



AUDIT OF METER READING & BILLING

Electric & Water Utilities

ABSTRACT

The City has generally established an adequate process to maintain electric and water meters though additional documentation consistency would further clarify account history. Improvements to water and electric meter testing would provide further assurance that the City is accurately capturing utility usage. Additionally, meters are generally read effectively and appropriate procedures to monitor read accuracy are in place. Finally, utility bills are calculated accurately based on approved utility rates.

Internal Audit Department

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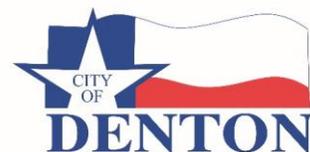


Table of Contents

Audit at a Glance	3
Introduction.....	4
Management Responsibility	4
Audit Objectives, Scope, and Methodology.....	4
Background	5
Findings & Analysis: Utility Metering Accuracy.....	6
Work Order Guidance Will Increase Assurance of Appropriate Account Changes	6
Formalizing Electric Meter Testing Programs Would Further Ensure Meter Accuracy	10
Water Meter Testing Procedures Are Generally Not Properly Followed	13
Findings & Analysis: Meter Reading Accuracy	17
Electric Meter Reading is Effective; AMI Capabilities Could be Further Utilized.....	17
Water Meter Reading Process is Generally Effective	19
Adjusting High & Low Usage Review Criteria May Further Reduce Inaccurate Bills	19
Findings & Analysis: Customer Billing Accuracy	22
Effective Procedures are in Place to Accurately Calculate Electric and Water Bills	22
Standardized Adjustment Documentation Would Increase Assurance of Bill Accuracy	23
Appendix A: Management Response Summary	26

Audit at a Glance

Why we did this Audit:

Annually, the City collects about \$250 million in electric and water utility service revenue. This utility usage must be metered and billed accurately to ensure customers are charged equitably and to continue investing in utility infrastructure. This audit was included on the City's fiscal year 2019-20 Audit Plan as approved by the City Council.

What we Recommend:

Recommendations 1 & 3

Develop a formal policy to clarify responsibilities for each Division when processing meter work orders.

Recommendation 2 & 4

Customer Service & Water Metering should identify ways to correct data issues in the work order process.

Recommendation 5, 6, & 7

Electric Metering should formalize electric meter testing plans for self-contained and instrument-rated meters and back up testing results.

Recommendations 8, 9, 10, & 11

Water Metering should develop procedures to ensure meters are tested per stated practices.

Recommendation 12

Electric Metering should explore options for sharing electric usage with customers.

Recommendations 13 & 14

Customer Service should develop procedures to ensure billing adjustments are verified for accuracy and appropriateness.

What we Found:

The findings for this report are generally divided into three sections as shown below:

Utility Metering Accuracy. In general, both electric and water meter maintenance work orders are completed on time; however, additional cross-divisional guidance on documenting details about maintenance work performed would help improve records and increase reporting efficiency.

While electric meters are being tested, establishing formal testing programs would provide further assurance that meters are accurate and safe from environmental hazards. In addition, accuracy testing results should be further detailed and backed up to ensure meter history can be completely understood.

Water meter testing practices are generally appropriate; however, these practices are not always followed. Specifically, water meters are not always replaced on time – increasing metering inaccuracies. This may mean more water revenue is lost to meter inaccuracies than acceptable.

Meter Reading Accuracy. The City has established effective processes to read both electric and water meters. Electric meters are read automatically with an advanced metering infrastructure (AMI) system. This system creates several advantages when compared to traditional meter reading practices, including increasing meter reading efficiency. Increased sharing of interval usage information collected by the AMI system with electric customers could improve energy efficiency.

Customer Billing Accuracy. The Customer Service Division has established effective processes to ensure that customer utility bills are accurately calculated based on the appropriate utility rate. Standardization of bill adjustment documentation and regular review of billing adjustments would provide further assurance that bills are accurate and properly authorized.



Introduction

The Internal Audit Department is responsible for providing: (a) an independent appraisal¹ of City operations to ensure policies and procedures are in place and complied with, inclusive of purchasing and contracting; (b) information that is accurate and reliable; (c) assurance that assets are properly recorded and safeguarded; (d) assurance that risks are identified and minimized; and (e) assurance that resources are used economically and efficiently and that the City's objectives are being achieved.

The Internal Audit Department has completed a performance audit of electric and water meter reading and billing processes. 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.

Management Responsibility

City management is responsible for ensuring that resources are managed properly and used in compliance with applicable regulations; programs are achieving their objectives; and services are being provided efficiently, effectively, and economically.

Audit Objectives, Scope, and Methodology

The Internal Audit Department has completed an audit of meter reading and billing for electric and water utilities. This report is intended to provide assurance that City management has established effective processes and procedures to ensure electric and water utility usage is accurately measured, read, and billed.

Audit fieldwork was conducted during August, September, October and November of 2020. The scope of review varied depending on the procedure being performed. The following list summarizes major procedures performed during this time:

- Reviewed documentation to develop criteria including industry standards, best practices, policies, and procedures;
- Developed process narratives to identify current control activities in the electric and water billing, meter reading and maintenance processes that were certified by Customer Service, Electric Metering, and Water Metering staff;
- Interviewed Customer Service, Electric Metering and Water Metering staff and reviewed policies and procedures pertaining to the meter reading, billing, and testing activities;
- Inspected statistical samples² of 335 electric accounts' and 227 water accounts' reading and billing data to ensure that electric and water usage is correctly billed to customers;

¹ The Internal Audit Department is considered structurally independent as defined by generally accepted government auditing standard 3.56.

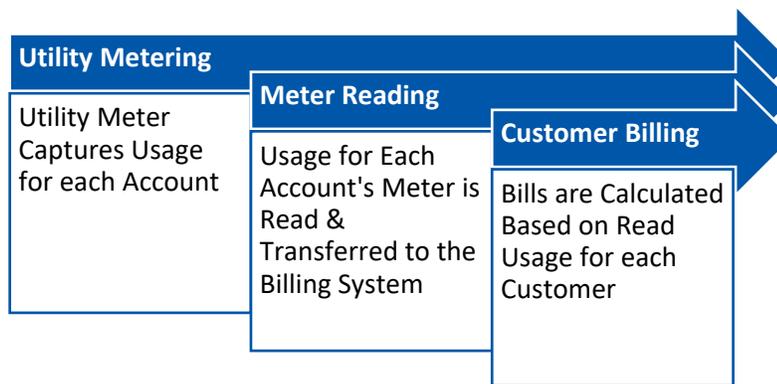
² ² This sample size provides with 95% confidence that the true population mean is within ±5 percent of the sample estimate.

- Physically read a randomly selected sample of 30 electric meters to verify that meter reads are accurately captured by the City’s Advanced Metering Infrastructure for electric meters;
- Reviewed a statistical samples of billing adjustments and work orders to verify the effectiveness of billing accuracy monitoring controls;
- Observed electric and water meter accuracy tests and verified that meter testing occurred per stated practices and in accordance with applicable standards; and
- Recalculated a judgement sample of eleven bills to confirm that approved utility rates were being applied appropriately.

Background

The City has about 103,600 active water and electric utility accounts the majority of which are residential. In order to provide effective utility services to customers, a utility must be able to accurately measure a customer’s usage, properly record this usage, and then correctly bill the customer based on the recorded usage and current utility rates. The main function of the meter reading and billing process is to identify and bill utility customers for the water and electricity they use. In general, there are three steps in this process as outlined below:

Figure 1: Utility Meter Reading & Billing Process



In the City of Denton, responsibilities for these processes are largely divided as shown below:

- The Electric Metering Division is responsible for installing and maintaining electric meters – including the Advanced Metering Infrastructure, – responding to customer service changes such as turning on and off meters and physically reading water meters;
- The Water Metering Division is responsible for installing and maintaining water meters; and
- The Customer Service Division is responsible for calculating and distributing customer bills, collecting utility charges and managing customer calls for service.

This audit is generally divided into three sections to reflect these three key steps in the process: Utility Metering Accuracy, Meter Reading Accuracy, and Utility Billing Accuracy.

Findings & Analysis: Utility Metering Accuracy

The first step in any effective utility reading and billing process is accurately measuring each customer's utility usage. To measure this usage, both the electric and water utilities use meters, which are devices designed to measure and capture how much of a utility flows through them to a customer.

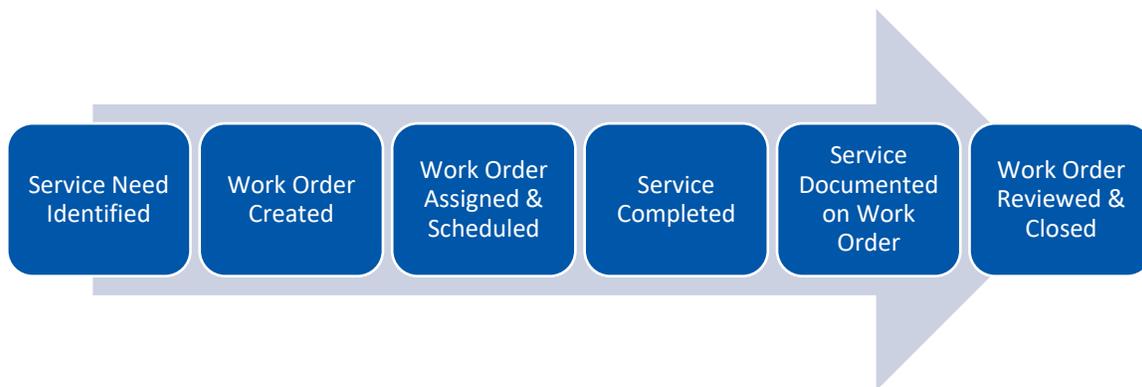
It is then critical for the City to ensure that utility meters are accurately capturing usage consistently. To provide assurance that meters are accurately functioning, a utility must ensure that meters are properly maintained and regularly tested for accuracy in accordance with appropriate standards.

Work Order Guidance Will Increase Assurance of Appropriate Account Changes

In order to ensure utility usage is being accurately captured, the City maintains a network of electric and water meters. Typically, a work order system is used to process maintenance and service work in a timely manner to minimize downtime. In order to be effective, a work order system must:

- Efficiently communicate maintenance and service needs throughout the organization including when work should be completed; and
- Completely document work conducted to ensure that any asset or account changes are reflected accurately.

Figure 2: Work Order Process



What We Found

- The City's billing system is utilized to communicate and track the completion of meter maintenance work orders and other customer-related services for both electric and water meters. Work orders are typically created by the Customer Service Division or Electric Metering Division to address service needs including, turning meters on and off, service change requests, meter reading and billing-related issues, and maintenance needs. In addition, Electric Metering and Water Metering staff may create work orders for maintenance or service needs identified in the field.
 - During fiscal year 2019-20, a total of 105,020 work orders were created. While most work orders were created in the billing system, the Electric Metering Division and

Water Metering Division used different processes to assign and update work orders during the audit period.

- Electric Metering Division work orders are received, assigned, and updated with service information in the billing system. To evaluate the Electric Metering work order process, a statistically valid sample of work orders relating to meter services and billing created during fiscal year 2019-20 were reviewed. According to Electric Metering staff, service work orders are completed by a designated “scheduled date” and maintenance work orders are completed within three working days. In addition, details about the work completed are recorded in the billing system’s “completion notes.”
 - In general, work orders are completed on time and information about the work completed is recorded in the billing system. Specifically, 94 percent of work orders were completed on time and 96 percent had documented completion notes. That being said, it was difficult to understand the work performed for some work orders because information recorded in the completion notes was inconsistent.
 - In addition, about 88 percent of reviewed work orders were changed to the “completed” status after the actual work was completed. This is because the responsibility for reviewing and manually changing a work order’s status to “completed” is not clearly defined across all involved Divisions.
- During the audit review period, Water Metering Division work orders were printed from the billing system and then assigned and updated with service information on paper. This information was then transferred to the billing system after work was completed. To evaluate the Water Metering Division’s work order process, a judgment sample of physical work orders completed was reviewed. These findings are based on a review of the physical work order system the Water Metering Division used during the audit review period.
 - In general, work orders are completed on time; however, this information was difficult to assess in aggregate because work orders are maintained manually and not as part of a system.
- Apart from the billing system’s work order module, the Water Metering Division maintained an Access database³ for maintenance of work orders.⁴ A dual work order system creates two records of reference which increases the likelihood of data entry errors and inconsistency. Some of these inconsistencies were identified and are described below:
 - Some change out work orders from the Access system linked to water meters that were still marked as active in the billing system. Specifically, about 50 meters that appear to have been changed out between 2018 and 2020 fell into this category. These exceptions have been shared with Customer Service and Water Metering staff. It should be noted that these accounts are still being billed for their water usage.
 - As work order details were recorded on paper during the reviewed period, a judgement sample of 30 work orders was examined seven work orders created in

³ The Internal Audit Department was not informed that Water Metering maintained an Access work order database until the draft report had been issued. For this reason, this database and its associated work order process were not reviewed in detail as part of the audit.

⁴ It should be noted that this Access database contains cost information that cannot be captured in the billing system and is useful for the Division when budgeting and reporting.

- field by Water Metering crews were not documented in the billing system but were entered into the Access database. Two of these were related to a meter change out.
- As of October 2020, Water Metering has stopped using paperwork orders and the Access database. Instead, work orders are now documented in the billing system's work order module and then uploaded to the Water Department's maintenance work order system. Implementing this online work order system should help the Water Metering Division ensure that all maintenance information is communicated to Customer Service effectively.
 - About 22,000 water meter install dates in the billing system are incorrect due to a malfunction during a system update. For this reason, meter replacements are based on the "Revisit Year" field in the billing system. This year is calculated by adding 13 years to the meter's purchase date, even for meters installed after the system malfunction. This results in some Revisit Years not being accurate. Based on a review of about 4,300 meters installed in 2020, about 10% did not have a revisit year of 2033.
- Work order completion is monitored through a monthly review of pending work orders by the Customer Service Division.
 - Customer Service has established instructions and processes for creating and updating work orders in the billing system. On the other hand, there is no formal guidance for Electric Metering and Water Metering staff as to what information should be documented in the work order completion notes.

Why It Matters

Without adequate work order completion notes it is difficult to understand and track meter maintenance and customer service work completed by Electric and Water Metering staff. Developing guidance for meter maintenance staff on what details should be included in work orders should further facilitate status tracking for customer issues and clarify to Customer Service what details of the work performed should be recorded for each account.

Additionally, work order completion dates reflected in the billing system are often inaccurately displayed as they reflect when the status was changed not when the work was completed. These inaccuracies may later confuse staff and hinder effective work order reporting. Reflecting both the actual completion date and status change date in the billing system would improve records and increase reporting efficiency. Once this information is available, meter maintenance staff should regularly review this information to provide further assurance that work orders are completed timely.

Finally, all meter maintenance task should be recorded in the work order system in a consistent manner to provide a complete and accurate view of the meter maintenance process. Ensuring that work orders created in the field by Water Metering are added to the billing system would provide further assurance that work orders are completed on time and any changes are properly reviewed and reflected in the billing system. Since the Water Metering Division has switched to using the billing system's online work order module, it is likely this is occurring; however, it was not verified per the scope of the audit. Still, data issues between Water Metering's maintenance work order system and the billing system may hinder these improvements.

Recommendations:

1. Develop a formal procedure in consultation with the Electric Metering and Water Metering Divisions that clarifies staff responsibilities for creating and reviewing work orders based on type and requires staff to provide certain information in the work order system's completion notes.

Customer Service Comments: *Customer Service concurs and will coordinate with Electric and Water Metering to create an SOP clarifying work order entry responsibility as well as information required notation.*

Electric Metering Comments: *Electric Metering staff will collaborate with Customer Service staff to develop a document that clarifies staff responsibilities for creating and reviewing work orders based on type and requires staff to provide certain information in the work order system's completion notes.*

Water Metering Comments: *Work orders related to water metering received from customer service are reviewed, processed and completed (closed) by Water Metering staff. Water Metering staff currently uses Mcare software [billing system's work order module] for creating, processing, and closing completed work orders. Mcare software directly communicates and stores data in the billing software (NorthStar). Water Metering staff will work with Customer Service staff to develop a document that describes the Standard Operating Procedure (formal process) for creating, reviewing, executing and closing work orders.*

2. Identify a way to reflect the actual completion date of each work order in the billing system to facilitate timeliness reporting and tracking.

Customer Service Comments: *Customer Service concurs and has already created a process which will identify the actual completion date and record that in a date field on the closeout notes. This field can be utilized by the metering groups to build reports which can identify actual field completion dates.*

3. Ensure work orders created in the field by Water Metering crews are input into the billing system. This should provide assurance that work is completed on time and meter maintenance and account service information is accurate and complete.

Water Metering Comments: *All work orders created by staff, in the field are reported to the Division's administrative support staff who logged this information in an Access database which was not connected to NorthStar (billing system). The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system to the CityWorks system. As part of this transition, all work orders that are created in the field are now logged into the billing system (NorthStar) as well as CityWorks [Water Department's work order system].*

4. Explore ways to correct the data issues identified in the Water Metering work order processes.

Water Metering Comments: *We are currently working on fine tuning the data transfer and resolving data discrepancies between the billing software (NorthStar) and the utility work order system (CityWorks). Since the new system was recently implemented (October 2020), it will take a few months to resolve all known issues and implement a smooth transfer process.*

Formalizing Electric Meter Testing Programs Would Further Ensure Meter Accuracy

In order to ensure meters are accurately measuring utility consumption, they must be tested. The American National Standards Institute (ANSI) provides standards for electric meter installation, testing, and maintenance procedures to establish accuracy limits, test plans, and inspection procedures for electric meters and metering devices. ANSI Standards' recommendations for testing of electric meters are outlined in Figure 3.

Figure 3: ANSI Standards Electric Meter Testing Requirements

New Meter Testing	Annual Testing Plan (Self-Contained Meters)	Testing Records
<ul style="list-style-type: none"> • 100% Testing; or • Sample Testing In-house; or • 100% Testing by Manufactures 	<ul style="list-style-type: none"> • Periodic Interval Plan; or • Variable Interval Plan; or • Statistical Plan 	<ul style="list-style-type: none"> • Type of Test Program • Number of Meters tested • AQL* Level or Test Rate • Test Results and Corrective Action taken

*Acceptance Quality Limit

What We Found

- The Electric Metering Division has generally adopted ANSI Standards for testing and inspecting electric meters. Specifically, a standard operating procedure (SOP) has been implemented to define the procedures and provisions for testing meters.
 - During the audit period, this SOP was revised to include ANSI standards' recommendations on sample testing, acceptable performance standards, and a requirement to compare in-house test results to the manufacturer's accuracy results.
 - The Meter Testing SOP sets accuracy standards for self-contained (i.e. meters without a billing multiplier) meters in line with the ANSI Standards. According to Electric Metering staff, their electric meter testing equipment is set with the defined accuracy parameters to facilitate testing in the field.
- According to Electric Metering Division staff, all new meters are tested by the manufacturer. In addition, a sample of new meters are tested from each delivery to ensure the factory test results are accurate.
 - There is evidence that this testing is being performed; however, it is not possible to verify that practices are followed without a complete inventory record of meters.
 - Electric meter test results are maintained in a database. Comparisons of in-house testing results with manufacturers' accuracy results has not been documented in the past.
- According to the Electric Metering staff, the 100 electric meters with the highest usage are tested annually. In addition, all instrument-rated electric meters (i.e. meters which have a billing multiplier)⁵ are tested every couple of years.

⁵ A billing multiplier is used to convert the amount of electricity measured by the meter to the amount actually billed.

- Most electric meter accuracy test results were lost a few months ago when the electric meter test bench malfunctioned. For this reason, it was not possible to review the testing records. Hence, in order to verify that meter accuracy tests occurred, work orders were reviewed; however, accuracy results of these tests were not recorded in the work order system only a note that the meter passed or failed.
 - Based on a judgment sample of 30 instrument-rated meters, 27 meters were tested once over the past three fiscal years, and three meters had not been tested at all. Ten of these 30 meters were top 100 customers, indicating that these meters are not being tested per the stated practice.
 - Test records relating to the type of test program used, data of meters to be tested during a test year, and corrective actions taken for testing results are not maintained as recommended by ANSI Standards.
- ANSI Standards recommend implementing an annual test program for self-contained meters to verify the performance of meters; however, the Electric Metering Division does not currently have a formal test program for these meters, which make up about 97 percent of all active electric meters. While there is no formal test program, the Electric Metering Division does test about 50 to 100 self-contained meters each week as part of maintenance or in response to customer service requests.
 - Previously, the Electric Metering Division had an established Meter Test Program that tested a sample of active small meters every five to ten years. This program was paused when the Advanced Metering Infrastructure (AMI) system was implemented as this required the City to replace all electric meters over a short period of time.
 - At the end of calendar year 2020, about 70 percent of meters were more than five years old, indicating that the Meter Test Program should be reinstated.
 - Likewise, the AMI system has resulted in many meters not being physically inspected for years at a time.

Why It Matters

About five years ago, the City completed implementation of an AMI system. In response, the Electric Metering Division discontinued its Meter Test Program since most meters were new. While this may have been appropriate at the time, about 70 percent of the City's electric meters are now more than five years old. Hence, reinstating the Small Meter Test Program would ensure that electric meters are accurate and properly safeguarded from environmental hazards

Most instrument-rated meters appear to be tested per the Division's stated practices; however, the top 100 customers do not appear to be tested annually. Due to the reliability of electric meters and the effectiveness of the AMI system, it is unlikely that top 100 customer's meters are more prone to failure than other instrument-rated meters. That being said, the Division should ensure that its stated testing practices are regularly followed. Formalizing these practices would provide increased guidance to Electric Metering staff and facilitate consistency.

In addition, one of the advantages of an AMI system is efficiencies gained in the meter reading process since meters do not have to be physically read. On the other hand, without regular physical inspection electric meters are more vulnerable to environmental hazards and tampering.

Implementing a regular meter testing program would provide further assurance about accuracy of meter reads as it could increase proactively identified maintenance needs.

Finally, proper documentation of meter testing records and inspection results is crucial to understanding a meter's history and track its useful life cycle. Effective record keeping of meter testing information and activities would also provide assurance to City management that meter testing activities are being effectively implemented and carried out.

Recommendations:

5. Reinstigate the electric Meter Test Program for self-contained meters and ensure these meters are tested appropriately. ANSI standards identify three potential testing plans including, periodic interval, variable interval, and statistical sampling.

***Electric Metering Comments:** See Recommendation 7 Comments.*

6. Formalize meter testing practices for instrument-rated meters to provide further assurance that meters are tested in accordance with the City's requirements.

***Electric Metering Comments:** See Recommendation 7 Comments.*

7. Maintain meter accuracy test criteria and test result documentation per ANSI Standards. Meter accuracy test results should be retained in a way that allows for easy review. An additional repository could be created to ensure results are not lost in the future.

***Electric Metering Comments:** Electric Metering Staff will create a Standard Operating Procedure (SOP) for our Meter Test Program. In this SOP we will define plans for our residential self-contained meters as well as our commercial self-contained and instrument rated meters. This SOP will also define our test criteria for each of these meter groups and how we document and maintain our test results.*

The Meter Test Program SOP will contain the following:

- *Create a list of 5% of the residential self-contained meters to test for the year;*
- *Create a list of 5% of the commercial self-contained meters to test for the year;*
- *Create a list of 10% of the instrument rated meters to test for the year;*
 - *This list will exclude the top 100 commercial services;*
- *Create a list of the top 100 commercial services to test over a 2-year period;*
- *Electric Metering staff will create a schedule for these lists to be completed throughout the year;*
- *Electric Metering staff will log each meter test on the lists created and by creating a Maintenance Ticket in the CIS and recording the test results in the completion notes;*
- *Electric Metering Staff will periodically download the test results out of the field test units and store them on the city network; and*
- *All of these lists, test criteria, and documentation of tests results will follow the ANSI C12.1 Section 5.0.3.4.3 guidelines for Meter Test Programs.*

In addition to the Meter Test Program SOP, we will continue to monitor electric meters with AMI data and begin field site inspections of all meters with the addition of an AMI Service Inspector.

Water Meter Testing Procedures Are Generally Not Properly Followed

In order to ensure meters are accurately measuring utility consumption, they must be tested. For water meters, using the American Water Works Association's (AWWA) water meter testing standards is generally considered to be best practice.

These standards generally define a low, middle, and full flow rate through which a certain volume of water is run. The tester then compares the actual volume run through the meter to the measured volume to determine the accuracy rate, which is compared to the acceptable accuracy range. The AWWA prescribes different flow rates and volumes of water for different sizes of meters.

What We Found

- Water meters are tested and maintained by the Water Metering Division of the Water Utilities Department. While the Division does not currently have a formal policy or procedure outlining testing requirements, in practice they follow AWWA standards when testing water meter accuracy. In addition, they have adopted water meter testing practices as described below.
- According to Water Metering staff, they test large water meters (three inches or greater) annually. This practice generally seems appropriate as larger meters have higher usage and are more prone to failure due to the way water flow is measured.
 - At the end of 2020, there were 302 active large water meters in the City of Denton according to the billing system. Based on a comparison of this record to large meter testing records, only 100 of these large meters were tested annually for the past three fiscal years.
- In addition, the Division has established a Small Water Meter Replacement Program. Per this Program, small water meters (less than three inches) should be replaced every 13 years and one of every ten meters replaced should be tested. This testing method is generally effective if 90 or more meters are tested annually as part of the program.
 - According to the billing system, there were almost 39,000 active small water meters at the end of 2020. This system includes a "revisit year," which allows the Water Metering Division to easily identify meters that need to be replaced. Based on this information, there are currently 1,900 small meters that should have been replaced before the end of calendar year 2020. These are illustrated in Figure 4.

Figure 4: Small Water Meters Not Yet Replaced (Dec. 2020)

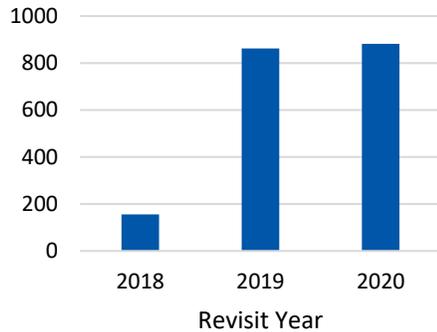
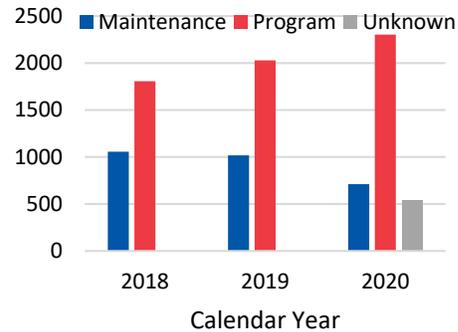


Figure 5: Water Meters Replacements



- While the Water Metering Division does appear to be behind on small water meter replacements based on the 13-year replacement timeline, it has been replacing about 3,000 water meters each year. Based on a review of these replacements, about one third are due to maintenance as shown in Figure 5.
- Over the past few years, the Water Metering Division has tested less than 100 small meters – about half of which appear to be part of the replacement program. In addition, based on a review of testing records, over half of the small meter tests performed did not comply with AWWA standards. Without testing enough meters appropriately, the failure rate of the replacement program cannot be confidently estimated.
- Finally, the City has not established criteria to determine if the Small Meter Replacement Program is effective. In order to determine effectiveness, the City must decide how much revenue loss it is willing to accept due to water meter inaccuracy.
 - Of the 55 small meters tested as part of the Replacement Program, 28 were tested per AWWA standards. 89 percent of these meters failed at least one accuracy test. The average accuracy results from these 28 tests are shown in Table 1. Using this estimated loss per meter, the City may lose almost \$50,000 a year from just the 1,900 meters that were not replaced on time.

Table 1: Small Meter Replacement Program Results

Flowrate	Avg. Accuracy Percentage	Est. Loss per Month ⁶ per Meter
Low	75.23%	NA ⁷
Middle	95.43%	\$2.22
Full	95.53%	\$2.17
Average:	95.48%	\$2.20

⁶ Based on best practices, this estimate assumes an average household use 12,000 gallons per month.

⁷ This amount is not included in the estimate because the low flowrate is designed to test the minimum flow through a meter which does not typically occur during operation.

- It should be noted that this estimate is not based on a statistically valid sample and thus the extrapolation is intended only to illustrate the financial meaning of a meter accuracy rate. In addition, the estimate only accounts for revenue loss, and not any potential indirect savings from not replacing a meter such as labor and material costs.

Why It Matters

Metering is the first and most critical step in accurately billing customers for their water usage. If meters are not accurate, the City loses revenue that could be reinvested into water production and distribution infrastructure. In addition, this results in customers being inequitably charged for water, as inaccuracies generally mean some customers pay less for the same amount of water.

That being said, testing all water meters every year is not feasible and so testing must be conducted based on risk. For that reason, the Water Metering Division's stated practices would generally be effective; however, these practices are not consistently followed. Likewise, without formal criteria, it is not possible to determine if the Small Water Meter Replacement Program is effective – obscuring the efficiency gains that would typically result from this type of program.

In addition, the AWWA's meter testing standards are designed to imitate minimum and normal ranges of operation. For this reason, testing standards should be followed to ensure that test accuracy rates are calculated appropriately.

Recommendations:

8. Develop a process to ensure all large water meters are tested appropriately. Creating a record of all active large meters that need to be tested may facilitate this process.

***Water Metering Comments:** All the large (compound) meters are tested and tracked in an Access database that the metering staff maintains. These meters are tested consistent with the standards and processes included in the AWWA guidelines. The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system to the CityWorks system. As part of this transition, the testing and the records for passed meters will be logged in CityWorks and will evaluate its usefulness. Staff is currently working on implementing a process of tracking the tested meters in CityWorks which will be implemented this year. Staff will develop a document that describes the Standard Operating Procedure for testing large meters that is consistent with the AWWA standards.*

9. Determine an acceptable failure rate for the Small Water Meter Replacement Program.

***Water Metering Comments:** The Water Department has engaged the services of a consultant to review and assess the existing small water meters and develop recommendations for implementing an AMR/AMI system similar to the one that Electric Metering is currently operating throughout the City. If this assessment proves cost effective and is approved by City Council, an implementation plan that will target the oldest meters for replacement with the new technology first. The proposed meter replacement plan developed as part of the study will determine the rate at which the remaining mechanical meters are replaced. If the AMI/AMR study is deemed not cost-effective, then staff will undertake a study to determine the right number of years for the meter replacement program.*

10. Ensure that AWWA standards are followed when testing water meter accuracy.

***Water Metering Comments:** Water Metering staff endeavor to follow AWWA standards. Additional measures will be implemented to verify that AWWA standards are followed and staff will develop a Standard Operating Procedure for testing meters that is consistent with the AWWA standards.*

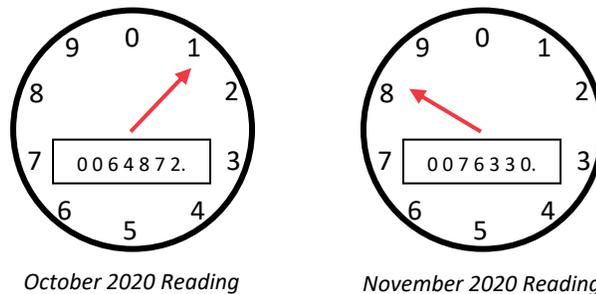
11. Maintain a record of all meters changed out as part of the Small Water Meter Replacement Program and note which meters are tested. This record should help ensure all meters scheduled for replacement that year are replaced on time and allow for the calculation of an accurate failure rate. Results of the meter replacement program should be reported to Water Utilities Department management as appropriate.

***Water Metering Comments:** Based on the information reviewed by the Internal Audit team at the time of the audit, the finding is accurate and supports the recommendation. Subsequent to completion of the audit, Water Metering provided evidence that this information was being tracked in a separate Access database which was later logged in NorthStar. The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system and the Access database to the CityWorks system. As part of this transition, all small meter replacements will be tracked in CityWorks as well as NorthStar. Staff will rely on industry replacement best practices as opposed to testing the meters that are being replaced as testing meters that are no longer going to be used for billing purposes is not cost effective and would not change the small meter replacement criteria.*

Findings & Analysis: Meter Reading Accuracy

The next step in the utility meter reading and billing process is to accurately read each meter and correctly record and communicate this information to the billing system. Meters measure utility consumption continuously, so each period the meter's reading is greater than the last. For example, Figure 5 shows the same water meter's readings from two sequential months. The October reading is 64,872.1 and the November reading is 76,330.8. This customer would then be charged for using about 11,458 gallons of water on their November bill.

Figure 6: Meter Reading Illustration



Electric Meter Reading is Effective; AMI Capabilities Could be Further Utilized

In order to be effective, a meter reading program must be able to accurately communicate meter reads in a timely and complete manner to facilitate customer billing. Throughout the City of Denton, an advanced metering infrastructure (AMI) system is used to read electric meters. An AMI system is essentially a network of wirelessly connected meters that communicates real time usage information to the utility automatically. In general, AMI systems offer the following benefits:

- Improved understanding of demands for the utility as usage is reported at shorter intervals and generally in real time, which can be used to create pricing structures that incentivize energy efficiency;
- A more efficient meter reading process as meters reads are recorded and communicated automatically instead of manually; and
- Increased customer intelligence about energy consumption as detailed usage information can be shared.

What We Found

- The City's AMI system was implemented about ten years ago and captures electric usage information for every account in fifteen-minute intervals. This information is then transmitted from each meter to the AMI system database where it is retained for 90 days. Electric Metering staff then downloads usage information from the AMI database to their Meter Data Management (MDM) system twice a day where it is permanently retained.
 - To test the effectiveness of this system, physical meter readings were taken for a judgement sample of 30 electric meters. These physical readings were then compared to the reading recorded in the MDM system. Based on this, the AMI system appears to be accurately capturing and communicating meter usage to the MDM system.

- While this usage information is effectively captured and communicated to the Electric Metering Division, this information is not automatically available to customers.
- The City has a software that allows utility customers to review their electric and water usage information; however, customers must register on their own. Since the software was implemented in 2019, 356 accounts have been set up for daily usage monitoring.
- The Electric Metering Division then uploads a monthly reading for each account to the City's billing system. This means that despite collecting usage data for each electric account every 15 minutes, the City is still billing electric customers as though meters were being physically read once a month.
 - Based on review of three sequential bills for a statistically valid sample of 335 electric accounts,⁸ usage information appears to be accurately communicated from the MDM system to the billing system for 100 percent of accounts.

Why It Matters

The City's electric AMI system appears to be effectively communicating electric meter readings to the billing system and generally allows for efficient, accurate customer billing. That being said, some benefits of the AMI system are not being fully exploited. Specifically, sharing real time electric usage information with customers could increase efficient energy use.

It should be noted that the City's current electric residential rate structure does not incentivize efficient energy usage. For that reason, not providing real time usage information to electric customers does not pose a significant risk to the City because there is currently no financial incentive for a customer to more closely monitor and adjust their electricity usage.

Still, the City should explore opportunities to provide this information, as some electric customers may choose to improve their energy efficiency without an incentivized rate. When evaluating potential options, the City should consider the cost of providing this information and the potential benefits given the current rate structure.

Recommendation:

12. Explore options for providing electric usage information collected by the AMI system to electric customers.

***Customer Service Comments:** Customers on the Pay As You Go pre-paid metering program receive this information as a standard part of their service package. Currently, post-paid customers can enroll in the post-paid monitoring program which allows them access to daily usage data from the AMI meter.*

Customer Service is actively engaged in procuring a system to include an enhanced customer portal which would, when procured and implemented, provide all users AMI meter data as a standard offering in our online account resources.

⁸ This sample size provides with 95% confidence that the true population mean is within ±5 percent of the sample estimate.

Electric Metering Comments: Electric Metering staff will provide the AMI data for the Customer Portal.

Water Meter Reading Process is Generally Effective

In order to be effective, a meter reading program must be able to accurately communicate meter reads in a timely and complete manner to facilitate customer billing. In order to read water meters, the City employed a staff of five meter readers who physically read each water meter once a month during the audit period.

What We Found

- The City's meter reading staff use handheld devices to capture water meter reads. Readings are then uploaded from these devices to the Field Collection System daily.
- Water meter reading data is then transferred from the Field Collection System to the billing system by Electric Metering Division staff.
 - Based on review of three sequential bills for a statistically valid sample of 227 water accounts,⁹ usage information appears to be accurately communicated to the billing system from the Field Collection System for 100 percent of accounts.

Why It Matters

In general, physical reads of water meters appear to be accurate. Still, many meter readings were estimated during the three-month review period due to COVID-19 restrictions. While these reads were eventually adjusted to be accurate in subsequent months, this event illustrates one of the disadvantages of traditional meter reading. Specifically, usage information is not automatically communicated to Water Utilities and it is only captured in monthly intervals. This limits the City's ability to proactively identify meter maintenance needs and create pricing structures to incentivize certain customer behaviors.

While there are several disadvantages to traditional meter reading practices in comparison to advanced metering infrastructure, they do ensure that meters are physically seen once a month, helping to identify leaks and protecting meters from becoming inaccessible.

Recommendation: None

Adjusting High & Low Usage Review Criteria May Further Reduce Inaccurate Bills

Best practices suggest that the current month's utility usage information should be compared to previous usage information to try and identify inaccuracies before billing.

What We Found

- Electric Metering staff review high and low usage reports for electric and water meter accounts that are about to be billed before usage information is transferred to the Customer Service

⁹ This sample size provides with 95% confidence that the true population mean is within ± 5 percent of the sample estimate.

Division. Identified exceptions are reread by Electric Metering staff as needed. Parameters for these reports are shown Table 2.

Table 2: Electric Metering Division Usage Exception Parameters

Usage Category	High Usage Parameter	Low Usage Parameter
Electric Residential	Greater than 180% of Like Months	Less than 80% of Like Months
Electric Commercial	Greater than 150% of Like Months	Less than 80% of Like Months
Water Residential	Greater than 150% of Like Months	Less than 80% of Like Months
Water Commercial	Greater than 150% of Like Months	Less than 80% of Like Months

- When these parameters were applied to a statistical sample of accounts, usage exceptions were identified proportionately to the City’s customer distribution. For example, currently residential customers make up about 84 percent of the City’s active electric and water accounts – about 85 percent of identified exceptions were residential electric and water accounts.
 - Parameters based on a percentage give the Electric Metering Division an equal opportunity to analyze all types of account’s monthly electric and water usage. As such, these parameters appear to be reasonably and equitably set to cover all types of customer accounts.
 - The high and low parameters for the Electric Meter usage reports are set differently for electric and water usage. Specifically, high usage parameter for water commercial accounts is 150 percent, while their electric high usage parameter is 180 percent. This leaves more electric accounts out of review compared to water.
- Customer Service staff review high and low usage reports for electric and water meter accounts before issuing their bills. Identified exceptions are compared to previous usage and any reread information to further confirm that they are accurate. Parameters for these reports are shown in Table 3 below:

Table 3: Customer Service Usage Exception Parameters

Utility	High Usage Parameter	Low Usage Parameter
Electric (Kilowatt hours)	Greater than 6,000	Less than 1
Water (Gallons)	Greater than 99,000	Less than 1

- When these parameters were applied to a statistical sample of accounts, 77 percent of the electric accounts and 100 percent of the water accounts identified belonged to Commercial and Industrial accounts.
- The high usage parameter generally leaves Residential accounts out of review and aims to cover Commercial and Industrial accounts’ utility usage because the threshold limits are so high.
- The low usage parameter only covers accounts with zero usage for any month and does not actually identify low usage exceptions.

Why It Matters

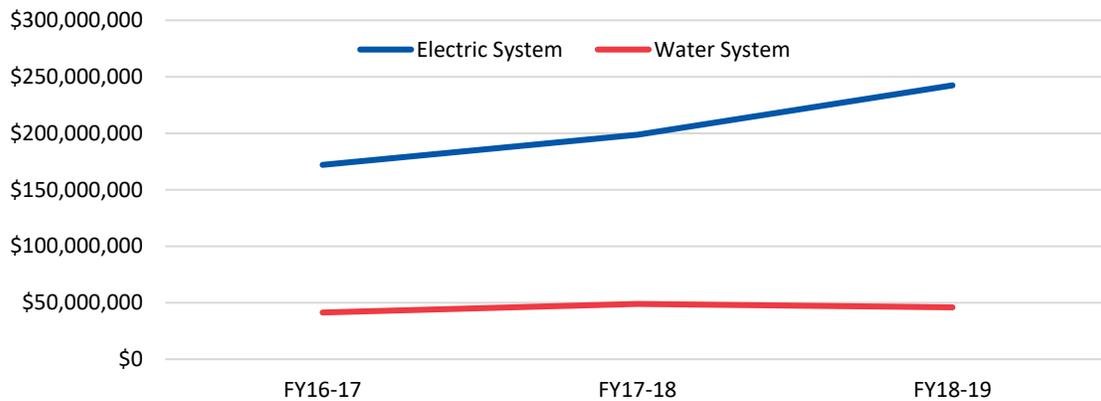
Current high and low water and electric usage reviews allow City staff to identify, investigate, and correct usage exceptions before customers are billed. This generally provides assurance that the usage used to bill customers is accurate.

Recommendation: None

Findings & Analysis: Customer Billing Accuracy

The final step in the utility meter reading and billing process is to calculate and bill customers for their utility usage. Utility bills are generally calculated by multiplying the usage for each month by the utility rate, which is set annually by the City Council via ordinance. Figure 6 shows the revenues made by the City’s Electric and Water utilities for the last three fiscal years from charges for service.

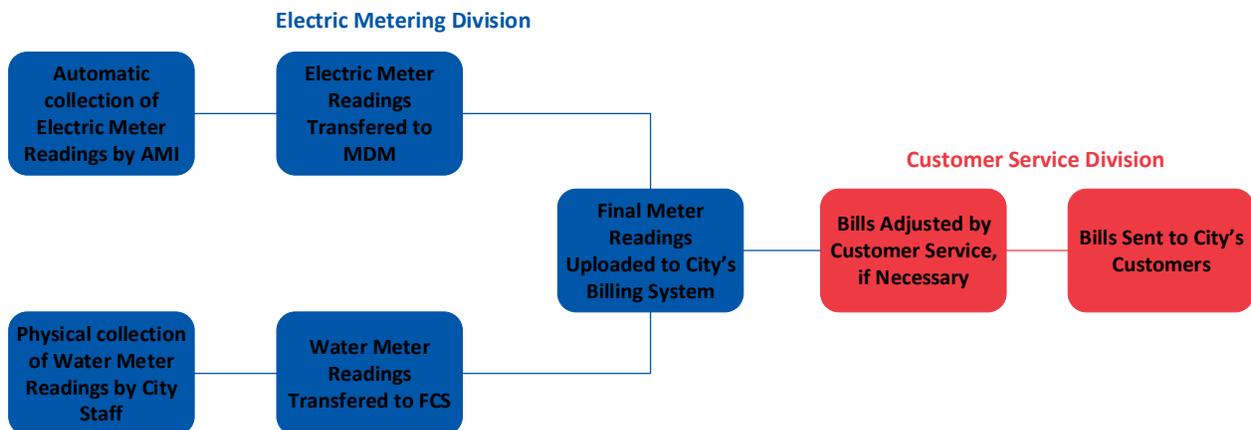
Figure 7: Utility Program Charges for Service Revenue



Effective Procedures are in Place to Accurately Calculate Electric and Water Bills

The City’s electric and water customers are billed by the Customer Service Division based on electric and water readings transferred to the billing system by the Electric Metering Division. The electric and water utility reading and billing process is outlined in Figure 7.

Figure 8: Electric and Water Utility Meter Reading and Billing Process



What We Found

- Customer Service has appropriate standard operating procedures in place to guide staff when processing bills.
- Customer bills are calculated based on an assigned utility rate. This assignment allows Customer Service to efficiently update utility rates when needed as all customers with a certain utility rate can be updated at once. In addition, each time a rate changes, Customer Service's billing staff manually calculate a bill to ensure the rate change is reflected accurately.
 - Based on recalculating a judgement sample of eleven bills,¹⁰ the billing system appears to be accurately calculating most customers' electric and water bills based on the usage and reading data.
- Based on review of a statistically valid sample of electric and water accounts, water and electric meter reads and usage data was accurately transferred to the billing system and used to calculate bills.
 - Electric accounts were billed according to the Advanced Metering Infrastructure meter reads uploaded to the billing system, and there were no adjustments made to the reviewed accounts during a three-month period.
 - Water accounts were billed according to the Field Collection System meter reads uploaded to the billing system during a three-month period. All adjustments carried out in the billing system were supported with an adjustment journal entry.
 - Adjustments were not always supported with a detailed scheduled note in the billing system though this did not impact billing data accuracy. This has been discussed in a separate section of the report covering billing adjustments.

Why It Matters

As a utility provider, the City has a fiduciary duty to its residents to accurately bill its customers for utilities used. Utility billing accuracy is also critical to provide efficient and seamless services to City customers. The City has established effective billing procedures to accurately calculate customer bills based on uploaded usage information. Accurate utility billing helps to avoid revenue loss and encourages public trust.

Recommendation: None

Standardized Adjustment Documentation Would Increase Assurance of Bill Accuracy

The City Council has approved a Billing Adjustments Policy that authorizes Customer Service staff to adjust customer utility accounts – including electric and water – to correct billing errors. These adjustments include, but are not limited to, data entry errors, utilities used but not billed, utilities not used but billed, and meter malfunctions and failures if the meter is tested and found to be

¹⁰ These eleven bills each had a different assigned utility rate; 92 percent of electric or water accounts use one of the rates that was recalculated.

inaccurate. Additionally, Customer Service staff can waive or reduce utility billing penalties and interest under certain conditions.

What We Found

- Adjustments are made by Customer Service staff based on meter rereads generally reported by the Electric Metering Division, customer calls, and exception identified from standard reports. In general, Customer Service staff reviews various exception reports, which are generated based on set parameters including: Zero Usage Reports, High-Low Usage Reports, and Computer Estimate Reports.
- Adjustments are typically recorded on the customer's account through an adjusting journal entry. Adjustments are also recorded in the Call Maintenance section of the billing system with details of the adjustment made documented in the “scheduled note” section.
- From April to June 2020, there was an exceptionally high number of water account adjustments because water meters could not be physically read due to COVID-19 restrictions. Water usage for most customers was estimated and billed based on the previous month's usage. Adjustments were then made in subsequent months to reflect actually usage as needed.
- Based on a statistically valid sample of adjustments made from April to June 2020, adjustments made to billing data were generally supported with appropriate journal entries. About 93 percent of the adjustments reviewed were related to estimates associated with COVID-19.
 - Four of seven adjustment entries in the reviewed sample did not have adequately documented explanations in the billing system. In addition, some documented explanations were difficult to understand because details are recorded inconsistently. This issue did not seem to influence the accuracy of billing data.
- According to Customer Service staff, adjustment reports are periodically reviewed by the System and Operations Administrator; however, these reviews are not documented. In addition, there was no evidence that billing adjustments are regularly reviewed or authorized reviewed by Customer Service Division supervisors.
- The City has an effective process in place for administering water leakage adjustments. A leakage adjustment is processed if the high usage reported by the customer is 50% greater than last year's usage for the same month. We reviewed the water leakage adjustments processed by the Customer Service department from July to September 2020 and found that the adjustments were appropriately documented. Of 15 applications reviewed, five water leakage adjustment applications were denied due to non-fulfillment of applicable criteria.

Why It Matters

Electric and water billing adjustments should have sufficient information to explain the difference between raw meter reads and the final billed usage. Adjustment journals adequately log the adjustments made; however, reasons for the adjustment should be detailed in the billing system to ensure all adjustments are appropriate. Additionally, adjustments should be periodically reviewed by a supervisor to provide further assurance that they are accurate and authorized.

Recommendations:

13. Establish guidance for Customer Service staff on what information must be included in the billing system to clearly explain the basis of adjustments made, including how any exceptions were identified.

Customer Service Comments: Customer Service concurs and will update verbiage in the existing standard operating procedure related to billing adjustments to clarify and formalize expectations on proper notation of adjustments.

14. Implement procedures for regular verification of billing adjustments by a supervisor or other designated staff. Documentation of these adjustment verifications should be retained.

Customer Service Comments: Customer Service concurs and will clarify and formalize the quality verification process for adjustments. This process will include a monthly report of adjustments including notes which will be reviewed, actions noted, and all information retained for audit and accountability purposes. The report will consist of a 10% sample of all adjustments with a minimum of 100 records.

Appendix A: Management Response Summary

The following summarizes the recommendations issued throughout this report. The auditors found that staff and the Divisions were receptive and willing to make improvements to controls where needed. Management has provided their response to each recommendation.

1	<p><i>Develop a formal procedure in consultation with the Electric Metering and Water Metering Divisions that clarifies staff responsibilities for creating and reviewing work orders based on type and requires staff to provide certain information in the work order system's completion notes.</i></p>	Concur	<p>Expected Completion: January 2021</p>
<p>Customer Service Comments: Customer Service concurs and will coordinate with Electric and Water metering to create an SOP clarifying work order entry responsibility as well as information required notation.</p>			<p>Responsibility: Billing Account Supervisor</p>
<p>Electric Metering Comments: Electric Metering staff will collaborate with Customer Service staff to develop a document that clarifies staff responsibilities for creating and reviewing work orders based on type and requires staff to provide certain information in the work order system's completion notes.</p>			
<p>Water Metering Comments: Work orders related to water metering received from customer service are reviewed, processed and completed (closed) by Water Metering staff. Water Metering staff currently uses Mcare software [billing system's work order module] for creating, processing, and closing completed work orders. Mcare software directly communicates and stores data in the billing software (NorthStar). Water Metering staff will work with Customer Service staff to develop a document that describes the Standard Operating Procedure (formal process) for creating, reviewing, executing and closing work orders.</p>			
2	<p><i>Identify a way to reflect the actual completion date of each work order in the billing system to facilitate timeliness reporting and tracking.</i></p>	Concur	<p>Expected Completion: Implemented</p>
<p>Customer Service Comments: Customer Service concurs and has already created a process which will identify the actual completion date and record that in a date field on the closeout notes. This field can be utilized by the metering groups to build reports which can identify actual field completion dates.</p>			<p>Responsibility: Customer Service Manager</p>
3	<p><i>Ensure work orders created in the field by Water Metering crews are input into the billing system.</i></p>	Concur	<p>Expected Completion: Implemented</p>
<p>Water Metering Comments: All work orders created by staff, in the field are reported to the Division's administrative support staff who logged this information in an Access database which was not connected to NorthStar (billing system). The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system to the CityWorks system. As part of this transition, all work orders that are created in the field are now logged into the billing system (NorthStar) as well as CityWorks [Water Department's work order system].</p>			<p>Responsibility: Supervisor – Water Metering</p>
4	<p><i>Explore ways to correct the data issues identified in the Water Metering work order processes.</i></p>	Concur	<p>Expected Completion: June 2021</p>

Water Metering Comments: We are currently working on fine tuning the data transfer and resolving data discrepancies between the billing software (NorthStar) and the utility work order system (CityWorks). Since the new system was recently implemented (October 2020), it will take a few months to resolve all known issues and implement a smooth transfer process.

Responsibility: Supervisor – Water Metering

5	<i>Reinstitute the electric Meter Test Program for self-contained meters and ensure these meters are tested appropriately.</i>	Concur	Expected Completion: Go into Effect on 1/1/21; Ongoing
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Electric Metering Comments: See Recommendation 7 Comments

Responsibility: Electric Meter Manager

6	<i>Formalize meter testing practices for instrument-rated meters to provide further assurance that meters are tested in accordance with the City's requirements.</i>	Concur	Expected Completion: Go into Effect on 1/1/21; Ongoing
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Electric Metering Comments: See Recommendation 7 Comments

Responsibility: Electric Meter Manager

7	<i>Maintain meter accuracy test criteria and test result documentation per ANSI standards.</i>	Concur	Expected Completion: Go into Effect on 1/1/21; Ongoing
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Electric Metering Comments: Electric Metering Staff will create a Standard Operating Procedure (SOP) for our Meter Test Program. In this SOP we will define plans for our residential self-contained meters as well as our commercial self-contained and instrument rated meters. This SOP will also define our test criteria for each of these meter groups and how we document and maintain our test results.

Responsibility: Electric Meter Manager

The Meter Test Program SOP will contain the following:

- Create a list of 5% of the residential self-contained meters to test for the year;
- Create a list of 5% of the commercial self-contained meters to test for the year;
- Create a list of 10% of the instrument rated meters to test for the year;
- This list will exclude the top 100 commercial services;
- Create a list of the top 100 commercial services to test over a 2-year period;
- Electric Metering staff will create a schedule for these lists to be completed throughout the year;
- Electric Metering staff will log each meter test on the lists created and by creating a Maintenance Ticket in the CIS and recording the test results in the completion notes;

- Electric Metering Staff will periodically download the test results out of the field test units and store them on the city network; and
- All of these lists, test criteria, and documentation of tests results will follow the ANSI C12.1 Section 5.0.3.4.3 guidelines for Meter Test Programs.

In addition to the Meter Test Program SOP, we will continue to monitor electric meters with AMI data and begin field site inspections of all meters with the addition of an AMI Service Inspector.

8	<i>Develop a process to ensure all large water meters are tested appropriately.</i>	Concur	Expected Completion: Implemented
<p>Water Metering Comments: All the large (compound) meters are tested and tracked in an Access database that the metering staff maintains. These meters are tested consistent with the standards and processes included in the AWWA guidelines. The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system to the CityWorks system. As part of this transition, the testing and the records for passed meters will be logged in CityWorks and will evaluate its usefulness. Staff is currently working on implementing a process of tracking the tested meters in CityWorks which will be implemented this year. Staff will develop a document that describes the Standard Operating Procedure for testing large meters that is consistent with the AWWA standards.</p>			Responsibility: Supervisor – Water Metering
9	<i>Determine an acceptable failure rate for the Small Water Meter Replacement Program</i>	Concur	Expected Completion: December 2021
<p>Water Metering Comments: The Water Department has engaged the services of a consultant to review and assess the existing small water meters and develop recommendations for implementing an AMR/AMI system similar to the one that Electric Metering is currently operating throughout the City. If this assessment proves cost effective and is approved by City Council, an implementation plan that will target the oldest meters for replacement with the new technology first. The proposed meter replacement plan developed as part of the study will determine the rate at which the remaining mechanical meters are replaced. If the AMI/AMR study is deemed not cost-effective, then staff will undertake a study to determine the right number of years for the meter replacement program.</p>			Responsibility: Interim Director or Director of Water/ Wastewater
10	<i>Ensure that AWWA standards are followed when testing water meter accuracy.</i>	Concur	Expected Completion: March 2021
<p>Water Metering Comments: Water Metering staff endeavor to follow AWWA standards. Additional measures will be implemented to verify that AWWA standards are followed and staff will develop a Standard Operating Procedure for testing meters that is consistent with the AWWA standards.</p>			Responsibility: Supervisor – Water Metering
11	<i>Maintain a record of all meters changed out as part of the Small Water Meter Replacement Program and note which meters are tested.</i>	Concur	Expected Completion: December 2021

The City of Denton Internal Audit Report
Audit of Meter Reading & Billing: Electric & Water Utilities

January 2021

Water Metering Comments: Based on the information reviewed by the Internal Audit team at the time of the audit, the finding is accurate and supports the recommendation. Subsequent to completion of the audit, Water Metering provided evidence that this information was being tracked in a separate Access database which was later logged in NorthStar. The Water Metering Division recently (October 1, 2020) transitioned from a paper-based work order system and the Access database to the CityWorks system. As part of this transition, all small meter replacements will be tracked in CityWorks as well as NorthStar. Staff will rely on industry replacement best practices as opposed to testing the meters that are being replaced as testing meters that are no longer going to be used for billing purposes is not cost effective and would not change the small meter replacement criteria.

Responsibility:
 Deputy
 Director,
 Water/
 Wastewater

12 *Explore options for providing electric usage information collected by the AMI system to electric customers.*

Concur

Expected
 Completion:
 Q4 FY20-21

Customer Service Comments: Customers on the Pay As You Go pre-paid metering program receive this information as a standard part of their service package. Currently, post-paid customers can enroll in the post-paid monitoring program which allows them access to daily usage data from the AMI meter.

Responsibility:
 System &
 Operations
 Administrator

Customer Service is actively engaged in procuring a system to include an enhanced customer portal which would, when procured and implemented, provide all users AMI meter data as a standard offering in our online account resources.

Electric Metering Comments: Electric Metering staff will provide the AMI data for the Customer Portal.

13 *Establish guidance for Customer Service staff on what information must be included in the billing system to clearly explain the basis of adjustments made, including how any exceptions were identified.*

Concur

Expected
 Completion:
 January 2021

Customer Service Comments: Customer Service concurs and will update verbiage in the existing standard operating procedure related to billing adjustments to clarify and formalize expectations on proper notation of adjustments.

Responsibility:
 Billing
 Account
 Supervisor

14 *Implement procedures for regular verification of billing adjustments by a supervisor or other designated staff.*

Concur

Expected
 Completion:
 February 2021

Customer Service Comments: Customer Service concurs and will clarify and formalize the quality verification process for adjustments. This process will include a monthly report of adjustments including notes which will be reviewed, actions noted, and all information retained for audit and accountability purposes. The report will consist of a 10% sample of all adjustments with a minimum of 100 records.

Responsibility:
 Customer
 Service
 Manager &
 Billing
 Account
 Supervisor