

Frederick County Government Division of Utilities and Solid Waste Management Water and Sewer Billing System Testing Phase

December 20, 2017

Report #17-10

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I. Executive Summary

Background

Stout, Causey & Horning, P.A. (SC&H) has been engaged by the Frederick County Government (FCG, the County) Interagency Internal Audit Authority (IIAA) to perform the testing phase of the Frederick County Government (FCG) performance audit of the Division of Utilities and Solid Waste Management (DUSWM, the Division) water and sewer billing system and associated processes. This project represents the second phase of this audit, which began with a preliminary survey and risk assessment that concluded in April, 2017.

The Division administers the planning, construction, and operation of the County's water supply, wastewater disposal, and solid waste pollution control infrastructure. At the time of this audit, DUSWM serviced approximately 32,000 water and sewer customers county-wide.

DUSWM utilizes a third-party software system to process water and sewer billings entitled MUNIS. The water usage that serves as the basis for billing is collected using the Trace and Orion systems, which are different generations of Badger meter reading equipment, and processed using an interface called the Badger ReadCenter. At the time of this review, DUSWM was in the process of replacing the Trace meters utilized by the County to fully integrate the Orion system for use by all residential customers.

DUSWM collects meter readings on a quarterly basis and bills customers based on the results of those readings. Meter Maintenance Technicians collect readings from all meters being billed during the current cycle. Readings are uploaded to the Badger ReadCenter and any unread meters are identified on the Unread Meter Report. A common reason for unread meters is a weak signal being transmitted by a meter resulting in a reading not being obtained when technicians are completing their routes. For those meters identified, technicians manually record readings on the report and provide it to the Meter Maintenance Supervisor for input into the system. Once all readings have been collected, the Meter Maintenance Supervisor uploads the information into MUNIS and notifies the Billing Manager who generates the bills for each account.

Payments for services rendered are collected by DUSWM and the Treasurer's Office in-person, collected by a third-party vendor that monitors the DUSWM lockbox, received by DUSWM in the mail, processed through an electronic payment, or processed by credit/ debit card over the phone. Customers that wish to pay electronically must register online with their bank information and provide their customer account number so payment is appropriately applied to the correct account.

In instances where a water customer does not make a timely payment, DUSWM discontinues water service until full payment is received. Sewer service is never discontinued, regardless of whether a customer has a payment due. Prior to disconnecting water service for an account, the Billing Office sends a Late Notice that payment is required if payment is not received within 12

days of being past due. Additional reminders are sent to customers that provide a phone number and email address should they fail to remit payment. If payment is not received after 60 days following the date of the bill, water service is discontinued. The Billing Manager provides the Meter Maintenance Supervisor with a listing of all meters to be shut off and technicians manually disconnect all meters that have been indicated on the list. Once all shut offs have been completed, the Meter Maintenance Supervisor notifies the Billing Manager. As payments are received for meters that have been shut off, the Billing Manager alerts the Meter Maintenance Supervisor and technicians manually restore service to each meter.

Objectives

The following primary and targeted audit objectives were developed by SC&H based upon the understanding gained during the audit planning procedures and approved by the IIAA.

Primary Objectives:

- A. Verify that meter reading information exported from Badger agrees to information imported into MUNIS for the same bill cycle.
- B. Validate the end-user access rights for both the Badger and MUNIS systems to determine if rights appear appropriate and are properly segregated.
- C. Assess DUSWM compliance with third-party vendor software implementation requirements and associated contract terms.

Targeted Objectives:

- D. Verify that manual adjustments to customer billings were appropriately supported and justified.
- E. Verify that manual meter reading entries were accurately entered into Badger.
- F. Verify that customer accounts which are eligible to be disconnected based on late due payments are being appropriately identified, considering any potential regulatory requirements, and disconnected in a timely manner.
- G. Perform an analysis to identify whether customers have been noted as “do not disconnect” for an extended period of time, quantifying the potential for missed fees.
- H. Evaluate new accounts set up with the billing system to verify that all new properties and property transfers are accurately documented for billing purposes.

Scope

The audit process was initiated in July 2017 and completed in October 2017. The period in scope for the performance of this audit included all meter reading information, customer billing information, and customer billings for fiscal year 2017, which encompasses July 2016 through June 2017.

Methodology and Approach

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.

In order to obtain the necessary documentation to appropriately perform and conclude upon the objectives of this audit, SC&H conducted the following procedures.

Creation of Project Plan

Based on the understanding of the processes, risks, and related controls, SC&H developed an audit program to achieve the objectives described above. This program included detailed steps to address each objective with the goal of verifying the existence of sound internal controls and identifying opportunities for improvement.

Execution of Project Plan

SC&H executed the audit plan by completing the following tasks:

- ✓ **User Access Review:** Reviewed user access rights for both systems utilized to execute the day-to-day functions associated with the DUSWM water and sewer billing processes. Access rights specific to the Utility Billing Roles for Tyler MUNIS were obtained from the Interagency Information Technology (IIT) Department and reviewed for reasonableness. Access rights specific to the use of the Badger ReadCenter were obtained from the Meter Maintenance Supervisor and reviewed for reasonableness.
- ✓ **Third-Party Contract Review:** Reviewed the service agreement executed on January 15, 2015 between the County and Tyler Technologies for the County-wide use of MUNIS Software. The contract was reviewed for reasonableness (contract term, scope of services, etc.) and sign-off by County officials to ensure the terms were accepted.
- ✓ **Transactional Testing:**
 - **25 Meter Readings:** For each sample selected, the bill sent to the customer, the original Badger reading, and the MUNIS Consumption History were obtained. The support was reviewed to ensure that the meter readings were accurately exported from Badger, imported into MUNIS, and subsequently converted to an accurate DUSWM customer bill.

- **35 Manual Meter Readings:** For each sample selected, the bill sent to the customer and the MUNIS Consumption History were obtained. The information per the MUNIS Consumption History was agreed to the Manual Meter Reading Spreadsheet created by the Maintenance Department, and the associated bill, to ensure that the meter readings were correctly entered into the system and subsequently converted to an accurate DUSWM customer bill.
- **40 Manual Billing Adjustments:** For each adjustment selected, the bill reflecting the adjustment, evidence of the adjustment amount entered into the system, and additional supporting documentation were obtained and reviewed to ensure the adjustment was appropriately granted, accurately calculated, and entered into the system.
- **25 New Accounts:** For each new account selected, the account information within the system and the associated support related to the new account were obtained and reviewed to ensure that the accounts were appropriately set up within the system in a timely manner.

○ **Account Disconnection:** The population of customers placed on the “do not disconnect” list was obtained and a sample of 25 accounts was selected. The bill that resulted in the past due payment was obtained along with support for the justification of the customer account being placed on the “do not disconnect” list. The documentation was reviewed for reasonableness (i.e. sufficient notes added to the account detailing the placement on the listing) to ensure customers who should have had services suspended were appropriately identified. Additionally, analyses were performed to see if customers were placed on the list multiple times, or were placed on the list for prolonged periods of time, to help identify the potential for missed fees to be paid to DUSWM.

Execution of Project Reporting

SC&H drafted an audit report that outlined the project background, objectives, scope, methodology, conclusion, findings, and recommendations.

Summary of Work

After reviewing the processes in place and evaluating the current control environment, SC&H concludes that there are improvement opportunities that exist to mitigate the associated risks detailed below.

The following section provides detailed observations and recommendations regarding six separate topics.

We appreciate the assistance and cooperation of the management and staff of the Division of Utilities and Solid Waste Management who provided assistance in the performance of this audit. Please contact us if you have any questions or comments regarding any of the information contained in the internal audit report.

Stout, Causey & Horning, P.A.

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Sparks, Maryland

December 20, 2017

II. Detailed Observations and Recommendations

Observation 1

The manual process for uploading meter readings within Badger and MUNIS allows for the potential for alteration of meter reading data.

Observation Detail

Once all meter readings have been input into the Badger ReadCenter, the Meter Maintenance Supervisor generates the Output File, a report that lists the meter readings for all meters/accounts that are part of the current bill run. The Meter Maintenance Supervisor saves a copy of the report to the shared drive and uploads the information to MUNIS. Badger exports the Meter Detail Report as a text file in order for the information to be appropriately uploaded into MUNIS. In some instances, it may be required for multiple text files to be transferred from one system to the other.

In certain instances, manual adjustments to meter readings are made within the Badger and MUNIS systems. The following are examples of manual meter reads/adjustments:

- _) If a meter is not read while a Technician is on route, it is manually read and the information is input into the Badger system through a handheld meter reading device by the Meter Maintenance Supervisor
- _) Many commercial meter readings are recorded by hand and are manually input into the system
- _) If a reading is missed or needs to be updated once all information is imported into MUNIS, the Billing Manager manually inputs the reading into the system

SC&H reviewed customer billings sent to customers in FY17 to verify that the meter reading information within MUNIS agreed to meter reading information within the Badger system. Through this testing, we noted no instances in which there was a discrepancy between the consumption reported in each system and the bill issued to the customer. Additionally, we reviewed manual meter readings that were manually recorded on spreadsheets prepared by the Maintenance Technicians and subsequently hard-coded into the system. Through this testing, we noted no instances in which there was a discrepancy between the consumption reported in the system and spreadsheet and the bill issued to the customer.

Risk

Due to manual nature of the process and lack of limitations surrounding the ability to manipulate information within a text file, readings may be manually changed or updated prior to being uploaded into MUNIS. This may lead to intentionally altered readings to the benefit of the

customers, resulting in improper water/ sewer charges. Additionally, multiple transfers of text files from one system to the other increases the risk of the incorrect file being uploaded from one system to the other or incorrect information being manually input into the system.

Recommendation 1.1

The Maintenance Department consider the following tactics to help mitigate the risks surrounding manual meter reads. DUSWM should determine which of these tactics, along with other options, are more feasible and effective.

1. Consider implementing rotational schedules related to the collection of meter readings each cycle.
2. If the implementation of rotational schedules is not feasible (e.g. due to cost factors), consider performing a periodic review of automated residential meters that repeatedly require manual readings.
3. Consider implementing a periodic (e.g. multiple times a quarter/ year) surprise/ unscheduled supervisory spot check of commercial readings.

Management's Action Plan and Implementation Date

The meter department already rotates personnel to ensure that the same employee does not read the same residential reading cycle consecutively.

With respect to reading large commercial meters, since the Water and Sewer Maintenance Department's Meter Section only has five positions (including the supervisor), all meter technicians are required to be involved with each quarterly read cycle (attributed to underground meter vault entries and safety procedures, e.g., confined space requirements). Nevertheless, the meter maintenance supervisor will implement a procedure to randomly select a commercial reading cycle and verify a sampling of the readings out in the field as the meter technicians are collecting their readings.

Anticipated Implementation Date: As early as 12/08/2017 (next commercial cycle reading).

Observation 2

Individuals have access to aspects of the MUNIS system that do not serve a necessary function with regard to conducting their day-to-day job responsibilities.

Observation Detail

SC&H obtained the user access rights and abilities for the four roles within the Utility Billings module of the MUNIS system. User capabilities were reviewed for each user role and the employees with access to each role were evaluated to determine if their daily job requirements necessitated access to the specific user role. SC&H identified multiple users within the Accounting and Finance Department with access to the Utility Billing Super User role. Per discussion with DUSWM staff, the majority of the permissions granted to the Super User were also granted to all members of Accounting and Finance staff within the Utility Billing Maintenance Role. The additional permissions granted to Accounting and Finance staff under the Super User Role were discussed with the Division to determine if they were reasonable based on the day-to-day responsibilities of staff. However, based on the review and discussion, the following access rights issues were noted:

- J Three of the seven additional permissions identified for the Super User that were reviewed were not required by all members of staff to perform their day-to-day duties. Those permissions were:
 - o Delete Service Records
 - o Delete Account Records
 - o Override Location Validation
- J There is not a formalized, periodic user access rights review within the Division that assesses assigned user roles for appropriateness or user activity.

Risk

Inappropriate access can lead to multiple risks. In this case, risks can include heightened override and deletion/ modification. For instance, if access to certain functions within the MUNIS system are not appropriately restricted to only those that require access to complete their daily job requirements, personnel could make unauthorized changes within the system that could impact the water and sewer billing functions. For example, a user could access the system and delete an account record, which could result in a bill not being sent to a current customer and lost revenue for the County.

Recommendation 2.1

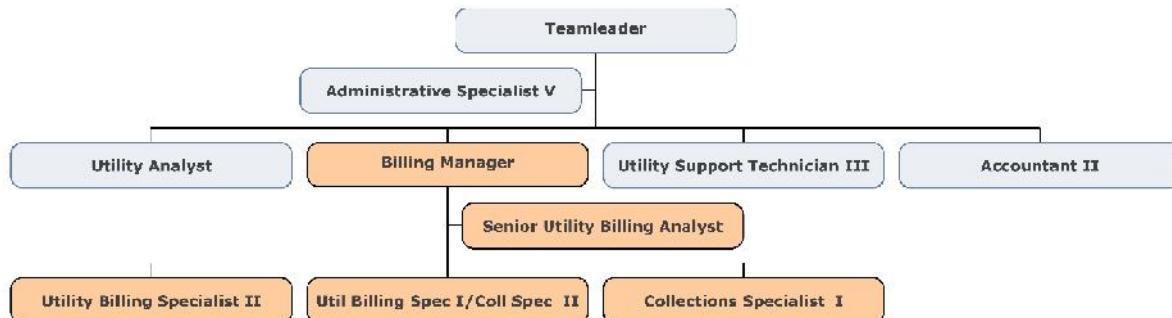
DUSWM should review all user access listings to determine whether access is appropriate for all employees that utilize the roles within the Utility Billing module within MUNIS. Periodic access reviews should be performed to re-evaluate whether individuals' access and rights should be removed if they are not required to conduct day-to-day job responsibilities. This will help to

mitigate the risk of individuals having inappropriate access and making unauthorized updates within the MUNIS system.

Management's Action Plan and Implementation Date

DUSWM will work with IIT and Tyler/MUNIS to determine if there is a way to better secure access and rights to certain functions that are not appropriate for an individual's position. Initial discussions with IIT indicate that additional User Groups may be created, but they need to test which functions are "grouped" by the software. Review of access rights will be done as routine responsibilities change significantly; however, given the amount of staffing (see the positions highlighted in the organizational chart), all of the Billing Specialists must have the same rights.

DIVISION OF UTILITIES AND SOLID WASTE MANAGEMENT
Office of Accounting and Finance Support



Anticipated Implementation Date: First calendar quarter 2018

Recommendation 2.2

DUSWM should implement a quarterly review of system generated reports detailing all deleted accounts, deleted services records, and overridden account information within the MUNIS system. The focus of the review would be to help mitigate the risk of individuals with elevated access making inappropriate or unauthorized changes within the system. The review should include what was deleted/overridden and determine if the change was necessary. The review should then determine if the member of staff who made the update was an appropriate user.

Management's Action Plan and Implementation Date

If, after review with IIT and Tyler/MUNIS, it is determined that user access cannot be better secured (Action Plan/Recommendation 2.1 above), the DUSWM will look to modify the system generated reports. Currently these audit reports show every change of address, owner name,

meter number, etc., including corrections in spelling and punctuation. A sample of one report indicated over 128,000 updates in FY2017. Assuming this report can be limited to “critical” changes, it would be onerous to review this on a quarterly basis. Since deletions of accounts and services were of primary concern, please note that DUSWM has confirmed with Tyler/MUNIS that once an Account or Service has been billed, the system will not allow it to be deleted. Services are ‘Inactivated’ instead.

Anticipated Implementation Date: First calendar quarter 2018.

Observation 3

Terminated employees' access to MUNIS are not consistently deactivated in a timely manner to prevent unauthorized sign-on to the system following the end of employment.

Observation Detail

During review of the user access rights granted to employees with day-to-day job responsibilities that require access to the four roles within the Utility Billing Module within MUNIS, one employee with access to the “UB_METER” role within MUNIS was not on the Division organizational chart. Staff members with access to the “UB_METER” role have the ability to update customer account information within the system as it pertains to meter readings. Per discussion with DUSWM staff, the employee had been a Meter Maintenance Technician within the Department of Water and Wastewater Maintenance and was terminated on 7/26/17. The Division noted that the employee account was disabled after termination and a screenshot was provided evidencing the account is currently disabled within the system. However, at the time of testing on 8/2/17, the last update made to the “UB_METER” role had been made on 7/7/17 and all employees listed were “Active” users.

Risk

Delayed deactivation of an employee's access within the system increases the risk of unauthorized changes being made within the system that could impact the water and sewer billing functions. As the employee is no longer an employee, changes could be made to customer accounts without the knowledge of staff still employed within the Division.

Recommendation 3.1

DUSWM should work with the Interagency Information Technologies (IIT) Department to ensure that employee terminations are communicated in a timely manner. Once notification is received, IIT should disable all access within the system to ensure that the employee does not have the ability to access the system and make unauthorized changes within the system that could impact the water and sewer billing functions.

Management's Action Plan and Implementation Date

Currently, a notice of terminated employees goes to both HR and IIT. The IIT standard check list provides a list of all software systems for which access should be terminated, in addition to Network Access; DUSWM would complete the form and include MUNIS offered under “Other Software Systems” (see the attached form). Additionally, it is DUSWM’s understanding that a list of terminated employees is circulated weekly through IIT staff for review as an additional effort. Finally and most importantly to note, even if the access to MUNIS is not immediately terminated, an employee must have a Network logon (access) in order to get to MUNIS, since it is only available through a VPN to the hosted solution. In other words, in the event that access to MUNIS is delayed, the employee is not able to log-in since the Network Access has been

terminated. No additional action needed.

Observation 4

A standardized process is not in place to ensure all billing adjustments are adequately documented and entered within the system.

Observation Detail

While reviewing billing adjustments applied to customer accounts, SC&H noted that the adjustments were not adequately supported or documentation was not provided to justify the adjustment made to the customer accounts on a consistent basis. SC&H obtained adjustment support for a sample of adjustments made in fiscal year 2017. In examining the available supporting documentation, the criteria used by Accounting and Finance staff to support adjustments was inconsistent. For example, we noted several instances where notes were provided explaining the need for an adjustment to the customer account, but did not include the adjustment amount or the way the employee arrived at the amount of the adjustment. Similarly, two samples in which a transfer fee not appropriately applied to a bill and subsequently added as an adjustment were not supported by a note within the system. Justification was provided by the Billing Manager when we inquired. While we were able to obtain additional support and gain comfort that each adjustment was justified and appropriately applied to the account, it was determined that those reviewing and approving adjustments would have a difficult time validating the appropriateness of adjustments, or recalculating the adjustment amounts within the system, as adjustment reasons/amounts weren't always clearly documented.

Risk

Lack of a standardized format and required support as it relates to entering billing adjustments into the system can result in incorrect and/or inappropriate adjustments being applied to customer accounts and subsequently approved within the system, which could result in lost revenue due to the processing of incorrect adjustments.

Recommendation 4.1

DUSWM should develop detailed policy and procedure documentation that describes the information that must be provided or documented for each adjustment entered into the system. Recommendations may include, but are not limited to:

- ✓ Developing detailed policy and procedure/ SOP documentation detailing the process for entering adjustments into the system.
- ✓ Developing uniform documentation requirements to detail the exact amount and determination of each adjustment.
- ✓ Evaluating the functions of the MUNIS system to make adjustment reason codes more readily available to reviewers. We noted during our review that reason codes must be entered for each adjustment, but they do not appear when adjustments are being reviewed within the system. The ability of reviewers to see a reason code associated with an adjustment may help reduce the amount of effort associated with the review.

Management's Action Plan and Implementation Date

DUSWM will develop an SOP, documenting the procedures and required documentation (in a standardized format) for each adjustment added to the system. This includes setting a standard for showing the calculation, updating the Contact logs, any notices to the customer, etc.

DUSWM will contact MUNIS Support personnel to determine if it is possible to view adjustment codes during the review of said adjustments.

Anticipated Implementation Date: First calendar quarter 2018.

Observation 5

DUSWM is not notified in a timely manner of updates to customer accounts made by other departments that may impact water and sewer billing functions within the system.

Observation Detail

SC&H reviewed the supporting documentation for 25 customer accounts placed on the “Do Not Disconnect” list in fiscal year 2017. Three of the 25 accounts reviewed contained a note which read as follows, “We are not sure why the system did not generate a late notice for this account, but one was not issued so we marked the account ‘Do Not Disconnect’ for that bill.”

While this justifies why the customer was placed on the “Do Not Disconnect” list, we noted that the system should have automatically generated a late notice to be sent to the customer. Per discussion with DUSWM staff, a late notice was not generated because the customer account had a designation of "Bankruptcy." Per further inquiry, for tax purposes, the Treasury department manually updated the customer account to indicate the designation. While updating the account, Treasury did not select the option to print delinquent notices, which would generate late notices for billing purposes. Therefore, the customer would not receive a late notice, even if there was a past due payment. Treasury did not consult with DUSWM as to whether this distinction was needed and DUSWM did not know that the customer accounts had been updated until after the customers called to state that they had not received a late notice and did not realize payment was past due.

Risk

Lack of communication between departments that have the ability to update customer information within the system results in an increased risk of changes being made to customer accounts that impact the functions and duties executed by multiple departments within the County, such as the improper disconnection of customer accounts.

Recommendation 5.1

DUSWM should work with other County departments, such as Treasury, to develop policies and procedures surrounding the update of customer account information within the system. If a department must make an update to a customer account, all departments that may be impacted should be consulted to ensure that no permissions are inadvertently added or deleted from a customer account.

Management’s Action Plan and Implementation Date

DUSWM will coordinate with the Treasury Department to determine the best practice for allowing updates to an account. A policy or SOP will be developed to memorialize the actions.

Anticipated Implementation Date: First calendar quarter 2018.

Observation 6

Duplicative customer names are maintained in the system.

Observation Detail

SC&H performed data analytics related to the customers placed on the “Do Not Disconnect” List in FY17. As part of the analyses, we looked to see if customers were on the listing multiple times during the year and quantified the number of times they appeared on the list. While reviewing this documentation, we noted that multiple customers appeared to have several iterations of their name documented within the system. For example, several customers were on the list twice because in one iteration, they had a middle initial without a period, while a period was included in another iteration. Similarly, multiple customers appeared on the listing more than once because in one iteration of their name, there was a comma between the first and last name, while in another the comma was not present.

Risk

Duplicative customer names within the system results in the increased risk for customer information being updated for the wrong account and special conditions being applied to the customer account. This may result in inaccurate reporting out of the system.

Recommendation 6.1

DUSWM should implement a periodic review of the “Do Not Disconnect” list to analyze the frequency with which customers appear on the list. Knowing the number of times a customer has been added to the list can help to determine if their presence on the listing is appropriate and may help mitigate the risk of remaining on the list for a prolonged period of time when services should be discontinued.

Management’s Action Plan and Implementation Date

The DO NOT DISCONNECT list provided appears to be an attempt to use a standard report from MUNIS in response to an informational request from the auditing team. It is not a report that is used (or usable in its current format) for tracking those customers that are exempt from disconnection. The Billing Manager and team maintain a separate spreadsheet for this purpose. Nevertheless, in order to use additional MUNIS functionality, DUSWM can submit a request to the software company, requesting that the standard report be updated to limit the output to ONLY utility customers that have an active DO NOT DISCONNECT flag. The report, regardless of the source, will be reviewed periodically by the Team Leader to assure that no account is being left on the list without proper documentation.

Anticipated Implementation Date: First calendar quarter 2018.