



HARFORD COUNTY, MARYLAND

Office of the County Auditor

AUDIT OF WATER & SEWER BILLING SYSTEM CONTROLS

Report Number:
2023-A-22

Report Date:
11/16/2023

Council Members and County Executive Cassilly:

In accordance with Section 213 of the Harford County Charter, we have performed an audit of Water and Sewer Billing System Controls for the period of 7/18/2022 through 6/30/2023. This audit was conducted as part of the County Auditor's risk-based Annual Audit Plan approved by the County Council for FY2023.

The objective of this audit was to confirm that controls in place are adequate to ensure that customers are billed the correct amount. The scope was limited to the processes for gathering meter reading data, billing customers, and the related system interfaces. The results of the audit, our findings and recommendations for improvement are detailed in this report.

We would like to thank the members of management for their cooperation during the audit; they have been provided an opportunity to respond to this report; the response(s) provided follows the Issues and Corrective Actions.

Sincerely,

A handwritten signature in cursive script that reads "Chrystal Brooks, CPA".

Chrystal Brooks
County Auditor

CONCLUSIONS

Our opinion, based on the evidence obtained, is that the Water & Sewer billing system has adequate, effective automated and manual controls in place to ensure customer invoices are correct and collection actions are taken promptly. However, the system lacks automated controls to ensure all billing adjustments are appropriate and reviewed. This assessment is based on the strengths and weaknesses identified for the operational objectives below.

Business Process Objective	Assessment ⁱ
Ensure service billings are complete and accurate.	Generally Effective
Ensure payments are collected completely and timely	Effective

ISSUES AND CORRECTIVE ACTIONS

2023-A-22.01 Lack of Adjustment Reviews

Water & Sewer Maintenance, within the Department of Public Works, is responsible for the water and sewer meter reading process while Water & Sewer Accounting, within Treasury, is responsible for calculating and generating water and sewer bills according to County legislation, most recently Bill 20-003.

During the billing and collection processes, adjustments to billing data may occur for a variety of reasons. Water & Sewer Accounting has procedures for processing and maintaining documentation of those adjustments. The adjustment calculation process is manual until it is entered into the billing system, NorthStar. We sampled from approximately half (30 of 64) of the paper-based adjustment route files and confirmed, for the last week of the most recent reading cycle, all adjustments were justified, accurately calculated, and properly supported.

NorthStar does not require approval for adjustments to be processed in the system and, as of the end of the audit period (6/30/2023), adjustments were not reviewed. According to management, a process to review adjustments within Water & Sewer Accounting began in early July 2023. We reviewed documentation and confirmed the review process has begun but we did not evaluate its adequacy as the implementation of the review process began outside the audit period.

While adjustments are coded as 'Adjustments' within NorthStar, there is currently no way to search for all adjustments. This means that management cannot confirm that all adjustments were reviewed, so an adjustment could be made in the system and not be captured by the review process.

We recommend management work with the NorthStar developers to develop a report of adjustments that can be generated automatically and on an ad hoc basis for management's review.

Management Response: Treasury and ICT are working with NorthStar to develop this report by the first half of 2024.

Expected Completion Date: 07/01/2024

BACKGROUND, OBJECTIVES, SCOPE, AND METHODOLOGY

The Department of Public Works, Division of Water and Sewer, provides water and sewer service to citizens of Harford County within the Development Envelope. According to the Harford County Government website, “The Division of Water & Sewer is responsible for the operation, maintenance, administration, planning and engineering of the public water and sewer facilities that service more than 130,000 citizens of Harford County.” A new Water and Sewer billing system, NorthStar, was implemented in July 2022. During the review period Water and Sewer charges for service totaled \$54.7 million. This represents about 199,000 invoices and 187,000 payments during fiscal year 2023.

Quarterly, customers’ water meters are read, mostly by radio signal, to determine consumption since the last reading. For simplicity, it is assumed that sewer output is the same amount as the water consumption. After confirmation that the consumption amounts are reasonable, invoices are generated automatically based on the rates in the Water and Sewer Billing System. Rates in the system are adjusted annually and quarterly to reflect the charges authorized by Bill 20-003. Adjustments to bills are made on a case-by-case basis and in accordance with the County’s policies and procedures. Customers are also billed annually for User Benefit Assessments to pay for the expansion, extension or reconstruction of the water and sewer infrastructure. Benefit assessments were outside of the scope of this review.

The audit approach focused on testing the key controls that address management’s objectives over the newly implemented system. We met with personnel from the Meter Department, Water and Sewer Administration, and Water and Sewer Accounting to gather an understanding of the meter reading, billing, and adjustment processes. We have reviewed the issues reported in prior billing audits. We considered their impact on our planned audit procedures and noted that all were closed prior to starting this audit. While we focused the audit approach on testing the system controls, we also performed data analysis to confirm the effectiveness of the reading and billing processes in conjunction with system controls. Our audit procedures are described in the table below.

Process / Control Objective	Scope of Review
Service Charge Billing	
Meter Readings are performed quarterly, and anomalies and potential errors are identified automatically, then reviewed manually.	<ul style="list-style-type: none"> • Perform data analysis to confirm that all accounts were read/invoiced quarterly (or monthly for specified accounts). • Perform data analysis to identify potentially incorrect readings and confirm that management identified and addressed the unusual readings.
Invoices are generated automatically using the rates approved by the County Council and programmed into the billing system.	<ul style="list-style-type: none"> • Recalculate invoices to confirm the amounts billed were correct and agree to the authorizing legislation.
Account adjustments are supported by staff/ supervisor review and notes	<ul style="list-style-type: none"> • For a sample of routes and read dates, review read reports, and related notes to confirm anomalies and errors are researched and corrected prior to uploading reading data. • For a sample of routes and billing dates, review reports and related notes to confirm anomalies and errors are researched and corrected prior to compiling bills. • For a sample of adjustments identified, confirm that the adjustment was proper, reviewed and supported.
Receivables Collection	
Late Penalties are applied when payments are received after the due date	<ul style="list-style-type: none"> • Perform data analysis of all invoices to confirm that delinquent payment penalties were applied to customer accounts.
Service Turn-off are initiated for long-outstanding accounts	<ul style="list-style-type: none"> • Confirm that turn-offs were performed when accounts were unpaid.

Harford County management is responsible for establishing and maintaining effective internal controls. Internal control is a process designed to provide reasonable assurance that objectives pertaining to the reliability of financial records, effectiveness and efficiency of operations including safeguarding of assets and compliance with applicable laws, rules and regulations are achieved. Because of inherent limitations in internal control, errors or fraud may nevertheless occur and not be detected.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Report Distribution:	Audit Team:
Mr. Robert Sandlass, County Treasurer	Chrystal Brooks
Ms. Rachel Holmes, Chief, Bureau of Revenue Collections	CPA, CIA, CGAP, CISA, CGFM, CRMA
Ms. Jackie Webster, Water and Sewer Billing Supervisor	<i>County Auditor</i>
Mr. Joseph Siemek, Director, Public Works	Brad DeLauder
Mr. William Bettin, Deputy Director for Water and Sewer	CPA CIA <i>Senior Auditor</i>

ⁱ Definitions

Effective: The design and effectiveness of the internal control environment address key risks. The business unit complies with external laws and regulations, and internal policies, procedures and guidelines. Business processes are managed effectively resulting in achievement of expected outcomes.

Generally Effective: The design and/or effectiveness of the internal control environment generally address key risks; however, the number and severity of findings relative to the size and scope of the business unit being audited indicate that some minor areas of weakness in the control environment need to be addressed. Isolated instances of non-compliance with external laws and regulations, and internal policies, procedures and guidelines may exist. Business processes may not be managed effectively in all areas resulting in reduced achievement of expected outcomes.

Not Effective: The design and/or effectiveness of the internal control environment does not address key risks. Non-compliance or historical patterns of non-compliance with key regulatory requirements and internal policies, procedures and guidelines exist which expose the audited entity to financial, reputational, and operational risks. Business processes are not managed effectively and expected outcomes are not achieved.