THE YORK WATER COMPANY

MANAGEMENT EFFICIENCY INVESTIGATION REPORT

EVALUATING SELECT RECOMMENDATIONS FROM THE 2015 FOCUSED MANAGEMENT AND OPERATIONS AUDIT

Prepared By The
Pennsylvania Public Utility Commission
Bureau of Audits
Issued February 2018

Docket No. D-2017-2606106

PENNSYLVANIA PUC
PUBLIC UTILITY COMMISSION

MANAGEMENT EFFICIENCY INVESTIGATION

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I. INTRODUCTION

A. Background

On April 15, 2014, the Management Audit Staff of the Pennsylvania Public Utility Commission's (PUC or Commission) Bureau of Audits initiated a Focused Management and Operations Audit (Management Audit) of The York Water Company (York Water or company). In March 2015, the Bureau of Audits issued a final report with 16 recommendations for improvement. York Water submitted its implementation plan on April 20, 2015 indicating acceptance or partial acceptance of all 16 recommendations. On May 7, 2015, at D-2014-2409384, the Commission made the audit report and Implementation Plan public and directed York Water to:

- Proceed with its April 2015 Implementation Plan; and,
- Submit progress reports on the implementation annually, by May 1st, for the next three years.

Since the audit report was made public, York Water submitted two Implementation Plan updates as requested by the Commission to evaluate the company's progress in implementing the recommendations included in the previous Management Audit report. Based on a review of these updates, the PUC's auditors elected to conduct a Management Efficiency Investigation (MEI) of York Water's progress in implementing 15 of the original 16 recommendations. Specific items of management effectiveness and operational efficiency may be investigated pursuant to Title 66 Pa. C.S. § 516(b).

B. Objective and Scope

The objective of this MEI was to review and evaluate the effectiveness of York Water's efforts to implement certain recommendations included in the Management Audit released in May 2015. The scope of this evaluation was limited to York Water's efforts in implementing the prior management audit recommendations in the functional areas of:

- Financial Management
- Water Operations
- Emergency Preparedness
- Materials Management
- Customer Service
- Human Resources

Additionally, the PUC's auditors deemed it prudent to review York Water's compliance with PUC regulations at 52 Pa. Code Chapter 101 regarding physical security, cyber security, emergency response, and business continuity plans.

C. Approach

This MEI was performed by the PUC's Bureau of Audits Management Audit staff. Fieldwork began on August 29, 2017 and continued through November 7, 2017. The fact gathering process included:

- Interviews with York Water personnel;
- Analysis of selected York Water records, documents, reports, and other information for the period 2014 through 2017; and,
- Visits to selected company facilities.

II. SUMMARY OF MANAGEMENT EFFECTIVENESS AND OPERATING EFFICIENCY

The PUC auditors found that York Water has implemented or substantially implemented 10 of the 15 prior management audit recommendations reviewed and has taken some action on the remaining five recommendations. Among the more notable improvements are:

- Implemented an automated customer call answering system that provides improved call reporting metrics.
- Added accounting safeguards to prevent possible cross subsidization between the Water Service Line Protection Program (WSLPP) and regulated utility service.
- Reduced billing lag from a range of 5.6 to 9.5 days to a range of 5 to 6 days.
- Updated its Drought Contingency Plan.
- Developed manuals to document damage prevention practices and distribution valve inspections.
- Documented meter testing policies and procedures and electronically maintains meter records.
- Completed a customer satisfaction survey in 2015.
- Updated its human resources policies and procedures.
- Eliminated a manual and redundant time sheet data entry process.

Although these accomplishments are commendable, the PUC auditors identified opportunities for further improvement. Specifically, York Water needs to:

- Update the Emergency Response Plan and review it annually.
- Add contact information for law enforcement and national security related agencies' cyber teams to the Cybersecurity Plan.
- Implement physical security and safety improvements at the company's facilities.
- Strive to reduce or eliminate manual aspects of the inventory reordering process.
- Evaluate and document the cost benefits of integrating emergency stock within the Inventory Management System.

Exhibit II-1 summarizes the 15 prior recommendations reviewed and the PUC auditors' follow-up findings, conclusions, and recommendations.

THE YORK WATER COMPANY MANAGEMENT EFFICIENCY INVESTIGATION SUMMARY OF MARCH 2015 MANAGEMENT AUDIT RECOMMENDATIONS AND STAFF'S FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
III. FINANCIAL MANAGEMENT (Page 7)		
Implement cross-subsidization safeguards between the Water Service Line Protection Program (WSLPP) and regulated utility service by maintaining separate accounts, allocating all expenses, and including additional language in WSLPP's disclaimer.	**III-1** – York Water added a disclaimer to its WSLPP and implemented the necessary accounting safeguards to prevent possible cross subsidization	None
IV. WATER OPERATIONS (Page 9)		
Update the Drought Contingency Plan.	**IV-1** – York Water updated its Drought Contingency Plan.	None
Develop a distribution valve inspection manual and/or policy.	**IV-2** – York Water developed a distribution valve inspection manual and related policies.	None
Update the cross-connection control program manual and incorporate administrative controls to ensure testing for commercial and industrial customer backflow devices is completed.	**IV-3** – The cross-connection control manual was updated but at least 22% of York Water customers remain non-compliant with the requirements to test and report.	Strive to achieve full compliance testing of backflow devices for commercial and industrial customers.
Develop an electronic meter record database and a meter testing policy and/or procedure.	**IV-4** – Meter records are kept electronically, and meter testing policies and procedures have been documented.	None.
Develop a comprehensive damage prevention program manual.	**IV-5** – The York Water Company developed a manual to document its damage prevention practices.	None.

THE YORK WATER COMPANY MANAGEMENT EFFICIENCY INVESTIGATION SUMMARY OF MARCH 2015 MANAGEMENT AUDIT RECOMMENDATIONS AND STAFF'S FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
V. EMERGENCY PREPAREDNESS (Page 14)		
	V-1 – Incremental improvements to The York Water Company's Emergency Response Plan (ERP) are needed.	Update the Emergency Response Plan and review it annually.
	V-2 – The cybersecurity plan does not include contact information for law enforcement and national security related agencies.	Add contact information for law enforcement and national security related agencies' cyber teams to the Cybersecurity Plan.
	V-3 – Safety systems and physical security could be improved at some of The York Water Company's facilities.	Implement physical security and safety improvements at The York Water Company's facilities.
VI. MATERIALS MANAGEMENT (Page 18)		
Establish inventory reorder points and formalize the use of minimum/maximum levels in the Inventory Management System.	**VI-1** – York Water continues to primarily manage its inventory reordering process on a manual basis.	Strive to reduce or eliminate manual aspects of the inventory reordering process.
Classify designated emergency stock in the Inventory Management System.	**VI-2** – York Water has not incorporated emergency stock designations within its Inventory Management System.	Evaluate and document the cost benefits of integrating emergency stock within the Inventory Management System.
Implement a cycle counting procedure and reduce inventory count variances.	**VI-3** – York Water reduced its inventory count variances.	Continue to utilize cycle counting on high value and/or fast-moving inventory as needed to ensure accuracy.

THE YORK WATER COMPANY MANAGEMENT EFFICIENCY INVESTIGATION SUMMARY OF MARCH 2015 MANAGEMENT AUDIT RECOMMENDATIONS AND STAFF'S FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
VII. CUSTOMER SERVICE (Page 22)		
Perform periodic customer satisfaction surveys.	**VII-1** – York Water completed a customer satisfaction survey in 2015.	None
Implement call reporting software and evaluate the feasibility of acquiring an IVR system.	**VII-2** – York Water implemented an automated customer call answering system that provides improved call reporting metrics.	None
Reduce billing lag to more reasonable levels.	**VII-3** – York Water reduced its billing lag.	None
VIII. HUMAN RESOURCES (Page 27)		
Strive to achieve industry average or better OSHA incident rates by monitoring and continually modifying safety programs to address the most current safety issues.	**VIII-1** – York Water reduced its recordable and lost-time incidents to levels that more closely align with the water industry.	Continue to reduce OSHA incidents through the safety program.
Develop and update Human Resources policies and procedures.	**VIII-2** – York Water updated its human resources policies and procedures.	None
Reduce manual operating aspects of the Human Resource function by fully utilizing the capabilities of the Human Resource Information System.	**VIII-3** – York Water eliminated the redundant and manual based time sheet data entry process.	None

III. FINANCIAL MANAGEMENT

Background – The York Water 2015 Management Audit included a Financial Management recommendation. The PUC auditors rated this functional area as needing minor improvement. In this chapter, the prior recommendation and prior situation are reviewed, and one follow-up finding is presented.

Finding No. III-1

Prior Situation – In response to customer requests, York Water implemented a Water Service Line Protection Program (WSLPP). The WSLPP's terms of service did not expressly state that non-payment of the WSLPP would not affect the customer's regulated utility services, nor did it state that the WSLPP was not regulated by the PUC. While the company was tracking revenues and expenses separately for the WSLPP, certain shared services were not being allocated between the non-regulated WSLPP and the company's regulated operations. The PUC auditors noted that while the pilot program was extremely limited in size and scope; continued growth of York Water's WSLPP could result in material cross-subsidization in absence of additional safeguards.

Prior Recommendation – Implement cross-subsidization safeguards between the Water Service Line Protection Program (WSLPP) and regulated utility service by maintaining separate accounts, allocating all expenses, and including additional language in WSLPP's disclaimer.

Follow-up Finding and Conclusion – York Water added a disclaimer to its WSLPP and implemented the necessary accounting safeguards to prevent possible cross subsidization.

Current Review – In 2015, York Water added the recommended disclaimer to its WSLPP terms of service. The disclaimer states that the WSLPP is not regulated by the PUC and non-payment will not result in the termination of the customer's water and/or wastewater services. York Water provides the WSLPP terms of service to customer through hard copy mailings and via the company website. However, due to the company's focus on the replacement of lead service lines (specifically excluded from WSLPP coverage), York Water has temporarily delayed active marketing of its WSLPP. In the meantime, customers can still sign up for the program through the website or inquiries made with customer service representatives.

The company also uses separate accounts to track WSLPP related revenues and expenses. All WSLPP related shared service expenses are charged directly, where hours are tracked manually via daily time reporting spreadsheets. York Water does not allocate its WSLPP shared service expenses due to the limited size and nature of the program. For example, 2016 WSLPP related expenses were limited to payroll costs, postage, and invoices for two service line replacement claims.

Nonregulated activities performed by regulated utilities (such as the WSLPP) should be accounted for separately to prevent cross-subsidization between regulated

and nonregulated activities. Furthermore, nonregulated activities' terms of service should include language alerting customers that failure to pay will not affect the customer's regulated services. York Water has established the required safeguards and, as a result, strengthened its financial controls and ring-fencing measures related to the WSLPP.

Follow-up Recommendation – None

IV. WATER OPERATIONS

Background – The York Water 2015 Management Audit included five Water Operations recommendations. The PUC auditors rated this functional area as needing moderate improvement. In this chapter, the five prior recommendations and prior situations are reviewed. Five follow-up findings and one follow-up recommendation are presented.

Finding No. IV-1

Prior Situation – York Water developed their Drought Contingency Plan (DCP) in August 2002 in response to the DEP Water Allocation Permit WA 67-62C. One of the conditions in the permit was that within one year of the permit date, the company should develop a DCP outlining the measures that would be taken to conserve the available water supply and reduce water use during a drought emergency. Per the DEP Water Allocation Permit, the DCP should have been updated and submitted to the DEP every three years thereafter. However, York Water had not updated its DCP since it was created, over 10 years ago. In addition, at the time of the 2015 audit, York Water's DCP did not outline sources of water and did not identify various drought stages and corresponding responses.

Prior Recommendation – Update the Drought Contingency Plan.

Follow-up Finding and Conclusion – York Water updated its Drought Contingency Plan.

Current Review – York Water updated its DCP in December 2016. The company's plan defines distinct stages of responses that depend on trigger points based on rainfall and lake levels. These responses include supply and demand-side measures to conserve water such as voluntary conservation measures for residential and commercial customers. In addition, York Water identified non-essential uses that could be restricted as mandatory conservation measures if a drought is severe/persistent. The DCP also includes metrics for when restrictions should be cancelled. The company is improving its drought response through capital investment such as the ability to withdraw water supply from the Susquehanna River and a contingency plan to draw extra water supply from the South Branch of the Codorus Creek and replace it in the source stream with water from local quarries, to meet its DEP bypass requirement while still supplying enough water for its needs. By updating the plan, York Water complied with the conditions of its DEP Water Allocation Permit WA 67-62C, and now has information available critical to effective drought response.

Follow-up Recommendation – None

Finding No. IV-2

Prior Situation – The company had a comprehensive distribution valve inspection program, but lacked a policy or procedure manual governing the program. Furthermore, the company implemented a change to its program in 2011 to exercise and inspect all distribution valves on a four-year cycle.

Prior Recommendation – Develop a distribution valve inspection manual and/or policy.

Follow-up Finding and Conclusion – York Water developed a distribution valve inspection manual and related policies.

Current Review – The American Waterworks Association (AWWA) recommends that water utilities initiate and maintain a documented distribution valve exercise program to ensure proper operation and maintenance of its distribution valves. York Water documented their procedures to inspect and exercise valves in 2015. York Water's policy includes a list of annual inspection goals, both for the overall benefits to the Company and to meet specific metrics. York Water's goal is to exercise at least 25% of their valves annually, but they are currently exceeding this goal. York Water's procedures require workers exercising a valve to carefully record valve locations and specifications, and to evaluate the area for hazards. Distribution valve data (including critical valve related information) is captured in electronic format with geographic information maintained via the GIS system, which facilitates locates more effectively during an emergency.

By devoting effort to develop a valve inspection manual and related policies, the company will have the proper controls and procedures established for future review and revision.

Follow-up Recommendation – None

Finding No. IV-3

Prior Situation – The cross-connection control manual was created in the 1970s, had not been updated, and included obsolete terms and devices. It also had the original list of certified testers from the 1970s. A list of commercial/industrial customers ranked by priority was absent. The only available test data was from 2013 and indicated a backflow test rate of approximately 75%, calculated solely from customers that returned a completed test form.

Prior Recommendation – Update the cross-connection control program manual and incorporate administrative controls to ensure testing for commercial and industrial customer backflow devices is completed.

Follow-up Finding and Conclusion – The cross-connection control manual was updated but at least 22% of York Water customers remain non-compliant with the requirements to test and report.

Current Review – York Water's Backflow Prevention Manual specifies three types of backflow preventers, instructions on installation and maintenance of records, a collection of applicable statutes and rules, schematics of three types of backflow prevention assemblies, test procedures, and a list of commercial and industrial customers prioritized by their individual degree of hazard. This manual also instructs that the test records will be stored in York Water's customer information database with the Distribution Customer Service Manager overseeing a monthly non-compliance inquiry.

York Water requires customers with certain backflow prevention devices (i.e., mainly large commercial and industrial customers) to complete a form annually certifying the test results of their devices. On average, 26% of backflow compliance forms are not returned, or were returned by the post office as undeliverable; which is in line with results from 2013. An additional 4% of devices were directly inspected by York Water personnel, due to unusual test readings or customer complaints.

The Backflow Prevention Manual specifies that all backflow devices are subject to inspection by The York Water Company and that customer violation of the backflow prevention manual may result in termination of water service, but these options appear to be underutilized. Because less than 100% of commercial/industrial backflow devices are tested annually, the company introduces a greater risk of backflow contamination in its distribution potable water supply. Therefore, York Water should actively address commercial and industrial customers who have not completed required backflow testing by outreach, education, inspection, and/or termination.

Follow-up Recommendation – Strive to achieve full compliance testing of backflow devices for commercial and industrial customers.

Finding No. IV-4

Prior Situation – All meter testing and related data was maintained manually on meter cards, stored by month of testing year. Meter test records for new shipments were manually maintained on paper in the test shop. Also, the company did not have documented policies or procedures to reflect its actual meter testing practices.

Prior Recommendation – Develop an electronic meter record database and a meter testing policy and/or procedure.

Follow-up Finding and Conclusion – Meter records are kept electronically, and meter testing policies and procedures have been documented.

Current Review – York Water has documented the procedures for testing water meters, the policies governing replacement for residential and commercial/industrial/public meters, and the results of meter testing in 2016. The testing procedures include thorough testing directions, instructions on how to record the tests and the results, and information on rate of flow and total gallons needed for testing.

York Water's Meter Exchange Policy includes a description of the meter exchange program, including testing requirements. Residential meters are tested if returned from service, or as part of a 20-year replacement cycle. About 2,000 residential meters are exchanged per year. All commercial/industrial/public meters are tested after replacement. Meter testing calibration records and customer meter test requests are also retained by York Water.

York Water's meter records are stored in an Excel spreadsheet, rather than in their Customer Information System (CIS) database. Integrating these records into their CIS database is a goal for the company but is not a critical need. Currently the company does not have an implementation date for this integration because the existing Excel records are securely backed up, and transition will require substantial resources. Nonetheless, the company's use of the Excel spreadsheet provides a sufficient electronic platform to capture meter testing results which are governed by documented procedures.

Follow-up Recommendation – None

Finding No. IV-5

Prior Situation – Although the company operating practices were reflective of typical damage prevention functions (e.g., PA One Call system member, City of York Utility Council member, pre-construction damage prevention meetings held with contractors), it had not documented its damage prevention program.

Prior Recommendation – Develop a comprehensive damage prevention program manual.

Follow-up Finding and Conclusion – The York Water Company developed a manual to document its damage prevention practices.

Current Review – York Water was developing its Damage Prevention Manual during audit fieldwork and finalized the manual near the end of the audit period. The company already had a strong damage prevention program, with no hits on main or services by York Water personnel, and only twelve hits on services and none on mains by third party contractors in the last three years. The company also collected 100% of billable damages.

York Water's Damage Prevention Plan describes nine elements of damage prevention, including communication, support and partnership of stakeholders, performance measures for locators, employee training, public education, enforcement agencies' help, enforcement of the law, technology used to improve the locating process, and data analysis to improve effectiveness. The manual details York Water's damage prevention procedures, including a standard contractor prequalification information procedure, standard specifications for construction of water and sanitary water lines, a main installation contractor agreement, and a residential water meter exchange procedure. In addition, York Water uses PA One Call training and meets with contractors and other utilities about damage prevention.

While York Water is not an NGDC and is not required to follow the requirements highlighted in 49 CFR Section 192.614, the PUC auditors believe, and York Water agreed in their response to the 2015 MA implementation plan, that the company would greatly benefit from documenting a comprehensive damage prevention manual. Because of this effort, the company has an effective manual that provides guidance to employees and documents company policy.

Follow-up Recommendation – None

V. EMERGENCY PREPAREDNESS

Background – The York Water 2015 Management Audit included no Emergency Preparedness recommendations. The PUC's auditors rated this functional area as meeting expected performance level. However, the PUC auditors deemed it prudent to perform an updated review of the company's compliance with PUC regulations at 52 Pa. Code § 101 regarding physical security, cyber security, emergency response and business continuity plans as part of this audit. In this chapter, three findings and recommendations are presented.

To protect infrastructure within the Commonwealth of Pennsylvania and ensure safe, continuous and reliable utility service, effective June 2005, PUC regulations at 52 Pa. Code § 101 (Chapter 101) require all jurisdictional utilities to develop and maintain written physical security, cyber security, emergency response and business continuity plans. Furthermore, per 52 PA Code §101.1, all jurisdictional utilities are to annually submit a Self Certification Form to the Commission documenting compliance with Chapter 101. This form, available on the PUC website, includes 13 questions as shown in Exhibit V-1.

Exhibit V-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?	

* 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

While conducting our Management Efficiency Investigation, the PUC auditors reviewed the most recent Self Certification form submitted by York Water to determine the status of its responses. Our examination of the company's emergency preparedness included a review of the physical security plan, cyber security plan, emergency response plan, business continuity plan, and associated security measures. In addition, the PUC auditors performed inspections at a sampling of York Water's facilities. Due to the sensitive nature of the information reviewed, specific information has not been provided as part of the findings and recommendations.

Finding No. V-1

Additional Follow-up Finding and Conclusion – Incremental improvements to The York Water Company's Emergency Response Plan (ERP) are needed.

Current Review – York Water's ERP provides a good resource to respond to emergencies, but minor areas for improvement were identified during the audit. The ERP specifies that the first employee on the scene is responsible for evaluating and classifying the situation, but it does not specify that they are in charge until someone better qualified arrives on scene, as is in the case in typical Incident Command Structures specified by the National Incident Management System (NIMS). Additionally, the company has not illustrated its internal emergency response command structure within the ERP. Finally, there is no record or changelog recording updates and revisions to the ERP. For example, the list of large and critical customers in the ERP was dated November 11, 2010 with no indication that this list had been updated since it was created.

The identified improvements above are minor in nature, but small errors can affect emergency situations. An Emergency Response Plan should be as complete, organized, and comprehensive as possible. It should be designed so that any employee could use it to handle an emergency. Confusion in leadership or accuracy of information can cause time-consuming verification that delays or impedes a response to an emergency. Therefore, ERPs should be continually updated, and all relevant information should be included.

Follow-Up Recommendation – Update the Emergency Response Plan and review it annually.

Finding No. V-2

Additional Follow-up Finding and Conclusion – The cybersecurity plan does not include contact information for law enforcement and national security related agencies.

Current Review – A Cyber Security Plan should include contact information for law enforcement and national security related agencies. To help companies more effectively respond to cyber-attacks, several government agencies have set up cyber assets for utilities and businesses, including the National Cybersecurity and Communications Integration Center (NCCIC) and the Industrial Control Systems Cyber Emergency Response Team (ICS-CERT), the FBI Cyber Action Team, the Field Office Cyber Task Force, the National Cyber Investigative Joint Task Force, etc. Contact information for these assets should be included in the Cyber Security Plan, particularly organizations that would be utilized during a cyber event.

The York Water Company's Cyber Security Plan includes contact information for employees, contractors and vendors, but lacks contact information for law enforcement or national security related agencies. Including this contact information will facilitate York Water's IT team's ability to report cyber incidents promptly and effectively to authorities, as well as acquire tools from the respective parties should the company need them.

Follow-Up Recommendation – Add contact information for law enforcement and national security related agencies' cyber teams to the Cybersecurity Plan.

Finding No. V-3

Additional Follow-up Finding and Conclusion – Safety systems and physical security could be improved at some of The York Water Company's facilities.

Current Review – Physical security should be continuously reviewed and inspected, and any deficiencies should be addressed as soon as possible. Ideally, risk assessments should identify physical security requirements with critical facilities warranting additional security measures. The PUC's auditors randomly inspected several facilities at York Water, including office, storage, and operational facilities, while focusing on compliance with York Water's PSP as well as identification of vulnerabilities.

As inspections were conducted, the PUC's auditors noted several minor vulnerabilities or deficiencies in physical security. Most of the deficiencies were due to facility age, oversight, weather, or general wear and tear. In addition, the PUC's auditors noted a few instances where additional physical security measures and fire protection measures should be considered, particularly at critical facilities.

To reduce risks, York Water should correct the minor physical security deficiencies discovered by the PUC's auditors and perform ongoing physical security and safety reviews of all facilities.

Follow-Up Recommendation – Implement physical security and safety improvements at The York Water Company's facilities.

VI. MATERIALS MANAGEMENT

Background – The York Water 2015 Management Audit included three Materials Management recommendations. The PUC's auditors rated this functional area as needing moderate improvement. In this chapter, the three prior recommendations and prior situations are reviewed, and three follow-up findings and three follow-up recommendations are presented.

Finding No. VI-1

Prior Situation – York Water's Materials & Supplies (M&S) Clerk was responsible for reordering all inventory items. The M&S Clerk assessed inventory needs through observation of physical inventory when the item was selected from the warehouse for issue and/or a low inventory balance was noted within the Inventory Management System (IMS). In addition, historical or periodical requirements were taken into consideration such as stocking up on clamps during the winter freeze/thaw cycle. It was concluded that the limited use of the minimum/maximum (min/max) function and reporting capabilities of York Water's IMS could be improved by focusing on the reordering process.

Prior Recommendation – Establish inventory reorder points and formalize the use of minimum/maximum levels in the Inventory Management System.

Follow-up Finding and Conclusion – York Water continues to primarily manage its inventory reordering process on a manual basis.

Current Review – York Water investigated automating its min/max reorder feature in 2015 but could not provide PUC auditors with documentation to substantiate its contention that fully automating min/max would increase inventory carrying costs and potentially decrease parts availability. Consequently, the company continues to use existing limited features of its automated reorder system and relies on employees to identify when inventory needs to be reordered by visual confirmation.

Utilities should strive for automation within inventory management to improve accuracy and reduce stock outs or delayed shipments. A good first step towards automation is utilizing IMS reporting capabilities to improve the identification of items reaching low supply levels without relying solely on visual inspections by employees. York Water believes that its current system is sufficient and that inventory levels would increase if it used a min/max reorder feature. However, the PUC auditors are concerned that such a manual process for reordering could lead to project delays due to potential stock outs and reduced inventory accuracy.

Follow-up Recommendation – Strive to reduce or eliminate manual aspects of the inventory reordering process.

Finding No. VI-2

Prior Situation – Emergency stock was not discernable from regular inventory located within York Water's warehouse or designated as emergency stock within the IMS. In 2013, emergency stock levels accounted for about 11% of the average monthly inventory balances. Emergency stock levels at utilities typically range between 10% and 20% of total inventory balances. As a best practice, emergency stock should be identified within the IMS due to its criticality to the company's infrastructure. York Water indicated that its IMS did not have the capability to specifically distinguish emergency stock from regular inventory. However, it was recommended that alternative ways to identify emergency stock within the IMS be utilized to support the maintenance of appropriate inventory levels, generate reorder points and to calculate more relevant inventory turnover rates.

Prior Recommendation – Classify designated emergency stock in the Inventory Management System.

Follow-up Finding and Conclusion – York Water has not incorporated emergency stock designations within its Inventory Management System.

Current Review – York Water contends that discussions were held between the Operations department and the Information Technology department personnel. They concluded that the time and expense necessary to code a change within the IMS to track emergency stock was not an efficient use of resources. Consequently, York Water maintains an electronic list of emergency stock.

Because emergency stock has not been designated within the IMS, it is treated as regular inventory for purposes of calculating inventory turnover thus resulting in understated turnover levels as shown in Exhibit VI-1. Emergency stock should be excluded from inventory turnover calculations because by nature, these items should only be used infrequently during emergencies.

Exhibit VI-1
The York Water Company
Inventory Turnover Comparison
For the years 2013 through 2016

	2013	2014	2015	2016
Inventory Turnover	2.35	3.18	2.51	4.53
Inventory Turnover with Emergency Stock Excluded	2.63	3.58	2.80	5.08
Difference	0.28	0.40	0.29	0.55

Source: Data Request MM-3

The inventory turnover calculation highlights the additional risk caused by not properly identifying and tracking emergency stock within the IMS. Without accounting for emergency stock levels within its IMS, the company may not maximize its available resources to assess and manage inventory levels in the most effective manner.

<u>Follow-up Recommendation</u> – Evaluate and document the cost benefits of integrating emergency stock within the Inventory Management System.

Finding No. VI-3

Prior Situation – Historically, York Water conducted an annual full physical inventory count. Beginning in 2013, a mid-year count of high value inventory items was conducted to provide additional oversight for a newly hired M&S Clerk and reduce physical inventory count variances, which had increased during the preceding years. While the mid-year inventory count of high value inventory provided an added layer of oversight, the PUC's auditors recommended that more frequent cycle counting could improve inventory accuracy.

Prior Recommendation – Implement a cycle counting procedure and reduce inventory count variances.

Follow-up Finding and Conclusion – York Water reduced its inventory count variances.

Current Review – York Water continues to perform its annual physical inventory count, but discontinued its mid-year inventory count of high value inventory items in 2014 due to improvements in recorded variances. Net variances have improved from approximately $27,500 in 2014 (3.60% of total inventory) to about $8,000 in 2016 (1.12% of total inventory).

Cycle counting allows more time to focus on core business functions by counting fewer inventory items more often. By focusing frequent counts on higher use and higher value materials, greater oversight of these materials can have a significant impact on inventory accuracy. In 2015, York Water began cycle counting its ten fastest moving items. While York Water provided conflicting accounts of its cycle counting process, the PUC auditors verified cycle counts occurred during April and August in 2015, 2016 and 2017. However, the PUC auditors were informed that cycle counting was too time consuming and the process would not continue. The PUC's auditors recommend that cycle counts be performed on high value and/or fast-moving inventory. The company could use down time of any personnel to perform random spot checks as time allows as a variant cycle counting procedure. While not a true cycle count or physical count, this ad hoc focused count meets the spirt of cycle counting but also adapts to the business need (unless variance levels decline).

Follow-up Recommendation – Continue to utilize cycle counting on high value and/or fast-moving inventory as needed to ensure accuracy.

VII. CUSTOMER SERVICE

Background – The York Water 2015 Management Audit included three Customer Service recommendations. The PUC auditors rated this functional area as needing moderate improvement. In this chapter, the three prior recommendations and prior situations are reviewed, and three follow-up findings are presented.

Finding No. VII-1

Prior Situation – York Water had not performed customer satisfaction surveys within a five-year period. York Water had conducted its most recent customer satisfaction survey in 2009, which was limited to a sample of 300 customers. Since 2009, York Water experienced significant changes including economic and customer growth, which potentially could have affected customer needs and perceptions. In addition, surveys based upon sampling are generally conducted more frequently, on an annual or bi-annual basis, to better assess the representation of customer perceptions, and allow the company to adjust to changing conditions more timely.

Prior Recommendation – Perform periodic customer satisfaction surveys.

Follow-up Finding and Conclusion – York Water completed a customer satisfaction survey in 2015.

Current Review – In response to the company's 200th year anniversary, York Water conducted a customer satisfaction survey in 2015. The survey was based upon random sampling and included a total of 350 household respondents[1]. The content of the 2015 perception-based survey was similar to the 2009 survey, allowing the company to compare results to past performance. Generally, survey results were similar to York Water's past surveys, reflecting continued positive feedback from customers about the company.

While many of the results were positive, customers noted a degradation in the taste and odor of the water. Due to a change in Pennsylvania Department of Environmental Protection requirements[2], the company had to increase chlorine levels, particularly during excessive rainfall to maintain water quality compliance. Based upon the survey results, York Water plans to improve taste and odor by using a new raw water pumping station during periods of excessive rainfall to mitigate the need for additional chlorine. In addition, the company receives feedback via customer emails and customer service inquiries that can lead to customer identified improvements. For example, customer inquiries indicated a demand for credit card online payments that the company deployed in 2009.

Customer satisfaction surveys should be performed regularly to ensure awareness of customer perceptions and preferences. York Water performs customer

[1] As of December 31, 2017, The York Water Company served approximately 66,600 customers.
[2] Safe Drinking Water Act, 25 Pa. Code §109.301 (2015)

satisfaction surveys every four to five years and receives additional customer feedback from customer inquiries. York Water's customer satisfaction surveys are based upon a statistical sampling of its customer base. Other methods of surveying such as post-transaction telephone surveys and/or focused website surveys about specific topics could be useful to York Water and provide alternatives or supplements for future sampling surveys. Best practices in customer service recognize continual customer feedback as an essential tool for the delivery of great customer service and can lead to improved performance, meeting expectations or customer demands, and adaptation to changing conditions.

Follow-up Recommendation – None

Finding No. VII-2

Prior Situation – York Water did not utilize an automated customer call answering system and its telephony software lacked numerous call reporting capabilities. Common metrics could not be tracked via York Water's call reporting software including the number of abandoned or busy-out calls. In addition, York Water's software could not distinguish calls received on behalf of third party municipal customers from those of York Water customers. During 2014, York Water used a switchboard operator to manage all incoming calls in lieu of the more commonplace interactive voice response (IVR) system.

Prior Recommendation – Implement call reporting software and evaluate the feasibility of acquiring an IVR system.

Follow-up Finding and Conclusion – **York Water implemented an automated customer call answering system that provides improved call reporting metrics.**

Current Review – In 2015, York Water evaluated the costs and benefits of implementing a new phone system. Due to technological constraints and limited capacity, York Water found their legacy system and services inadequate to meet the company's communication needs. In June 2015, York Water implemented a voice over internet protocol (VOIP) system.

The VOIP system includes an automated customer call answering system which eliminated the need for a switchboard operator to manually route calls. The VOIP system automatically routes customer service calls based upon the customer service representative (CSR) idle time, eliminating accessibility issues. Because calls are routed automatically, York Water has significantly reduced the number of customers receiving busy signals. In addition, the VOIP will automatically route the call to the next available CSR if the first CSR does not answer the call by the fourth ring.

The VOIP system's automated customer call answering also presents multiple options for improved customer services. For instance, customers seeking to reach a specific employee have the option to search via the automated employee directory. In addition, York Water's new VOIP system supports integrated IVR payments, allowing customers to access the IVR payment option without requiring the customer to dial a second telephone number. Previously, IVR payments had to be submitted via a separate telephone number due to the technological constraints of the legacy system.

York Water's VOIP system also included companion software which increased call reporting capabilities and metrics. York Water's call center statistics report provides metrics on abandoned, transferred, and disconnected calls. The report also provides data on calls directed to voicemail and time to answer. The software also allows York Water customer service supervisors to customize alerts (i.e., higher hold times) to aid in determining staffing adjustments. In addition, the software also provides daily CSR activity metrics including call counts (incoming and outgoing), call handling time, and time not available via the Agent Login Data Report.

Because of the new telephony system, York Water has increased customer ease of access, expanded customer services, improved call reporting, and enhanced company communications. In addition, York Water has upgraded its intra-company communications and improved oversight of its customer service function. Therefore, York Water's VOIP should provide the company a solid platform to improve customer service and transition to future customer needs.

Follow-up Recommendation – None

Finding No. VII-3

Prior Situation – York Water's billing lag ranged from 5.6 days to 9.5 days in 2014, with an average billing lag of 7.4 days. York Water's process for billing was based upon four separate meter reading cycles, with bills held until all meter reads were validated, even if only a few bills needed to be verified. Best practice dictates that the company should mail bills to customers as soon as possible after a meter reading is taken. Meanwhile, water utilities similar in size to York Water experienced a more reasonable billing lag, ranging between 2 to 5 days.

Prior Recommendation – Reduce billing lag to more reasonable levels.

Follow-up Finding and Conclusion – **York Water reduced its billing lag.**

Current Review – York Water completes its billing process via four billing cycles. All initial meter reads are collected over a two-day period, where the second meter reading day includes collecting any meter reads missed on the first day. Generally, radio frequency (RF) meter readings[3] are submitted at the end of the business day for processing. York Water employs a vigorous validation process which features customized parameters used to detect low and high meter reads based upon individualized and weighted customer usage. Outliers are reviewed by customer service staff, who contact customers as needed to alert customers of abnormal readings. Generally, bills are generated and mailed out 5 to 6 business days after first day readings are taken.

York Water's meter reading and billing schedule is predetermined on an annual basis by the Accounting Department and aligns with Public Utility Commission regulations prescribed under Chapter 56. The meter reading and billing schedule is executed by the Customer Service Department. As noted above, York Water previously held all meter reads from day one for validation until all routes were completed prior to sending to validation, as the validation parameters did not allow for partial routes to be validated. However, technical process improvements have provided York Water the ability to begin validation of the incomplete routes, reducing the company's average billing lag. Consequently, due to process efficiencies realized within its meter reading and billing practices, York Water's 2017 billing schedule was adjusted in September 2017 to reflect the reduction in its billing lag by one full day. Because of the company's efforts, York Water has been able to consistently reduce its billing lag. York Water's average overall 2017 billing lag ranges from 5 to 6 business days, with 2018 meter reading and billing schedules projected to be reduced to a range of 4 to 5 business days.

Follow-up Recommendation – None

[3] York Water does have a limited number of automated metering infrastructure meters, but these are in more rural or remote areas and are combined with RF meter reads within a billing cycle.

VIII. HUMAN RESOURCES

Background – The York Water 2015 Management Audit included three Human Resources recommendations. The PUC auditors rated this functional area as needing moderate improvement. In this chapter, three prior recommendations and prior situations are reviewed, and three follow-up findings and one follow-up recommendation are presented.

Finding No. VIII-1

Prior Situation – York Water's OSHA recordable and DART[4] incidence rates exceeded industry averages in 2010, 2011, and 2012. Much of York Water's reported injuries occurred within the Operations and Meter Reading departments. In 2014, the company implemented an annual OSHA refresher course on lifting safety. However, York Water's OSHA recordable and DART incidence rates remained high, with most injuries due to sprains and strains.

Prior Recommendation – Strive to achieve industry average or better OSHA incident rates by monitoring and continually modifying safety programs to address the most current safety issues.

Follow-up Finding and Conclusion – York Water reduced its recordable and lost-time incidents to levels that more closely align with the water industry.

Current Review – York Water continues to strive to reduce its OSHA reportable, lost time, and DART incident rates. York Water continues to utilize its "safety first" approach and emphasizes that repetition as key to driving a safe work environment for its employees. York Water executes its safety program through an established Safety Committee, targeted education, communications, and regular training.

York Water's Safety Committee meets monthly and includes representatives from every department, York Water's Human Resources Manager, and an independent safety consultant. The Safety Committee focuses on any recent accidents, near misses, industry trends, current events, etc. to decide the monthly topics to be addressed. For example, in response to seasonal risk for heavy rainfalls, York Water highlighted trenching concerns. In addition, the Safety Committee has an annual meeting where it addresses the overall safety program including compliance training, reviews of any unsafe conditions, identifies hazards in the workplace, etc.

During the Monthly Safety Committee meetings, content for the weekly safety talks are determined. Safety talks are held by each supervisor with his/her direct reports to highlight identified hazards, industry trends, and foster communication and open floor discussion. Safety talk topics are supplemented by bulletin board postings and training videos for targeted education. For example, there are new construction

[4] Days Away, Restricted, or Transferred (DART) incident rate provides an indicator for the severity of OSHA incidents and is determined by the number of OSHA incidents resulting in lost time, restricted duty, or job transfer in the workplace.

hazards surrounding York Water's Distribution Center because of nearby highway improvements. The topic was incorporated into the safety messages for employees.

To foster open communication, York Water conducts a quarterly breakfast meeting open to all employees. Representatives from York Water's workers' compensation company have attended these meetings to answer employee questions. York Water states it is committed to providing a safe work environment which is reflected in its safety policy and directs its employees to report all accidents or incidents as well as any unsafe conditions.

In addition, York Water conducts annual and semi-annual training in compliance with OSHA regulations and standards. OSHA trainings include hazard communications, blood borne pathogens, lifting, personal protective equipment, excavation safety, respirator use, and weather safety. Semi-annual trainings, which address transite and asbestos, include the proper identification of potentially hazardous material, safe handling procedures, and health risks associated with exposure. York Water's OSHA statistics are presented in Exhibit VIII-1.

Exhibit VIII-1
The York Water Company
OSHA Reportable, Lost Time, and DART Incident Rates
For the Years Ended December 31, 2013 – 2016

	2013	2014	2015	2016
OSHA Reportable				
York Water	8.09	5.13	5.22	4.42
OSHA Average*	2.9	4.7	3.2	6.6
Lost Time Incidents				
York Water	0.9	2.57	1.74	0.00
OSHA Average*	1.0	1.0	1.5	2.4
DART Incidents				
York Water	7.19	3.42	3.48	2.65
OSHA Average*	1.6	3.4	2.4	4.9

*OSHA Average - NAICS Code 22131
Source: Company response to Data Request HR-1

As shown in Exhibit VIII-1, York Water has successfully reduced its OSHA recordable, lost time, and DART incident rates. York Water attributes its success in driving down OSHA incidents to the company's focus on safety first and all the safety activities noted above. As presented in Exhibit VIII-1, York Water's performance reflected improvement over 2013 rates and, for 2016, achieved lower than industry averages in OSHA recordable, lost time, and DART incident rates. Best practices recognize safety as paramount in the utility industry and require constant vigilance, as such, the PUC auditors recommend that York Water continue striving to reduce the number and severity of accidents through the continuance of its safety program, communications, and educational efforts.

<u>Follow-up Recommendation</u> – Continue to reduce OSHA incidents through the safety program.

Finding No. VIII-2

Prior Situation – York Water's human resources policies and procedures were outdated and did not document the department's responsibilities and processes. The employee handbooks had not been updated in nine years, and while critical information was available via the company's intranet, York Water continued to distribute hard copies of the employee handbooks to new employees.

Prior Recommendation – Develop and update Human Resources policies and procedures.

Follow-up Finding and Conclusion – York Water updated its human resources policies and procedures.

Current Review – The Human Resources Manager is responsible for ensuring policies and employee handbooks are reviewed in a timely manner. In 2014 and 2015, York Water reviewed and updated all policies, including both employee manuals (union and non-union). Moving forward, the Human Resources Manager stated that the policies will be reviewed every two to three years; however, amendments and updates to the policies would be driven by changes in processes, equipment, regulations, etc.

York Water continues to distribute employee manuals in hard copy format; however, the company plans to expand its internal network to include employee accessible electronic versions. Regardless of how the employee accesses information, accurate and updated policies and procedures are critical to ensure all employees are aware of the company's position. In addition, current policies and procedures support operations and help to ensure consistent performance.

Follow-up Recommendation – None

Finding No. VIII-3

Prior Situation – York Water's time reporting function was executed internally via the Human Resource Information System (HRIS). York Water employees reported time daily to their respective supervisor/manager, including all work hour adjustments. Each supervisor and manager was responsible for completing and sending a spreadsheet, detailing daily time reporting for their direct reports, to York Water's Timekeeper for review and re-entry to the HRIS. Thus, York Water's time reporting process required the daily re-keying of employee hours from spreadsheets into the company's HRIS.

Prior Recommendation – Reduce manual operating aspects of the Human Resource function by fully utilizing the capabilities of the Human Resource Information System.

Follow-up Finding and Conclusion – York Water eliminated the redundant and manual based time sheet data entry process.

Current Review – In 2015, York Water conducted an analysis of its time reporting function to determine the most effective method in reducing the redundancy in the Oracle time system. Because of the analysis, York Water determined that the most effective solution was an automatic upload of the daily time reporting spreadsheets. The automatic upload eliminates the need for York Water's timekeeper to rekey time reporting information from the individual department spreadsheets into Oracle. York Water's cost benefit study reviewed the feasibility of automating the time sheet upload process and reflected an estimated payback period of about two years[5]. Thus, in September 2016, York Water's IT Department completed the implementation of the automatic upload process to Oracle.

While the relatively new process has saved time through efficiency, it is noteworthy to mention that York Water's timekeeper is still required to review each spreadsheet to ensure proper coding of entries and to verify the reported hours are appropriate. Although the amount of time saved is limited, the company has successfully eliminated the redundant processes required in its daily time reporting function. Duplicative, manual processes are error-prone and inefficient; therefore, the automation of the time sheet upload process has reduced the potential of keypunch errors.

Follow-up Recommendation – None

[5] York Water's estimated payback period was based upon the projected time savings of two hours per week.

IX. ACKNOWLEDGEMENTS

We wish to express our appreciation for the cooperation and assistance provided by the officers and staff of The York Water Company during this Management Efficiency Investigation.

This audit was conducted by Krystle Daugherty, Jennie Banzhof, and Michael Flynn of the Management Audit Staff of the Bureau of Audits.

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