WATER LEAK BILLING ADJUSTMENT POLICY: CITY OF AUSTIN & GENERAL GUIDELINES

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Disclaimer:
The views and opinions expressed in this paper are solely those of the author and may not represent those held by the City of Austin Water Utility.
Water Leak Billing Adjustment Policy: City of Austin & General Guidelines By Rick Selin

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Many organizations provide water and wastewater services to customers across the nation and world-wide. One of the greatest detriments to the success and viability of a water and wastewater service provider is water leaks within the system. All utilities should have an established, multi-faceted program to combat the negative affects associated with water system leaks. Part of the City of Austin Water Utility’s water leak management program is a utility billing adjustment policy that lightens the financial burden of utility customers for water leaks that increase their water and wastewater utility bills. It allows the utility to recoup some of the operating costs associated with the services provided while still assessing a “penalty” to the customer for wasted water. Current policies are too liberal and generous in their criteria and are being exploited by customers beyond their original intent. A revision of the policy is being considered to strengthen the financial position of the utility and to further promote water conservation efforts by customers. To evaluate the utility’s current policy, the historical and current positions of the city on water leak adjustments will be examined along with other utility policies from across the country to determine whether or not policies dealing with water leak adjustments require modifications and their impact to the utility and consumer.

Research revealed that the American Water Works Association (AWWA) offers little to no direction in regards to creating policy to address billing adjustments for customer water leaks. With a lack of industry standards addressing water leak billing adjustments, the policies of 112 utilities of various sizes and locations were researched. The City of Austin Water Utility will serve as a case study on the financial impacts of water leak adjustment policies. In addition to creating specific recommendations tailored to the City of Austin Water Utility, a set of general guidelines and considerations will be created that should provide a solid reference for the creation or revision of other utilities’ policies.
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Water Leak Billing Adjustment Policy: City of Austin & General Guidelines

Introduction

Utilities provide water and wastewater services to customers across the nation and world-wide. Responsibilities of utilities are to distribute safe drinking water to the customer and transport wastewater from the customer for treatment. Customers are billed on a multiple rate scale for these services. Running a water and wastewater utility is a complex business. It includes treating raw water for consumption, supplying water for consumption, collecting wastewater for disposal, treating wastewater for disposal, and maintaining the systems involved. One of the greatest challenges to the success and viability of an organization that provides water and wastewater services to customers is water leaks within the system. Water leaks can have a significant impact on: (a) water supplies, (b) the financial positioning of a utility, (c) the quality of service provided to the customer, and (d) the fees charged to customers. There are two main types of water leaks, unmetered water leaks that occur within the supply system (typically caused by broken pipes) and metered water leaks that occur within a customer’s property (typically caused by broken pipes or faulty plumbing components). Unmetered water leaks pose the following challenges: unaccounted water results in lost revenue and lost/wasted water hinders water conservation. Metered water leaks are a lesser concern because of the utility’s ability to assess charges on the amount of water, but pose the following challenges: lost/wasted water hinders water conservation and in many cases metered water leaks increase wastewater flows that require treatment by entering the wastewater system.
All water and wastewater utilities should have an established, multi-faceted program to combat the negative affects associated with water system leaks focusing on both unmetered and metered leaks. Currently the City of Austin, Texas has in place a utility billing adjustment policy that lightens the financial burden of utility customers for water leaks that affect their utility bills. The policy allows the City of Austin Water Utility to recoup a portion of the operating costs associated with water leaks while still assessing a “penalty” to the customer who has experienced a water leak on his or her property. One concern is that the current policy is too liberal in its criteria and too generous in the amount of money refunded to customers. An additional concern is that the policy is potentially being abused and exploited beyond its original intent to the customers’ benefit. The City of Austin Water Utility should consider a revision or redrafting of the water leak adjustment policy to strengthen the financial position of the utility and to further promote water conservation efforts by customers.

In this paper, the researcher will: (1) evaluate the history of the City of Austin Water Utility on water leak adjustments, (2) evaluate the City of Austin Water Utility’s current water leak adjustment policy, (3) examine the policies of other selected utilities from across the country, (4) determine the need for an adjustment to the City of Austin Water Utility’s leak adjustment policy, and (5) analyze the effects that potential policy modifications would generate. The utility may benefit from implementing a number of common practices utilized by utilities and municipalities across the nation to improve the strength and control of the current City of Austin Water Utility water leak adjustment policy. In addition to creating specific recommendations tailored to the City of Austin Water Utility, this research seeks to establish a set of general guidelines and
considerations that will provide a solid reference for utilities seeking to revise their existing water leak adjustment policies or those seeking to create an initial iteration of a formal water leak adjustment policy.

Key Concepts

Several key concepts need to be explored before delving into the issue of water leak adjustment policies. Those concepts include (a) water conservation, (b) water leaks, (c) water billing, and (d) water leak adjustments. The following sections examine each of those concepts.

Water Conservation

The first key concept is water conservation. Water conservation can be defined as:

- “Any beneficial reduction in water loss, use, or waste”;
- “A reduction in water use accomplished by implementation of water conservation or water efficiency measure”; or
- “Improved water management practices that reduce or enhance the beneficial use of water” (Water conservation, n.d.).

With less than one percent of the Earth’s water sources available for human consumption and populations and water consumption continually increasing (SAHRA, 2001), dwindling water supplies and water conservation have become critical issues. According to a 2003 U.S. Department of Interior report titled Water 2025: Preventing Crises and Conflicts in the West (as cited in SAHRA, 2001), “today, in some areas of the West, existing water supplies are, or will be, inadequate to meet the water demands of people, cities, farms, and the environment even under normal water supply conditions.” Utilities’ are especially concerned with water conservation because cheap and readily available
water supplies are shrinking and the development of new supplies is becoming more costly (Manchester, Iowa, n.d.). Without water conservation, expenses related to accessing and transporting water from new sources, treating water to meet increasing demand, treating increasing wastewater flows for disposal, and maintenance on growing distribution and collection systems and facilities will increase. Water conservation is a crucial action to be taken to ensure a sustainable supply of water and to minimize costs.

Utilities can take a number of actions to promote water conservation within the communities they serve. The Texas Water Development Board in *Report 362: Water Conservation Best Management Practices Guide* explores several water conservation best management practices for utility implementation. Those options include but are not limited to:

- **System water audits and water loss management programs** designed to analyze unaccounted for water, to determine impacts of under-registering water meters, and to analyze water system leaks and leak reduction methods (Texas Water Development Board, 2009).

- **Water conservation pricing** which is designed to create water usage billing rate structures that discourage inefficient water use or water waste and promote conservation through increasing unit pricing such as inverted block rates, water budget rates, and seasonal rates (Texas Water Development Board, 2009).

- **Prohibition of water wasting** designed to create ordinances and enforceable measures to prohibit wasteful use of water such as wasteful irrigating and failure to repair leaks within the customers’ property (Texas Water Development Board, 2009).
Fixture replacement, rebate, and incentive programs designed to replace or assist customers with the replacement of inefficient water fixtures or appliances (Texas Water Development Board, 2009).

Education programs designed to increase customer awareness of good water use habits (Texas Water Development Board, 2009).

Customer water audit programs designed to help customers identify sources of inefficiency within their properties (Texas Water Development Board, 2009).

Reducing water loss (also referred to as unaccounted for water) in the water system is an important area of focus for many utilities regarding water conservation. Utilities can implement a multi-faceted program to combat the negative affects associated with water system leaks focusing on both unmetered and metered leaks and to reduce water loss. One aspect of the City of Austin Water Utility’s program is a utility billing adjustment policy that lightens the financial burden of utility customers for water leaks that affect their utility bills while still allowing the utility to recoup a portion of operating costs. The policy aligns with the water conservation best practices by combining efforts aimed at (a) identifying water loss through water audits, (b) creating a billing rate structure to discourage water waste, and (c) prohibiting water waste by penalizing customers who fail to repair water leaks within their property.

Water Leaks

The second key concept is water leaks. Water leaks in the water supply system are an issue for all utilities. In 2009, the American Water Works Association (AWWA)

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1 The Environmental Protection Agency has established standards of unaccounted for water for public water utilities, but has not enacted any regulatory requirements (Environmental Protection Agency, 2009). However, a number of states have drafted specific legislation for the regulation and enforcement of unaccounted for water requirements, including the state of Texas which passed House Bill 3338 in 2005 (Environmental Protection Agency, 2009).
estimated that fifteen billion dollars per year of lost revenue worldwide is contributable
to water system leaks and that approximately six billion gallons of water per day
withdrawn from water supplies in the United States never reach a billed customer
(American Waterworks Association, 2010). Water leaks in a water system are very costly
to a utility, both in terms of water conservation and utility revenues. In many cases leaks
are difficult to identify. One of the most easily identified and controlled types of water
system leaks are those that occur on the customers’ side of the water meter. While these
leaks may not be the most detrimental to the water supply or utility revenues, they can
financially impact utilities in a number of ways, such as: (a) increasing processing and
treatment costs for water and wastewater, (b) depleting critical water supplies, and (c)
increasing labor costs associated with addressing water leaks.

**Water Billing**

The third key concept is water billing. Most, if not all, utilities across the country
that provide water and wastewater services to their customers charge for said services.
Water meters that measure water consumption in either gallons or cubic feet are installed
on the property of each customer. Wastewater flows are not generally metered, and
charges are usually based on a flat rate, an average of water consumption, or a per unit
basis based on water consumption (i.e. for each gallon of water metered, a gallon of
wastewater is billed). Water billing cycles are often done on a monthly, bi-monthly,
quarterly, or yearly basis. In the City of Austin, water usage is billed on an increasing
block tiered rate for every thousand gallons of water that passes through the meter for
residential customers and at a flat rate per thousand gallons for commercial customers.
Wastewater for residential customers\(^2\) is billed based on a two-month average of water usage for the two months of lowest usage between the months of November and March. Commercial customers\(^3\) have their wastewater billed in the same fashion unless their property has a designated meter for irrigation water usage, in which case they are billed wastewater on a unit per unit basis based on their domestic water consumption. For all classes of customers, services are billed on a monthly basis. The chart below outlines the City of Austin Water Utility’s billing rate schedule for the 2010 fiscal year.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Water and Wastewater Billing Rate Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETAIL WATER RATES</td>
<td>MONTHLY CONSUMPTION (VOLUME) CHARGE</td>
</tr>
<tr>
<td>CUSTOMER CLASS</td>
<td>CHARGE PER 1,000 GALLONS</td>
</tr>
<tr>
<td>Single Family Residential:</td>
<td></td>
</tr>
<tr>
<td>0 – 2,000 Gallons</td>
<td>$1.00</td>
</tr>
<tr>
<td>2,001 – 9,000 Gallons</td>
<td>$2.62</td>
</tr>
<tr>
<td>9,001 – 15,000 Gallons</td>
<td>$6.71</td>
</tr>
<tr>
<td>15,001 – 25,000 Gallons</td>
<td>$9.00</td>
</tr>
<tr>
<td>25,001 – Over Gallons</td>
<td>$10.00</td>
</tr>
<tr>
<td>Off Peak</td>
<td>Peak</td>
</tr>
<tr>
<td>Multifamily</td>
<td>$3.50</td>
</tr>
<tr>
<td>Commercial</td>
<td>$4.21</td>
</tr>
<tr>
<td>Large Volume</td>
<td>Varies By Customer</td>
</tr>
</tbody>
</table>

Off Peak (November 1st – June 30th bills) | Peak (July 1st – October 31st bills) |

| RETAIL WASTEWATER RATES | MONTHLY FLOW (VOLUME) CHARGE |
| CUSTOMER CLASS | CHARGE PER 1,000 GALLONS | |
| Single Family Residential: | | |
| 0 – 2,000 Gallons | $3.43 | |
| 2,001 – Over Gallons | $7.73 | |

\(^2\) Throughout this report, any reference to residential customers will be defined as single family residential customers.

\(^3\) Throughout this report, any reference to commercial customers will be defined as all non-single family residential customers (to include commercial, multifamily, and large volume/industrial customers).
### Table: Water Leak Billing Adjustments

<table>
<thead>
<tr>
<th>Source: City of Austin, 2009a, p. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multifamily</strong></td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
</tr>
<tr>
<td><strong>Large Volume</strong></td>
</tr>
</tbody>
</table>

When a customer experiences a water leak on his or her utility bill, the financial impact can be devastating depending on the severity of the leak and the parameters under which the services are billed. The following example will demonstrate how a water leak would affect a customer’s utility bill. The customer has a residential account that bills water and wastewater. The customer’s wastewater account has a wastewater average cap set at 4,000 gallons. Under normal billing conditions, the customer consumed 3,000 gallons of water. The customer would be billed for 3,000 gallons of water usage and 3,000 gallons of wastewater flows. The customer would expect a total bill of $19.21 ($4.62 for water usage and $14.59 for wastewater flows)\(^4\). Under a leak-affected billing scenario, such as a faulty toilet tank flapper which can register up to 45,000 gallons of water usage in a month’s time (Common causes of excessive water consumption, n.d.), the customer’s water consumption increased to 48,000 gallons. The customer would be billed for 48,000 gallons of water usage and 4,000 gallons of wastewater flows--wastewater flows are capped at 4,000 gallons. The customer would expect a total bill of $402.92 ($380.60 for water usage and $22.32 for wastewater flows). The leak would increase the customer’s utility bill by $383.71 (a $375.98 increase for water usage and a $7.73 increase for wastewater flows).

**Water Leak Adjustments**

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\(^4\) Customers are also billed a monthly customer charge for both water and wastewater services. These monthly fees are not included in the billing example examined in this paper.
The final key concept is water leak adjustments. Many utilities have policies in place to adjust customers’ utility bills in the case of a water leak. The reason for providing a billing adjustment is primarily a customer service/public relations policy. Rather than attaching a customer with a leak-affected utility bill that could range from hundreds to thousands of dollars and causing financial hardship for the customer, utilities offer an adjustment to provide some relief for the excessive charges while still allowing the utility to cover overhead and operating costs associated with the services provided (but not returning a profit). Many utilities have established policies in order for a customer to be eligible to receive a billing adjustment that could provide relief for water and wastewater billing.

City of Austin Water Utility Leak Adjustment Policy Analysis

The City of Austin Water Utility is concerned that the current water leak adjustment policy is too liberal in its criteria and too generous in the amount of money refunded to customers. An additional concern is that the policy is being abused and exploited beyond its original intent to the customers’ benefit. The utility is considering a revision or redrafting of the water leak adjustment policy to strengthen the financial position of the utility and to further promote water conservation efforts by customers. The City of Austin Water Utility and its water leak adjustment policy serve as a case study in this paper. The following section will examine (a) the utility’s operating environment, (b) the policy’s background, (c) the current policy, (d) an example of how the policy functions, and (e) the financial impacts of the policy. The City of Austin Water Utility case study conveys the need for policy change and illustrates how minor policy parameter adjustments can significantly impact a utility’s financial sustainability.
City of Austin Water Utility Environment

It is necessary to examine the operating environment of the City of Austin Water Utility to fully grasp the need for change in the current water leak adjustment policy. The City of Austin Water Utility is currently operating in an environment that has caused their water leak adjustment policy to be closely examined for possible redrafting. A number of factors, primarily water conservation efforts and economic conditions have made it a management priority to review policy and operations that are posing a negative impact to utility operations without hampering overall service delivery. In a memo to the mayor and city council regarding budget planning for the upcoming 2011 fiscal year, the city manager stated that city departments were “‘scrubbing’ their respective budget projections, literally line-item-by-line-item, searching for any potential savings that can be implemented without disrupting service delivery” (M. Ott, personal communication, June 7, 2009).

Water conservation.

A top priority for utilities is water conservation. Water conservation is a double-edged sword of sorts; the inherent effect of water conservation is to use less water which in turn creates less wastewater flows leading to lower revenue inflows to utilities in the short-term. The goal of utilities is not to promote greater water use, but to better manage existing water supplies to ensure sustainable growth opportunities and lower operating costs in the future. The City of Austin Water Utility has a number of water conversation practices in place to limit water waste, to decrease overall consumer demand on existing water supplies, and to provide other environmental benefits. Some of these initiatives include mandatory watering restrictions, rebates for energy/water efficient appliances,
rainwater harvesting, and water audits (City of Austin Texas, 2010a). The goals of these initiatives are to reduce water consumption through an incentive system for voluntary participation. In some cases, for example watering restrictions, participation is mandatory and the utility enforces violations by assessing customers with penalties. The penalty fining system does generate some revenue for the utility; however, the overall effect of the water conservation program has resulted in a decrease in revenues from the billing of water usage and wastewater flows. The theory behind providing leak adjustments is sound, but the leak adjustments themselves are counter-intuitive to maintaining a solid financial position as well as counter-productive toward water conservation efforts.

However, the current policy not only allows a customer to consume “excessive” amounts of water and create “excessive” amounts of wastewater flows at a highly reduced billing rate, but also provides no incentive for a customer to conserve water (the policy in effect “rewards” customers who waste water and can manipulate the system to their benefit).

**Financial shortfall.**

Financial stability and positioning have become a critical concern for many utilities over the past few years. The recent state of the economy has severely impacted many utilities across the country, and the City of Austin Water Utility is no exception. The utility announced that projected revenues through the end of fiscal year 2010 were 43 million dollars below what had been forecasted (G. Meszaros, personal communication, May 24, 2010). A combination of events (internally referred to as the perfect storm of events) resulting from ultra-conservative water restrictions in the fall, a wetter and cooler than normal winter and spring, and the slowed economy (G. Meszaros, personal communication, May 24, 2010) lead to decreased revenues from water usage. For the
upcoming 2011 fiscal year, the City of Austin Water Utility is facing an $8.6 million budget shortfall (Coppola, 2010b). While the primary focus in closing the budget gaps in recent years has depended on hiring freezes and cutting back on unnecessary services, current budget reduction efforts include focusing on improving efficiency and policies.

**Background and History**

The City of Austin Water Utility has a water leak adjustment policy that allows the utility to perform billing adjustments on customer accounts impacted by a water leak. The intent of the policy is two-fold: it provides financial relief to the customer who experiences increased utility charges stemming from a water leak (City of Austin, 2007), so long as certain criteria are met, while still generating revenue for the utility. In the mid 1970’s the initial iteration of a water leak adjustment policy was implemented. It has since undergone several major revisions throughout the years, including those in June 1996, January 2002, December 2004, and most recently in October 2007 (City of Austin Texas, 2007). The October 2007 revision created the policy that is currently in use. Only policy documents for the December 2004 and the October 2007 iterations of the utility’s leak adjustment policy were still readily available on file for comparison.

The policy that was in effect during 2005 through mid-2007 (the December 2004 iteration) had three main differences from the current policy (the October 2007 iteration). The first difference is the credit calculation formula employed by the previous policy, which had the water leak credit calculated based on 50% of the excess water usage; the current policy adds further complexities to the credit calculation. The second difference was that the previous policy had enacted maximum dollar limits for leak adjustments, with water and wastewater credits related to leaks capped at $150 for each (City of
Austin Water Utility Customer Service Division, 2004). The third difference was the billing rate used to calculate the amount of water credit a customer receives; the previous policy utilized the billing rate at which the leaked water usage was originally billed at (City of Austin Water Utility Customer Service Division, 2004) while the current policy utilizes a special billing rate set by management every fiscal year (City of Austin Water Utility Customer Service Division, 2007). The following section provides a detailed review of the current leak adjustment policy and explores an example to illustrate how the policy functions.

**Current Policy**

The City of Austin Water Utility’s water leak adjustment policy includes the following articles:

- **Eligibility criteria:** Outlines specific requirements that need to be met for a customer’s water leak to be eligible for consideration for an adjustment.
- **Eligible leaks:** Describes the specific types of leaks that are eligible for an adjustment.
- **Ineligible leaks:** Describes the specific types of leaks that are not eligible for an adjustment.
- **Eligible accounts:** Outlines the specific billing account types that are eligible for an adjustment.
- **Adjustment period:** Describes the number of billing periods that can be adjusted.
- **Adjustment frequency:** Describes how often an account can be considered for an adjustment.
- **Adjustment calculations:** Describes how billing credits are calculated.
The specifics of these policy components will be described in greater detail in the following sections.

**Eligibility criteria.**

In order for a leak to be eligible for consideration for an adjustment, the following criteria must be met:

- the leak usage must be higher than the corresponding usage for the period of comparison;
- the adjustment is requested within 6 months of the repair date;
- proof of repairs are provided or there is decreased usage after incident; and
- evidence that the water did not enter the wastewater system if the leak occurred on a non-residential account (such as the leak occurred outside of the facility and entered the ground) (City of Austin Water Utility Customer Service Division, 2007).

**Eligible leaks.**

The City of Austin Water Utility has deemed all water leaks eligible for consideration for a leak adjustment so long as they meet the other criteria set forth in the leak adjustment policy (City of Austin Water Utility Customer Service Division, 2007).

**Ineligible leaks.**

The City of Austin Water Utility has not deemed any water leaks ineligible for consideration for a leak adjustment so long as they meet the other criteria set forth in the leak adjustment policy (City of Austin Water Utility Customer Service Division, 2007).

**Eligible accounts.**
The city of Austin Water Utility’s current leak adjustment policy allows for adjustments on residential water accounts, residential wastewater accounts, and commercial wastewater accounts. Commercial water accounts are not eligible for a leak adjustment (City of Austin Water Utility Customer Service Division, 2007).

Adjustment period.

Under the current policy, a maximum of two months of leak usage are eligible for adjustment (City of Austin Water Utility Customer Service Division, 2007).

Adjustment frequency.

Under the current policy, an account can only be considered for a leak adjustment once per fiscal year (City of Austin Water Utility Customer Service Division, 2007).

Adjustment credit calculations.

Under the current policy, the credit adjustment for each of the eligible account types are based on different calculation formulas. The following are descriptions of each credit calculation:

- Residential water adjustments will be credited 50% of the difference between the “normal usage” and the leak usage multiplied by a special rate\(^5\) that is established and effective October 1\(^st\) of each fiscal year\(^6\) plus normal usage multiplied by the actual billing rate deducted from the leak usage bill. The credit formula appears as 
\[
\text{credit} = \text{leak usage} - (\{[(\text{leak usage} - \text{normal usage}) \times 50\%] \times \text{special rate}\} + \text{normal usage bill}) \quad \text{(City of Austin Water Utility Customer Service Division, 2007)}.
\]

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\(^5\) A special rate is permitted under City of Austin Ordinance 20050929-056 and was implemented into the 2007 iteration of the leak adjustment policy.

\(^6\) The approved special rate for adjustments for the 2010 fiscal year was set at $1.73 per 1,000 gallons of water (Austin Water Utility, 2009).
- Residential wastewater adjustments will be credited the difference between the “normal usage” and the leak usage multiplied by the actual billing rate. The credit formula appears as

\[
\text{credit} = (\text{leak usage} - \text{normal usage}) \times \text{actual tiered billing rate for that usage}
\]

(City of Austin Water Utility Customer Service Division, 2007).

- Commercial wastewater adjustments will be credited the difference between the “normal usage” and the leak usage multiplied by the actual billing rate. The credit formula appears as

\[
\text{credit} = (\text{leak usage} - \text{normal usage}) \times \text{actual tiered billing rate for that usage}
\]

(City of Austin Water Utility Customer Service Division, 2007).

**Example Adjustment**

The following example will demonstrate how the City of Austin Water Utility’s leak adjustment policy functions. Recall the previously mentioned customer. The customer has a residential account that bills water and wastewater. The customer’s wastewater account has a wastewater average cap set at 4,000 gallons. Under normal billing conditions, the customer consumed 3,000 gallons of water. The customer would be billed for 3,000 gallons of water usage and 3,000 gallons of wastewater flows. The customer would expect a total bill of $19.21 ($4.62 for water usage and $14.59 for wastewater flows). However, the customer was affected by a leak caused by a faulty toilet tank flapper and the customer’s water consumption increased to 48,000 gallons. The customer was billed for 48,000 gallons of water usage and 4,000 gallons of wastewater flows—wastewater flows are capped at 4,000 gallons. The customer received a total bill of $402.92 ($380.60 for water usage and $22.32 for wastewater flows).
The customer discovered the leak after receiving the utility bill for that time frame and hired a plumber to make repairs. The customer then submitted a written request to the City of Austin Water Utility outlining the details of the issue and repairs including a copy of the plumber’s repair receipts. A utility representative reviewed the materials and determined that the customer met all of the eligibility criteria to receive a leak adjustment. Using the residential water adjustment calculation, the utility representative determined the customer would receive a water credit of $351.65.

Formula: \[ 	ext{credit} = \text{leak usage bill} - (\{[\text{leak usage} - \text{normal usage}] \times 50\% \} \times \text{special rate}) + \text{normal usage bill} \]

Credit = $395.19 – (\{[(48,000 – 3,000) \times 50\%] \times $1.73 \text{ per thousand gallons}] + $4.62)
Credit = $395.19 – (\{[(45,000) \times 50\%] \times $1.73 \text{ per thousand gallons}] + $4.62)
Credit = $395.19 – (\{[22.5 \times $1.73] + $4.62\}
Credit = $395.19 – ($38.92 + $4.62) = $395.19 - $43.54 = $351.65

The customer would also be eligible for a wastewater adjustment due to the water leak under the city’s leak adjustment policy. The customer qualifies because his or her charged wastewater flows during the leak were higher than his or her recent average water consumption of 3,000 gallons per month. Using the residential wastewater adjustment calculation, the customer would receive a wastewater credit of $7.73:

Formula: \[ 	ext{credit} = (\text{leak usage} - \text{normal usage}) \times \text{actual tiered billing rate for that usage} \]

---

7 Due to the complex nature of the credit formula and the high potential for human error when calculating a credit, a template spreadsheet is utilized that performs auto-calculations of the adjustment amounts based on a few pieces of simple information that are plugged into the spreadsheet template.
Credit = (4,000 – 3,000) * $7.73 per thousands gallons

Credit = 1,000 * $7.73 per thousand gallons = 1 * $7.73 = $7.73

In total, the customer would receive a $359.38 credit toward the leak-affected bill of
$402.92: $351.65 of the credit would be applied to the water portion of their charges of
$380.60 while $7.73 of the credit would be applied to the wastewater portion of the
charges of $22.32. After the credits are applied, the customer would only be held
responsible for $43.54 worth of usage charges ($28.95 for water usage and $14.59 for
wastewater flows).

**Financial Impact**

A leak adjustment policy that does not have properly aligned parameters can
significantly affect a utility’s financial position. The December 2004 iteration of the City
of Austin Water Utility’s leak adjustment policy was in effect for the fiscal years of 2005
through 2007. During this time there were 689 adjustments processed for a total of
$373,751.57 of credits (Austin Water Utility, 2010). The most recent iteration of the leak
adjustment policy drafted in October 2007 has been in effect for the fiscal years 2008
through the current 2010 fiscal year. During this time (through the third quarter of fiscal
year 2010), there were 1,534 adjustments processed for a total of $1,246,405.00 of credits
(Austin Water Utility, 2010). By making a slight adjustment to the policy, the City of
Austin Water Utility saw the number of leak adjustments processed more than double and
the monetary value of billing credits more than triple.

---

8 In addition to Austin Water Utility processing and tracking adjustments, Austin Energy (the department
that actually processes all utility billing) receives and processes leak adjustment requests. Data from Austin
Energy is not directly tracked by Austin Water Utility and is not part of the figures utilized in the financial
analysis performed in this paper; only data from Austin Water Utility’s internal Billing Adjustment System
database were considered.
There appears to be a correlation between the less restrictive policy criteria that was implemented in October 2007 and the increased number of leak adjustments processed; however, no direct cause and effect link has been determined. The utility can utilize this correlation to evaluate the labor cost associated with processing the additional leak adjustments. During the active period of the current leak adjustment policy, there have been 696 more adjustments processed than during the active life of the previous policy. On average, processing a leak adjustment takes roughly 30 minutes of labor time, including initial evaluation and processing, peer review, and billing processing\(^9\). This translates into an extra 348 labor hours dedicated to processing the additional leak adjustment workflow for fiscal year 2008 through the third quarter of fiscal year 2010. Using an average of the minimum base salaries for a Utility Account Specialist and a Utility Account Analyst (the primary titles for utility representatives responsible for processing leak adjustments) of $18.82 per hour\(^{10}\), the City of Austin Water Utility has spent $6,549.36 more in labor costs plus overhead costs processing leak adjustments under the current policy than during the more restrictive policy.

**Water Leak Adjustment Policy Research**

City of Austin Water Utility management determined that any potential adjustments to the current water leak adjustment policy required research (A. Flora, personal communication, February 9, 2010). A review of AWWA resources revealed that the AWWA offers little to no direction in regards to creating policy to address billing

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\(^9\) Management has calculated the average time for initial processing of a simple billing adjustment is 15 minutes (L. Schneider, personal communication, July 9, 2010). After the initial processing, there is also a peer review and processing to apply the adjustment to a billing account which is estimated to take the same amount of time as the initial review.

\(^{10}\) The minimum base salary for a Utility Account Specialist is $17.44 per hour and the minimum base salary for a Utility Account Analyst is $20.19 per hour (City of Austin Texas, 2009b).
adjustments for customer water leaks\textsuperscript{11}. Because of a lack of industry standards in this area, it was crucial to conduct research to create a set of common guidelines based on the policies of a sampling of water utilities.

Comparison Cities

The researcher examined and reviewed policies on customer water leaks and related wastewater adjustments for 112 utilities of various sizes and locations. Of the utilities researched, the City of Austin Water Utility specifically targeted and utilized 22 of them in previous comparison studies. The researcher gathered information from these utilities through surveys and internet research and selected the remaining 90 utilities at random, gathering information through internet research. The locations of the selected utilities break down as follows:

<table>
<thead>
<tr>
<th>Number per state</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Florida, Indiana, Kansas, Louisiana, Mississippi, New Mexico,</td>
</tr>
<tr>
<td></td>
<td>Oklahoma, South Carolina, Utah</td>
</tr>
<tr>
<td>2</td>
<td>Alabama, Arkansas, Arizona, Kentucky, New Jersey, Wisconsin, West</td>
</tr>
<tr>
<td></td>
<td>Virginia</td>
</tr>
<tr>
<td>3</td>
<td>Oregon</td>
</tr>
<tr>
<td>4</td>
<td>Georgia, Illinois, International</td>
</tr>
<tr>
<td>5</td>
<td>North Carolina, Ohio, Virginia</td>
</tr>
<tr>
<td>8</td>
<td>California, Michigan, Tennessee</td>
</tr>
<tr>
<td>17</td>
<td>Washington</td>
</tr>
<tr>
<td>18</td>
<td>Texas</td>
</tr>
</tbody>
</table>

Appendix D reviews details on the specific utilities researched with Table 12 displaying the findings on all 112 utilities researched and Table 13 displaying the findings on the City of Austin Water Utility target utilities.

Criteria Reviewed

\textsuperscript{11} While the AWWA, the industry authority on water and wastewater matters in the U.S., has a number of reference manuals related to utility billing, including manuals \textit{M1 Principles of Water Rates, Fees and Charges}, \textit{M26 Water Rates and Related Charges}, and \textit{M54 Developing Rates for Small Systems}, none of them address the subject of billing adjustments for water leaks.
The researcher reviewed a number of key components of the water leak adjustment policies of the various utilities. Those components are (a) eligible leaks, (b) ineligible leaks, (c) eligible accounts, (d) adjustment period, (e) adjustment frequency, (f) adjustment credit caps, and (g) adjustment calculations. The eligible leaks section describes the specific types of leaks that are eligible for an adjustment. The ineligible leak section describes the specific types of leaks that are not eligible for an adjustment. The eligible accounts section outlines the specific billing account types that are eligible for an adjustment. The adjustment period section describes the number of billing periods that can be adjusted. The adjustment credit caps section describes the credit limitations placed on adjustments. The adjustment calculations section describes how the utility calculates billing credits. The following sections describe the specifics of these policy components in greater detail.

**Summary of Findings**

This section provides a brief summary of the research findings on each policy criteria for the 112 utilities that were reviewed. The research findings are broken down into two subsections, the first focusing on the City of Austin Water Utility target utilities and the second focusing on all 112 utilities included in the study. Appendix D presents full research results.

**City of Austin Water Utility target utilities.**

This section summarizes the research findings on the leak adjustment policies of the 22 utilities targeted by the City of Austin Water Utility. Table 13 in Appendix D provides a further breakdown of the full research results on the target utilities.

*Eligible leaks.*
Of the target utilities, 55% allow leak adjustments for any type of leak, with the only stipulation that it did not meet any disqualifying criteria. The following are the most common eligible leak criteria, with the percentage of utilities that implement them in parenthesis:

- Underground/under house (27%),
- Toilet (23%),
- Irrigation (23%),
- Inside fixtures (14%), and
- Leaks behind walls (18%).

**Ineligible leaks.**

Of the target utilities, 55% do not have any disqualifying criteria for leaks, thus allowing adjustments for any type of leak. The following were the most common disqualifying leak criteria, and the percentage of utilities that implement them in parenthesis:

- Irrigation (18%) and
- Pools/ponds (18%).

**Eligible accounts.**

Of the target utilities, 77% provide leak adjustments for commercial water accounts, and 91% provide leak adjustments for residential water accounts. Additionally, 64% of the utilities provide leak adjustments for commercial wastewater accounts, and 50% provide leak adjustments for residential wastewater accounts.

**Adjustment period.**
The three most common timeframes for leak usage to be adjusted are within two months (55%), one month (23%), and three months (14%).

Adjustment frequency.

Of the targeted utilities researched, 45% do not have a stated policy regarding the frequency for allowing an account to receive a leak adjustment. Research results show, however, that the most common frequency for allowing an account to receive a leak adjustment is once every 12 months (32%).

Adjustment credit caps.

Of the target utilities, only 5% (one utility) enact caps to limit the amount of money credited through a leak adjustment; the remaining 95% of the utilities do not have any credit cap parameters.

Adjustment credit calculations.

Water.

Of the target utilities, 5% do not allow a wastewater adjustment related to a leak, and 5% of the utilities did not state how they calculate a credit. Implemented by 50% of the target utilities, the most common credit calculation is to reduce the leak usage by one half of the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is

\[
\text{credit} = [(\text{leak usage} - \text{normal usage}) \times \frac{1}{2}] \times \text{billing rate}.
\]

Wastewater.

Of the target utilities, 23% do not allow a wastewater adjustment related to a leak. Additionally, 9% of the utilities did not state how they calculate a credit. The following were the most common credit calculations for wastewater adjustments related to leaks:
- Forty-five percent of the utilities reduce the leak usage by the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is 
  \[ \text{credit} = (\text{leak usage} - \text{normal usage}) \times \text{billing rate}. \]
- Thirty-two percent of the utilities reduce the leak usage by one half of the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is 
  \[ \text{credit} = \frac{1}{2} \times (\text{leak usage} - \text{normal usage}) \times \text{billing rate}. \]

**All researched utilities**

This section summarizes the research findings on the leak adjustment policies of all 112 utilities studied. Table 12 in Appendix D provides a further breakdown of the full research results on the utilities.

*Eligible leaks.*

Of the utilities researched, 55% allow leak adjustments for any type of leak, with the only stipulation that it did not meet any disqualifying criteria. The following are the most common eligible leak criteria, with the percentage of utilities that implement them in parenthesis.

- Supply line (21%),
- Underground/under house (15%), and
- Leaks that are not visible (11%).

*Ineligible leaks.*

Of the utilities researched, 47% do not have any disqualifying criteria for leaks, thus allowing adjustments for any type of leak. The following are the most common
disqualifying leak criteria, with the percentage of utilities that implement them in parenthesis.

- Inside fixtures (23%),
- Toilets (20%), and
- Irrigation (18%).

**Eligible accounts.**

Of the utilities researched, 74% provide leak adjustments for commercial water accounts, and 82% provide leak adjustments for residential water accounts. Forty-nine percent of the utilities provide leak adjustments for commercial wastewater accounts, and 47% provide leak adjustment for residential wastewater accounts.

**Adjustment period.**

The two most common timeframes for leak usage to be adjusted are within two months (34%) and one month (20%). Twenty-seven percent of the utilities do not have a specified period of leak usage that would be adjusted.

**Adjustment frequency.**

Of the utilities researched, 32% did not have a stated frequency for allowing an account to receive a leak adjustment. The following were the most common frequencies for allowing an account to receive a leak adjustment and the percentage of utilities that implement them in parenthesis:

- Once every 12 months (36%),
- One-time only per account (13%), and
- Once every 24 months (11%).

**Adjustment credit caps.**
Of the utilities researched, only 3% enact caps to limit the amount of money credited through a leak adjustment; the remaining 97% of the utilities do not have any credit cap parameters.

*Adjustment credit calculations.*

**Water.**

Of the utilities researched, 12% do not allow a water leak adjustment. Eleven percent of the utilities did not state how they calculate a credit. The following are the most common credit calculations for water leak adjustments.

- Seventeen percent of the utilities reduce the leak usage by one half of the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is
  \[
  \text{credit} = \left(\text{leak usage} - \text{normal usage}\right) \times \frac{1}{2} \times \text{billing rate}.
  \]

- Twelve percent of the utilities reduce the leak usage by the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by a special billing rate. The credit formula is
  \[
  \text{credit} = \left(\text{leak usage} - \text{normal usage}\right) \times \text{special billing rate}.
  \]

- Six percent of the utilities reduce the leak usage by the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is
  \[
  \text{credit} = \left(\text{leak usage} - \text{normal usage}\right) \times \text{billing rate}.
  \]

**Wastewater.**

Of the utilities researched, 43% do not allow a wastewater adjustment related to a leak. Thirteen percent of the utilities did not state how they calculate a credit. The
following are the most common credit calculations for wastewater adjustments related to leaks.

- Twenty-seven percent of the utilities reduce the leak usage by the excess usage
  (with excess usage defined as the leak usage minus “normal” usage) multiplied by
  the actual billing rate. The credit formula is
  \[ \text{credit} = (\text{leak usage} - \text{normal usage}) \times \text{billing rate}. \]

- Seventeen percent of the utilities reduce the leak usage by \( \frac{1}{2} \) of the excess usage
  (with excess usage defined as the leak usage minus “normal” usage) multiplied by
  the actual billing rate. The credit formula is
  \[ \text{credit} = \left[ (\text{leak usage} - \text{normal usage}) \times \frac{1}{2} \right] \times \text{billing rate}. \]

**Recommendations**

The following section prescribes recommendations for water leak adjustment policies based on the conducted research. For the City of Austin Water Utility, the researcher suggests specific recommendations that are tailored to the existing policy and operating environment. This research additionally proposes a series of general water leak adjustment policy guidelines and considerations that can be utilized by other utilities that are editing their existing policies or by utilities seeking to implement a water leak adjustment policy for the first time.

**Recommendations for the City of Austin Water Utility**

This research project recommends multiple policy change options for the City of Austin Water Utility water leak adjustment policy. There are two key principles underlying the recommended policy changes: (1) to minimize the number and magnitude of changes to the current policy’s construct while creating the largest financial impact
and (2) to accommodate the City of Austin Water Utility management’s desire to model all or portions of any new policy after the policy of the San Antonio Water System (A. Flora, personal communication, April 13, 2010). The primary reasons for the City of Austin Water Utility management’s desire to model its policies after those of San Antonio Water System are its proximity to Austin\textsuperscript{12}, the size of the population base it serves\textsuperscript{13}, and its policies and practices that are heavily oriented toward water conservation\textsuperscript{14}. The City of Austin Water Utility can implement the following recommendations individually or in any combination, but ideally it would implement all of the recommendations to maximize its financial impact.

**Eligibility criteria.**

The following are the recommendations for the policy’s eligibility criteria:

- The leak adjustment must be requested within six months of plumbing repairs to fix the leak.
- The water usage must return to a normal level of usage or drop to a level of usage that is less than the usage that was attributed to the water leak.
- The customer must provide receipts or proof of repairs and proof of a valid plumbing permit for those repairs.

**Eligible leaks.**

\textsuperscript{12} San Antonio is roughly 74 miles from Austin (Coordinates + total distance: Austin and San Antonio, 2010b).

\textsuperscript{13} San Antonio Water Systems serves 325,944 water and 354,878 wastewater connections (San Antonio Water System, 2010); Austin Water Utility serves 200,000 water and 187,000 wastewater connections (City of Austin Texas, 2010b).

\textsuperscript{14} San Antonio Water Systems has some of the most extensive water conservation policies in Texas (Texas Water Resources Institute, 2002) due to its limited water supply options (Texas Water Matters, 2009). Its conservation policies save an estimated 1.3 billion gallons of water per year (San Antonio Water System, 2010a). Between 1982 and 2007, its conservation efforts decreased daily per capita water usage by nearly 38% from 225 gallons per person per day to 140 gallons per person per day (Texas Water Matters, 2007). The other major metropolitan Texas cities of Dallas, Fort Worth, Houston, Austin, and El Paso have daily per capita water usages of 264 gallons, 218 gallons, 159 gallons, 173 gallons, and 172 gallons respectively (San Antonio Water System, 2003).
The utility will only consider leaks occurring on domestic water use portions of lines and appurtenances for an adjustment.

**Ineligible leaks.**

The utility will not consider leaks occurring on dedicated irrigation water use portion of lines and appurtenances for an adjustment.

**Eligible accounts.**

The utility will only consider leak adjustments on residential water accounts\(^{15}\) and commercial wastewater accounts when charges are billed on a gallon-for-gallon basis based on domestic water consumption\(^{16}\).

**Adjustment period.**

The utility will only consider a maximum of two months of leak usage for adjustment.

**Adjustment frequency.**

The utility will only consider an account eligible for one leak adjustment per fiscal year.

**Adjustment credit caps.**

The utility will enact leak adjustment credit caps of $600 per adjustment for residential water accounts and $1,000 per adjustment for commercial wastewater accounts\(^{17}\).

\(^{15}\) There will be no residential wastewater adjustments. Residential wastewater billing is based on an average that creates a billing cap. Residential wastewater will only be adjusted if a qualifying leak affects the averaging period.

\(^{16}\) There will be no commercial wastewater adjustments for accounts billing on a wastewater average as it creates a billing cap. Commercial wastewater for accounts billing a wastewater average will only be adjusted if a qualifying leak affects the averaging period.

\(^{17}\) These credit caps are modeled after the most liberal caps implemented in the leak adjustment policy of San Antonio Water System, which caps residential leak adjustments at $600 per adjustment and commercial leak adjustments at $1,000 per adjustment (San Antonio Water System, 2009).
Adjustment credit calculations.

The utility will provide a credit adjustment for each of the eligible account types based on different calculation formulas. The following are descriptions of each credit calculation:

- The utility will credit residential water adjustments 50% of the difference between the “normal usage” and the leak usage multiplied by a special rate\(^\text{18}\) that is established and effective October 1\(^{\text{st}}\) of each fiscal year plus normal usage multiplied by the actual billing rate deducted from the leak usage bill. The credit formula appears as

\[
\text{credit} = \text{leak usage} - (\{(\text{leak usage} - \text{normal usage}) \times 50\%\} \times \text{special rate}) + \text{normal usage bill}) \text{ (City of Austin Water Utility Customer Service Division, 2007).}
\]

- The utility will credit commercial wastewater by using the difference between the “normal usage” and the leak usage multiplied by the actual billing rate. The credit formula appears as

\[
\text{credit} = (\text{leak usage} - \text{normal usage}) \times \text{actual billing rate}.
\]

General Policy Guidelines and Considerations

The researcher created the general policy guidelines and considerations based on this study’s findings, which attempt to establish an industry norm based on the cross-sectional sample population of utilities.

Eligibility criteria.

The following are the recommendations for the policy’s eligibility criteria:

\(^{18}\) The special rate provision allowed by city ordinance is carried over to minimize the changes of any proposed policy from current policy.
The customer must request the leak adjustment must be requested within six months of completing plumbing repairs to fix the leak.

The water usage must return to a normal level of usage or drop to a level of usage that is less than the usage that was attributed to the water leak.

The customer must provide receipts or proof of repairs and proof of a valid plumbing permit for those repairs (if applicable in the implementing municipality).

**Eligible leaks.**

The utility will only consider adjustments for leaks occurring on domestic water use portions of lines that are outdoors, underground, or not visible.

**Ineligible leaks.**

The utility will not consider adjustments for leaks occurring on dedicated irrigation water use portion of lines and appurtenances. Likewise, the utility will not consider adjustments for leaks caused by indoor fixtures, pools, or owner’s neglect of maintenance.

**Eligible accounts.**

The utility will only consider adjustments for leaks occurring on residential water accounts and commercial wastewater accounts that bill on a gallon-for-gallon basis based on water consumption.

**Adjustment period.**

The utility will only consider adjustments for a maximum of two months of leak usage.

**Adjustment frequency.**
The utility will only consider an account eligible for one leak adjustment every 24 months.

**Adjustment credit caps.**

The utility will cap residential water account credits at a maximum of $600 per adjustment and commercial wastewater account credits at a maximum of $1,000 per adjustment.

**Adjustment credit calculations.**

The utility will provide a credit adjustment for each of the eligible account types based on different calculation formulas. The following are descriptions of each credit calculation:

- The utility will credit residential water adjustments one half of the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is
  
  \[
  \text{credit} = \left(\text{leak usage} - \text{normal usage}\right) \times \frac{1}{2} \times \text{billing rate}.
  \]

- Residential wastewater will not receive an adjustment.

- Commercial water will not receive an adjustment.

- The utility will credit commercial wastewater adjustments the excess usage (with excess usage defined as the leak usage minus “normal” usage) multiplied by the actual billing rate. The credit formula is
  
  \[
  \text{credit} = \left(\text{leak usage} - \text{normal usage}\right) \times \text{billing rate}.
  \]

**Triple Bottom-Line Impacts: City of Austin Water Utility Recommendations**

All public policy decisions can have multiple impacts. The recommended water leak adjustment policy changes for the City of Austin Water Utility are no different.
Public policy decision impacts should be but are not often evaluated using the triple bottom-line approach. Under this approach, adopting agencies analyze the areas of economic prosperity, environmental sustainability, and quality of life. The following sections are specific to the recommendations for the City of Austin Water Utility.

**Economic Prosperity (Financial Impacts)**

The first area of triple bottom-line analysis to review is economic prosperity or financial impacts. They key factor in the decision to edit the existing water leak adjustment policy for the City of Austin Water Utility is the policy’s financial implications. The city has undertaken a number of cost-saving initiatives in recent years to balance budget shortfalls, but reevaluation of the leak adjustment policy in which money is given away has been neglected up to this point. Tightening the purse strings and strengthening the criteria through which the City of Austin Water Utility issues leak adjustments can help decrease the amount of outgoing cash flows for the utility. By revising the current leak adjustment policy from its current iteration, the utility can reduce outgoing cash flows due to leak adjustments. Revisions could also reduce labor costs related to processing leak adjustments and lead to an increase in permitting revenue. The following section demonstrates the potential cost savings/revenues associated with the proposed changes that are not being realized under the current policy will be demonstrated in the following section.

**Recalculation of historic water leak adjustment credit figures.**

To demonstrate the financial impact of the water leak adjustment policy, this study compares the financial data related to the water leak adjustment policy and
analyzes the adjustment figures for only the current leak adjustment policy which has been in effect for fiscal years 2008 – 2010.

**Unadjusted figures.**

During fiscal year 2008 through the third quarter of fiscal year 2010, the City of Austin Water Utility processed 1,435 leak adjustments for a total of $1,246,405.00 in credits with an average credit adjustment of $868.57. The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Adjustments</th>
<th>Amount of Adjustments</th>
<th>Average Adjustment Amount</th>
<th>Average Number of Adjustments per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>506</td>
<td>$293,708.64</td>
<td>$580.45</td>
<td>-</td>
</tr>
<tr>
<td>2009</td>
<td>605</td>
<td>$310,076.10</td>
<td>$512.52</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>324</td>
<td>$642,620.26</td>
<td>$1,983.40</td>
<td>-</td>
</tr>
<tr>
<td>Total Period</td>
<td>1,435</td>
<td>$1,246,405.00</td>
<td>$868.57</td>
<td>522</td>
</tr>
</tbody>
</table>

*Notes: Fiscal Year 2010 figures only through the end of the 3rd reporting quarter. Source: Austin Water Utility, 2010.*

**Analysis of excessive credits.**

Had the utility maintained the previously enacted credit caps of $150 for water and $150 for wastewater adjustments, the utility would have processed 1,435 leak adjustments for a total of $212,090.92 in credits with an average credit adjustment of $147.80. The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Adjustments</th>
<th>Amount of Adjustments</th>
<th>Average Adjustment Amount</th>
<th>Average Number of Adjustments per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>506</td>
<td>$76,085.63</td>
<td>$150.37</td>
<td>-</td>
</tr>
<tr>
<td>2009</td>
<td>605</td>
<td>$83,286.83</td>
<td>$137.66</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>324</td>
<td>$52,718.46</td>
<td>$162.71</td>
<td>-</td>
</tr>
<tr>
<td>Total Period</td>
<td>1,435</td>
<td>$212,090.92</td>
<td>$147.80</td>
<td>522</td>
</tr>
</tbody>
</table>

*Notes: Fiscal Year 2010 figures only through the end of the 3rd reporting quarter.*

**Adjusted figures by recommendation.**

Had the utility implemented the recommended caps of $600 for residential adjustments and $1,000 for commercial adjustments, the utility would have processed
1,435 leak adjustments for a total of $459,493.04 in credits with an average credit adjustment of $320.20. The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Adjustments</th>
<th>Amount of Adjustments</th>
<th>Average Adjustment Amount</th>
<th>Average Number of Adjustments per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>506</td>
<td>$168,385.40</td>
<td>$332.78</td>
<td>-</td>
</tr>
<tr>
<td>2009</td>
<td>605</td>
<td>$187,831.32</td>
<td>$310.46</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>324</td>
<td>$103,276.32</td>
<td>$318.76</td>
<td>-</td>
</tr>
<tr>
<td>Total Period</td>
<td>1,435</td>
<td>$459,493.04</td>
<td>$320.20</td>
<td>522</td>
</tr>
</tbody>
</table>

Notes: Fiscal Year 2010 figures only through the end of the 3rd reporting quarter.

Had the utility implemented the recommendation to discontinue residential wastewater adjustments, the utility would have processed 1,354 leak adjustments for a total of $1,174,452.83 in credits with an average credit adjustment of $867.40. The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Adjustments</th>
<th>Amount of Adjustments</th>
<th>Average Adjustment Amount</th>
<th>Average Number of Adjustments per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>471</td>
<td>$260,161.84</td>
<td>$552.36</td>
<td>-</td>
</tr>
<tr>
<td>2009</td>
<td>562</td>
<td>$286,627.32</td>
<td>$510.01</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>321</td>
<td>$627,663.67</td>
<td>$1,955.34</td>
<td>-</td>
</tr>
<tr>
<td>Total Period</td>
<td>1,354</td>
<td>$1,174,452.83</td>
<td>$867.40</td>
<td>492</td>
</tr>
</tbody>
</table>

Notes: Fiscal Year 2010 figures only through the end of the 3rd reporting quarter.

Had the utility implemented the recommendation to change from adjusting all commercial wastewater accounts to only those that bill on a unit for unit basis based on actual water consumption (discontinuation of commercial wastewater adjustments for accounts billing based on a wastewater average), the utility would have processed 1,341 leak adjustments for a total of $1,180,707.65 in credits with an average credit adjustment of $808.47. The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Adjustments</th>
<th>Amount of Adjustments</th>
<th>Average Adjustment Amount</th>
<th>Average Number of Adjustments per Year</th>
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</thead>
<tbody>
<tr>
<td>2008</td>
<td>471</td>
<td>$269,061.65</td>
<td>$571.26</td>
<td>-</td>
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<tr>
<td>2009</td>
<td>575</td>
<td>$291,476.80</td>
<td>$506.92</td>
<td>-</td>
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<tr>
<td>2010</td>
<td>295</td>
<td>$620,169.20</td>
<td>$2,102.27</td>
<td>-</td>
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</table>
From a random sampling of 180 leak adjustments processed in Austin during the 2009 fiscal year, approximately 37% of the leaks were related to irrigation portions of the customers’ water system\(^1^9\) (Austin Energy, 2010). Holding this as a constant assumption and had the utility implemented the recommendation to discontinue adjustments for leaks related to irrigation portions of a customer’s system, the utility would have processed 904 leak adjustments for a total of $785,235.14 in credits with an average credit adjustment of $868.62\(^2^0\). The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Table 8</th>
<th>Actual Leak Adjustment Figures Recalculated Based on the Discontinuation of Irrigation Related Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Year</td>
<td>Number of Adjustments</td>
</tr>
<tr>
<td>2008</td>
<td>319</td>
</tr>
<tr>
<td>2009</td>
<td>381</td>
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<tr>
<td>2010</td>
<td>204</td>
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<tr>
<td>Total Period</td>
<td>904</td>
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</table>

Notes: Fiscal Year 2010 figures only through the end of the 3\(^{rd}\) reporting quarter.

If the utility had implemented all of the recommendations, the utility would have processed 797 leak adjustments for a total of $241,215.21 in credits with an average credit adjustment of $302.65\(^2^1\). The following table displays a breakdown of those figures.

<table>
<thead>
<tr>
<th>Table 9</th>
<th>Actual Leak Adjustment Figures Recalculated Based on All Recommendations in Tandem</th>
</tr>
</thead>
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<tr>
<td>Fiscal Year</td>
<td>Number of Adjustments</td>
</tr>
<tr>
<td>2008</td>
<td>275</td>
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<tr>
<td>2009</td>
<td>336</td>
</tr>
<tr>
<td>2010</td>
<td>186</td>
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<tr>
<td>Total Period</td>
<td>797</td>
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</table>

Notes: Fiscal Year 2010 figures only through the end of the 3\(^{rd}\) reporting quarter.

\(^{19}\) Houston Energy provided this sample of leak adjustment data. The number and amount of leak adjustments in this data set are not included in the figures analyzed throughout this paper.

\(^{20}\) Adjusted figures are based on the assumption that the number of adjustments and total dollars are both proportionately decreased by 37%.

\(^{21}\) These figures are based on the number of adjustments and the total dollars being restated considering all recommendations excluding the discontinuation of irrigation leak adjustments first and then incorporating the impact of the estimated 37% decrease in number of adjustments and total dollars due to discontinuing irrigation leak adjustments.
The following graph presents a visual comparison of the adjusted financial figures for each recommendation by fiscal year.

![Graph comparing adjusted figures for each recommendation by fiscal year.]

**Projection of future water leak adjustment credit figures.**

Each of the policy recommendations has an impact on the average number of leak adjustments per fiscal year. Using the trends identified for each recommendation for the average number of adjustments per year and the average adjustment amount, the City of Austin Water Utility can project cash outflows. The utility could see projected cash outflows ranging between $77,151 and $453,394 depending on the combination of recommendations implemented. The specific cash outflow projections are as follows:

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Average # of Adjustments per Year</th>
<th>Average Adjustment Amount</th>
<th>Projected Cash Outflows</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Changes to Current Policy Parameters</td>
<td>522</td>
<td>$868.57</td>
<td>$453,393.54</td>
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*Table 10: Projected Cash Outflows per Policy Recommendation*
## Previous Policy Parameters

<table>
<thead>
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<th>Recommendation</th>
<th>Water Use</th>
<th>Billing Cap</th>
<th>Adjustments</th>
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<tr>
<td>$600 Residential Adjustment Cap and $1,000 Commercial Adjustment Cap</td>
<td>522</td>
<td>$147.80</td>
<td>$77,151.60</td>
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<td>Discontinuation of Residential Wastewater Adjustments</td>
<td>492</td>
<td>$320.20</td>
<td>$426,760.80</td>
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<td>Discontinuation of Commercial Wastewater Adjustments for Accounts Billing Based on a Wastewater Average</td>
<td>488</td>
<td>$867.40</td>
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<td>Discontinuation of Irrigation Related Adjustments</td>
<td>329</td>
<td>$808.47</td>
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<tr>
<td>All Recommendations in tandem</td>
<td>290</td>
<td>$302.65</td>
<td>$87,768.50</td>
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</table>

The following graph presents a visual comparison of the projected cash outflows for each recommendation.

![Projected cash outflows by recommendation](image)

Figure 2: Projected cash outflows by recommendation. This figure compares the projected cash outflow figures for each each policy recommendation to illustrate the potential effect each recommendation would have on future leak adjustment figures.

Rather than viewing the figures from the perspective of project cash outflows, they can be examined from the perspective of projected cost savings. The utility could see projected cost savings ranging between $0 and $376,114 depending on the
combination of recommendations implemented. The cost savings are calculated based on the difference between the projected cash outflows for each recommendation and the baseline projected cash outflow for no changes to the current adjustment policy parameters. The specific cost savings projections are as follows

![Cost Savings by Recommendation](image)

*Figure 3. Projected cost savings by recommendation. This figure compares the projected cost savings figures for each policy recommendation to illustrate the potential effect each recommendation would have on future leak adjustment figures.*

### Other financial considerations.

In addition to the direct financial impact of revising the water leak adjustment policy, there are other indirect financial gains related to the policy changes that the utility can also take advantage of. The first consideration is revenues from plumbing permits. Under the current leak adjustment policy, proof of plumbing permits is not required to process a leak adjustment. In many cases, customers do not purchase plumbing permits to perform the necessary repairs to fix a leak even though they are required by city
ordinance. By requiring plumbing permits to process leak adjustments, city staff can identify repairs that were improperly completed without a valid permit. Staff could turn over any requests that include un-permitted repairs to code enforcement for investigation. The investigation could result in requiring the property owner to purchase the necessary permits or possible fines. The fees for a typical plumbing permit can range from $23 to $190 (City of Austin Texas, 2009d). Depending on the combination of recommendations implemented, the projected number of leak adjustments that could be processed ranges between 290 and 522 adjustments. Requiring plumbing permits for the repairs on those adjustments could translate into the potential for an additional $6,670 to $99,180 of revenue per fiscal year\textsuperscript{22}. The second consideration is the decreased labor costs related to the decreased number of leak adjustments processed due to the more stringent policy. The projected trend for the number of leak adjustments per fiscal year is 522 should the utility implement no policy changes. Depending on the combination of recommendations implemented by the utility, there could be a reduction of up to 232 adjustments per fiscal year is a possibility. This reduction in the number of adjustments could result in labor cost savings of up to $1,166 per fiscal year\textsuperscript{23}.

Environmental Sustainability (Conservation Impacts)

The second area of triple bottom-line analysis to review is environmental sustainability or conservation impacts. A secondary factor in the decision to edit the existing water leak adjustment policy for the City of Austin Water Utility is the policy’s

\textsuperscript{22} The low-end revenue number ($6,670) is based on the lowest plumbing permit fee ($23) multiplied by the lowest number of projected leak adjustments processed (290); the high-end revenue number ($99,180) is based on the highest plumbing permit fee ($190) multiplied by the highest number of projected leak adjustments processed (522).

\textsuperscript{23} The labor cost savings is calculated based on the reduction number of leak adjustments (232) multiplied by the previously calculated average hourly labor rate of $18.82 per hour multiplied by the previously stated average adjustment processing time of 30 minutes per adjustment.
conservation implications. The city has implemented a number of water conservation initiatives in recent years to better manage critical water supplies in the region. The existing water leak adjustment policy could be considered as rewarding customers for neglecting the maintenance and care of their water systems: the current implementation allows patrons to intentionally waste water and then provides them large financial breaks on account billings. Savvy customers have become aware of how to maneuver the system to intentionally use excessive water during critical water season and then request a reduction to their billings for false repairs made to correct nonexistent leaks. A more stringent leak adjustment policy would place greater accountability on the customer to maintain their water systems, resulting in water conservation by promoting a more watchful system rather than the complacent system that is currently in place.

Quality of Life

The third area of triple bottom-line analysis to review is quality of life. A tertiary factor in the decision to edit the existing water leak adjustment policy for the City of Austin Water Utility is the policy’s quality of life implications. The policy decision can affect not only finances and conservation measures for the utility but also the operating environment for the utility’s employees and the environment in which the customers and the community exist. There can be residual impacts internal to the utility. These impacts are tied to the decreased financial outflows and decreased labor time associated with policy recommendations. By decreasing the cash outflows from leak adjustments, the utility’s budget will be closer to being balanced. This could mitigate any potential future need to cut positions or employee pay as a means of balancing the budget. Decreasing the cash outflows could also lead to reinstating the annual pay raises that have been
suspended due to the current economic environment. This could also allow more funding to provide necessary equipment and training to employees. There is the potential that the additional finances withheld by the utility could be used to hire additional staffing to handle the existing workloads in the utility. Decreased labor time dedicated to processing leak adjustments can allow existing utility staff to place more effort toward and focus on other key utility operations that are currently set at a lesser priority because of the importance placed on processing leak adjustments.

**Impacts on City of Austin Water Utility customers.**

If the utility chooses to implement the recommended changes, customers will likely feel the impact. Inevitably, customers who are affected by a water leak will be less likely to receive a billing adjustment and customers will also have a lower level of financial relief if they suffer from a water leak. While some of the recommendations, if implemented, may place a greater financial burden on the customer than the current policy, the customer will learn a valuable lesson in conservation. The implementation will also cause customers to be more conscious of their water use and to be more proactive in water system maintenance and care. Changes in the current system could also place a greater burden on customers by requiring them to obtain proper permitting for any repairs that are completed, but this requirement should ensure that repairs have been made properly and decrease the chance of repeat issues with that area of the customers’ systems.

**Impacts on the community.**

The community as a whole could be impacted by the water leak policy recommendations. While certain individual customers may suffer from the more
restrictive policy alternatives that could result from the recommendations, the public as a whole will benefit from more financially responsible utility management practices. The community will also reap the environmental benefits resulting from every customer being held accountable for their water use. This could not only could this lead to greater water conservation but also could potentially affect water rates or future needs for water facility expansions that require tax payer funding.

Conclusion

Billing adjustments for customer water leaks are an important area of utility policy that should be reviewed. Providing financial relief to customers who experience a water leak affecting their utility billing is a valuable public relations tool; however, without the proper controls in place, such customer relief can become a costly proposition that may contradict other utility initiatives, including water conservation initiatives. Utilities should provide some assistance to customers, but in these financially trying times, every area of policy that is not positively affecting the utility’s bottom-line must be examined. As demonstrated in the City of Austin Water Utility case study, minor changes to the leak adjustment policy can result in significant impacts. Recommendations for the City of Austin Water Utility can result in a potential total cost savings and revenue generation of $465,870 per fiscal year. The general guidelines created by the research can have similar impacts for utilities that also have liberal leak adjustment policies like the City of Austin Water Utility. Simple adjustments to policy can improve a utility’s financial sustainability while still maintaining a positive relationship with the public. The considerations set forth in this paper should provide a solid foundation for utilities seeking to revise their existing water leak adjustment policies and a solid starting block
for those seeking to implement their initial iteration of a formal water leak adjustment policy.
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http://www.saws.org/conservation/ordinance/


http://www.saws.org/who_we_are/service.shtml


http://www.texaswatermatters.org/pdfs/SanAntonio_case_study.pdf


http://www.texaswatermatters.org/conservation_users.htm


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## Water Leak Adjustment Survey Contact List

<table>
<thead>
<tr>
<th>Title</th>
<th>First Name</th>
<th>Last Name</th>
<th>Company</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip Code</th>
</tr>
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<tbody>
<tr>
<td>Mr.</td>
<td>H. Wayne</td>
<td>Lisenbee</td>
<td>City of Abilene</td>
<td>P.O. Box 60</td>
<td>Abilene</td>
<td>TX</td>
<td>79604</td>
</tr>
<tr>
<td>Mr.</td>
<td>Stan</td>
<td>Allred</td>
<td>Albuquerque Public Works Dept.</td>
<td>P.O. Box 1293</td>
<td>Albuquerque</td>
<td>NM</td>
<td>87103</td>
</tr>
<tr>
<td>Mr.</td>
<td>Emmett</td>
<td>Autrey</td>
<td>City of Amarillo Utilities</td>
<td>P.O. Box 1971</td>
<td>Amarillo</td>
<td>TX</td>
<td>79105-1971</td>
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<td>Ms.</td>
<td>Sommer</td>
<td>Norton</td>
<td>City of Arlington Water Utilities</td>
<td>201 E. Abram Street, #600</td>
<td>Arlington</td>
<td>TX</td>
<td>76010</td>
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<tr>
<td>Ms.</td>
<td>Melinda</td>
<td>Langston</td>
<td>City of Atlanta Department of Water</td>
<td>55 Trinity Ave SW Ste 5700</td>
<td>Atlanta</td>
<td>GA</td>
<td>30335</td>
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<tr>
<td>Ms.</td>
<td>Nanette</td>
<td>McCartan</td>
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<td>600 North Bell Blvd.</td>
<td>Cedar Park</td>
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<tr>
<td>Mickey</td>
<td>Hicks</td>
<td></td>
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<td>Charlotte</td>
<td>NC</td>
<td>21216</td>
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<tr>
<td>Ms.</td>
<td>Terry</td>
<td>Chapa</td>
<td>City of Corpus Christi Water Dept</td>
<td>P.O. Box 9277</td>
<td>Corpus Christi</td>
<td>TX</td>
<td>78469-9277</td>
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<tr>
<td>Mr.</td>
<td>Juan</td>
<td>Lerma</td>
<td>City of Corpus Christi Wastewater</td>
<td>P.O. Box 9277</td>
<td>Corpus Christi</td>
<td>TX</td>
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<tr>
<td>Ms.</td>
<td>Erica</td>
<td>Robinson</td>
<td>Dallas Water Utilities</td>
<td>1500 Marilla Street, Rm. 4AS</td>
<td>Dallas</td>
<td>TX</td>
<td>75201</td>
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<tr>
<td>Ms.</td>
<td>Katherine</td>
<td>Nogrady</td>
<td>Denver Water</td>
<td>1600 W. 12th Ave.</td>
<td>Denver</td>
<td>CO</td>
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<tr>
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<td>1154 Hawkins</td>
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<td>Mr.</td>
<td>Robert</td>
<td>Shook</td>
<td>City of Fort Worth Water Department</td>
<td>1000 Throckmorton Street</td>
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<td>Rivera</td>
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<td>Sherry</td>
<td>Knox</td>
<td>Louisville &amp; Jefferson County MSD</td>
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<td>Louisville</td>
<td>KY</td>
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<td>Tanya</td>
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<td>550 South Third St.</td>
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<td>Gaylyn</td>
<td>Chapman</td>
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<td>Box 2000</td>
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<td>Gary</td>
<td>Bright</td>
<td>Memphis Light, Gas and Water</td>
<td>220 S. Main Street</td>
<td>Memphis</td>
<td>TN</td>
<td>38103-3917</td>
</tr>
<tr>
<td>Mr.</td>
<td>Ron</td>
<td>Kirby</td>
<td>City of Memphis Wastewater Department</td>
<td>125 N. Main, Rm. 608</td>
<td>Memphis</td>
<td>TN</td>
<td>38103</td>
</tr>
<tr>
<td>Mr.</td>
<td>Richard</td>
<td>Rasmussen</td>
<td>City of Milwaukee Department of Public Works</td>
<td>841 N. Broadway, Rm 406</td>
<td>Milwaukee</td>
<td>WI</td>
<td>53202-3687</td>
</tr>
<tr>
<td>Ms.</td>
<td>Sue</td>
<td>Leiga</td>
<td>East Bay MUD</td>
<td>350 11th St</td>
<td>Oakland</td>
<td>CA</td>
<td>94607-4240</td>
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<tr>
<td>Ms.</td>
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<td>Berel</td>
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<tr>
<td>Ms.</td>
<td>Tracy</td>
<td>Hibbs</td>
<td>City of Pflugerville</td>
<td>P. O. Box 589</td>
<td>Pflugerville</td>
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<td>78691</td>
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</table>
### Table 11  
**Appendix A – Water Leak Adjustment Survey Contact List**

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<tr>
<th>Title</th>
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<th>Company</th>
<th>Address</th>
<th>City</th>
<th>State</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ms.</td>
<td>Eric</td>
<td>Hofeld</td>
<td>City of Portland Bureau of Water Works</td>
<td>1120 SW 5th Avenue</td>
<td>Portland</td>
<td>OR</td>
<td>97204</td>
</tr>
<tr>
<td>Mr.</td>
<td>Duane</td>
<td>Peterson</td>
<td>City of Portland Bureau of Env. Services</td>
<td>1120 SW 5th Avenue, Rm 1000</td>
<td>Portland</td>
<td>OR</td>
<td>97204</td>
</tr>
<tr>
<td>Mr.</td>
<td>Paul</td>
<td>Palley</td>
<td>City of Phoenix</td>
<td>305 West Washington</td>
<td>Phoenix</td>
<td>AZ</td>
<td>85003</td>
</tr>
<tr>
<td>Ms.</td>
<td>Irma</td>
<td>Mendoza</td>
<td>City of Round Rock Water</td>
<td>221 E. Main Street</td>
<td>Round Rock</td>
<td>TX</td>
<td>78664</td>
</tr>
<tr>
<td>Mr.</td>
<td>Burnie</td>
<td>Willis</td>
<td>Salt Lake City Corp., Public Utilities</td>
<td>1530 SW Temple</td>
<td>Salt Lake City</td>
<td>UT</td>
<td>84115</td>
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<tr>
<td>Mr.</td>
<td>Louis</td>
<td>Lendman</td>
<td>City of San Antonio</td>
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<td>San Antonio</td>
<td>TX</td>
<td>78298</td>
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<tr>
<td>Ms.</td>
<td>Debbie</td>
<td>Waddell</td>
<td>City of San Diego Water</td>
<td>600 B Street, Ste. 1200</td>
<td>San Diego</td>
<td>CA</td>
<td>92101</td>
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<tr>
<td>Mr.</td>
<td>Ernest</td>
<td>Cavazos</td>
<td>City of San Marcos</td>
<td>630 E. Hopkins St.</td>
<td>San Marcos</td>
<td>TX</td>
<td>78666</td>
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<tr>
<td>Mr.</td>
<td>Craig</td>
<td>Omoto</td>
<td>Seattle Public Utilities</td>
<td>700 5th Ave, Ste. 4900</td>
<td>Seattle</td>
<td>WA</td>
<td>98104</td>
</tr>
<tr>
<td>Ms.</td>
<td>Barbara</td>
<td>Buus</td>
<td>City of Tucson</td>
<td>P.O. Box 27210</td>
<td>Tucson</td>
<td>AZ</td>
<td>85726-7210</td>
</tr>
<tr>
<td>Ms.</td>
<td>Sharron</td>
<td>Miller</td>
<td>Pima County Public Works</td>
<td>201 N. Stone</td>
<td>Tucson</td>
<td>AZ</td>
<td>85701-1207</td>
</tr>
</tbody>
</table>

**Notes:** Direct contact information including phone numbers, fax numbers, and email addresses that were included in the original contact list have been excluded from this appendix for privacy considerations.

**Source:** D. McDonald, personal communication, May 6, 2010.
Appendix B

Water Leak Adjustment Survey

[Recipient],

I am doing research for the City of Austin on the water leak adjustment policies of some targeted [choose: Texas or U.S.] cities. The Austin Water Utility is exploring a revision to its current water leak adjustment policy and is seeking comparison information for other utilities. I was given your contact for information regarding the [municipality or utility name]’s water leak adjustment policy. I was hoping you may be able to assist me or point me in the right direction in answering some of the questions I have.

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment?
- Are there specific types of leaks that are identified as “eligible leaks”?
- Are there specific types of leaks that are identified as “ineligible leaks”?
- What type of adjustments are done; water only, wastewater only, or both?
- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts?
- How many billing periods (or what period of time) is adjusted due to a leak?
- What are the calculations for determining the water credit for a leak?
- What are the calculations for determining the wastewater credit for a leak?
- Is there a maximum credit that a customer can receive?

I apologize for the number of questions in my inquiry, but our management team wants to be as thorough as possible in the data that we collect. Any assistance you can provide would be greatly appreciated.

Thank you,
Rick

Rick Selin
Utility Account Analyst
Austin Water Utility
625 E. 10th St., Ste. 200
Austin, TX 78701
Appendix C

Water Leak Adjustment Survey Responses

Note: Direct contact information including phone numbers, fax numbers, and email addresses that were included in the original correspondence have been excluded from this appendix for privacy considerations.

City of Abilene

The City of Abilene does provide a leak adjustment; however, it is extremely complicated and out-dated. We are considering making a change as well.

We provide one leak adjustment per year. The customer must provide receipts and/or plumber invoices to show that the leak was repaired.

We provide the leak adjustment for one month, typically the highest month consumption.

For Water: take total consumption for the month and multiply by $0.96. This is the new billing amount for water. (I’m not sure where the 0.96 comes from. It’s just the number that has been used for years.)

For Sewer: take the average consumption for the last three months. We calculate the new sewer charge based on this consumption volume.

For Debt Service Surcharge: We cut the debt service surcharge amount in half. (We have a $0.60/1000 gallon debt service surcharge for all customers)

Further comments inserted below…

Thanks,

Howdy Wayne Lisenbee
Asst Director of Water Utilities

City of Albuquerque Public Works Department

I will give you one generic answer to all your questions below. This will apply to all classes of customers. As far as water charges go, we make the owner pay for all water consumption. During the months of April thru October we do apply a Extra use surcharge to our customers. This charge is based upon 300% and 400% of their winter average. So if a customer has a winter average of 10 units and they use 35 units in a month we will surcharge them for the 5 units over 30. The surcharge increase at the 400% level. So if a customer has a leak in the winter and can prove to us that they indeed
had a leak, such as a plumbers bill, we adjust their winter average back to historical figures. This holds true as well to the sewer charges. If the leak occurred during the months of April thru October then we would waive any extra use surcharges that would have been generated if they have prove that they had a leak, but they would be still responsible to pay for the entire consumption that went thru the meter. We never however waive the base commodity charge.

Stan Allred
Chief Financial Officer
Albuquerque Bernalillo County Water Utility Authority

City of Amarillo Utilities

Rick, I’m not sure our policy directly answers all your questions. I have attached a copy of our policies and our ordinance. Please let me know if you need any questions answered that the policy itself doesn’t answer.
Hope everything is good in Austin.
Thanks

Floyd Hartman
Assistant Director of Utilities
City of Amarillo

City of Atlanta

May 11, 2010

Mr. Selin:

Thank you for your inquiry regarding the adjustment policies for the City of Atlanta. Ms. Langston, Director forward this to my attention for handling. My response is listed below however I noted that you can call me in regards to the calculation.

Most cordially,
Dorothy Henry
Watershed Manager Sr.

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? YES
- Are there specific types of leaks that are identified as “eligible leaks”? YES (Broken pipe above and underground, toilet leak for the deaf only, vandalism, meter leak are eligible to receive an adjustment).
- Are there specific types of leaks that are identified as “ineligible leaks”? YES toilet (not deaf) and faucet leaks are not eligible.
- What type of adjustments are done; water only, wastewater only, or both? All of the above are for water and sewer unless it is an account that is not billed for sewer service.
• Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? No
• How many billing periods (or what period of time) is adjusted due to a leak? Broken pipes 1-2 periods; vandalism – 2 periods meter leak – unlimited because it is the City’s responsibility to make the repairs for meter leaks.
• What are the calculations for determining the water credit for a leak? – Please give me a call.
• What are the calculations for determining the wastewater credit for a leak? – Please give me a call.
• Is there a maximum credit that a customer can receive? The above listed is the maximum.

City of Cedar Park

Good morning, Rick.

Below is our ordinance regarding credits due to leaks. There is no maximum adjustment amount, but credit is only calculated based on one month. Wastewater credits aren’t generally issued due to our fixed winter sewer averages. The exception to this would be for commercial accounts whose sewer charges are based on monthly metered usage. The following policy applies to both residential and commercial accounts:

Sec. 18.01.012 Water credit policy

(a) Customers who have experienced water loss due to the following reasons may request an adjustment to their accounts:

(1) Underground leaks

(2) Leaks behind walls

(3) Leaks in the slab

(b) The adjustment must be received in writing with proof of repairs: plumbing invoices or receipt of plumbing supplies. The request for this adjustment must be made within 6 months of the repair date.

(c) The adjustment will be made at one-half the difference between the customer’s highest consumption during the leak period and normal comparable consumption within a two month range.

(d) Current water rates will be used to determine the amount to be adjusted to the customer’s account.

Example: 70,000 gallons – monthly consumption billed with leak
50,000 gallons – normal comparable consumption

Adjustment formula: 70,000 gallons – 50,000 gallons = 20,000 gallons divided by 2 (overage cost split with customer) = 10,000 gallons eligible for credit

10,000 gallons of water to be credited based on current water rates

Please feel free to let me know if you have additional questions.

Nanette McCartan
Utility Billing Supervisor

Charlotte Mecklenburg Utilities

Mr. Selin,

At Charlotte-Mecklenburg Utilities we do perform leak adjustments for both our residential and commercial customers. The leak policy is the same for all customers, whether they are residential, commercial or non-profit.

To be eligible, the leak must be on an underground, in-wall, floor, or ceiling water line. Leak adjustments are not permitted for appliances, commodes, fixtures, irrigation heads…etc. After proof that the leak has been repaired and the consumption returns to normal, 50% of the water and sewer overage is adjusted for the two highest months during the leak period. If the water did not return to the sewer system, 100% of the sewer is adjusted. One adjustment is allowed per rolling year and there is no maximum adjustment amount.

Let me know if you need any other details.

Steve Miller
Customer Service Manager
Charlotte-Mecklenburg Utilities
5730 General Commerce Drive
Charlotte, NC 28213

Dallas Water Utilities

Mr. Selin,

My name is Stefani Salinas and I am the supervisor over our leak adjustment section. I have sent basic responses to the questions that were asked, see below. However if you have any additional questions please feel free to contact me directly. We also reference our City of Dallas Ordinance, Chapter 49 so if you would like a copy of that to read over please let me know.
Thank you for your patience. Have a great day!

Stefani

Will you please assist Mr. Selin with the City of Austin regarding DWU’s Water Leak Adjustment Policy?

Listed below are questions that he has as to how Dallas Water Utilities handles each process.

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment?
  - Yes.
  - The criteria for eligibility can be found in the City of Dallas Ordinance, Chapter 49.

- Are there specific types of leaks that are identified as “eligible leaks”?
  - Yes.
  - Eligible leaks include: Underground, under house, kitchen and bathroom leaks, broken/cracked pipes or lines, valves, toilet leaks, bathroom fixture leaks, water heater leaks, return/cleaning lines in pools, vandalism, outgoing gasket meter leaks

- Are there specific types of leaks that are identified as “ineligible leaks”?
  - Yes.
  - Ineligible leaks include: Water spigots left on by mistake, broken sprinkler heads/nozzles/risers/timers, sprinkler malfunctions, pool cracks/replastering/tile work, autofill malfunctions, refilling pool, or ingoing meter leaks (does not affect consumption)

- What type of adjustments are done; water only, wastewater only, or both?
  - Depending on the customer’s Winter Month Average (WMA), wastewater may or may not be adjusted at the time that the water is adjusted. If the customer’s WMA is lower than what the water is adjusted to, then the wastewater is left the same.

- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts?
  - No.
  - All commercial, industrial and residential accounts are eligible for leak adjustments under the same guidelines found in Chapter 49. However, if the customer has private deduct meters, they are not eligible for leak adjustments.

- How many billing periods (or what period of time) is adjusted due to a leak?
  - The customer can receive a credit for up to 3 months of the time that the consumption was affected by the leak.
What are the calculations for determining the water credit for a leak?
The customer’s usage during the leak is reduced to the leak-free consumption that was either the same time last year, or the billing period following the leak repair. Once the usage is reduced down to the leak-free amount, the customer is then charged “wastage” for the remaining amount of usage. That is $1.54 per 1,000 gallons for residential, and $2.74 per 1,000 gallons for commercial.

What are the calculations for determining the wastewater credit for a leak?
If a wastewater credit is due, the customer will be given back dollar-for-dollar on the amount it’s reduced to at the rate of $4.26 per 1,000 gallons for residential and $2.03 per 1,000 gallons for commercial.

Is there a maximum credit that a customer can receive?
No. There is no maximum or minimum amount of credit that can be given. It is all based purely on water consumption.

Thank You,

Kimala S. Woods
Dallas Water Utilities
Billing & Records – Leak Adjustments

East Bay MUD

Hi Rick, I hope this information is helpful.

Are there criteria that need to be met for a customer to be eligible for a leak adjustment? The leak must be repaired and sometimes we require proof.

Are there specific types of leaks that are identified as “eligible leaks”? toilets, houselines (service lines), irrigation & plumbing fixture leaks. We don’t do adjustments for pools, for instance.

Are there specific types of leaks that are identified as “ineligible leaks”? pools

What type of adjustments are done; water only, wastewater only, or both? We adjust 50% of the excess water charges. If the wastewater treatment and/or city “agency” fees (we collect for the city sewer pipes in the street as a courtesy for some cities) are based on consumption, we adjust 50% of the excess of normal consumption from those charges as well.

Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? no

How many billing periods (or what period of time) is adjusted due to a leak? the practice is the highest bill affected by the leak, but exceptions can be made to adjust multiple billing periods (e.g. delay in bill generating causing two bills to be affected)

What are the calculations for determining the water credit for a leak? 50% of the excess water consumption over normal usage.

What are the calculations for determining the wastewater credit for a leak? same
- Is there a maximum credit that a customer can receive? 50% of the excess is the maximum per billing period, but multiple bills affected by a hard to find leak have occurred. These are the exceptions, though.

I am out of the office until May 18, 2010. If you need further information or clarification, please contact either Steve Sakai or Julie Najera

Take care.

Susan Holston
Customer Services Supervisor
Customer Services Division, EBMUD

City of Fort Worth Water Department

Mr. Selin,

Good afternoon and thank you for contacting the City of Fort Worth in reference to our leak policy. I hope you find this information informative. Should need additional information please email.

Thanks,

Beverly Lightfoot,
Water Business Services
Billing Supervisor

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? Yes, to be eligible the following must occur:
  1. Consumption usage has significantly increased during the month the leak is noticed and repaired
  2. The customer has not received a leak adjustment in the past twelve months
  3. The customer has to present proof that the leak has been repaired. (proof examples are: plumbing repair receipts, hardware store receipts indicating plumbing supplies were purchased to fix the leak

- Are there specific types of leaks that are identified as “eligible leaks”? Yes
  1. Meter Gasket leaks
  2. Sprinkler leaks
  3. Any type of underground or hidden leak
  4. Faucets
  5. Hot Water heater
  6. Commode

- Are there specific types of leaks that are identified as “ineligible leaks”? NO

- What types of adjustments are done; water only, wastewater only, or both? Both
1. A residential customer receives an adjustment for water only because an average wastewater volume is obtained every year capping their wastewater. (Winter Quarter Averaging)
2. A commercial customer receives an adjustment on both water and wastewater because wastewater consumption is computed based on water consumption.
3. Industrial accounts billing BOD/TSS receives an adjustment on water, wastewater and BOD/TSS

- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? Yes (please statement above)

- How many billing periods (or what period of time) is adjusted due to a leak? Our policy allows for an adjustment of the two highest consumption months during the period the leak occurred and was repaired.

What are the calculations for determining the water credit for a leak? Calculations:
- Total water consumption for six monthly billing periods/ six = Average Consumption
- For the two highest monthly consumptions: (Consumptions-Average Consumption) / 2 = Adjusted consumption.
- Adjusted consumption x water/waste water rate = Adjusted dollar amount

- What are the calculations for determining the wastewater credit for a leak? Please see statement above

- Is there a maximum credit that a customer can receive? No

City of Georgetown

Rick,

Please see my responses below to your questions. Let me know if you need further explanation.

Sincerely,
Debbie Jolly
City of Georgetown
Utility Office
Account Specialist

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment?
- The leak must have used 50,000 gallons or more of water. The customer must give me a copy of the repair bill or receipts for supplies if the repair was done by themselves.
- Are there specific types of leaks that are identified as “eligible leaks”? 
Main water line break, irrigation line break, etc.
Are there specific types of leaks that are identified as “ineligible leaks?”
Forgot to turn off sprinkler, leaking faucets, etc.
What type of adjustments are done; water only, wastewater only, or both?
Since we have a fixed sewer rate for residential customers, only a water leak credit is given. For commercial customers whose wastewater charge is based on water usage, a water leak credit is given along with a wastewater credit.
Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? No
How many billing periods (or what period of time) is adjusted due to a leak?
The adjustment is done for the duration of the leak within reason. If someone knows they have a leak (we notified them) and did not repair it for months, I will only go back one billing period. If they had a leak, but did not realize it, I will usually give them credit for three billing periods maximum. It depends a lot on each individual situation. I use my judgment.
What are the calculations for determining the water credit for a leak?
I look to see if we have daily readings for the customer to see when the leak started, was repaired, and how much was used for it. I also look at their past usage to see if I can determine the amount of water they should have been billed for during that period. For residential and commercials accounts, we give a leak credit of $0.30/1,000 gallons of water, which is the profit that the City makes on the water after it's been treated.
What are the calculations for determining the wastewater credit for a leak?
For commercial customers, I give full credit per thousand gallons on the wastewater based on how much water was used for the leak. There is no credit given to residential customers on the fixed rate.
Is there a maximum credit that a customer can receive? No

Louisville Water

Rick

I have answered your questions below, and I have also included a statement about our sewer adjustments. In our case the sewer company is a stand alone company, but their rates are based on water consumption, and there charges are billed on the water bill.

“Do all leak adjustments qualify for sewer adjustments as well?” This depends on a number of factors, but typically yes a water leak adjustment would warrant a sewer adjustment as well. If the leak occurred underground or in the slab (probably did not re-enter the system) MSD and most private sewer companies would grant a 100 % (of overage) sewer adjustment. In some cases, though, customers aren’t connected to sewers so there would not be an adjustment other than for water overage.”

If you need something else please let me know.

Tonya Taylor
Sr. Financial Analyst  
Louisville Water Company  
550 S. Third Street  
Louisville KY 40202

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? Leak must be fixed, proof of repair is required.
- Are there specific types of leaks that are identified as “eligible leaks”? No all leaks are eligible but leaks cause by vandalism must have a police report.
- Are there specific types of leaks that are identified as “ineligible leaks”? No.
- What type of adjustments are done; water only, wastewater only, or both? Water and waste water.
- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? No all are eligible.
- How many billing periods (or what period of time) is adjusted due to a leak? Limited to two billings in a 12 month span.
- What are the calculations for determining the water credit for a leak? 50% adjustment for water consumption over customer’s average consumption. 75% adjustment for vandalism leaks.
- What are the calculations for determining the wastewater credit for a leak? 50% adjustment for water consumption over customer’s average consumption.
- Is there a maximum credit that a customer can receive? The customer service agent is allowed to give up to a combined $1,000.00 adjustment or $500.00 for water only (customers with out sewer service) Any adjustments required over amounts above must be approved by management.

City of Memphis

Mr. Selin  
We are the wastewater agency and I will attempt to answer those questions. Memphis Light Gas and Water is our water utility. I have copied Mr. Thomas Word of MLGW who may be able to assist you in that area. I will place my answers next to your questions below.

R. W. Kirby

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? The customer must provide proof that the leak has been repaired. The sewer bill must be an anomaly and be verifiable looking at history. We need proof that the water did not go into the sewer. (Plumber repair tickets and notes)
- Are there specific types of leaks that are identified as “eligible leaks”? We do not differentiate.
- Are there specific types of leaks that are identified as “ineligible leaks”? We do not differentiate.
- What type of adjustments are done; water only, wastewater only, or both? 
- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? No.
- How many billing periods (or what period of time) is adjusted due to a leak? Our ordinance specifies a 12 month period. We can sometimes go past that under certain conditions.
- What are the calculations for determining the water credit for a leak?
- What are the calculations for determining the wastewater credit for a leak? We will usually compare the previous 12 months for similarity.
- Is there a maximum credit that a customer can receive? No.

City of Pflugerville

Hi, Rick.

I think the attached will answer your questions. Adjustments are only offered to residential customers. We will also adjust the wastewater if the leak occurs during the winter averaging period. As for commercial customers, we do not adjust water but will make adjustments to wastewater. There is no maximum adjustment although they are only allowed one adjustment.

Let me know if you have any other questions.

Tracy

City of Phoenix

Are there criteria that need to be met for a customer to be eligible for a leak adjustment? We do not offer customer property leak adjustments for water.
Are there specific types of leaks that are identified as “eligible leaks”?
No.
Are there specific types of leaks that are identified as “ineligible leaks?”
No.
What type of adjustments are done; water only, wastewater only, or both?
Leaks during the wastewater calculation months of Jan, Feb, or Mar and repaired, will be taken into consideration when recalculating the years Sewer Flow.
Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts?
No.
How many billing periods (or what period of time) is adjusted due to a leak?
N/A.
What are the calculations for determining the wastewater credit for a leak?
Not a credit, we reduce the JFM average consumption when figuring the Sewer flow. We look at last years and current month consumption to determine the reduction.
Is there a maximum credit that a customer can receive?
No credit.

Hope this helps. If more information needed, just e-mail or call.
Thank you,
Sheri Kroeplin
Customer Service Supervisor II

**City of Portland Bureau of Water Works**

Rick,

Here is a link to our leak adjustment policy for the City of Portland. Please feel free to call me if you have any additional questions

http://www.portlandonline.com/auditor/index.cfm?c=41644&a=109495

Vicki Grudzinski
Bureau of Environmental Services

Hi Rick, our Leak Adjustment Policy is part of our City Code. I think the information below answers your specific questions. The Customer summary page is attached above and can be found online at http://www.portlandonline.com/water/index.CFM?c=48899. The more detailed policy document is also attached here and can be found online at http://www.portlandonline.com/auditor/index.cfm?c=41644&a=109495.

I believe all the questions you've asked are answered in the 2 documents. Feel free to follow-up if you have more questions.

Carolyn Meeks, Senior Management Auditor
Customer Services Group
Portland Water Bureau

**City of Round Rock Water**

I’ve attached our internal guidelines for leak adjustments.

What does the City of Austin do currently? Please advise.

Thanks.

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? Yes. They must have 12 months of history w/us. Leak has had to be repaired. The request is submitted in writing. The account is reviewed after the next billing is generated and consumption is back to normal.
- Are there specific types of leaks that are identified as “eligible leaks”? No
- Are there specific types of leaks that are identified as “ineligible leaks”? No
What type of adjustments are done; water only, wastewater only, or both? Both. Wastewater only if the leak was during the averaging period and it affected the sewer average for the current year.

Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? No

How many billing periods (or what period of time) is adjusted due to a leak? One month.

What are the calculations for determining the water credit for a leak? We adjust the highest month of leak to the highest prior 12 months consumption and split the difference in half. During the sewer averaging period of Dec, Jan, Feb we adjust the one month leak to the average of the last 3 years for that month and split the difference in half.

What are the calculations for determining the wastewater credit for a leak? Only if the leak affects the sewer average does the customer get a wastewater adjustment after the leak is repaired.

Is there a maximum credit that a customer can receive? No.

Salt Lake City Corporation Public Utilities

Salt Lake City allows water leak adjustments on a service line repair or replacement or a sprinkling system leak. Following is the policy our department applies for each adjustment.

Service Line Break Adjustment
The service line is the water line between the meter and the house. If the consumption has increased over the previous year, the Department will verify the repair by field investigation. Upon verification and documentation of the repair from the customer, the Department will abate 50% of the difference for two month over the same time period for the previous year.

Irrigation System Break Adjustment
If consumption has increased by more than 200% over the previous year due to a sprinkler system break, the Department will adjust the water charges to water usage at the second tier rate for all water usage above the first tier for two months. This will be a onetime per owner adjustment.

We do not adjust for inside plumbing leaks.

We do not differentiate between residential or commercial/industrial accounts.

Sewer Charge Adjustment
Our sewer charges are based on the average water usage between the months of November and March of every year. We allow sewer charge adjustments if excessive quantities of culinary water pass through the water meter, but are consumed on the premises and do not enter the sewer system. In each such instance, the user will have the burden of providing evidence of such inequities by showing that the quantity of water did
not enter the sewer, but passed through the meter. This policy typically applies to an outside repair.

When defective plumbing has caused the average winter water consumption to exceed the previous year’s average by twenty five percent (25%) or more, there may be an adjustment made based on prior usage. The customer must provide evidence that plumbing repairs were made within thirty (30) days of the notification from the Department. Such evidence may be in the form of a statement detailing the repairs made and the date of completion. The adjustment is then made following the determination that the repairs have resulted in decreased water consumption. This policy applies to inside repairs.

We do not differentiate between residential or commercial/industrial accounts when applying this policy.

I hope I have answered all of your questions. Feel free to contact me if I can be of additional assistance.

Best Regards,

Sybilla Dalton
Customer Service Manager
Salt Lake City Public Utilities

City of San Marcos

Good morning Rick,

I have responded to your questions below. Please let me know if you need any additional information or if you don’t mind sharing your determination once the research is completed.

Thank you
Ernest Cavazos
Utilities Billing Manager
City of San Marcos

- Are there criteria that need to be met for a customer to be eligible for a leak adjustment? The customers must submitted a receipt of repair or signed letter of the worked they performed and receipt of parts if they did the work themselves.
- Are there specific types of leaks that are identified as “eligible leaks”? no
- Are there specific types of leaks that are identified as “ineligible leaks?” no
- What type of adjustments are done; water only, wastewater only, or both? both
- Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts? no
How many billing periods (or what period of time) is adjusted due to a leak? We will apply an adjustment for up to 2 months if the usage indicates the increased usage.

What are the calculations for determining the water credit for a leak? The adjustment are either the previous 12 months average or ½ the usage which every is largest. In extenuating circumstances, such as the history may be 5000 gallons monthly and the leak is equal to 50,000 gallons, we will use the 12 month average or their highest usage for the last 12 months.

What are the calculations for determining the wastewater credit for a leak? The calculation is the same as water, but we bill seasonal sewer for residential accounts so they do not get adjustment. We also will not adjust wastewater unless the leak is in an area that the water will flow through the sewer lines.

Is there a maximum credit that a customer can receive? There is not a cap.

Seattle Public Utilities

Good morning, Craig: I’ll take a stab at answering Rick’s questions.

Good morning Rick:

I’ll try taking on your questions in the order you presented them:

Are there criteria that need to be met for a customer to be eligible for a leak adjustment?

1. Yes, for example, a customer applying for an underground leak adjustment must provide evidence of repair and (in general) leave the repair uncovered for inspection by our Water Service Inspectors. Toilet leak rebates require receipts for parts or services used in the repair (e.g., toilet flapper receipt). In all cases, the customer must apply for an adjustment in writing and an still meter read is required to provide assurance the leak has been repaired effectively.

Are there specific types of leaks that are identified as “eligible leaks”?

1. Yes, eligible leaks are listed in our policy and procedure document.

Are there specific types of leaks that are identified as “ineligible leaks”?

1. No.

What type of adjustments are done; water only, wastewater only, or both?

1. Both; if it can be demonstrated that no water entered the sewer, then a wastewater adjustment is allowed.

Is there a differentiation between adjustment eligibility for commercial/industrial accounts versus residential accounts?

1. No, the policy and procedure covers both customer classes.

How many billing periods (or what period of time) is adjusted due to a leak?

1. In general, up to two billing periods plus the current unbilled charges are eligible for adjustment.

What are the calculations for determining the water credit for a leak?

1. In general, consumption from the same period in the preceding year is used as a basis for “normal” consumption. This amount is subtracted from the leak consumption to derive the “excess” consumption due to the leak. Generally,
50% of the excess consumption is the amount subject to adjustment. If third tier summer rates apply to any of the leak consumption, the consumption is recalculated at second tier rates for the purposes of the adjustment.

- **What are the calculations for determining the wastewater credit for a leak?**
  1. Similar to water credit process. If the sewer consumption occurs during the summer when the sewer max (our method of providing an irrigation allowance for residential customers) is in effect, then no adjustment is done to sewer. 100% of excess can be adjusted provided it can be shown that no leak consumption entered the sewer.

- **Is there a maximum credit that a customer can receive?**
  1. No.

I’m going to ask one of our Admin folks to copy our policy and procedure and mail it down to you in Austin…more details on how we perform these adjustments can be found in that document…

Mike
Appendix D

Water Leak Adjustment Criteria Matrix

The following four pages contain a table tracking the data collected on the water leak adjustment policies for each of the 112 utilities that were researched. Due to the volume of data collected and the size of the original spreadsheet matrix, the table has been broken into four sections in order to be presented in a manner that the text is legible.
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| Notes: |
| Any leak not noted as ineligible |
| Eligible Leaks |
| Ineligible Leaks |

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### Appendix D - Water Leak Adjustment Criteria Matrix

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<th>Pools/Ponds/Fountains</th>
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<th>Behind Wall/In Crawl Space</th>
<th>Not Visible</th>
<th>Outside</th>
<th>Vandalism</th>
<th>Pool</th>
<th>Underneath House/Leak Water</th>
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Calculations of Leak Credit for Water Consumption

- Credit = (leak bill - average bill) * .5 * highest rate tier
- Credit = Leak Bill - Leak Usage not entering WW
- Credit = (leak bill - average bill) * 15%
- Credit = (leak bill - highest normal bill) * .5
- Credit = ((leak bill - (avg bill * 200%)) * .5) - $20
- Credit = (leak bill - (average bill * 1.5)
- Credit = (leak bill - average bill) * special rate
- Credit = leak bill - (leak bill * special billing rate)
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</table>

### Credit Calculations

1. **Credit** = leak bill - (leak bill * special rate)
2. **Credit** = leak bill * .5
3. **Credit** = (leak bill - average bill) * .5
4. **Credit** = (leak bill - average bill) * special rate
5. **Credit** = (leak bill - average bill) * .25
6. **Credit** = leak bill - (usage * second tier rate)
7. **Credit** = (leak bill - average bill) * .5 * highest rate tier
8. **Credit** = (leak bill - highest normal bill) * .5
9. **Credit** = (leak bill - average bill) * highest tier rate
10. **Credit** = leak bill - ((leak bill - average bill) * .5) * special billing rate
11. **Credit** = (leak bill - highest normal bill) * .5
12. **Credit** = leak bill * .5

### Ineligible Leaks

- Leaks due to vandalism, criminal mischief, or theft
- Leaks not noted as eligible
- Excess usage
- Internal plumbing
- Leaks at apartment buildings/complexes
- Pools, ponds, fountains
- Water heaters
- Leaks not visible
- Underground/under house/slab
- Behind wall/in crawl space
- Other
- Leaks that are a volume greater than normal usage
- Leaks that are a percentage higher than average use

### Timeframe Adjusted

- 24 Months
- 6 Months
- 12 Months
- 2 Months
- 1 Month
- 3 Months

### Appendix D - City of Austin Water Utility Target Utility Water Leak Adjustment Criteria Matrix
Water Leak Adjustment Criteria Matrix References

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