Seattle Public Utilities Wholesale Water Sales

Photo courtesy of Seattle Public Utilities

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Report Highlights

Background

Seattle Public Utilities (SPU) sells water to other municipalities and special purpose districts, that are referred to as wholesale customers or purveyors. SPU has long term contracts with twenty-two wholesale customers for the sale of water. Total revenues from wholesale customers in 2016 were approximately $52.4 million, or about 21% of SPU's total 2016 water operating revenues of $250 million. Wholesale customers purchase water for resale to their own retail water customers and to other wholesale customers. By purchasing water from SPU, wholesale customers can defer investing in additional infrastructure required to meet the demand of their customers. Wholesale water rates are set for multi-year periods and are intended to recover the cost of wholesale water supply and transmission costs.

What We Found

We found that SPU's billing of wholesale customers was generally accurate and complete. However, we identified internal controls over the wholesale billing process that were either lacking or need to be strengthened. These controls relate to billing accuracy and completeness, the accuracy of meters and related equipment, and information systems security.

Recommendations

This audit makes 19 recommendations to improve internal controls over SPU's wholesale water billing process, including (1) ensuring only authorized personnel approve billing adjustments; (2) requiring additional steps to ensure the accuracy of meter read inputs from field crews; (3) implementing controls over current cycle consumption adjustments; and (4) requiring annual meter read verifications.

SPU'S Formal Response to the Audit

SPU concurred with all the audit's recommendations. SPU's comments are included in this report after each recommendation.

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INTRODUCTION

Audit Overview

In September of 2016, Seattle Public Utilities (SPU) began using a new billing system to replace the Consolidated Customer Service System (CCSS). The new Customer Care and Billing System (CCB) stores customer and billing information and is used to generate utility bills for retail and wholesale water customers among other uses.

The use of a new billing system brings risks that can affect billing accuracy and timeliness. In this audit, we assessed the adequacy of internal controls over the new billing process shortly after CCB went live. We chose to audit the billing process for *wholesale customers*, because compared to retail water sales, there are much higher volumes of water sold to a wholesale customer and a single meter measures a much larger volume of water, resulting in a greater risk of potential revenue loss per customer.

Our objectives for this audit were to determine (1) whether billings to wholesale customers and related payments were accurate, timely, and complete and (2) whether internal controls over the wholesale billing and payment related processes are adequate. Our audit scope included the testing of wholesale billings and related payments for the period 2014-2016, which included billings generated by both the CCSS and CCB billing systems.

Our audit resulted in 19 recommendations to address concerns relating to billing accuracy and completeness. For further information on the objectives, scope, and methodology of this audit, see Section III of this report. During this audit, SPU personnel were cooperative in answering our questions, in providing requested documents, and in helping us to understand the processes involved in wholesale billing and metering. We appreciated their assistance during audit testing and for the training they provided us on the CCB, MDM, and Maximo systems that allowed us to test billing transactions and controls.

Background

Seattle Public Utilities (SPU) provides water to 188,000 retail customer accounts and twenty-two wholesale customer accounts.[1] Its Service Territory includes the City of Seattle, half of the rest of King County, and parts of Snohomish County. The utility provides water through 193 miles of transmission pipelines and 1,680 miles of distribution mains. Water resources are provided by the Tolt Watershed, which supplies

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[1] One of the wholesale customers is Cascade Water Association, which is a joint municipal utility services authority of five municipalities formed to provide water supply to its members.

30% of the total supply, and the Cedar Watershed, which supplies 70% of the total supply. The Seattle Wellfield, a system of ground wells, provides additional water if needed. Water is treated at either the Tolt Filtration Plant or the Cedar Water Treatment Plant and carried through transmission and distribution pipelines to storage facilities, pump stations, and water mains. Approximately half of all SPU water is sold to its retail customers, including City of Seattle departments, while the other half is sold to its wholesale customers.

SPU sells water to other municipalities and special purpose districts, referred to as wholesale customers. SPU has long-term contracts with twenty-two wholesale customers for the sale of water, including two customers who purchase emergency backup water and one customer who purchases untreated water. SPU and its wholesale customers established an advisory operating board, comprised of representatives pledged to represent the best interests of the region and to provide overall direction for the Seattle water supply system. Wholesale customers purchase water for the purpose of reselling water to their own retail water customers and to other wholesale customers. By purchasing water from SPU, wholesale customers can defer investing in additional infrastructure required to meet the demand of their customers. Seattle provides wholesale water at an equivalent level of service and under the same pricing principles as the water provided to Seattle's own distribution system. Wholesale rates are set for multi-year periods and are intended to recover the cost of wholesale water supply and transmission costs. Periodically, SPU performs rate studies to determine the estimated cost of providing service to wholesale customers. Wholesale rates are based on cost of service estimates, but also include a true-up component that adjusts the prior estimates to actual costs. Each year, an independent accounting firm performs an agreed-upon procedures audit to calculate the amount of the true-up. The independent audit is required in accordance with provisions in the wholesale customer contracts.

Exhibit 1 shows the retail and wholesale service territories.

Exhibit 1. SPU Wholesale Customer Service Territory
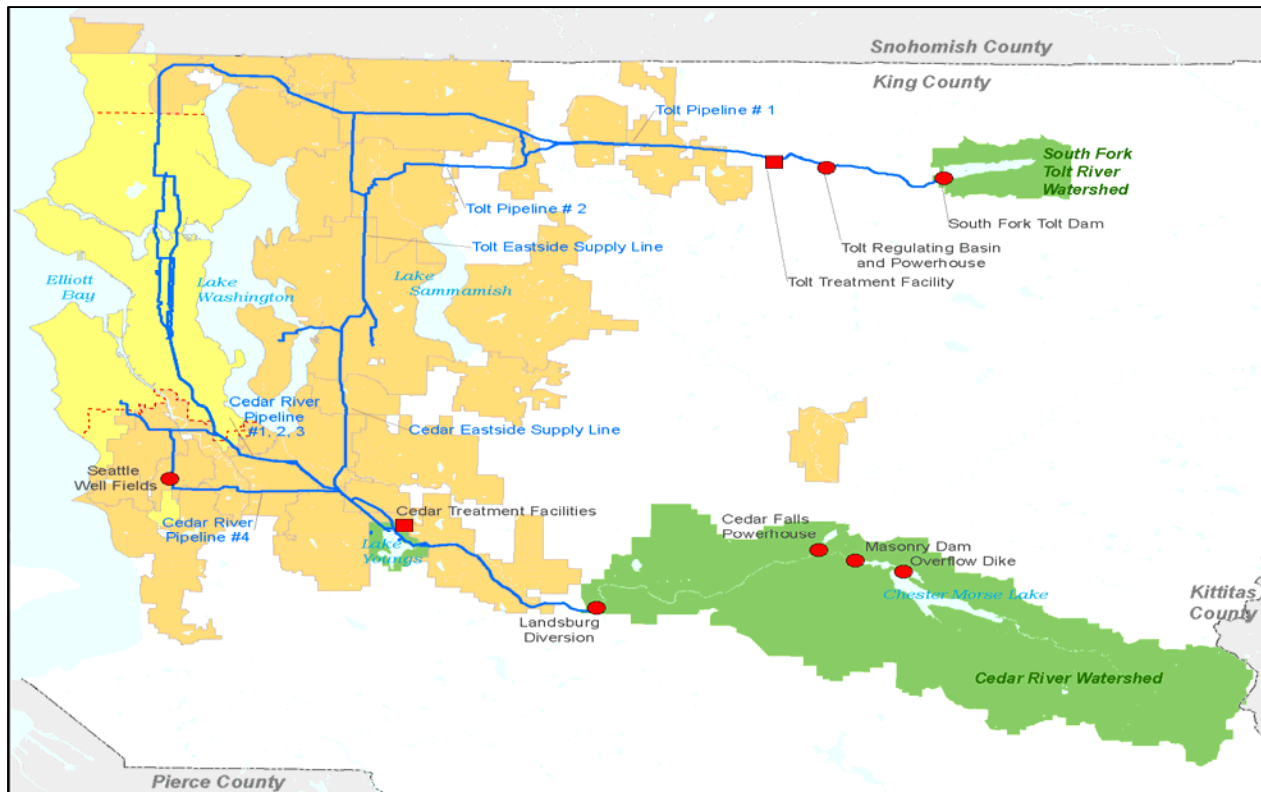
Legend: Green Area = Watersheds; Yellow Area = Seattle Customer Service Territory; Gold Area = Wholesale Service Territory; Blue lines are transmission water mains.

Source: Seattle Public Utilities

Total revenues from wholesale customers in 2016 were approximately $52.4 million, or about 21% of SPU's total 2016 water operating revenues of $250 million. Exhibit 2 below shows the sale of water in millions of gallons per day (MGD) to retail and wholesale customers between 1975 and 2015, and includes non-revenue water. There are many causes of non-revenue water. Some non-revenue water is necessary or beneficial, such as water used for water main flushing, reservoir cleaning, and water taken from hydrants for fire-fighting. Other causes, however, are undesirable and represent wasted water or lost revenues. These include leaks from pipelines and reservoirs, inadvertent reservoir overflows, theft, and slow customer meters.

Exhibit 2 shows the sales volume of wholesale and retail water over a 41-year period.

Exhibit 2. Sale of Water in Millions of Gallons per Day (1975 – 2016)
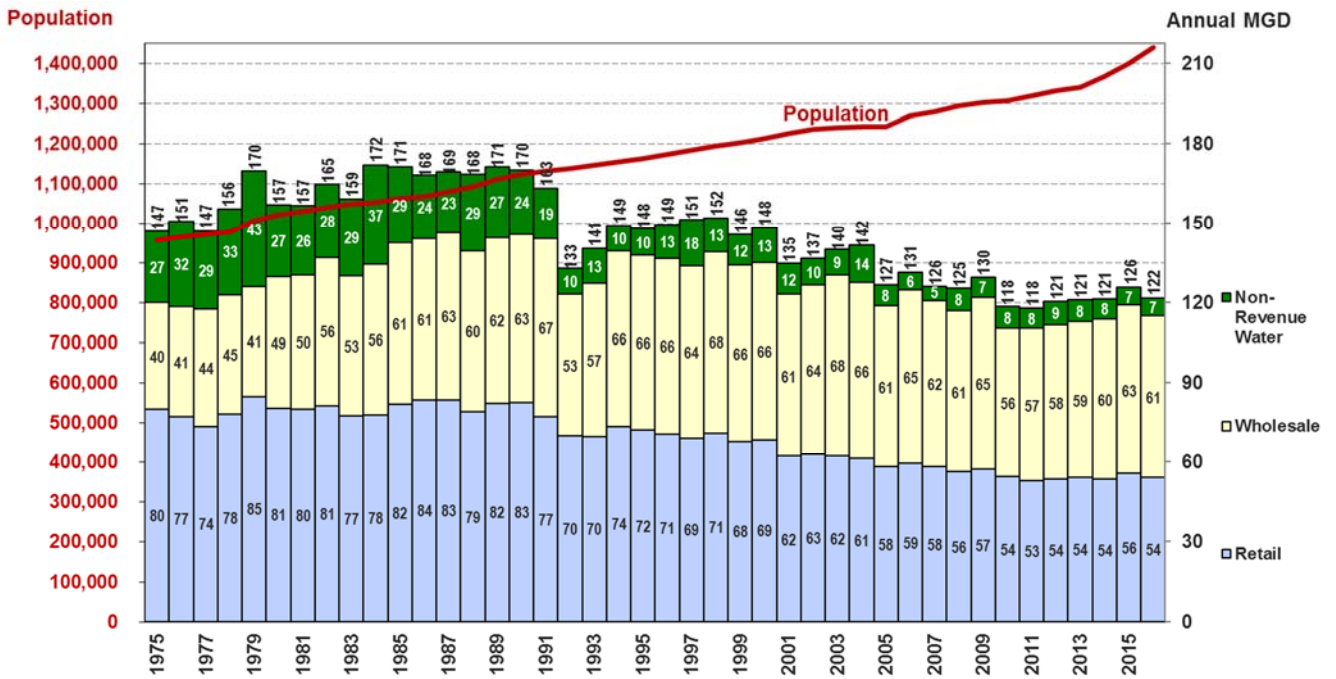
Source: Seattle Public Utilities

Exhibit 3 shows the volume of water purchased in 2016 by wholesale customers in hundred cubic feet (CCF's) for each wholesale customer.

Exhibit 3. Wholesale Customers Ranked by 2016 Annual Purchases from SPU (in CCF's)

* Source: Seattle Public Utilities
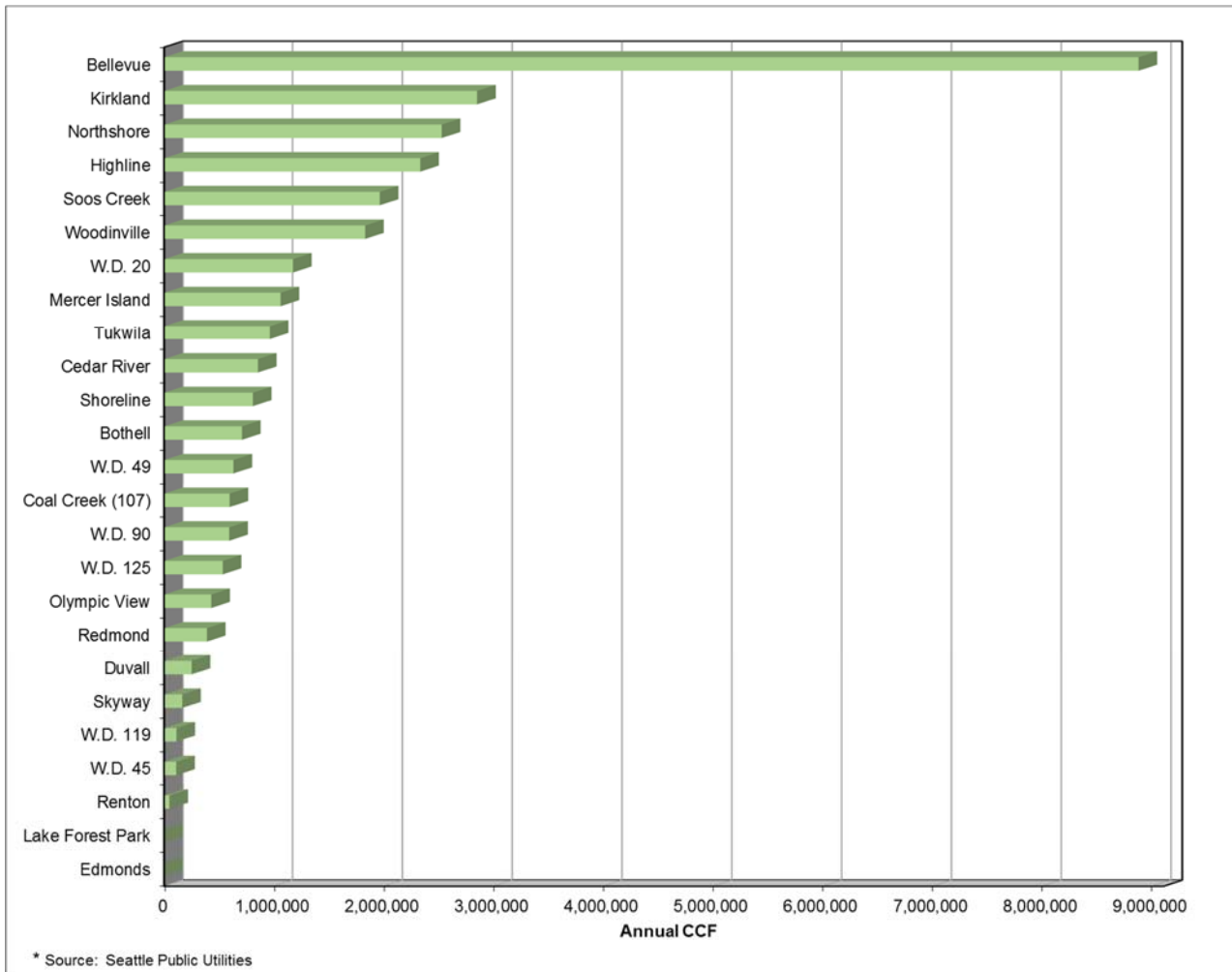
Wholesale Contract Types

Each wholesale customer has one or more meters that measure consumption of water going into their retail water system, and the aggregate volume of water entering all meters for a wholesale customer is calculated monthly. Revenues are recovered from wholesale customers as described below.

Block Contracts

A block is a fixed amount of water that is available for purchase as defined by the wholesale customer's contract with SPU. SPU's personnel within the Finance and Administration Branch calculates the annual block charges, which are based on an estimate of the cost of infrastructure necessary to provide water to block customers and are trued-up in subsequent years. Each year's billing includes a current year estimate of the costs, which is supported by annual cost studies, and includes both the true-up of a prior estimate and interest charges based on the amount of the true-up. Each month, an invoice representing a percentage of the annual charge is mailed by SPU's

Accounts Receivables unit to the customer. Meter reads are still taken from the wholesale meters in the event the customer's usage exceeds their block, in which case additional charges will be assessed for the excess consumption.

Requirements Contracts

Wholesale customers subject to a requirements contract are billed on the volume of water required to serve their retail customers. Charges are based on the actual amount of water consumed, as measured in aggregate by all meters belonging to the wholesale customer. These types of customers are referred to as requirements customers.

Facilities Charges Agreements

Facilities charges apply to requirements customers and are paid when a new retail customer within the wholesale customer's service territory either (1) connects to their system, (2) adds new meters, or (3) increases the size of their existing connection. The amount of the charge or rate, approved by the Seattle City Council, is based on the cost of SPU projects that supply additional water capacity, which may include charges for regional conservation. Customers self-report the facilities charges due each month and send the report, with payment, to the City's Department of Finance and Administrative Services.

Untreated Water Contracts

The City of North Bend pays for untreated water to supply sufficient untreated water to supplement its other existing sources of mitigated water. The supply is limited by SPU to an average annual amount of 1.1 million gallons per day.

Emergency Intertie Contracts

An emergency intertie connection temporarily provides a wholesale customer with emergency back-up water through an existing connection when the customer's water system is impaired or disrupted. An annual fee is paid to cover SPU's expenses to administer the agreement for this emergency service.

For requirements, emergency intertie, and untreated water customers, all billing is performed by a billing technician in SPU's Customer Accounts and Billing Services (CABS) group. Each month, the billing technician inputs consumption data from CCB for each customer's meter into an Excel spreadsheet. The data is analyzed by the billing technician to determine if additional investigation is needed to ensure meter read accuracy. Most wholesale customers have several meters. A billing for each meter is generated in CCB. All individual meter billings for each wholesale customer are attached to a manually prepared summary billing, which shows the aggregate charges from all meters,

and are mailed to the customer. The systems used by SPU to calculate consumption and generate the billing for wholesale water customers are as follows:

- ITRON: The ITRON system is used to input monthly cycle meter reads from each wholesale meter. Most meters have transmitters attached to meter registers that wirelessly transmit the reads to a meter reader's hand-held device. Reads from all other registers must be input manually into the hand-held device. After all meters have been read, each hand-held device is placed on a cradle and its data is uploaded to the ITRON server.

  An ITRON report, generated after all meter reads have been uploaded, alerts the meter reading analyst of any wireless meters that couldn't be read, meters that were read with zero consumption, or meters that report a consumption amount outside high and low limits established from prior usage history.

- MDM (Meter Data Management): ITRON uploads reads to MDM, which stores all meter reads used to bill consumption in the CCB system. MDM has built-in validating, editing, and estimation rules. Seven of these rules apply to wholesale water customers. Based on how the rules are defined, certain conditions trigger a "to-do" notification in CCB for review by the billing technician. All "to-do" conditions must be investigated and cleared in CCB before a billing can be generated. Conditions include zero consumption, uninstalled device check,[2] and negative consumption (beginning cycle read is larger than the ending read). Some conditions do not require action but are notification oriented, such as estimation of the read due to one or more hourly reads that are missing.[3]

- CCB (Customer Care & Billing): CCB uses the reads from MDM to calculate billing consumption, which is the difference between the ending and beginning reads for each wholesale meter, at the end of each cycle. Customer information and meter configuration is also stored in CCB. CCB is used to generate the monthly billing for each wholesale customer meter.

- Maximo: The Maximo system is used to generate work orders for installing, replacing, repairing, and testing meters and related equipment. Meter reads are entered in Maximo when installing new meters and registers to capture consumption at the time of replacement attributable to the new and existing

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[2] Uninstalled device check means a meter was removed, for example, for repair and noted as such in CCB. When the meter was re-installed, it was not noted in CCB, so the program thinks the meter is missing.

[3] Each wireless meter records reads every hour, referred to as interval reads.

equipment. Meter reads entered in Maximo will not update MDM if certain validation rules that are built into Maximo fail. In this event, the work order will appear on the Maximo exceptions report for follow-up.

INTERNAL CONTROLS – BILLING ACCURACY AND COMPLETENESS

Unauthorized Retroactive Billing Adjustments to Wholesale Customers

Concern

Most retroactive billing adjustments made in CCB that we tested during field work were not authorized in accordance with SPU policy, increasing the risk of inaccurate billing due to error or fraud.

Description

Retroactive billing adjustments are used to adjust charges that were previously billed. Generally, billing adjustments are made to adjust metered consumption, for example, to correct an error in recording a previous meter read. According to SPU's Customer Billing Services Division Director, the billing policy in effect requires authorization of retroactive billing adjustments by one of three individuals, depending on the dollar amount of the adjustment. The individuals are the Customer Service Branch Deputy Director, the Customer Billing Services Division Director, or the Customer Accounts and Billing Services Manager. To evidence management approval of the adjustment, a hard copy approval form, "Customer Billing Services Adjustment Approval Request," must be signed by the individual authorized to approve the adjustment. Certain designated individuals must also approve the adjustment online in CCB as a system rule.

We tested 27 retroactive billing adjustments for authorization and found 17 adjustments for which the approval request form was not signed by the appropriate manager in accordance with policy. For these 17 adjustments, either there was no approval form or the approval form had been signed by a manager not authorized to approve the dollar amount of the adjustment. Two of the 17 adjustments tested used a "cancel and rebill" function in CCB to generate the adjustment, which, according to the accounting technician who is responsible for purveyor billing, is not subject to management approval.

We also noted that the "Purveyor Billing Process"[4] document that outlines policies and procedures for wholesale customer billing has not been updated since the implementation of the CCB billing system. For

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[4] Wholesale customers are commonly referred to as purveyors at SPU, which is defined as a person who sells or deals in particular goods. In this case, the "goods" referred to is water.

example, the document still refers to the prior CCSS billing system and was not updated to show personnel currently authorized to approve billing adjustments. Further, the current Customer Billing Services Adjustment Approval Request form does not accurately list the individuals currently authorized to approve adjustments and the corresponding authorization level (i.e., dollar amount) for each approver.

Recommendation 1

Management should enforce the approval policy for retroactive billing adjustments, including those generated using the "cancel and rebill" function, by periodically reviewing all billing adjustments to ensure that approval request forms were signed by the appropriate individuals in accordance with policy.

SPU Response

SPU has established a routine review of all adjustments, done on a monthly basis, and will include Cancel and Rebill adjustments in this review to ensure that any adjustments that meet approval requirement thresholds were done in accordance with those requirements.

Recommendation 2

Management should review all 17 retroactive billing adjustments noted above that did not have the appropriate management authorization to ensure the propriety of the adjustments. In addition, management should determine how approval controls were circumvented and take measures to help ensure this doesn't happen in the future.

SPU Response

Management has reviewed the 17 retroactive adjustments identified during the audit as requested. During the transition between billing systems (moving from CCSS to CCB) paper approval forms were not an established procedure of approving "wholesale customer billing adjustments."

Approvals of adjustment in some cases, were completed as approvals. The billing manager reviewed and approved the purveyor billing adjustment transactions because the Billing Director was unexpectedly out of the office. There was a transition period to establish new leadership for Customer Billing while continuing to process bills and learn the new billing system.

The current business practice, established as a result of the audit, has pre-programmed authorization levels in the system for certain levels

of wholesale customer adjustments under $5,000 and requires paper authorization for adjustments over $5,000.

Recommendation 3

The SPU Division Director of Customer Billing Services should ensure the "Purveyor Billing Process" document, which outlines policies and procedures for wholesale customer billing, is updated to include the titles and approval limits of all individuals authorized to approve billing adjustments. The document should be approved and signed by the Customer Billing Services Division Director. The document should be periodically reviewed by the Director and updated as necessary.

SPU Response

SPU agrees that purveyor billing process document should be updated to reflect the use of the CCB billing system, including titles and approval limits. We anticipate completing and implementing the changes by March 2018.

Recommendation 4

The SPU Customer Billing Services Division Director should ensure the "Customer Billing Services Adjustment Approval Request" form is updated and corrected to include all individuals with the appropriate billing adjustment approval authority, including the dollar limits each individual is authorized to approve.

SPU Response

SPU agrees with this recommendation, has updated the authorization approval form, and will ensure that the authorization levels are maintained up to date.

Lack of Adequate Controls Over Current Cycle Consumption Adjustments

Concern

Management review and approval of current cycle consumption adjustments is not required by SPU policy. This creates the opportunity for inaccurate or fraudulent billing.

Description

Metered consumption is recorded each month by SPU's meter reading unit using hand-held devices. Meter read data from these devices is uploaded to the ITRON system and then to the MDM system. Meter crews who perform certain work on wholesale customer meters also enter meter reads in the Maximo work order system, which updates

MDM. The CCB billing system uses reads stored in MDM to calculate current period consumption, measured as the difference between the ending cycle read and the beginning cycle read.[5]

The billing technician enters the consumption amounts shown in CCB into an Excel spreadsheet for each meter and analyzes the results. The analysis involves comparing the current cycle consumption to consumption measured either the same month in one or more prior years or to prior months in the same year. If the *variance* between current and prior periods used in the comparison exceeds 25% for an individual meter, then an aggregate consumption variance is also calculated by taking the consumption for *all* meters belonging to a single wholesale customer in the current billing cycle and comparing the total to a prior period aggregate consumption either in the same or prior year. If the *aggregate variance* also exceeds 25%, then the accounting technician initiates follow-up action, which may include another meter read or a visit from the meter shop to inspect and possibly test or repair the meter equipment. Follow-up may also include contacting the wholesale customer to obtain the customer's own meter reads for comparison (if the customer has their own downstream meters) or to request other information from the customer that may help validate the current read.[6] Follow-up may also be initiated if there is negative consumption[7] or if consumption is zero from a meter with a recent history of consumption.

Based on the results of follow-up actions by the billing technician, the consumption may be adjusted and recorded in the spreadsheet and in MDM. The adjustment may be based on an updated read, or may be estimated or prorated based on prior usage or other information available. *There is no SPU policy requiring the independent review and management approval of current cycle adjustments. Support for the adjustments, which includes reasons for the adjustment and calculation methodology was not well documented in many cases.*

Recommendation 5

The SPU Division Director of Customer Billing Services should either (1) require management review and documented approval of current cycle consumption adjustments, subject to the same approval requirements for retroactive billing adjustments, and document this requirement in written policies and procedures; or (2) implement activities that adequately control the risk of inaccurate or fraudulent

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[5] Additional reads entered because of meter work may result in more than one beginning and ending read within a cycle (e.g., when a meter register is replaced). The consumption measured by all reads is aggregated into one billing amount.

[6] For example, a wholesale customer may decide to take water from a different tap than usual, resulting in a large variance.

[7] Negative consumption occurs when the ending cycle read is *less than* the beginning read. This can occur, for example, when a meter register is replaced and the updated reads from meter crews are keyed in the Maximo work order in error. Negative consumption is always discarded for billing purposes.

current cycle consumption adjustments and document such activities in policies and procedures.

SPU Response

SPU agrees with this recommendation and believes that the approval process established by virtue of the adjustment authorization form should address these concerns. We also believe that the previously established monthly review of all adjustments should address any concerns regarding inaccurate or fraudulent adjustment.

Recommendation 6

The SPU billing technician should document all consumption adjustments in sufficient detail, including how adjustments were calculated and the justification for making them. All such documentation should be retained in customer files.

SPU Response

SPU agrees with this recommendation. We anticipate working on implementing the changes by the end of March 2018 as part of recommendation #3.

Strengthen Controls Over Entry of Meter Read Data in the Maximo Work Order System

Concern

Internal controls should be strengthened to help ensure the accuracy of meter reads entered in the Maximo work order system, which, if not corrected, will result in inaccurate customer billing by SPU.

Description

The MDM system stores meter reads uploaded from both the ITRON system, where monthly cycle reads are recorded using hand-held devices, and from the Maximo work order system, where meter reads are recorded manually by meter shop crews after replacing meter equipment. The CCB system uses the reads stored in MDM to calculate billing consumption (end read minus beginning read).

Meter reads are entered in Maximo by meter shop crews when, for example, a new meter register is installed to replace a failed register. The reads are usually entered at the meter site using a laptop computer. When either a meter or a meter register is replaced, the end read of the old register (referred to as the "out-read") and the beginning

read of the new register (referred to as the "in-read") are recorded in Maximo. These additional reads will adjust the billed consumption.

Meter reads are recorded by crews in two different screens in Maximo; the "WO Spec" (work order specification) and the "Log." Reads entered in the "Log" screen are for notation purposes only, while reads entered in the "WO Spec" screen automatically update MDM when the work order is later placed in a completed status.

We requested documentation from the meter shop crew chief regarding policies, procedures, and controls that help ensure the accuracy and completeness of meter reads entered using Maximo; however, the meter crew chief said he could not locate this documentation. The accuracy of meter reads is controlled by the requirement for meter crews to compare the results of their entries in both the "WO Spec" and "Log" screens of the Maximo work order while at the work site. Later, after the work is completed, the crew chief reviews the Maximo work order to ensure that the reads entered in both screens for all meter registers are the same before updating the work order to a completed status. Once the work order is set to a completed status, the reads from the work order update CCB through a systems interface.

The Senior Planner in the Water Planning Division also reviews Maximo work orders when meter reads are entered by meter shop crews to determine if reads are entered accurately and completely. The Senior Planner developed a system of additional review steps to help her determine whether to accept the reads as entered in the work order, or whether additional follow-up is necessary to determine if any corrections to the reads are needed. Those reviews include:

- Ensuring both in and out reads for all registers for each meter are recorded in both the "WO Spec" and the "Log" screens and they match. If all meter registers are not recorded, the reads will not update MDM. If all recorded reads between the two screens don't match, one or both of the numbers recorded are inaccurate.

- Ensuring the ending reads for each existing meter register recorded in Maximo are greater than the prior reads already shown on the Maximo "WO Spec" screen. MDM should also be checked to determine the most recent recorded reads, and the ending reads recorded in the Maximo work order should be greater than any ending reads already recorded in MDM. Otherwise the meter reads recorded in Maximo will not automatically update MDM.

- Ensuring the number of dials that are recorded in the "WO Spec" screen for each register does not exceed the number of dials

configured for the meter in CCB. Otherwise, the meter reads recorded in Maximo will not automatically update MDM.

According to the Senior Planner, her review and completion of Maximo work orders is a temporary responsibility to determine if meter reads are entered accurately and completely and to observe whether there are any interface problems that may exist between MDM and Maximo that would prevent the automatic update of meter reads. Her responsibility for reviewing and completing Maximo work orders will at some point in the near future be turned over to the meter crew chief.

We tested 15 work orders for which meter read entry in Maximo was required. We used the same review steps as described above by the Senior Planner to determine whether reads recorded in Maximo were accurate and complete. We concluded from our test results that meter crews could increase their detection of inaccurate and incomplete meter read entries in Maximo in a timely manner while in the field to help ensure the successful update of reads in MDM if they perform additional review steps now used by the Senior Planner or if they perform other review steps that accomplish the same objective. By detecting and correcting read inaccuracies while still in the field, the need for investigation requiring deployment of additional resources during the billing cycle is avoided. This allows for more timely and accurate reads and avoids the need to estimate or prorate the meter reads and the resulting consumption.

Recommendation 7

When installing new meters and registers, SPU meter crews entering meter reads in Maximo should perform additional review steps while in the field to ensure accurate and complete meter reads, such as the review steps now performed by the Senior Planner. Such reviews should also be performed by the meter crew chief when that position is assigned the responsibility for reviewing and closing the work orders.

SPU Response

See #8 below

Recommendation 8

SPU should document policies and procedures for the entry of meter reads in Maximo work orders that include the reviews discussed in Recommendation 7.

SPU Response

Response to both 7 and 8: SPU agrees with the recommendations and will develop a procedure metering work management processes. We

Strengthen Controls Over Billing of Wholesale Block Customers

Concern

There is no independent review or management approval of annual block billing calculations before billing SPU's wholesale customers. Annual billing for 2016 was about $27 million. The lack of additional review and approval increases the risk of annual block billing errors.

Description

There are two wholesale customers that take a fixed amount of water each year as defined by their wholesale contracts and are billed using block charges. An additional wholesale customer is billed a block charge for conservation services. SPU calculates the annual block charge for each customer based on an estimate of the cost of infrastructure necessary to provide water to block customers. The estimate is trued-up in subsequent years to reflect the actual costs. Each year's billing includes a current year estimate of the costs, supported by cost studies, and a true-up, including interest charges, of a prior estimate. The source of data used for billing estimates, true-up amounts, and interest charges is derived from various documents including rate studies, spreadsheet calculations for interest charges, and possible water curtailment adjustments.

In October of each year, personnel in SPU's Finance and Administrative Branch calculate the annual billing for each block customer for the following year. The annual billing calculations are sent to SPU's Accounts Receivables unit that prepares and mails a monthly invoice to each customer, calculated as a percentage of the annual block charge in accordance with the block contracts. Before billing, *there is no independent review of the Finance and Administrative Branch's annual billing calculations. Further, SPU management is not required to approve* the calculations. While our testing of annual block billing calculations identified no billing errors, given the high dollar amount of the annual billing and the complexity of the block charge calculations, additional review and management approval would reduce the risk of billing errors and the potential for fraudulent adjustments.

Recommendation 9

The annual block charge calculation for each block customer should be independently reviewed and approved by SPU management before calculations are forwarded to SPU Accounts Receivable for billing.

SPU Response

SPU agrees with the recommendation. The Rates group will develop a process for management to independently review the annual billing calculation for each block customer. We anticipate completing and implementing the changes by no earlier than June 30, 2018.

SPU would like to point out that there are several instances when the billing is reviewed after it is generated. This minimizes the risk even though it does delay the review. First, the block wholesale customers each get a copy of next year's annual billing showing the breakdown into the estimate into next year's costs, the prior year's true-up amount, and interest. They also receive the source documents for the estimate of costs (the rate study) and the true-up report from Moss Adams. A second check occurs during the annual true up when Moss Adams identifies the prior year's block revenues by customer and breaks down the revenue into the portion related to the cost estimate and the prior year true up and interest.

Strengthen Controls Over the Accuracy of Facilities Charge Billing

Concern

Facilities charges due to SPU from wholesale customers for 2016 were about $979,000. The charges are self-reported and customers are not required to provide supporting documentation to SPU when remitting payment. Moreover, SPU does not perform audits of wholesale customer facilities charges.

Description

Facilities charges are paid to SPU by wholesale customers when a new retail customer connects to their system, an existing retail customer adds meters within their system, or when a retail customer increases the size of their existing connection in their system. The facilities charge rate, approved by the Seattle City Council, is based on the cost of SPU projects that supply additional water capacity, which may include regional conservation. The amount of each connection charge is based on the size of the connection. Each wholesale customer completes an SPU Excel based form with the rates built into the formulas. After the quantity of each connection size is entered in the form, both the line item charge for each size as well as the grand total of all charges is automatically calculated. The customer then prints the form and submits it with payment to the City's Department of Finance and Administrative Services.

We tested the facilities charge calculations reported over twelve months by three wholesale customers. We also visited the offices of one wholesale customer, the City of Mercer Island, and reviewed their detailed support for twelve monthly calculations. We tested their calculations of facilities charges and found that the charges were reported accurately to SPU. While the calculations are straightforward, we note that SPU does not require any documentation from wholesale customers to support the number and size of new, added, and increased connection sizes. In addition, SPU does not perform audits of facilities charges, a right accorded to it by contract, to review the detailed support behind the charges, increasing the risk of misreporting.

Recommendation 10

SPU should require wholesale customers to submit some form of documentation as support for their reporting of facilities charges. For example, reports showing permits issued for new and increased connection sizes could be included with the payments, if facilities charges are based on these criteria.

SPU Response

SPU agrees with the recommendation and will work with the Operating Board to develop options for documentation to address the audit concern. We anticipate beginning work on these changes by June 2018.

Recommendation 11

SPU management should periodically conduct audits of selected wholesale customers to review documentation in support of facilities charges reported to SPU. During these audits, SPU should also review wholesale customers' controls that are used to help ensure the accuracy and completeness of facilities charge reporting and make any appropriate recommendations to improve controls.

SPU Response

SPU agrees with the recommendation and will work with the operating board to address the audit concern. We anticipate beginning to work on these changes by June 2018.

INTERNAL CONTROLS – ACCURACY OF METERS AND RELATED EQUIPMENT

Lack of Annual Meter Read Verification to Ensure Equipment Reliability

Concern

SPU's annual verification of wholesale meters was discontinued in 2015, increasing the risk of inaccurate meter reads due to undetected equipment failure. The lack of annual verification may also result in the need for additional resources to investigate faulty reads.

Description

SPU's meter read verification process, discontinued in 2015, required meter reading personnel to visit each active wholesale customer meter to determine (1) if the truncation[8] on reads using wireless transmitters was applied correctly for each meter, (2) if wireless transmitters were working properly, and (3) if meter registers were working properly. Meter verification is a proactive process that helps ensure all metering equipment is working properly and is intended to reduce billing errors and excessive time investigating faulty reads. During the verification process for meters with wireless transmitters, the wireless read shown on the hand-held meter reading device is compared to the read on the meter register. The read on the hand-held device (manual read) should reflect the same read on the meter register after appropriate truncation is applied. For meters with non-wireless transmitters, verification occurs by comparing the read from the meter register to the number of dials configured for input on the hand-held device to ensure the number of dials entered in the hand-held device during a meter read records the read in CCF's. The number of dials to include in the read is based on the register type.[9] On all meters, the registers are inspected to ensure they are in good condition and free from water leaks. Meter crews also look for other conditions that could adversely affect meter reads, such as meter vaults filled with water or frayed wires connected to wireless transmitters. Defective equipment is subsequently replaced and water is removed from meter vaults when necessary.

A consultant recommended in 2015 that SPU conduct annual verifications.[10] During field work on this audit, we performed a meter

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[8] Truncation refers to the number of meter dials that must be excluded from a billing read to report consumption in hundred cubic feet, or CCF. Additional information regarding truncation is described as part of Recommendation 14 below.

[9] The number of dials that should be entered in the hand-held device is shown by the number of asterisks displayed on the device. For example, if four asterisks are displayed, then the meter reader should enter only four dials from the meter register, starting on the left.

[10] Seattle Public Utilities and Woodinville Water District Metering Program Evaluation, Draft Report dated September 4, 2015.

verification test on twelve wholesale customer meters assigned to four wholesale customers. One of the meters had a faulty wireless device and another did not have the correct wireless transmitter number recorded for the meter. If not corrected, both conditions will continue to result in the failure to transmit an accurate meter read.

Recommendation 12   SPU management should require, through written policy, annual meter read verifications of wholesale meters. The verifications should be documented and retained on file.

SPU Response   SPU agrees that a procedure to verify wholesale meter reads annually would be beneficial and that documentation of the reads should be retained on file. We anticipate implementing the procedure in 2018.

Lack of Adequate Controls Over Meter Configuration

Concern   Controls are lacking to help ensure that meter configuration attributes, which are stored in both the Maximo and CCB billing systems, are synchronized between the two systems. Without synchronization, billing errors or the need to prorate or estimate the consumption for billing may result.

Description   When new meters are purchased, or when existing meter equipment is replaced (e.g., due to equipment failure), the new meter configuration attributes are entered in Maximo. From Maximo, the same attributes are automatically updated in the CCB billing system through a system interface. Meter configuration attributes include the truncation factor, wireless transmitter number, the meter ID number (also known as a badge number), the meter size, number of meter register dials, and the unit of measure to report consumption. Meter configuration attributes must be synchronized between the two systems to allow the system interface between Maximo and CCB to function properly.

We noted two circumstances that could cause configuration attributes that are not synchronized. First, changes could be made to CCB to correct an error in one or more configuration attributes while not also updating Maximo for the same changes. Second, configuration changes could be made in Maximo because of meter crew work (e.g., such as replacement of meter registers) that result in truncation factor changes, but CCB is not also updated due to an exception condition that must be

remedied before successfully updating CCB.[11] *We note there are no controls to help ensure the configuration attributes between the two systems are synchronized, increasing the risk of inaccurate billing reads or creating the need to prorate or estimate reads.*

To determine if meter configuration attributes were not synchronized, we requested that SPU Finance and Administration personnel run a query comparing three meter configuration attributes between CCB and Maximo for all wholesale meters: the truncation factor for meter registers, the number of meter register dials, and the wireless transmitter numbers. The query results showed that 30 out of 203 meter registers had differences in the number of register dials recorded between the two systems. Of the meters that are connected to wireless transmitters, seven had differences in transmitter numbers and an additional five meters had differences in truncation factors. *If the truncation factor or number of dials in CCB is not accurate, billed consumption will not be reported in CCF's, resulting in inaccurate billing. Inaccurate transmitter numbers will result in read failures during monthly cycle reads*, requiring follow-up by the meter reader to access the register inside a sonic box[12] or in a vault to visually read the register. In some cases, requiring a visual read creates the need for additional crew members if the vault is in a right-of-way, causing a delay in the read and the billing and possibly requiring an estimated or prorated read.

Recommendation 13

SPU's Meter Systems Analyst should review a report before each meter read cycle that compares Maximo and CCB meter configuration attributes and promptly investigate and correct any differences. The Meter Systems Analyst should attempt to determine, on a case-by-case basis, how the discrepancy occurred and take actions to help prevent its reoccurrence.

SPU Response

SPU agrees with this recommendation and will develop a process to conduct this review beginning in March 2018.

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[11] If certain conditions exist, such as when the number of meter registers is not completely recorded in a Maximo work order, then changes in meter configuration as a result of a Maximo work order will not update CCB, causing the meter configuration between Maximo and CCB to be out of synch. Failed updates from Maximo to CCB are reported on a Maximo exceptions report.

[12] Sonic boxes are above ground locked metal boxes with the meter register and the wireless transmitter located inside. They are connected to an underground meter by an electric cord.

Lack of Controls Over Meter Truncation

Concern

Wholesale water meters that transmit their reads wirelessly require the entry of a truncation factor in the CCB billing system to ensure the meter read is recorded in the appropriate unit of measure, or hundred cubic feet (CCF). Meters that must be read manually require entry of the correct number of dials in the CCB system to ensure the read is also recorded in a CCF unit of measure. There are currently no controls to ensure that either accurate truncation factors or the accurate number of dials are entered in CCB when new meters or registers are installed for a wholesale customer, creating the risk of inaccurate billing.

Description

SPU uses meter registers to measure wholesale customer water usage. The register has numbers (dials) that turn as water passes through the meter, similar to the numbers on an automobile odometer that turn as miles are driven. The numbers displayed on the dials at any point in time are referred to as a "read." Consumption for each meter is measured as the difference between the current and prior read, which is about 30 days apart when measuring consumption for billing wholesale customers.

Water usage for all SPU customers is billed in units measured in hundred cubic feet (CCF), with one CCF equal to 748 gallons of water. However, some meter registers purchased by SPU are not manufactured to display in a unit of measure equal to CCF's. When this is the case, some of the dials on the register must be excluded to ensure an accurate read in a CCF unit of measure. The adjustment to remove some of the dials from the read is referred to as truncation and should be done when a new meter or register is installed at the wholesale customer's site.

Non-Wireless Meters: For those meters that do not transmit reads wirelessly, the meter register must be visually read by the meter reader. There are 26 meter registers for wholesale water where a visual read is required each meter reading cycle. When taking a visual read, the meter reader refers to information on his or her hand-held device that indicates how many register dials to record to ensure consumption is displayed in CCF's. The number of dials shown on the hand-held device comes from data entered in CCB by the Meter Systems Analyst when the meter register was initially configured. For some registers, this means that some of the dials must be excluded in order to record the read in CCF's. Determining the number of dials to include in the read requires an understanding of the unit of measure each register was manufactured to display when using all dials. Once this is determined,

the number of dials to include in a meter read can be calculated and entered in CCB. If the incorrect number of dials is input in CCB, the read will be recorded in units of measure other than CCF's and billing will not be accurate.

Wireless Meters: The read is transmitted to the meter reader's hand-held device wirelessly from a transmitter. Manual entry on the hand-held device is not necessary. There are 177 wholesale meter registers that are read wirelessly each cycle. For these meters, the correct truncation factor entered in CCB ensures that transmitted reads, once uploaded, are stored in the correct CCF unit of measure. Truncation factors are determined by the Meter Systems Analyst and recorded in CCB after the installation of the meter. As with non-wireless meters, determining the number of dials (i.e., the truncation factor) to include requires an understanding of the unit of measure each register was manufactured to display in using all dials. An additional step for wireless meters requires the Meter Systems Analyst to read the register with a hand-held device after it is installed and water is flowing through the meter to determine how the read is wirelessly broadcasted, referred to as a raw read.

With this information, the number of dials that must be excluded from the read can be determined and an appropriate truncation factor can now be entered in CCB. We noted during field work there are no independent calculations of truncation factors or number of dials before entry of the same in CCB. If an error is made in determining the truncation factor or number of dials, consumption will be reported in units of measure other than CCF's, resulting in inaccurate billing. The inaccuracy will continue until the error is detected by other means (e.g., consumption analysis). This situation occurred in 2015, when SPU had to refund over $300,000 to a wholesale customer who had been overbilled as a result of an incorrect truncation factor.

Recommendation 14 **SPU should ensure that a second person takes the appropriate steps to calculate the truncation factor and number of dials for entry in CCB for each newly installed meter or register. The results should be compared to the initial calculation to ensure its accuracy. Evidence of both calculations should be documented.**

SPU Response **SPU agrees with this recommendation and will develop a process that provides for two individuals to review and confirm accurate setup for newly installed meters. Documentation of this review will be retained in the billing system. We anticipate beginning these changes in March 2018.**

Strengthen Controls Over Wholesale Meter Testing

Concern

There is currently no reporting mechanism that allows SPU management to monitor the progress of wholesale meter testing. Meters that are not tested are at a higher risk of reporting inaccurate or failed reads.

Description

The purpose of meter testing is to determine if meters and related equipment are functioning properly by running water through a test meter and comparing the volume measured with water running through the meter being tested. The test can be done either at the site of the wholesale meter or at SPU's meter shop. Meter and related equipment failures include (1) battery failure or internal electronics failure of wireless transmitters; (2) meter register failure (e.g., from excessive moisture); (3) malfunction of internal meter parts (disks throttle valves, turbines, strainers, check valves, and switch gear) due to wear or, in some cases, water accumulating in the vaults.

An annual wholesale meter test plan is developed by an SPU subject matter expert on wholesale meters and is forwarded to SPU's Meter Coordination Committee for approval. Most wholesale meters are tested once annually, while others are tested twice. Considerations for meter testing frequency include the size and age of the meter as well as the volume of water passing through the meter each cycle. The approved plan is forwarded to a Senior Planner, who then creates preventative maintenance work orders in the Maximo work order system. Once the work orders are created in Maximo, the meter shop crew chief sets a scheduled test date for each meter. Though the Senior Planner is responsible for ensuring all necessary work orders are created, *there is no periodic monitoring of actual meter testing to ensure all wholesale meters are tested as planned.* We compared planned versus actual meter testing for 2017 and found that, as of August 2017, there were three meter tests that missed their scheduled due date and an additional 33 meter tests for which a scheduled test date had not yet been determined.

In addition, the 2017 test plan forwarded to the Senior Planner reflected a deviation from the test plan approved by the Meter Coordination Committee. There were 21 meters that were scheduled to be tested by SPU meter crews in the approved plan; however, the test plan forwarded to the Senior Planner showed the same meters being

tested by a third party. The committee minutes stated these meters would no longer be tested by a third party.[13]

Recommendation 15

SPU's Meter Coordination Committee should maintain primary responsibility for ensuring all wholesale customer meters are tested as planned and should periodically track the testing progress. A report that tracks planned versus actual testing should be developed for this purpose.

SPU Response

SPU agrees with this recommendation. Since this work is already being done and a template for the tracking report has already been developed, we anticipate this item will be complete by the end of 2017.

Recommendation 16

The approved wholesale meter test plan, including any subsequent modifications, should be incorporated into SPU's Meter Coordination Committee minutes as evidence of the Committee's approval. Before creating Maximo work orders for scheduling the meter tests, the Senior Planner should compare the test plan approved by the Committee to the plan submitted for processing preventative maintenance work orders to ensure they are in agreement.

SPU Response

SPU agrees with this recommendation. The work developed in the previous item can easily be appended to the meeting notes from each meeting. We anticipate this item will be complete by the end of 2017.

Lack of Adequate Security of Wholesale Customer Meter Equipment

Concern

Most SPU meter vaults that house wholesale meters are not secured, increasing the risk of damage to the equipment through unauthorized access. In addition, not all meter bypass valves are secured, increasing the risk of unmetered water use.

Description

Most of SPU's wholesale water meters and related equipment such as meter registers, bypass valves, and wireless transmitters are located

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[13] These particular meters had been tested in the past by a third party because they lacked the required test ports to enable them to be tested by SPU. According to the meeting minutes, however, SPU was planning to install the test ports in 2017,

under paved streets. Metal vault covers are used to enclose underground vaults; however, most covers do not have locks, increasing the risk of unauthorized access to the vaults. Unauthorized access could result in vandalism to meters and related equipment causing inaccurate or failed reads, meter register tampering to roll back the reads, and unauthorized use of meter bypass piping to avoid metered water use.[14] *We noted during visits to selected meter sites that four out of twelve meters we observed either lacked bypass valve chains with locks to secure the valves or had chains with the locks removed, indicating possible unauthorized use of the bypass piping.* In addition, we were informed by SPU that most meter vaults that house wholesale meters are not secured.

Recommendation 17

SPU should install locking devices on all wholesale meter vault covers already configured to use padlocks or similar devices so that vaults are only accessible to authorized SPU personnel. SPU should determine if it is cost effective to either replace vault lids that are not configured to use locking devices or secure them using other means. Vault covers should be inspected during monthly cycle meter reads to ensure they are properly secured.

SPU Response

SPU has no record of a wholesale meter vault ever being tampered with by a wholesale customer or vandals. SPU agrees to install locks on all vault covers configured to use padlocks and will do so by the end of March 2018. SPU contends however, that it isn't cost effective to updating remaining vault covers to accommodate locks.

Recommendation 18

SPU should install locking devices on all wholesale meter bypass valves to prevent the unauthorized, unmetered use of water. SPU personnel should check the condition of the locks at least once annually, for example, during annual meter verification testing.

SPU Response

SPU agrees with this recommendation. The Meter Shop has begun to place by-pass locks on purveyor meter bypass valves during their annual testing. We anticipate this item will be complete by the end of 2018.

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[14] Meter bypass pipes are installed on many wholesale meters to allow an unmetered flow of water to bypass the meter. Bypass pipes allow an uninterrupted water supply when taking a meter off line for testing or when removing a meter for replacement. A valve that controls the flow of water through a bypass valve must be locked to prevent unauthorized use of the bypass piping.

INTERNAL CONTROLS – SYSTEMS SECURITY

Lack of User Access Reviews - Maximo Work Order System

Concern

A. Periodic user access reviews of the Maximo work order system are not performed by SPU management as required by City of Seattle policies. The lack of user access reviews creates the opportunity for unauthorized users making fraudulent adjustments to billing reads entered through Maximo.

B. User access reviews of CCB and MDM are conducted by the Customer Billing Services Division Director, as required by SPU policy. However, there is no documentary evidence of his review.

Description

The Maximo work order system is used to enter billing reads when SPU meter shop crews perform certain work on wholesale meters and related equipment. For example, when a meter register is replaced, out-reads are entered for the registers removed and in-reads are entered for newly installed registers. The reads automatically update the MDM system, which stores meter reads after the work order is updated to a completed status. A *periodic user access review of the Maximo work order system is not performed by SPU management*. SPU management informed us that an automated review of user access if performed each night; however, this review, as described by SPU management, will not detect users whose access rights change after initially being approved for access to Maximo or detect users with unauthorized access. Seattle information systems security policy GUI12B requires a process for a regular management review of existing users of all computing systems hosted on City networks to ensure their access is appropriate.

SPU policy CS106.2 requires a user access review of SPU's billing system by management on a semi-annual basis. Division directors and managers review the list of CCB and MDM users and make necessary changes as required to ensure all users have the appropriate level of access. The approved list is forwarded to the NCIS team to make any necessary changes to user access in the MDM and CCB systems, adding, removing, or changing user access. We obtained the approved user access list for MDM and CCB during field work; however, there was

no documentary evidence that the list was approved by the SPU Division Director.

Recommendation 19

A. SPU management should enforce the City policy to perform regular management user access reviews of the Maximo system and monitor compliance with this requirement.

B. SPU management should ensure there is documentary evidence of management's approval of user access to CCB and MDM, such as an email transmission from the Division Director with the approved user lists attached.

SPU Response

A. SPU agrees with this recommendation and will adopt a policy and procedure for access control that includes routine review of access requests similar to the CCB system.

B. SPU agrees that division directors should provide the documentary support for approval of user access and will begin doing this now.

OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

Our audit objectives for the SPU wholesale water sales audit were to:

1. Determine whether billings to wholesale customers and related payments were accurate, timely, and complete;

2. Determine whether internal controls over the billing and payment related processes are adequate.

Scope

For SPU wholesale customers, we reviewed processes and internal controls and performed testing that included the following:

- Billing and payment collection processes and related controls for the new CCB billing system and the legacy CCSS system for consumption related billing;

- Billing process for block billing, when a fixed charge is computed each year based on the cost of service;

- Process for billing adjustments in both CCB and CCSS;

- Meter testing process for wholesale meters;

- Billing process for facilities charges;

- Meter read recording process in the Maximo work order system when meters and related equipment are replaced;

- Meter verification process to ensure wireless reads are accurate.

Methodology

We conducted a risk assessment to identify the key risks and the controls that address those risks, and we invited selected SPU personnel to participate in the risk assessment process. During audit fieldwork, we interviewed key SPU personnel including those involved with wholesale contracts, wholesale billing, meter reading, the meter shop, rates, Maximo and CCB development, planning, economic services and receipts of payments.[15] We reviewed documents relevant to wholesale billing activities including wholesale customer contracts, wholesale billing policies and procedures, wholesale customer water board meeting minutes, and wholesale customer annual surveys. We toured the SCADA[16] center, which monitors various sites in the water

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[15] Receipts of payments are handled by the City of Seattle's Department of Finance and Administrative Services.

[16] SCADA stands for supervisory control and data acquisition. SCADA systems are used by SPU for continuous monitoring of a complex network of piping, storage facilities, pump stations, valves, etc. Personnel using a SCADA system can also exercise operational control of field devices from a central site. As the complexity of the water system increases, so does the need for a more powerful SCADA system.

system (e.g., the operational control of pumps and valves), and the Cedar Water Treatment facility at Lake Youngs. We obtained the necessary training from SPU in the use of CCB, MDM, and Maximo software systems to enable us to test transactions in those systems. We documented process flows for the billing of block and requirements customers, billing of facilities charges, meter reading, rates determination, meter and related equipment replacement (including meter read entry), and the billing of adjustments.

We performed various testing activities with the following objectives:

- Determine whether billings generated from both CCB and CCSS related to full and partial requirements customers were accurate, complete, and timely. We judgmentally selected 25 CCSS billings from January 2014 through August 2016 and 30 CCB-related billings from September 2016 forward. The completeness and accuracy of the data population was assessed by comparing billing data downloaded from CCB and CCSS to independent reports of revenue and meter consumption analysis as prepared by the SPU wholesale billing accounting technician.

- Determine whether billing adjustments generated in both CCB and CCSS related to requirements customers were authorized in accordance with SPU policy. We judgmentally selected 11 CCSS billing adjustments between January 2014 and August 2016 and 27 CCB billing adjustments from August 2016 forward.

In our testing of billings and billing adjustments, we selected samples for which the financial impact of errors would be the greatest (high dollar transactions) or for which there was a high risk of billing error, such as large changes in water consumption between comparable periods. Since we used judgmentally selected samples for these tests, our results cannot be projected to the entire population of billings and adjustments.

- Determine whether block billings as calculated by personnel in SPU's Finance and Administration Branch, including interest and true-up calculations, were accurate and complete. For 2015, our tests also included water curtailment calculations resulting from drought conditions. We selected all nine block billings that were generated between 2014 through 2016.

- Determine whether facilities charge billings, which are self-reported by wholesale customers, were accurate and complete. We tested self-reported billings for the year 2015 for one wholesale customer and self-reported billings for the year 2016 for two other wholesale customers. We reviewed the rates used in the billing calculations and recalculated all reported totals. We visited the offices of one of the tested customers, the City of Mercer Island, to discuss their

controls in their reporting of facilities charges and to review additional supporting documentation for their 2016 self-reported billings. When testing facilities charges, we judgmentally selected samples with relatively large decreases in reporting the number of connections between current and prior years.

- Determine whether meter reads entered in Maximo work orders were accurate and complete. We tested the review process used as a control by an SPU Sr. Planner to ensure the accuracy and completeness of meter reads. We judgmentally selected 15 work orders completed in 2017 when the new CCB billing system was used, because the risk of error was higher due to potential problems identified in the automatic update of meter reads between Maximo and CCB.

- Determine whether user access reviews were conducted in 2017 in accordance with SPU policies for CCB, MDM, and Maximo. We reviewed supporting documentation and determined whether there was direct evidence of management's verification of the reviews.

- Determine whether, as of July 2017, three key meter configuration attributes were synchronized between the Maximo work order system and the CCB billing system for all wholesale meters. Synchronization helps ensure the automated updates of meter reads between the two systems are accurate and complete. We tested the following attributes: truncation factor, number of meter register dials, and wireless transmitter numbers. These are attributes associated with meter equipment most likely to be replaced and therefore are at higher risk of error when they are updated in Maximo and CCB. All wholesale customer meters were included in this test.

- Determine whether meter reads were accurate when compared to visual reads taken directly from the meter register. For this test, we used a convenience sample of 12 meters. Meters were chosen in an area familiar to the Meter Systems Analyst who assisted us in performing this test.

Note that in cases when judgmental or convenience sampling was used, test results cannot be projected to the entire population.

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 A

Seattle Office of City Auditor Mission, Background, and Quality Assurance

Our Mission:

To help the City of Seattle achieve honest, efficient management and full accountability throughout City government. We serve the public interest by providing the City Council, Mayor and City department heads with accurate information, unbiased analysis, and objective recommendations on how best to use public resources in support of the well-being of Seattle residents.

Background:

Seattle voters established our office by a 1991 amendment to the City Charter. The office is an independent department within the legislative branch of City government. The City Auditor reports to the City Council, and has a four-year term to ensure her/his independence in deciding what work the office should perform and reporting the results of this work. The Office of City Auditor conducts performance audits and non-audit projects covering City of Seattle programs, departments, grants, and contracts. The City Auditor's goal is to ensure that the City of Seattle is run as effectively, efficiently, and equitably as possible in compliance with applicable laws and regulations.

How We Ensure Quality:

The office's work is performed in accordance with the Government Auditing Standards issued by the Comptroller General of the United States. These standards provide guidelines for audit planning, fieldwork, quality control systems, staff training, and reporting of results. In addition, the standards require that external auditors periodically review our office's policies, procedures, and activities to ensure that we adhere to these professional standards.

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