

Water Meter Reading Process Follow-Up Audit

February 2017

Lori Brooks, City Auditor
Susan Edwards, Assistant City Auditor
Abraham Gandarilla, Staff Auditor



February 9, 2017

Honorable Mayor and Members of the City Council:

The City Auditor's Office has completed the Water Meter Reading Process Follow-Up Audit. The audit objective was to determine the implementation status of prior audit recommendations.

Audit follow-up procedures indicate management has addressed all of the prior audit recommendations.

We would like to thank the Water Utilities Department staff for their assistance and cooperation during the audit.

Lori Brooks

Lori Brooks, CPA, CIA, CGAP, CRMA
City Auditor

c: Trey Yelverton, City Manager
Theron Bowman, Deputy City Manager
Jim Parajon, Deputy City Manager
Gilbert Perales, Deputy City Manager
Buzz Pishkur, Director of Water Utilities
Darryl Westbrook, Assistant Director, Utilities Operations

Water Meter Reading Process Follow-Up Audit

Table of Contents

	<u>Page</u>
Background.....	2
Audit Scope and Methodology	2
Status of Prior Audit Recommendations Matrix.....	3

Background

The City Auditor's Office conducted a follow-up audit of the Water Meter Reading Process Audit completed in July 2014. 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 objective. The audit objective was to determine the implementation status of prior audit recommendations.

Management concurred with all nine recommendations in the initial audit report. Audit follow-up procedures indicate management has addressed all recommendations.

Audit Scope and Methodology

The scope of the project was limited to follow up on management's implementation of previous audit recommendations. The following methodology was used in completing the audit:

- Interviewed Water Meter Utilities staff and other key personnel
- Reviewed relevant supporting documentation provided by management
- Reviewed system reports of the EnQuesta software

Status of Prior Audit Recommendations

AUDIT RECOMMENDATION	CONCUR /DO NOT CONCUR	MANAGEMENT RESPONSE	RESPONSIBLE PARTY	DUE DATE	IMPLEMENTATION STATUS
<p>1. The Director of Water Utilities should seek AMI software vendor assistance to enable data encryption features and ensure encrypted data is transmitted and received accurately.</p>	<p>Concur</p>	<p>Encryption is one of a number of security features embedded in the AMI system. Encryption is intended to serve as protection for sensitive data. In its current configuration, the AMI system does not send account detail or customer data, merely raw readings. There is no reference to location or past consumption. These are stored behind the City firewall and therefore not included in the transmissions. Encryption required additional network overhead in order to implement. The AES-256 encryption feature is intended for use in potential future applications designed to remotely operate distribution assets. Currently there is no sensitive data being transmitted and no remotely operating assets. Water Utilities will review potential benefits and impacts from fully enabling the encryption feature, including system performance and battery life.</p>	<p>Bob Lemus, Utilities Information Services Manager</p>	<p>October 2014</p>	<p>Implemented. Water Utilities agreed to review potential benefits and impacts from fully enabling the encryption feature including system performance and battery life. This was completed and it was determined that encrypting the AMI meter transmissions would not be pursued.</p>
<p>2. The Director of Water Utilities should ensure that formal policies and procedures are established to guide the operation and management of remote water meters.</p>	<p>Concur</p>	<p>Written policies and procedures are necessary. Written instruction for programming new installations have been created and will continue to be developed and improved as the work management system is adjusted to optimize data capture for the AMI registers and radios. Personnel utilizing the hardware for AMI programming have each been through multiple training sessions in classroom and in the field with the vendor’s instructions.</p>	<p>Bob Lemus, Utilities Information Services Manager</p>	<p>June 2015</p>	<p>Implemented. Water Utilities has implemented a “Best Practices” guide for water meter installation/activation.</p>

AUDIT RECOMMENDATION	CONCUR /DO NOT CONCUR	MANAGEMENT RESPONSE	RESPONSIBLE PARTY	DUE DATE	IMPLEMENTATION STATUS
3. The Director of Water Utilities should coordinate with Sensus and Metersense software vendors to ensure that the software can accurately identify water meter components that are in scrapped, inventory and non-billing status.	Concur	EnQuesta is the system used to record all of the meter activity and correctly identifies the status for each meter. Water Utilities is constantly working with the enQuesta vendor to improve processes and performance. Water Utilities will continue to seek ways to improve this process in order to maintain data uniformity across systems.	Bob Lemus, Utilities Information Services Manager	June 2015	Implemented. There are multiple checks in the process that prevent register numbers from being duplicated or wrong numbers being entered into the billing system.
4. The Director of Water Utilities should coordinate with EnQuesta software vendor to introduce application controls to their software that would prevent entry of water meter component numbers to more than one account.	Concur	EnQuesta is the system of record. It currently prevents the entry of more than one meter number per account. We are currently exploring the same functionality for register numbers and will evaluate the cost for any required modification.	Bob Lemus, Utilities Information Services Manager	January 2015	Implemented. There are controls in place to catch any duplicate records prior to billing. Additionally, Water Utilities staff tightened user access to allow read/write access only to those individuals with a specific need.
5. The Director of Water Utilities, with assistance from Sensus software vendor, should determine how accurate GIS coordinates could be obtained for each meter location and conduct testing in the field to ensure accuracy.	Concur	The four hundred sets of questionable coordinates out of 22,000 will be purged from the system. We will re-populate the four hundred as time allows. We will review and validate coordinates once per year going forward.	Bob Lemus, Utilities Information Services Manager	October 2014	Implemented. Water has purged the coordinates that were identified to be incorrect, and replaced them with the centroid parcel coordinates to give a more accurate representation of the meter location. The annual review was completed in October 2015.
6. The Director of Water Utilities should require establishment of policy and procedures associated with resolving malfunctioning meters within parameters based on business needs.	Concur	The recommendation refers to meters having appeared on the non-communication check list. There are currently fewer than 30 that are beyond 30 days. We will review and troubleshoot the non-communication list in tandem with the billing cycle each month and any malfunctioning equipment will be replaced/repared within 30 days.	John Norman, Meter Services Manager.	July 1, 2014	Implemented. Water Utilities reviews the non-communicating list on a monthly basis for each billing cycle. If the meter is not communicating at the time of billing, a Meter Services Crew is dispatched to troubleshoot the communications issue and obtain a reading manually if necessary for

AUDIT RECOMMENDATION	CONCUR /DO NOT CONCUR	MANAGEMENT RESPONSE	RESPONSIBLE PARTY	DUE DATE	IMPLEMENTATION STATUS
					billing.
7. The Director of Water Utilities should ensure malfunctioning water meters are remedied within a specific period of time and involve the equipment vendors as necessary.	Concur	We have a warranty specified in the contract and we enforce the warranty with the vendor.	John Norma, Meter Services Manager	Ongoing	Implemented. Water Utilities staff enforces the vendor warranty.
8. The Director of Water Utilities should consider computing an all-inclusive cost for in-house conversion of the remaining remote meters and compare to vendor quotes to determine if outsourcing the conversion function would result in cost savings.	Concur	The Utility is changing meters by use of contracted labor as part of planned Water and Sewer Renewal projects. These are estimated to total 3,000 meters per year. Therefore, installation of the 9,000 AMI compatible meters per year is not an added cost but is an extension of existing practices-augmented by use of contracted labor. The current installation rate is over 300 per week, more than sufficient to achieve target installation objectives. We will do an analysis and strongly consider using a third party in the future to accelerate the program if the business case is favorable.	John Norman, Meter Services Manager	October 2014	Implemented. Water Utilities obtained pricing for installation costs for outsourcing the conversion and determined that in house labor is more cost effective.
9. The Director of Water Utilities should accurately assess net benefits realized as a result of citywide remote meter installation and project future savings based on actual results.	Concur	We have assessed the benefits, and are reducing meter read labor and vehicle usage. We will continue to utilize actual results to predict future savings.	John Norman, Meter Services Manager	September 2015	Implemented. Water Utilities tracks expenditure history, and the overall meter reading expenditures have been reduced each year.