Performance Audit of the Public Utilities Department's Customer Support Division

CUSTOMER BILLING AND METER READING CONTROLS ARE EFFECTIVE, BUT CAN BE IMPROVED

NOVEMBER 2013

Audit Report

Office of the City Auditor

City of San Diego

OCA

Independent • Objective • Accurate

This Page Intentionally Left Blank

THE CITY OF SAN DIEGO

November 22, 2013

Honorable Interim Mayor, City Council, and Audit Committee Members
City of San Diego, California

Transmitted herewith is a performance audit report on the Public Utilities Department's Customer Support Division. This report was conducted in accordance with the City Auditor's Fiscal Year 2013 Audit Work Plan, and the report is presented in accordance with City Charter Section 39.2. The Results in Brief are presented on page 1. Audit Objectives, Scope, and Methodology are presented in Appendix A. Managment's responses to our audit recommendations are presented after page 26 of this report.

We would like to thank staff from the Public Utilities Department for their assistance and cooperation during this audit. All of their valuable time and efforts spent on providing us information is greatly appreciated. The audit staff members responsible for this audit report are Stephen Gomez, Sara Collier, Matthew Helm, and Kyle Elser.

Respectfully submitted,

Eduardo Luna
City Auditor

cc: Jan Goldsmith, City Attorney
Scott Chadwick, Chief Operating Officer
Stacey LoMedico, Assistant Chief Operating Officer
Andrea Tevlin, Independent Budget Analyst
Ken Whitfield, City Comptroller
Halla Razak, Public Utilities Department Director
Michael Vogl, Customer Support Division Deputy Director

This Page Intentionally Left Blank

Table of Contents

Results in Brief

The City of San Diego Public Utilities Department (PUD) provides water to 1.3 million City residents. PUD's goal is to ensure the quality, reliability, and sustainability of water, wastewater, and recycled water services for the benefit of the ratepayers and residents served.

PUD's Customer Support Division (Division) produced and sent 1.8 million water/sewer utility bills and processed 1.7 million customer payments totaling $688 million in FY 2012. A key aspect of this process is ensuring the accuracy of meter reads and customer billing. The Division utilizes an effective layered control model,[1] from meter reading through invoice issuance, to reduce the occurrences of billing issues. In the last six months of FY 2013, the Division made only 12,155 adjustments out of approximately 900,000 (or 1.35[2] percent) utility bills issued. According to the Division, billing adjustments are made for a variety of reasons such as meter misreads, customer move notifications, and adjustments from estimated usage. Most of PUD's water customers receive an accurate bill without issue.

While the water billing control environment is effective, opportunities exist to increase the efficiency of the Division's controls and operations.

Specifically, we found the following:

- The initial meter reading control should be analyzed to identify any potential increases in effectiveness and further reduce erroneous meter readings, investigations, and billing adjustments.
- The Division can increase the efficiency and effectiveness of its exception review process[3] through analysis of their exception data.
- The Division's current method for tracking and reporting investigation response time can be improved.

We made three recommendations to address the issues we identified. PUD management agreed with our recommendations.

[1] This report uses the term layered control model to describe the various, sequential control steps used to ensure the accuracy of the water consumption meter-reading and the corresponding water bill.
[2] The Division informed us that there are a percentage of these adjustments that fall outside their span of control, such as those that result from customers moving without notifying the Division.
[3] The exception review process is described in Exhibit 3 of the Background

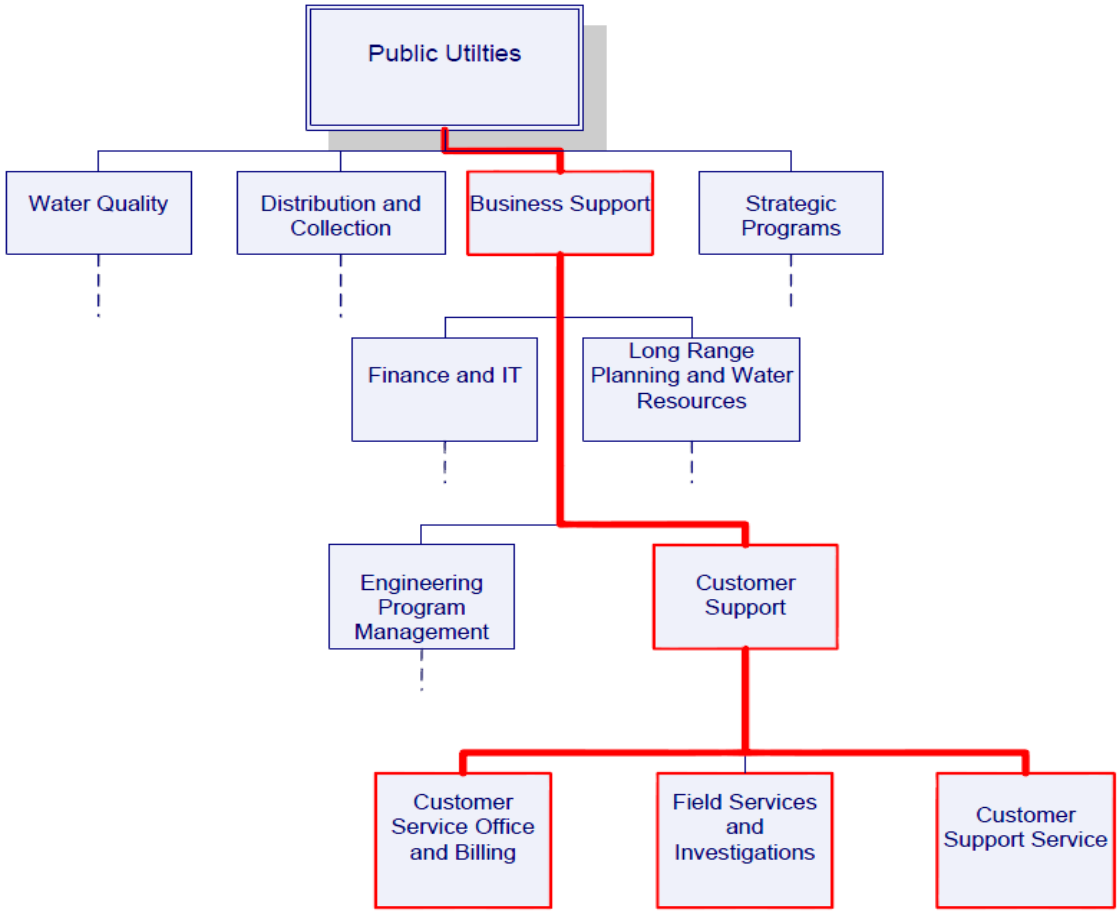
Background

The Public Utilities Department

The City of San Diego Public Utilities Department (PUD) provides water to 1.3 million City residents. PUD's goal is to ensure the quality, reliability, and sustainability of water, wastewater, and recycled water services for the benefit of the ratepayers and citizens served.

PUD is comprised of four primary branches as shown below in **Exhibit 1**. This audit focused on the Customer Support Division (Division) which is part of the Business Support Branch of PUD.

Exhibit 1: Public Utilities Department/Customer Support Division Organizational Chart



Source: OCA based on PUD information.

Customer Support Division's Responsibilities

The Division provides support and service to PUD customers. The Division provides these services through responding to customer phone calls and emails including account/billing inquiries, water conservation information, water waste complaints, and general water/sewer utility information. In addition, the Division is responsible for billing customers and processing payments, meter reading and code enforcement, ensuring customer compliance with State cross-connection protection requirements, and providing public information.

The Division responded to more than 354,000 water and sewer utility customer phone calls in FY 2012, or more than 6,800 calls a week. Customer calls included:

- Inquiries regarding customer billing and payment;
- Service turn-on/turn-off requests;
- Emergency services and repairs;
- Water conservation; and
- General utility service questions.

Over the same period, the Division also produced and sent 1.8 million water/sewer utility bills and processed 1.7 million customer payments totaling $688.0 million.

In FY 2013, the Division's budget was approximately $17 million with 129 staff positions; **Exhibit 2** details its financial operations for FY 2011– FY 2013.

Exhibit 2: **Customer Support Division Operational Information**

	FY 2011[4]	FY 2012	FY 2013
Positions	140	131	129
Budget	$ 18,934,748	$ 21,978,397	$ 17,169,001
Expenditures		$ 20,677,066	$ 16,130,796
Bills Produced and Sent		> 3 million	1.8 million
Payments Processed		1.8 million	1.7 million
Amount Collected		$649 million	$688 million

Source: OCA analysis based on PUD budget documents, and SAP financial and organizational data.

Customer Support Offices Are Responsible for the Water Billing Process

Our audit focused on the billing process which includes the Field Services and Investigations Unit and the Customer Support Office, as shown in **Exhibit 1.**

The Field Services and Investigations unit's responsibilities include conducting monthly or bi-monthly water usage readings, and initiates investigations in response to customer concerns over the meter-readings that are used to generate the customer's water bill.

The Customer Service Office/Section Administration unit is in charge of water/sewer utility billing, utility call center and customer care services, delinquent account collections, and payment/ remittance processing. Additionally, the unit provides information to customers on a wide variety of account and billing inquiries, water conservation and water waste complaints, and general water/sewer utility information.

The Billing Process Uses a Layered Control Model to Ensure Proper Billing

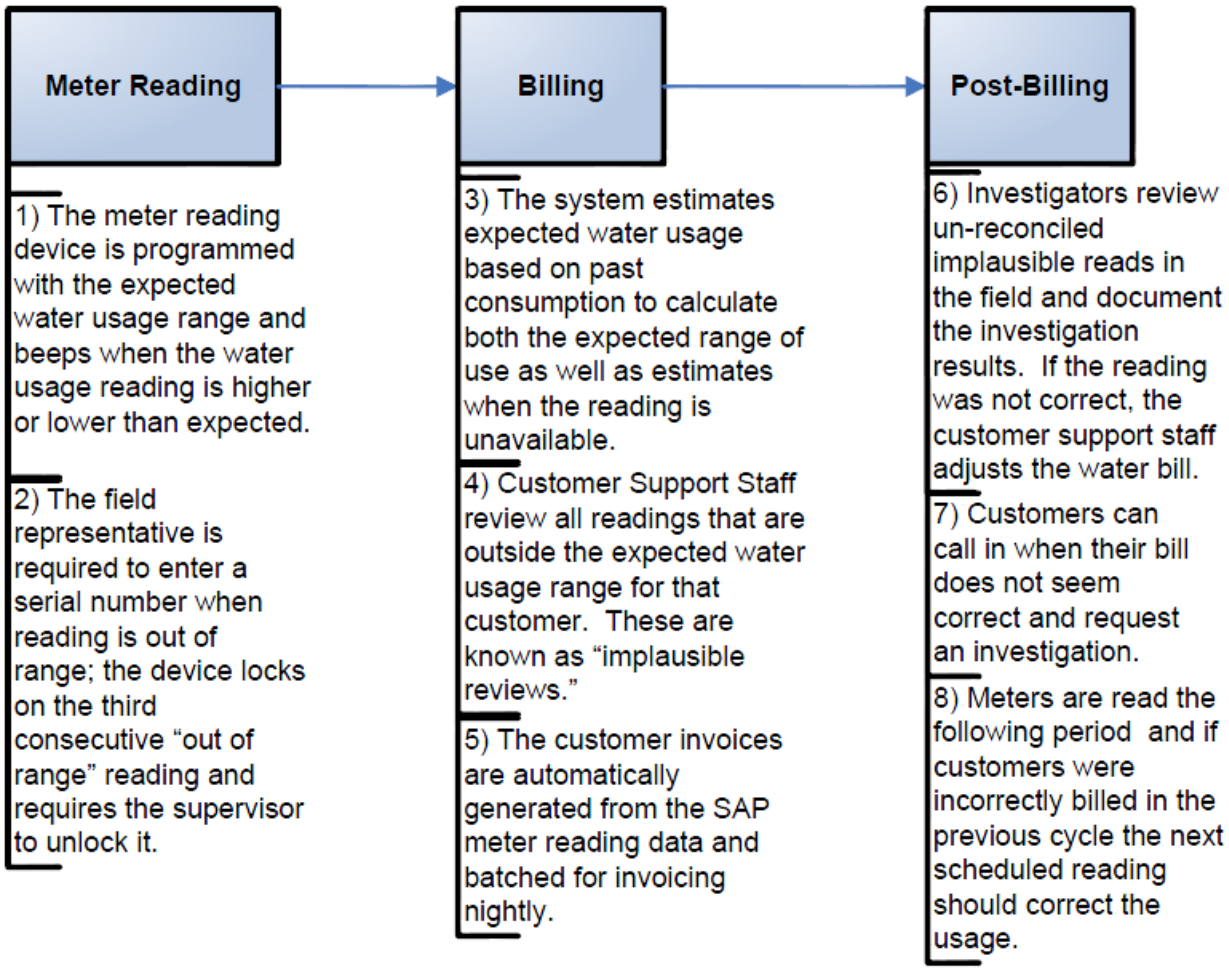
The water billing process consists of three primary stages:

1) The field representative uses a handheld device to record usage from a resident's water meter;
2) The water reading information is uploaded into SAP and goes through an exception review process resulting in the issuance of water bills; and
3) Post-bill issuance reviews are conducted to capture any remaining incorrect bills that made it through the first two stages.

[4] The FY 2011 Budget Document does not include the same metrics at the Division level as in the following fiscal years.

During each of these phases, there are several controls in place to reduce the possibility of erroneous information resulting in incorrect billings. The Division utilizes eight layers of controls over customer billing during these three different phases of the billing process. The process and related controls are detailed below in **Exhibit 3.**

Exhibit 3: PUD Billing Process Controls



Source: OCA based on PUD data.

Additional Controls

In addition to the controls described above, there is also a control in place that identifies when a resident's bill is significantly high. In the cases where the meter read results in water bills over $1,200, the bills are automatically flagged and manually reviewed.

Based on our analysis of customer water usage data, the average resident consumes 28 Hundred Cubic Feet[5] (HCF) of water per bi-monthly billing period, which results in an average bi-monthly $144 water bill at current rates.

Overview of Water Consumption Meter-Reading Controls

A portion of the Division's workload results from erroneous or questionable meter readings that go undetected during the initial control phases. Reducing these questionable readings results in less workload for the Division in the form of reviewing implausible water usage readings, reducing investigations, and impact of high water bills to customers and their corresponding call volume.

The initial control implemented to identify a potentially erroneous water consumption reading is known as the expected range control. This control works by calculating what the customer used historically and projects how much water the customer is likely to use. In our sample, we determined that the projected usage is typically within 1.5 percent of the actual water usage. However, less accurate projections can occur when a customer does not have a water usage history for the residence as there is less information to project upon.

The system compensates for this potential variance by calculating an "upper limit" and a "lower limit" of how much water the customer is expected to use. For example, if a customer is projected to use 20 HCF of water for the billing cycle, the upper limit could be set at 40 HCF of water for the upper limit and "0" HCF, or the last reading, for the lower limit. As a result, as long as the field representative enters the consumption reading and the customer uses less than 40 HCF, the handheld device will accept the reading and the customer will receive his bill for that reading.

[5] The public utilities industry uses cubic feet as the standard measurement of water usage. One Hundred Cubic Feet (HCF) of water is equivalent to 748 gallons.

The upper limit for the expected water consumption is defined based on whether a unit is a single-family household, multiple-family household, or a commercial building. In addition, the calculation takes into account the amount of water consumed in a period and the expected consumption for that household as previously described.

The table in **Exhibit 4** lists the setting guidelines for a single family household.

Exhibit 4: Upper Limit Control Settings for a Single Family Residential Unit

Minimum Usage Value (HCF units)	Maximum Usage Value (HCF units)	Upper Limit Percentage
0	0	0%
1	1	1000%
2	5	1000%
6	10	700%
11	25	600%
26	49	300%
50	100	150%
101	999	100%
1000	99,999,999,999,999,900	60%

Source: OCA based on PUD data.

Investigations Process Post Billing Controls

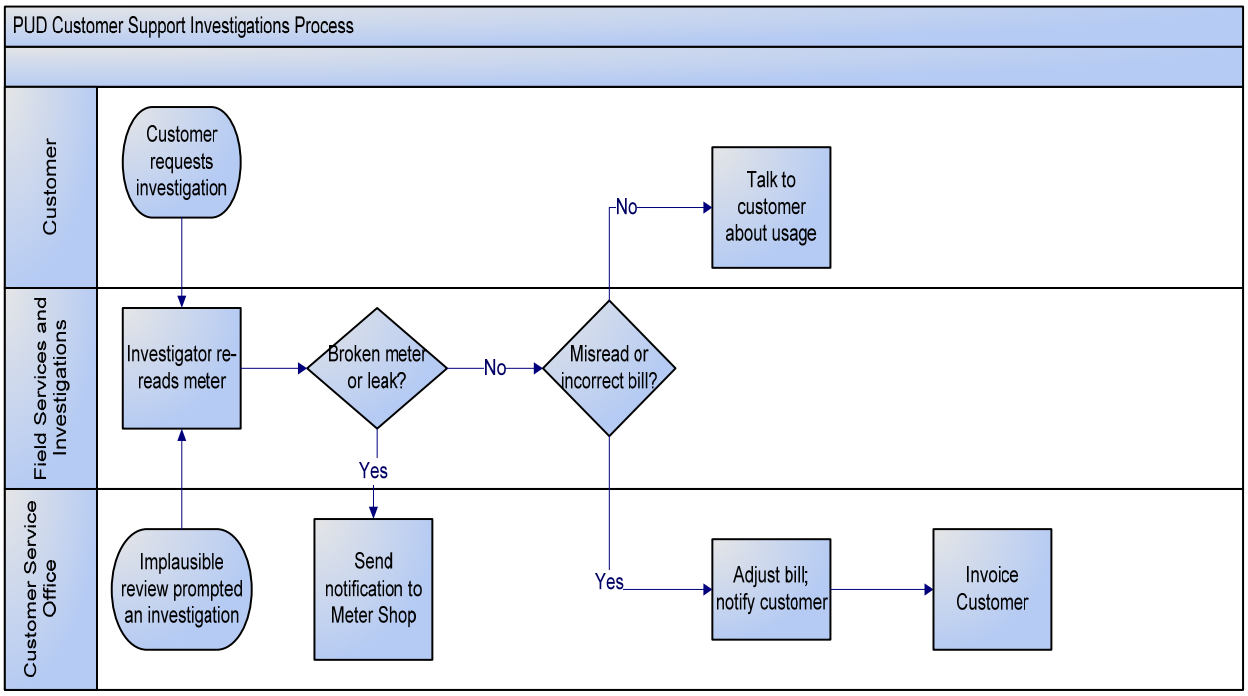
When meter readings fall outside of the expected range, the reading results in an implausible water consumption review. If the staff cannot determine the cause of the unexpected water usage, they require an investigation. Investigations can also result from a customer request or inquiry into their water bill.

The Investigations unit is a sub-group of the Field Services and Investigations section of the Customer Support Division. The Investigations unit is tasked with confirming water meter-readings and addressing customer concerns over water consumption readings in the field.

The investigations unit performs this function by sending investigative field representatives to the residences where the water consumption requires confirmation. The investigator

then checks the meter to make sure it was read correctly, and then checks to see that the meter is recording water usage correctly. If neither of these appears to be the cause of the complaint, the investigator will look for other causes of abnormal water use, such as a meter leak. He will also speak with the resident if possible and determine whether there have been any other issues such as leaking toilets that could have caused the water usage. The process is shown in **Exhibit 5**.

Exhibit 5: PUD Customer Support Investigations Process



Source: OCA based on PUD data.

Audit Results

Finding 1: The Billing Controls Are Effective, but Can Be Improved

Our analysis of the Public Utilities Department's (PUD) Customer Support Division's (Division) internal controls determined that the general water billing operations are consistent and reliable. Specifically, our review found that the Division utilizes an effective layered control model, from meter reading through invoice issuance, to reduce the occurrences of billing issues. The Division issued approximately 900,000 invoices in the last six months of FY 2013 with only 12,155 adjustments (or 1.35[6] percent) of utility bills issued. According to the Division, billing adjustments are made for a variety of reasons such as meter misreads, customer move notifications, and adjustments from estimated usage.

However, opportunities to further reduce errors and increase efficiencies exist. The Division's workload includes reading meters, reviewing up to 400 exceptions daily, conducting investigations, and reviewing the information that creates adjustments at an average of 92 per day. Our report focuses on gaining efficiencies around these activities and their associated controls. Specifically, we found:

- The initial meter reading control should be analyzed to identify any potential increases in effectiveness and further reduce erroneous meter readings, investigations, and billing adjustments; and

- The Division can increase the efficiency and effectiveness of its exception review process[7] through analysis of their exception data.

[6] The Division informed us that there are a percentage of these adjustments that fall outside their span of control, such as those that result from customers moving without notifying the Division.
[7] The exception review process is described in Exhibit 3 of the Background.

The Meter-Reading Upper Limit Control Should Be Refined to Increase Effectiveness

The initial meter-reading controls can be improved to identify incorrect meter readings at an earlier stage in the process which will result in less work for the Division and fewer incorrect billings to customers. Specifically, the upper limit control should be analyzed to determine whether its higher levels, currently up to 1,000 percent of normal usage, could be adjusted to better identify incorrectly read consumption at the meter without the need for customer complaints or investigations.

Adjusting the upper limit control stored in the handheld meter reader device (described in the Background section of this report in **Exhibit 4**) will allow the Division to identify misreads and corresponding incorrect bills at the earliest level of control – at the meter. Identifying incorrect water consumption meter readings earlier in the process results in less negative impact to customers and reduces downstream workload.

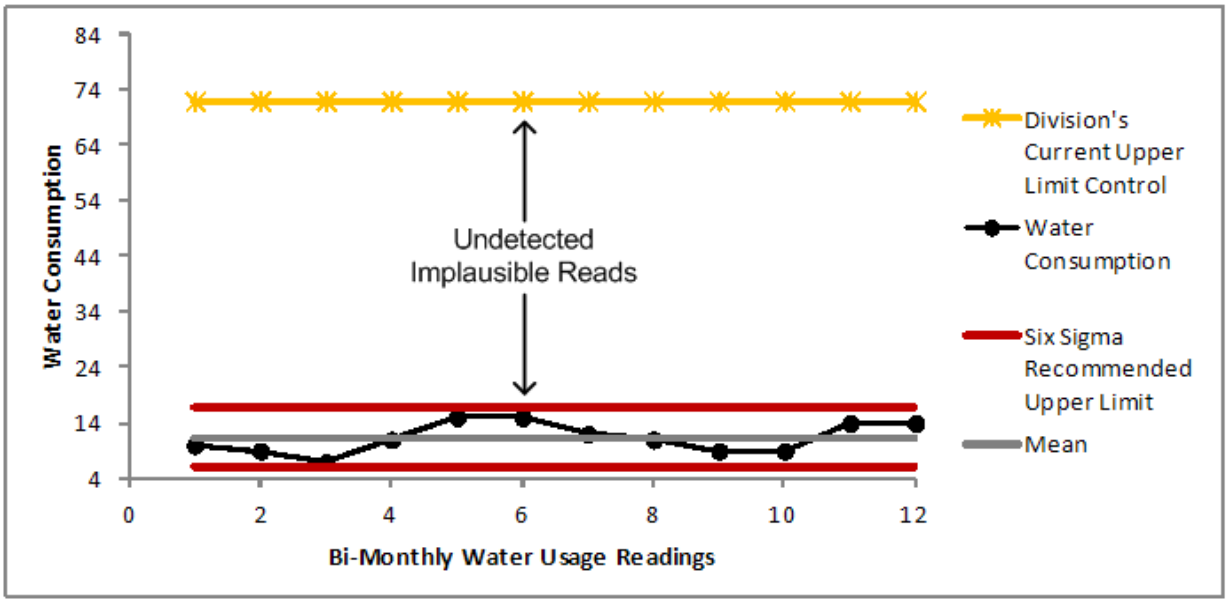
Misreads that make it through the upper limit threshold often result in higher bills to customers, extra customer service reviews, upset customer phone calls, and investigations before they can be resolved.

As shown below in **Exhibit 6**, the current system controls will allow water usage that is 299 percent above normal to make it through the initial controls and billing without a flag before it is corrected through the subsequent billing/meter-reading cycle two months later or through a customer complaint. Where the incorrect reading is not caught by a control, the customer will receive a significantly lower bill the following cycle without any adjustment recorded. Residents who use less water than an average customer are likely to have even higher thresholds; some set at 1,000 percent of their normal usage.[8] According to the PUD website, the average residential water customer consumes 14 Hundred Cubic Feet (HCF) of water a month, or 28 per bi-monthly billing period. According to the current water rates, the average water bill for this usage would be $144.

[8] The table defining the upper limit threshold is shown in **Exhibit 4** of the Background.

With the current "upper limit setting," the controls would not identify an issue with the water meter-reading until the consumption was 300 percent of the customer's normal usage or 84 HCF which equals an approximately $390 water bill.

Exhibit 6: Upper Limit Controls Applied to Average Residential Water Consumption



Note: The upper limit threshold in this example is taken from the lowest reading to simplify the graphic. In actuality, the upper limit would move corresponding to the expected water consumption for each billing period

Source: OCA analysis based on PUD's consumption and water rate data.

Undetected Readings and Billing Errors Should be Corrected by the Next Meter Reading

In the cases where the higher usage is caused by a field representative misreading the water meter, the device will not alert the field representative about the misread unless the reading exceeds the upper limit[9]. In the example provided above in **Exhibit 6**, the customer would receive the larger bill and either pay it and receive a much lower bill the next billing period when the meter is re-read. Alternatively, the customer could call in a complaint that they received a high bill, which will trigger an investigation and adjustment.

The next billing period may also trigger an investigation because the usage will be lower than expected. The customer will eventually receive the corrected billing amount; however, because the higher reading was not caught initially, it causes

[9]The upper limit thresholds are defined in **Exhibit 4** of the Background.

an excessively high billing for the customer and excess work for the Division to correct the situation.

Refining the Upper Limit Using Best Process Efficiency Practices

To reduce the workload created by undetected incorrect meter readings, the Division can leverage best practices for process efficiency to determine the appropriate level to set the upper limit.

A process improvement methodology, known as Six Sigma, has successfully been used since the 1980's to improve the reliability of a process. The principles of Six Sigma focus on monitoring process performance by setting appropriate control limits that detect when there is a discrepancy within the process. However, when these limits are not properly defined then it is difficult to determine when there are issues with the process.

According to an analytical tool used in Six Sigma practices, the upper limit should be more precisely defined by taking into account the average consumption and the variation of a customer's meter reads.

Because the Division is accurate at predicting a customer's water usage in most cases, simply setting the upper limit at a lower percentage of the estimated usage would likely improve the detection of out of range meter reads.

The Upper Limit Was Increased to its Current Levels Due to the System Implementation

During our discussions with Division management and staff, we found that the upper limit control had initially been defined at a lower threshold. However, shortly after the Division implemented a new SAP Customer Care and Services (CCS) system, the staff workloads increased to an unmanageable level according to staff. The implausible water consumption readings, created by settings such as the upper limit, created more exceptions than staff could review at the time. Staff was also learning a new IT system while the teams worked out system "bugs," which is fairly typical of large IT system implementations. In order for the staff to have a manageable workload, controls including the upper limit were increased to reduce the implausible exceptions. The Division's Deputy Director also informed us at the exit conference that the Division worked closely with the consultants after the implementation to adjust the review levels based on criteria available at the time.

Currently, the IT system is approximately two years old and more stable and most system bugs have been resolved. In addition, the staff has had more time to acclimate to the new system. At this point, the Division should perform an analysis to determine whether they should refine the upper limit setting to further reduce overbillings. We discuss increasing the effectiveness of the implausible water usage review process later in this report.

Recommendation #1

The Customer Support Division should analyze its system to determine the appropriate upper limit setting, while ensuring that it will not negatively impact the workload on its staff and will increase the effectiveness of their initial meter reading controls. Specifically, the Division should:

- **Perform an analysis to determine the most appropriate setting for the upper limit, and adjust the limit, as appropriate, within a reasonable timeframe. The analysis should take into account control effectiveness as well as the maximum number of exceptions the support staff can effectively manage. (Priority Level 3)**

The Exception Review Process Can be Improved

As discussed in the previous section, we maintain that lowering the upper limit should not significantly impact the Division's workload of implausible reading reviews. In addition, the Division can improve its implausible review process through tracking and analyzing the original causes of the implausible readings and their resolutions.

Division staff noted concern with lowering the upper limit because doing so could generate an excessive number of exception reviews. In the Division, these exceptions are known as "implausible water readings," as they fall outside of expected criteria, i.e. the upper limit control.

When implausible consumption readings are created, the Division reviews these exceptions and attempts to reconcile the implausible reading by reviewing the customer's account. Most implausible readings are corrected through this review. However, if the customer service representative cannot identify the cause of the implausible consumption exception and its resolution, they create a service notification to request an investigation. In many cases, the implausible consumption alert is caused by a situation such as a resident moving, anomalous usage, or insufficient history to accurately project their water usage.

Division staff can currently manage up to 400 implausible meter reading reviews per day. However, according to the

Division, staff are currently working at capacity and cannot manage a significantly larger load at current resource levels.

Analysis Can Improve Efficiency and Effectiveness of the Exception Review Process

While the implausible water consumption reviews appear to be a large part of the Division's workload, SAP does not provide the ability to track and analyze these reviews. However, at the end of our audit, the Deputy Director informed us that while SAP does not record the implausible water readings, the Division saves this information through extracting the implausible reads from the system into excel spreadsheets twice daily to track their workload.

Analyzing this data can allow the Division to identify the most common causes of implausible reviews and determine corresponding methods to automate and prioritize the reviews they receive in order to better manage their workload.

In order to automate resolution, the Division may need to begin tracking staff manual resolutions to determine the best automated rules to implement and increase the efficiency of the process. However, the Division can determine whether they require this information when they begin their analysis.

Overall, the implausible review process appears to be documented and routine. The Information Systems Audit and Control Association (ISACA) provides the following guidance to assess process maturity. Under the five stage maturity model, described in the Control Objectives for Information and Related Technology (COBIT), the exceptions review process of implausible reads falls under stage three of process maturity as a defined process. Analyzing Division data and actively refining their process will result in increased efficiency and further improve the maturity of the Division's overall review process.

In order to better manage the exception review process and provide measurability for process improvement, the Division should track the implausible review solutions in addition to the causes where necessary. This will allow the Division to identify methods of automating and improving the review process to decrease staff workload. In addition, implausible reviews should be prioritized based on the impact to the customer.

Recommendation #2

The Customer Support Division should analyze their review of meter reading "implausible review" exception resolutions to increase the efficiency of the reviews and focus staff workload on higher value reviews. Specifically, the Division should:

a) **Analyze the Division's implausible water usage reviews over a period of time to identify the potential for automating the most common reviews.**

b) **In cases where the Division experiences exception review backlogs, the Division should define a prioritization model based on impact to the customer. (Priority Level 3)**

Finding 2: The Investigative Process Functions Effectively, but Tracking and Reporting of Metrics Can Be Improved

Our review of the water investigation process, associated with customer billing, found that the process for investigating water consumption irregularities was largely appropriate and effective. However, we found that there are opportunities for improving the accuracy for recording and reporting performance metrics, as well as for prioritizing the investigations when backlogs occur. During the course of this audit, the Public Utilities Department's (PUD) Customer Support Division (Division) informed us that the Division is implementing these improvements.

Water consumption reading investigations ensure accurate water readings and subsequent billing when the consumption reading is disputed by a customer or when an exception occurs and cannot be resolved through reviewing the customer account.

Water billing investigations can be created in one of two ways: 1) the customer requests the investigation after receiving their water bill, or 2) the investigation can result from a system generated implausible consumption review as described in the previous section. The Division's customer support benchmark focuses on the customer requested investigations.

The Division Has Reduced the Number of Errors with the New System; however, the Response Time Metric May Be Unreliable

The Division implemented a new IT billing system, called SAP Customer Care Solutions (SAP CCS), in July 2011. According to the Division, fewer adjustments resulting from investigations have been processed than with the previous system.

The Investigations unit is largely effective at reviewing the water consumption and identifying the causes of misreads. However, the unit maintains only partial data in SAP while creating a redundant excel sheet to track the remaining information and report out key investigation statistics.

All investigations are initially created through SAP CCS; however, the completion dates and the corresponding response times of the investigations are tracked separately. SAP provides a reportable completion field in the database that the Division has not included in the process. Staff informed us that they track several levels of completion; including the completion of the actual investigation, customer notification, and the date any resulting actions or adjustments occur. However, the Division's core reporting metric could be tracked in the system with minimal effort.

The Division Can Increase the Automation and Reliability of Performance Metrics

The Division has recreated a database function using several excel spreadsheets that rely on complex formulas to be correct. While this process can be effective, the excel spreadsheets lack the data controls of a modern database, require more user interaction, and are more difficult to validate.

For example, if one formula is off near the initial calculations – such as the number of days taken to complete an investigation – it can significantly disrupt the final averages. Additionally, there are fewer controls over poor data entry and inappropriate modification by staff in the Division with access to the shared drive.

As a result, the Division cannot effectively track the response times of their investigations, which is a reportable performance metric.

The Division Should Manage Its Investigation Completion and Response Times through SAP

The Information Systems Audit and Control Association (ISACA) recommends using a database management system for critical processes due to the lack of the security around excel files. While tracking the investigation response times does not amount to a critical function, the data is used for management decisions and reported as a key metric in the Division's annual budget report. In addition, the Division tracks most of this data in their Enterprise Resource Planning (ERP) system and redundantly enters the information into an excel spreadsheet because the date completion field does not show-up in the SAP ERP Central Component (ECC) report. However, the SAP ECC report does contain other date completion related fields that could potentially serve a similar purpose.

To ensure the reliability of their performance reporting, the Division should track the reportable investigation completion date using a reportable field in SAP.

The Division Can Increase Effectiveness through Prioritizing Investigations

The Division currently treats all investigations equally and not based on their impact to the customer or the City.

The FY 2013 PUD budget defines the target completion timeframe as an average of seven days to prevent incorrect billing and minimize the impact of incorrect meter-reads on the customer. Based on Division records, there have been times of significant backlog. However, recently, the Division appears to have adequately managed the investigations in a timely manner.

Best practices in risk management recommend prioritizing (in this case, investigations) based on the impact to the organization or its customers. According to Division management, a draft prioritization schedule was initially created prior to the SAP CCS system implementation in June 2011. The schedule has been partially updated since then, but was never completed and put into effect.

In order to reduce the impact from investigation backlogs on their customers and business, the Division should complete and enact their investigation prioritization schedule based on customer and business impact.

Recommendation #3

The Customer Support Division should update their process to capture investigation performance metrics to increase the efficiency of the operations and allow prioritization of investigations. Specifically:

a) **The Investigation Process should include a step to enter the reportable completion date into SAP utilizing the appropriate SAP Service Notification field to reduce redundant workload and increase reporting potential.**

b) **The Division's investigation process should complete or modify, as appropriate, the update of their investigation prioritization schedule based on impact to the customer and business where they experience a backlog of investigations. (Priority Level 3)**

Conclusion

The Public Utilities Department (PUD) is responsible for delivering one the City's most essential services to residents. PUD's Customer Support Division (Division) is a first line, front-line interface with PUD's customers, and the Division's responsibilities in this regard are significant. From a customer service perspective, accurate meter reads, correct billing, and timely investigation and resolution of inaccuracies are critical core objectives for the Division.

Our review of the internal controls that the Division has in place shows that it has established a generally effective process for ensuring the accuracy of meter reads and customer billing—as evidenced by an adjustment rate of less than two percent measured as a percentage of total bills issued over the last six months of FY 2013. Nevertheless, as with any control environment, there are opportunities to improve the efficiency, effectiveness, monitoring, and reporting aspects of the controls. To that end our audit identifies three targeted, achievable, and cost-effective recommendations to help the Division continue to improve upon its billing operations and internal controls.

Recommendations

Recommendation #1

The Customer Support Division should analyze its system to determine the appropriate upper limit setting, while ensuring that it will not negatively impact the workload on its staff and will increase the effectiveness of their initial meter reading controls. Specifically, the Division should:

- **Perform an analysis to determine the most appropriate setting for the upper limit, and adjust the limit, as appropriate, within a reasonable timeframe. The analysis should take into account control effectiveness as well as the maximum number of exceptions the support staff can effectively manage. (Priority Level 3)**

Recommendation #2

The Customer Support Division should analyze their review of meter reading "implausible review" exception resolutions to increase the efficiency of the reviews and focus staff workload on higher value reviews. Specifically, the Division should:

a) **Analyze the Division's implausible water usage reviews over a period of time to identify the potential for automating the most common reviews.**

b) **In cases where the Division experiences exception review backlogs, the Division should define a prioritization model based on impact to the customer. (Priority Level 3)**

Recommendation #3

The Customer Support Division should update their process to capture investigation performance metrics to increase the efficiency of the operations and allow prioritization of investigations. Specifically:

a) **The Investigation Process should include a step to enter the reportable completion date into SAP utilizing the appropriate SAP Service Notification field to reduce redundant workload and increase reporting potential.**

b) **The Division's investigation process should complete or modify, as appropriate, the update of their investigation prioritization schedule based on impact to the customer and business where they experience a backlog of investigations. (Priority Level 3)**

Appendix A: Objectives, Scope, and Methodology

Objectives

In accordance with the City Auditor's Fiscal Year 2013 Audit Work Plan, we conducted an audit of the Public Utilities Customer Support Division. We chose to focus our audit work on the billing process and, more specifically, on the meter reading activity because this area encompasses the most user activity and correspondingly carries the highest risk area of the billing process.

Our review of the meter reading and billing process focused on:

- Assessing the effectiveness of the control environment of the meter reading operations to ensure accurate billing of customers, and
- Assessing the extent to which the field investigation process adequately addresses customer concerns and addresses customer billing issues in a timely manner.

The meter reading operations are administered by the Field Services and Investigations Section within the Customer Support Division (Division) of the Public Utilities Department.

Scope & Methodology

In order to test the quality of the Division's meter reading operations data we performed data reliability testing to determine the accuracy and completeness of the data. We assessed the reliability of the data by performing electronic testing of required data elements, reviewing existing information about the data and the system the produced them, and interviewing agency officials knowledgeable about the data. In addition, we traced a statistically random sample of data to the source documents.

To evaluate the effectiveness of the control environment of the meter reading operations we interviewed program management and observed operations through ride-alongs

and auditor observations. We also analyzed the available meter reading and billing data to determine how a customer's consumption statistics are calculated, including the expected consumption, the upper and lower limits, and the minimum and maximum consumption. We used this data to review the number of estimated readings per device and to summarize estimation statistics to ensure units are not regularly skipped. We performed this analysis by reviewing consumption data from a sample of water meters collected by meter reading staff. Lastly, we diagrammed the management review process and assessed it for appropriateness by comparing a sample of reviewed meter reads to the management evaluation criteria.

To assess the extent to which the field investigation process adequately addresses customer concerns in a timely manner we reviewed the investigations process, observed investigators in the field and analyzed available investigation data to identify response times and gauge the effectiveness of the investigation process.

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.

Appendix B: Definition of Audit Recommendation Priorities

DEFINITIONS OF PRIORITY 1, 2, AND 3
AUDIT RECOMMENDATIONS

The Office of the City Auditor maintains a classification scheme applicable to audit recommendations and the appropriate corrective actions as follows:

Priority Class[10]	**Description**[11]	**Implementation Action**[12]
1	Fraud or serious violations are being committed, significant fiscal or equivalent non-fiscal losses are occurring.	Immediate
2	A potential for incurring significant or equivalent fiscal and/or non-fiscal losses exist.	Six months
3	Operation or administrative process will be improved.	Six months to one year

[10] The City Auditor is responsible for assigning audit recommendation priority class numbers. A recommendation which clearly fits the description for more than one priority class shall be assigned the higher number.

[11] For an audit recommendation to be considered related to a significant fiscal loss, it will usually be necessary for an actual loss of $50,000 or more to be involved or for a potential loss (including unrealized revenue increases) of $100,000 to be involved. Equivalent non-fiscal losses would include, but not be limited to, omission or commission of acts by or on behalf of the City which would be likely to expose the City to adverse criticism in the eyes of its residents.

[12] The implementation time frame indicated for each priority class is intended as a guideline for establishing implementation target dates. While prioritizing recommendations is the responsibility of the City Auditor, determining implementation dates is the responsibility of the City Administration.

THE CITY OF SAN DIEGO

M E M O R A N D U M

DATE: November 21, 2013

TO: Eduardo Luna, City Auditor

FROM: Halla Razak, Director of Public Utilities

SUBJECT: Management Response to Public Utilities Customer Support Division Audit

---

Attached is Management's Response to the Performance Audit of the Public Utilities Department's Customer Support Division which has been reviewed and approved by the Mayor's Office. Department Management agrees with the audit recommendations and has established action plans and timeframes for completion as specified in our response.

Halla Razak

Attachment: Management Response

cc: Scott Chadwick, Chief Operating Officer
Stacey LoMedico, Assistant Chief Operating Officer

Management's Response to Report Recommendations

The City acknowledges the Office of the City Auditor Performance Audit of the Public Utilities Department's Customer Support Division (CSD). Recognition of the importance of the services delivered by the division and the effectiveness of the related processes is both notable and appreciated.

The following summarizes the recommendations contained in this report and the City's responses to these recommendations.

Recommendation 1: Perform an analysis to determine the most appropriate setting for the upper limit, and adjust the limit, as appropriate, within a reasonable timeframe. The analysis should take into account control effectiveness as well as the maximum number of exceptions the support staff can effectively manage. (Priority 3)

Management Response: Agree with recommendation.

Of the 12,155 adjustments noted on Pages 2 and 10 of the Audit Report, only 5,400 were associated with meter reading errors or otherwise within the City's purview to control (**.6%** of the 900,000 bills issued.). The remaining adjustments resulted from the following causes:

- Customer actions (e.g., failing to notify the City when moving in or out of a service location)
- The standardized method for estimating customer consumption was less effective
- The bill was canceled/corrected before being sent to the customer

CSD agrees that, while this is a very low error rate, periodically performing an in-house analysis to determine or confirm the most appropriate setting for the upper limit is a prudent practice. CSD will perform this analysis and, if the results of our study indicate the limit should be adjusted, we will promptly take action to do so. CSD will also ensure the analysis takes into account control effectiveness and maximum number of exceptions support staff can effectively manage.

Date to be completed: November 1, 2014

Recommendation 2(a): Analyze the Division's implausible water usage reviews over a period of time to identify the potential for automating the most common reviews. (Priority 3)

Management Response: Agree with recommendation.

CSD has informally assessed its implausible review process to determine if the potential exists for cost-effectively automating the most common reviews. Since last year, the CSD has been using a standardized set of business rules in its manual review process. The business rules were developed as the first step to further automate and streamline the review process. The standardized rules have been effective and the CSD will submit an SAP *Change Request* to identify and, where appropriate, implement changes to further automate the review process using these standardized rules.

Date to be completed: November 1, 2014

Recommendation 2(b): In cases where the Division experiences exception review backlogs, the Division should define a prioritization model based on impact to the customer. (Priority 3)

Management Response: Agree with recommendation.

CSD treats all customers equally and believes that the current prioritization model (FIFO – first in, first out) is effective. It should also be noted that customers are not expected to remit payment for disputed amounts until the field investigation is completed and the results communicated to the customer. While the investigation is performed, a *dunning lock* is placed on the customer's account in SAP. When necessary, the lock is extended to allow the customer reasonable time to pay amounts determined to be valid once the investigation is completed. The lock stops dunning escalation and overrides the automated consequences associated with non-payment (reminder notice, service termination, etc.).

CSD has no backlog of implausible meter read reviews; however we will formally document our prioritization model should a future backlog occur.

Date to be completed: November 1, 2014

Recommendation 3(a): The Investigation Process should include a step to enter the reportable completion date into SAP utilizing the appropriate SAP Service Notification field to reduce redundant workload and increase reporting potential. (Priority 3)

Management Response: Agree with recommendation.

CSD will submit a SAP *Change Request* to investigate and, if appropriate, implement changes to SAP using a standard SAP process or cost-effective enhancement to allow the recording of a reportable completion date into the appropriate SAP Service Notification field.

Date to be completed: November 1, 2014

Recommendation 3(b): The Division's investigation process should complete or modify, as appropriate, the update of their investigation prioritization schedule based on impact to the customer and business where they experience a backlog of investigations. (Priority 3)

Management Response: Agree with recommendation.

CSD treats all customers equally and has no backlog; however we will formally document our prioritization model should a future backlog occur.

Date to be completed: November 1, 2014