expressed a desire to increase the number of customers electing to receive electronic bills in lieu of paper bills. A potential survey question could ask customers what prevents them from converting to electronic billing and what, if anything, would encourage or increase the likelihood they would switch to electronic billing.

Customer feedback surveys should be conducted periodically to assess customer service levels and identify areas of improvement. Failure to interact with customers and gauge feedback can lead to diminished awareness of customers’ needs and concerns. At a minimum, a broadly designed customer feedback survey should be conducted once every three years.

### **Recommendation VII-1: Implement routine customer feedback surveys to ensure customer expectations are met and opportunities for improvement are identified.**

**Finding VII-2: Newtown Artesian Water Company's customer service policies and procedures are very informal and lack any version control or review mechanism.**

NAWC maintains standard operation procedures (SOP) of various customer service-related activities and functions. Serving as the Company's customer service policies and procedures, these SOPs are typically documented in Microsoft Word and are stored on an internal network drive. For the most part, these SOPs are not dated, are authored anonymously, and provide no version history or dates of any reviews. SOPs are often, but not universally, written in a step-by-step format providing directions to complete the activity or function. Screenshots, which would be useful as visual aids to convey information on the tool or software being used, were used in less than half of the SOPs provided by the Company.

NAWC's Office Manager indicated most of the SOPs were created prior to him joining the Company in March 2024. The lack of version control or use of document management software makes it extremely difficult to know what, if any, changes were made to the SOP since its creation. Failure to maintain adequate documentation of customer service processes increases the risk of employees deviating from management's intent. Outdated documentation may fail to provide adequate direction for employees to perform duties correctly. Furthermore, failure to periodically review documentation increases the risk that staff could rely on obsolete guidance that no longer aligns with management's vision. The Office Manager is aware of these concerns and indicated there is a goal for CSRs to revise and update SOPs in 2025.

Policies and procedures should be detailed and standardized to reflect up-to-date and accurate documentation for all essential processes. They should include version control and revision dates to maintain and document appropriate stewardship, including identification of authors and reviewers. Policies and procedures should contain enough detail to avoid ambiguity and confusion for employees unfamiliar with the process. In addition, documentation should be reviewed periodically, with a review cycle of at least every five years or sooner if operational functions change.

**Recommendation VII-2: Standardize and formalize documentation to include version controls on all standard operating procedures and use processes or tools to ensure documentation is kept up to date.**

## **VIII – ACKNOWLEDGEMENTS**

We wish to express our appreciation for the cooperation and assistance extended during this Management and Operations Audit by the officers and staff of Newtown Artesian Water Company. This audit was conducted by Michael Flynn and Barry Keener of the Management Audit Staff of the Bureau of Audits.



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