



MIAMIBEACH

BUDGET AND PERFORMANCE IMPROVEMENT
Internal Audit Division

INTERNAL AUDIT REPORT

TO: Kathie G. Brooks, Interim City Manager
FROM: James J. Sutter, Internal Auditor

DATE: December 3, 2012
AUDIT: Water and Sewer Billings
PERIOD: October 1, 2008 through March 31, 2011

This report is the result of a regularly scheduled audit to verify and review the applicable processes, internal controls and fee collection calculations related to Water and Sewer Utility billing.

INTRODUCTION

The Public Works Department is responsible for the operation, management and maintenance of the water and sewer infrastructure, as well as conducting water meter readings that are submitted to the City's Finance Department for final review and billing to the customer. Meter readings are performed in cycles with a total of four cycles including thirteen routes in each with the exception of one containing twelve routes instead. Meter readings are submitted to the Finance Department monthly upon completion of each cycle for customer billing. Once water meter readings are submitted to the Finance Department, then they apply the applicable water and sewer rates, as approved by the City Commission, as well as complete and issue the corresponding bills to all active account holders.

Effective for billings on or after October 1, 2009, water and sewer utility billing rates were established as follows:

Water Charges:

Water Meter Size	Gallons of Water per Month	Minimum Monthly Service Charge
3/4"	Up to 5,000	\$ 21.80
1"	Up to 7,000	\$ 30.52
1 1/2"	Up to 11,000	\$ 47.96
2"	Up to 17,000	\$ 74.12
3"	Up to 40,000	\$174.40
4"	Up to 80,000	\$348.80
6"	Up to 120,000	\$523.20
8"	Up to 200,000	\$872.00

Any water consumption in excess of monthly volumes reflected above, according to the installed meter size, is then billed an additional \$4.36 per thousand (1,000) gallons of additional consumption.

Sewer Charges:

Sanitary sewer charges for the fiscal year ended 9/30/2011 are assessed at \$6.04 per thousand (1,000) gallons disposed into the system.

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However, these rates are annually reviewed and often revised in order to account for increases for water supply imposed by Miami-Dade County, as well as increases or decreases in the costs incurred by the City in maintaining and/or improving the water and sewer infrastructure, including costs incurred from the issuance of revenue bonds to finance related projects. For effective rates prior to October 1, 2009 one can refer to Appendix A of the City Code, Section 110-66 (a) and (b) for water, and section 110-168(a) for sewer.

For illustrative purposes, revenues collected (by fiscal year) during our audit period were as follows:

Account	FY 2009	FY 2010	FY 2011 (October 1, 2010 - March 31, 2011)	Totals
Water	\$ 29,341,184	\$ 32,245,921	\$ 15,186,748	\$ 76,773,853
Sewer	\$ 30,652,365	\$ 32,658,809	\$ 15,134,056	\$ 78,445,230
Totals	\$ 59,993,549	\$ 64,904,730	\$ 30,320,804	\$ 155,219,083

OVERALL OPINION

Results from our testing helped to re-emphasize the ability of the Public Works Department in collaboration with the Finance Department to perform the meter reading and corresponding billings in a timely manner. The methods and configuration of their meter reading process minimizes any risk of over or under billing customers based on the readings obtained during the meter reading cycle. In addition, adequate controls have been established in order to detect any unusual and/or extreme increase in water consumption, which could be due to an inaccurate reading, or a water leak. These controls help to ensure that customers are appropriately billed and in events where a water leak is identified and reported to the Public Works Department, corresponding credits are issued to the customer for a portion of their incurred sewer charges as a courtesy.

Concurrently, the Finance Department has successfully performed their responsibilities in ensuring that billings are completed and mailed to the customers in a timely manner. They successfully reconcile accounts receivables systematically and as a courtesy to the City residents and businesses, they have developed payment options for those that have proven a willingness to pay their amounts due, but are currently facing financial distress. Conversely, if no efforts are made within thirty days (30) days after the billed amounts are due, the Finance Department has put in place a collection effort in which the water service is shut off until outstanding amounts are satisfied, and at the same time attach liens to the properties within thirty (30) days once no payment is received and collection efforts are exhausted.

However, despite the many accomplishments and efforts to perform as accurate, timely, and conscientious as possible by both departments, our audit identified the following areas in need of corrective action:

1. No process is currently in place to ensure the accountability, reading, and correlation of installed water meters and their corresponding service addresses.
2. Cooling tower meters and/or irrigation sub-meters are not always read for accurate and reliable billing.

3. Installed irrigation sub-meters have not been included in the meter reading software (Itron) and therefore are not included in any of the meter reading routes.
4. Financial System limitations exist that impairs the customer's ability to verify the accuracy of billings in cases where more than two water meters exist under the same account.
5. No "on and off" tests are performed during sub-meter installation inspections.
6. No follow up inspections are sporadically done on removed and/or locked meter locations to ensure no tampering has taken place.
7. No further action was taken on the findings and recommendations provided by Revenue Enhancement Services (RES).
8. Certain omissions were observed in Appendix A of the City Code that need revision.
9. No sales tax is being charged on water meters sold to customers for sub-metering purposes.
10. Amounts received from the sale of sub-meters are being posted as revenues from water tapping fees in error while payments are being accepted at the Public Works Department instead of at the City's Central Cashier.

Additional details regarding our findings and areas in need of corrective action can be found on the "Findings, Recommendations, and Management Responses" section of this report.

PURPOSE

The purpose of this audit is to ensure that proper controls are in place to maintain integrity, reliability and accuracy of revenues collected; verify that fees are timely billed in accordance to City Ordinances; and review accountability and fund allocations to ensure compliance to provisions of applicable laws.

SCOPE

1. Review of internal controls, processes, and compliance to applicable City Ordinances.
2. Review results of Revenue Enhancement Specialist (RES) study and determine if corrective action has been implemented, as well as its effectiveness.
3. Review processes and procedures regarding meter reading activities, as well as corresponding internal controls.
4. Review and confirm accuracy of billing revenues and applicable calculations.
5. Verify effectiveness and efficiency of communication channels among City Departments involved in the Storm-Water Utility Fee processes and operations.

FINDINGS, RECOMMENDATIONS, AND MANAGEMENT RESPONSES

1. Finding – *No process is currently in place to ensure the accountability, reading, and correlation of installed water meters and their corresponding service addresses.*

Inquiries with the Public Works Department found that there is no process currently in place to verify and account for all meters installed by meter number and their corresponding service address and customer account. This shortcoming prevents a subsequent reconciliation with the information in the City's Financial System (EDEN) to help ensure the accountability and billing of all meters and corresponding service addresses within City limits.

Furthermore, the Public Works Department does not keep a record of installed meter numbers. Instead, they only keep an inventory of meters available for installation as warehouse inventory is based on the meter size. As stated in the City Code, Public Works is responsible for the maintenance and overall operations of water meters installed. With this in mind, Internal Audit compared a list titled "water use all" provided by the Geographic Information Systems (GIS) division of the Public Works Department, to a list extracted from the City's Financial System (EDEN) reflecting water accounts to ensure that every service address reflected in the GIS's list was included in the billing module of the City's Financial System.

Prior to the comparison, Internal Audit removed from both lists any duplicate addresses in order to compare only unique service addresses. Not knowing the parameters used by GIS to extract the list provided or its accuracy, Internal Audit observed differences between both lists. However, considering that addresses in the billing system are accounted for when billing applicable water usage, Internal Audit focused on those addresses provided by GIS that were not included in the Financial System. As a result, Internal Audit observed at least 416 unique addresses that were provided in the GIS list from a total of 9,763 (approximately 4%) unique addresses that were not listed as a service address in the City's Financial System. Additional inquiries suggested that this difference could be the result of changes in addresses due to construction activity; multiple service addresses listed under one account number; etc. However, not having a periodic process that updates and verifies the reliability and completeness of all utility accounts, corresponding service addresses and meter numbers increases the risks of maintaining inaccurate and outdated data on the billing module regarding the same, as well as the risk of not accounting, reading and billing all installed meters at all corresponding service addresses.

This risk was validated when Internal Audit learned through inquiries to Public Works personnel that a meter not previously included in the meter reading hand held computer software (Itron) or the City's Financial System Billing Module, had been found underground at a property. Allegedly, this meter had never been read or billed. It was found underground covered by concrete after a customer complained about a water leak. In trying to correct the leak, Public Works personnel closed the water flow from the known meter at the property, but water continued to flow to the property. With the aid of a metal detector, Public Works personnel were able to locate a second meter.

Although no similar incidents were noted, it is hard to say whether this was a unique incident or one of many water meters unidentified for which no usage readings have been recorded or billed. Data migration from different programs could have been a factor in meters inadvertently being omitted from the system. However, there is no method in place to confirm that our billing modules and meter reading database account for all water meters and

corresponding service addresses within the City limits.

Recommendation(s)

The Public Works Department in collaboration with the Finance Department should implement and document through policies and procedures a process in which every water meter and corresponding service address is verified and updated annually. The Public Works Department should create and maintain a database where every water meter installed, repaired, and/or available for installation is accounted for by meter number, meter size, and service address. The service address should be the physical address of the property in which the meter has been installed.

This database should be matched annually with a list from GIS reflecting all physical addresses within City limits. Any discrepancies between the two lists should be investigated and corrected accordingly. Once all addresses are accounted for, the list should be compared to the billing module database to ensure that every service/physical address possesses a corresponding water and sewer account (unless it is undeveloped land), and that all water meters, including secondary meters, irrigation meters and sub-meters, installed in the property are included in that one account. Implementing this recommendation would help to ensure that every water meter and service address is accounted for and billed, as applicable, as well as a control to improve and/or verify the reliability of the GIS system and billing module from the City's Financial System.

Management's Response(s)

Public Works:

The Department will utilize GIS and compare with the Eden database to evaluate the meter inventory. The database that was used in this audit was not applicable to the tasks being evaluated. GIS will take every parcel and identify whether or not a meter is associated with. This evaluation will be conducted on an annual basis and any discrepancies will be investigated by the Department staff.

Finance:

The Finance Department will assist the Public Works Department implementing a process in which every water meter and their corresponding service address are verified and updated on an annual basis.

The utility billing database will be analyzed annually, compared with a list from GIS reflecting active addresses within City limits. Discrepancies between the two lists will be investigated and corrected accordingly.

2. Finding – *Cooling tower meters and/or irrigation sub-meters are not always read for accurate and reliable billing.*

During Internal Audit's visits to the Public Works Department, it was learned that sub-meters installed particularly on buildings for cooling tower water usage are not being read by the Public Works Water Meter Technicians for accurate billing. Instead, the user sends a form reflecting his/her own water meter reading to the Public Works Department to be processed for billing. No independent confirmation of such reading is being performed by the Public Works Department to assess its reliability. When asked regarding this process, employees from the Public Works Department stated that water meters used to measure cooling tower water usage are frequently installed on roof tops where it may be difficult for the meter reader to have access, since they are installed inside private property and authorized personnel may

not always be on site to allow access to these meters. Not reading these meters represents a control weakness that could result in revenue loss considering that a sewer charge credit is extended to the customer based on the water usage that is presumed not to enter or be processed through the sewer system.

Recommendation(s)

The Public Works Department should establish and put to practice policies and procedures in order to ensure that water meters used in cooling towers are read periodically for proper and accurate billing.

Management's Response(s)

Public Works:

The reading of the cooling tower is hampered by inspection delays that result from the inability of the Department to compel timely inspection. The Department will propose an ordinance revision that will expressly require inspection approval prior to any application for sewer credit.

3. Finding – *Installed irrigation sub-meters have not been included into the meter reading software (Itron) and therefore not included in any of the meter reading routes.*

Installed sub-meters Citywide have not been included on the Public Works Itron system software, which is used to program the meter number and location of every installed meter within a route into the meter reading hand held computers. As a result, a separate route is done manually in every reading cycle to read and record sub-meters so that they can be subsequently forwarded to the Finance Department for billing. Although there are about twenty eight (28) sub-meters currently installed and included in the Public Works list, continuing to operate in this manner is inefficient and increases the possibility of mistakes and/or meter reading skips.

Recommendation(s)

All currently installed sub-meters should be added to the Itron system software and incorporated to a corresponding route within the applicable meter reading cycle. This practice should minimize any potential human error as well as improve reporting and checks and balances regarding the meter reading and billing operations.

Management's Response(s)

Public Works:

Installed irrigation meters are now included in the meter reading routes.

4. Finding – *Financial System limitations exist that impairs the customer's ability to verify the accuracy of billings in cases where more than two water meters exist under the same account.*

System limitations exist in the City's Financial System (EDEN) where a maximum of two meters can be listed with the corresponding meter readings on each customer bill. As a result, customers with more than two (2) meters can only verify charges for the two meters listed. Any further verification would have to be done by calling the Finance Department for the readings to be provided directly from the system to the customer. Continuing to operate in this manner makes it harder to verify the accuracy and reliability of the bill as well as possibly creating more work for the Finance Department, as they would have to handle any inquiries from customers with more than two meters. Finally, it also diminishes the completeness and disclosure of information provided on the customer's bills.

Recommendation(s)

Alternatives that would allow the listing of all water meters included in one account on customers' bills should be considered. Options such as system upgrades and/or customization, including an "additional details" page and/or summary to the current bill, printing a continuation bill, etc. should be explored and considered in order to provide all customers with more than two (2) water meters in their account with full disclosure of their monthly reading of water consumption by meter number.

Management's Response(s)

Finance:

Our software vendor has been contacted to review possible alternatives that will allow the listing of all water meters included in one customer's account to be reflected on the respective utility bill. The utility bill has been redesigned to a multi page lay-out to accommodate this change. This design change to the lay-out of the utility bill is expected to be implemented in the fiscal year 2012-13.

5. Finding – *No "on and off" test performed during sub-meter installation inspections.*

Because water used for swimming pools, lawn sprinklers, etc. does not require the usage of City sanitary sewer system facilities, the Public Works Department permits the installation of sub-meters to measure the water used for those purposes, as long as the cost of installation is at the owner's expense and based upon the size of the service pipe required. Sub-meters must be purchased, installed and maintained in accordance with the policies and procedures of the Public Works Department. The sub-meter is to register only that portion of potable water that does not enter the City's sanitary sewer system.

Because the sub-meters are installed by the owners, an inspection is required by the Public Works Department to ensure proper installation and use. As part of Internal Audit's procedures, a visit was scheduled to witness the inspection process for sub-meters installed.

The process consist of visiting the service address where the sub-meter was installed, ensuring that both ends of the meter are attached, to the irrigation line and water main, including a meter valve between the water main line and the meter. This is done visually and the connections are presumed to be to the correct lines and sources. Then any water faucet in the exterior of the wall is opened by the inspector to see if the irrigation meter reads the flow from the faucet. However, it is important to highlight that no installation plans are taken to the site to ensure that the water connections are made to the approved sources, or that the faucet opened is connected to the irrigation system and not to the domestic line. In addition the owner is not required to be present to perform any additional "on and off" (turning on and off the irrigation system) test.

Recommendation(s)

In order to ensure and confirm that the proper installation and water use is in place an "on and off" test should be performed at each sub-meter installation inspection to include tests of both, the sprinkler/pool system and the domestic water use. To that extent, it should be required for the owner or an authorized agent to be present during the inspection in order to perform such testing. In addition, a copy of the irrigation system and sub-meter installation plans should be taken to site by the inspector for further reference.

Management's Response(s)

Public Works:

Subsequent to Internal Audit's findings, sub-meter/irrigation meter installation inspections are performed concurrently by the PWD Water Meter Supervisor and the Building Department's Plumbing Inspector. The Building Department Inspector assures that all connections are completed according to the Building and City Code. It is their responsibility to assure that the backflow device is operating within norms, and that the meter is tested and registering flow. The Plumbing Inspector notifies the PWD Water Meter Supervisor that the installation is complete and approved. The Water Meter Supervisor checks the meter to assure that it is functioning properly and an "on and off" test is performed.

6. Finding – *No follow up inspections are sporadically done on removed and/or locked meter locations to ensure no tampering has taken place.*

There are two primary reasons why a water meter can be removed from a service address/location. One is when requested by the owner of the property because of construction activity in the site, and/or when no one will inhabit the premises for long time. The second, is when ordered by the Finance Department due to lack of payment for outstanding balances in the account. Once the meter is removed, no additional inspections are performed to ensure that no tampering with another meter and/or a direct line takes place. Often, delinquent accounts with meters removed remain inactive for long periods of time, even after attaching a lien to the property. However, no periodic inspections or verifications take place to help ensure that water is not being consumed.

Recommendation(s)

Although no incidents were found during our audit, Internal Audit recommends periodically and randomly inspecting service addresses where water meters have been removed or that little usage has been recorded for extended periods to help detect tampering or illegal water consumption. These inspections can be incorporated in the daily meter reading routes according to the corresponding service addresses. Results from such inspections can be documented in a short pre-formatted inspection form, which could also be use for support should any violation is detected.

Management's Response(s)

Public Works:

Water meters that have been removed and/or locked meter locations will be included in the route in order to ensure that no tampering has taken place.

7. Finding – *No further action taken regarding findings and recommendations previously provided by Revenue Enhancement Services Revenue Enhancement Services (R.E.S.).*

Revenue Enhancement Services, an outside contractor hired to identify revenue enhancement opportunities regarding utility billing, identified in their report dated 4/29/2009, twenty five (25) water meters serving domestic usage and paying water charges only, as sewer charges should have also been levied.

According to R.E.S., the majority of the water meters were listed as irrigation meters, but were actually serving domestic usage. The nature of the accounts for these meters was both, residential and commercial. Based on its findings, R.E.S. recommended running a "water only" account report and reviewing the listing yearly with actual field research.

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Furthermore, R.E.S. identified two (2) accounts that were being billed sewer charges only. As a result, a recommendation was issued to run a "sewer only" account report and reviewing it annually with actual field research if necessary.

Moreover, R.E.S. described how the City gives customers a 100% exemption of all water entering the cooling towers (cooling tower meter readings) without accounting and charging for a 15% to 20% blow down factor, which is water returning to the sewer system. According to the contractor, a proposal to correct that variance was prepared and delivered to the Public Works Infrastructure Division Director for consideration.

Despite the findings and recommendations provided by the contractor, no further action and/or preventive measures were documented to be in place to prevent these events from reoccurring in the future. Only those individual deficiencies identified during the study were corrected without implementing any ongoing policies, procedures and processes for future operations.

Recommendation(s)

The Public Works Department should implement the recommendations provided by R.E.S. or some feasible alternative to minimize or prevent any adverse effect or reoccurrence of the adverse events described on the contractor's findings. For example as an alternative and considering that only water meters listed and billed as irrigation would negatively impact billings if serving domestic usage, instead of reviewing "water only" accounts, which would also include domestic use meters, the department should generate a listing of "irrigation/pool/cooling tower water meters only" and inspect periodically for any domestic usage that would require the billing of sewer charges, as well as applicable violations and sewer back billings.

Management's Response(s)

Public Works:

The Department will meet with the Building Department to review regulations regarding whether new construction allows cooling tower runoff into sewer systems. The Department will also work with GIS to produce "irrigation/pool/cooling tower water meters only" listing for periodic review.

8. Finding – *Certain omissions were observed in Appendix A of the City Code that should be considered for correction.*

A review of Appendix A (Fee Schedules) in the City Code, revealed certain omissions that are in need of revision:

- a) Section 110-166(a) reflects the minimum service charge to be assessed to customers for minimum water usage in accordance to the size of the water meter installed. Although most meter sizes and applicable minimum service charges have been listed, no minimum charge has been established for water use of 5/8 inch meters. The same applies for sections 110-166(b) through 110-166(f).
- b) Section 110-170(a) of the City Code states that sub-meters installed by the owners "shall be purchased, installed and maintained in accordance with the policies and procedures of the Public Works Department". According to policies and procedures from the Public Works Department sub-meters must be purchased from the Public Works Department. However, neither the City Code, nor the policies and procedures

specify an amount to be charged for meters purchased according to the meter size that has been approved by the City Commission, nor do they provide a methodology to arrive to the current price, which is being set by the Public Works Department.

Recommendation(s)

Implementing the following changes to the City Code should help improve the transparency, consistency, and uniformity of the applicability and assessments of the corresponding fees:

- a) Include applicable rates for meter size of 5/8 inches under all the sections referenced above on this finding to be approved by the City Commission.
- b) Develop a cost analysis and pricing strategy to determine the amounts to be charged for each water meter (according to its size) sold to customers to be used as sub-meters. Once a price is established, it should be presented to the City Commission for final approval.

Management's Response(s)

Public Works:

The Department will update the Ordinance at the first available opportunity to address the inconsistencies in the Code as it relates to meter sizing, as well as how to appropriately address meter prices on an ongoing basis.

9. Finding – *No sales tax is being charged on water meters sold to customers for sub-metering purposes.*

No sales and use tax is being charged on water meters and related materials sold to customers to be installed as sub-meters for irrigation systems, water cooling towers, pools, and/or any other use for which water is not returned and does not need the use of any sewer facility.

Recommendation(s)

Considering that ownership of water meters sold to customers in an arm's length transaction is transferred to the customer as an ultimate user, and any maintenance and repairs are to be done by the customer at his/her cost under policies and procedures established by Public Works, the Department should assess the applicable "sales and use tax" rate on the sales price of the meter to be remitted to the Florida Department of Revenue as required by the same. In conjunction, the Finance Department should be notified to ensure the proper accounting for sales tax collections.

Management's Response(s)

Public Works:

The Department will begin to charge the "sales and use tax" on all meters on all meters sold to customers for sub-metering purposes.

10. Finding – *Amounts received from the sale of sub-meters are being posted as revenues from Water Tapping Fees in error and payments are being accepted at the Public Works Office.*

Proceeds received from the sale of sub-meters and related materials to customers were being posted to the water tapping fees account. This account is used to record proceeds from water tapping fees established under section 110-166(d) of the City Code. Water tapping charges, as specified in Appendix A are made to cover the cost of the tap and the

installation of the service to the property line of the lot to be supplied with the water service. As a result, proceeds from the sale of sub-meters and other installation materials to be used by the customer for the installation at his/her own cost should not be posted to this account.

In addition, we learned from inquiries to Public Works personnel that payment for the sale of the sub-meters and related materials were being accepted at the Public Works offices on the fourth floor at City Hall. Because payments may or may not be taken the same day to the cashier's office and considering that there is no safe box or secure location to hold these payments, no payments should be received by the Public Works Department. In addition, continuing to receive payments at the Public Works offices provides insufficient segregation of duties and therefore diminishes internal controls.

Recommendation(s)

The Public Works Department should seek guidance from the Finance Department in order to either open, or find a revenue account that would be more suitable to record revenues from the sale of sub-meters and related installation materials and/or supplies. In addition, payments received for the same should be submitted at the cashier's office. No payments should be received at the Public Works office. Finally, a payment receipt issued by the cashier's office should be presented by the customer prior to receiving and gaining possession of the sold sub-meter and related installation materials. Implementing this recommendation will contribute to improve accountability and controls.

Management's Response(s)

Public Works:

The Department will consult with Finance to identify the appropriate account for the deposit of "sub-meter" revenue. Further, no payments should be accepted by Public Works personnel. Although Accela will permanently, electronically address this issue, Public Works will meet with Finance to immediately modify the practice of check handling in order to be consistent with all internal control safeguards.

EXIT CONFERENCE

An exit meeting was held to discuss the audit report and to solicit management responses noted above. Attendees were Fred Beckmann, Public Works Director; Jay Fink, Public Works Assistant Director; Richard Saltrick, Assistant City Engineer; Keith Wilder, Senior Management Analyst; Demar Woodson, Right of Way Manager; Raul Soria, Financial Analyst III; James Sutter, Internal Auditor and Fidel Miranda, Auditor. Management responses were received shortly thereafter. All were in agreement with the contents of this report.

Audit performed by Fidel Miranda, Auditor

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cc: Jorge Gomez, Assistant City Manager
Fred Beckmann, Public Works Director
Jay Fink, Public Works Assistant Director
Patricia Walker, Chief Financial Officer
Keith Wilder, Sr. Management Analyst