

This presentation premiered at WaterSmart Innovations

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CSI: Irrigation

The Forensics of Solving High Bill Complaints



Austin Water: an Overview

- Surface water utility
- 200,000 taps serving 900,000 customers
- ~ 90 to 220 MGD
- Tiered rate structure for residential
- Peak / Non-Peak for commercial



Tiered Rate Structure

VOLUME UNIT CHARGE: ALL VOLUMES

UNIT RATE PER 1,000 GALLONS

- **Single-Family Residential**

– 0 - 2,000 Gallons	\$	1.25
– 2,001 - 6,000 Gallons	\$	2.80
– 6,001 - 11,000 Gallons	\$	5.60
– 11,001 - 20,000 Gallons	\$	9.40
– 20,001 - over Gallons	\$	12.25

The Call

- Customer calls with concern of an unexplained spike in their water bill
- Customer service will order a meter re-read
- Customer service reviews billing to identify any obvious changes in billing cycle
- Is there an irrigation system on site?

What's the Concern

Is it the \$\$\$?

- “I cant afford these bills”
- “My neighbors’ bills aren’t this high”
- “Why did my bill double”
- “Why is the waste water charge so high”

Is it the Gallons ?

- “It’s impossible to use this much water!”
- “I only added an extra day”
- “I only added time to the stations”
- “Where’s my leak”
- “My meter is bad”

Forensic Irrigation Evaluations

- Meter Read
 - Misread ?
- Leak detection at the meter
 - Isolating the Leak
 - Irrigation mainline
 - Toilets
 - Swimming pool
 - Yard-line
 - Foundation
- Irrigation Controller
 - All programs
 - All start times
 - Day restrictions / frequency
 - Run times – excessive
 - Hidden Programs
 - Unknown irrigation events

*quantify any leaks if possible

The Usual Suspect....

The Irrigation System!



Audit the Meter

- Run test cycle
- Log GPM
- Quantify the Cycle
- Monthly irrigation budget
- Solved?



Potential Causes

- Changes to the irrigation schedule
 - Run time adjustments
 - Frequency / hidden programs
 - Multiple start times
 - Multiple programs
 - New Wastewater average
 - Mainline irrigation leaks
 - Toilet leaks – ignored or intermittent

They Have a Very Close Relationship!

High Water Bills

- Tiered billing
- Alternative high use at higher rates
- un-noticed consumption
- Wastewater averaging

Irrigation Systems

- Deliver water in gallons / minute
- Screaming gpm flow rates
- Need adjustments seasonally

The Problem With Irrigation Controllers

- They do what you tell them to do
- Multiple programs will run concurrently
- Controllers are always searching for a time, day, & stations to run
- They usually run while you're SLEEPING
- They're only as smart as the person programming them
- Need seasonal adjustments

The Problem With People

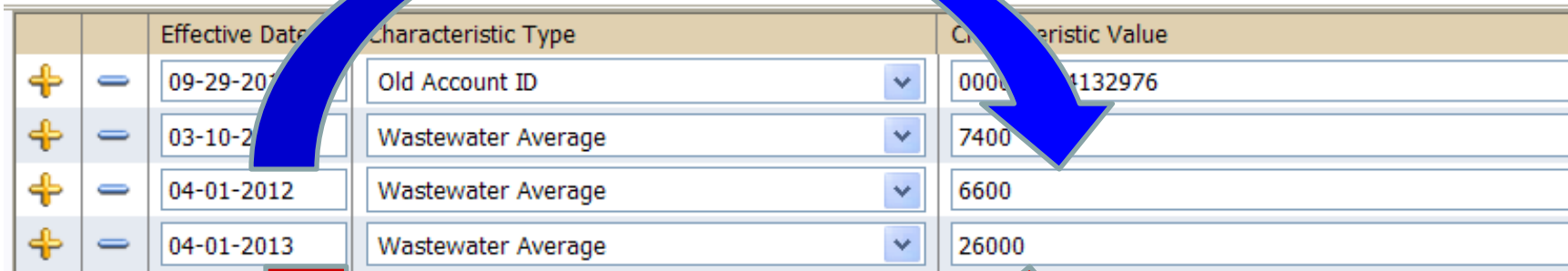
- Unaware of potential consumption
- Tricky programming instructions
- Unfamiliar with controller features and capabilities
- Don't know plant water requirements
- Not seasonally interactive with irrigation cycles
- Lush green in ATX, July, 1 day per week??

Some “Hand Holding”

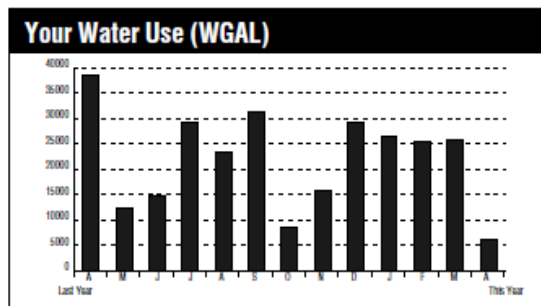
- Progressing through the tiers has a multiplying effect
- Watering in the winter time is very costly in the summertime
- Doubling the frequency or run times
 - Multiplies the gallons
 - Tiers multiply the \$\$\$

Wastewater Averaging

- November marks the beginning of Austin Water's annual wastewater averaging cycle that determines wastewater charges
- Austin Water calculates wastewater costs based on the amount of water used during three winter billing periods.
- The average is based on your water use for all three months. These three periods occur between mid-November and mid-March.
- Because less outside water is used during these months, it's a good measure of the volume sent to the wastewater system.



Service Details



Current Month

Days of service 29
 Gallons used 6200
 Avg. gallons per day 213.8
 Avg. cost per day \$1.04
 13 month avg. consumption: 22046.15



WATER SERVICE

Meter #

Read Date	03/13/2013	04/11/2013	Consumption
Read	28815	28877	62
	Reading Difference in Hundreds		62
	Total Consumption in Gallons		6200

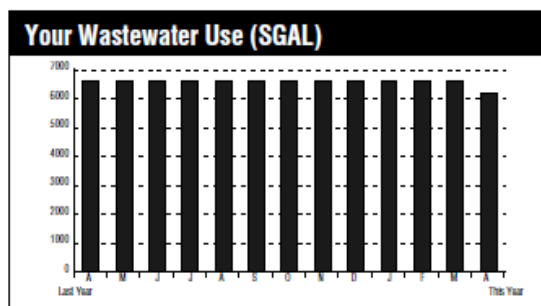
City of Austin Water - Residential

Customer Charge \$7.10
 Tiered Fixed Charge 6,001 - 11,000 Gallons \$7.45
 2,000 Gallons at \$1.25 per 1,000 \$2.50
 4,000 Gallons at \$2.80 per 1,000 \$11.20
 200 Gallons at \$5.60 per 1,000 \$1.12
 6,200 Gallons at \$0.12 per 1,000 - Reserve Fund Surcharge \$0.74

TOTAL CURRENT CHARGES \$30.11



You are using 1061 Gallons less water than the average resident in your area.



Current Month

Days of service 29
 Gallons used 6200
 Avg. gallons per day 213.8
 Avg. cost per day \$1.93



WASTEWATER SERVICE

City of Austin Wastewater - Residential

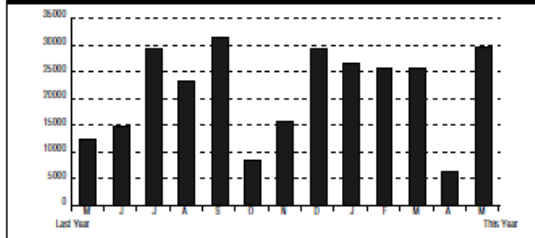
Customer Charge \$10.00
 2,000 Gallons at \$4.31 per 1,000 \$8.62
 4,200 Gallons at \$8.92 per 1,000 \$37.46
 6,200 Gallons - Total Flow

TOTAL CURRENT CHARGES \$56.08

Water Bill \$146.61
 Including fixed meter fees

Service Details

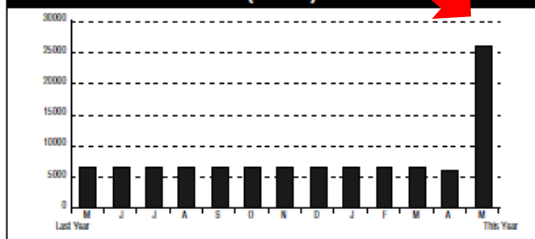
Your Water Use (WGAL)



Current Month

Days of service 32
 Gallons used 29400
 Avg. gallons per day 918.8
 Avg. cost per day \$8.27
 13 month avg. consumption: 21346.15

Your Wastewater Use (SGAL)



Current Month

Days of service 32
 Gallons used 26000
 Avg. gallons per day 812.5
 Avg. cost per day \$7.27



WATER SERVICE

Meter # 195576

Read Date	04/11/2013	05/13/2013	Consumption
Read	28877	29171	294
	Reading Difference in Hundreds		294
	Total Consumption in Gallons		29400

City of Austin Water - Residential

Customer Charge	\$7.10
Tiered Fixed Charge over 20,000 Gallons	\$12.55
2,000 Gallons at \$1.25 per 1,000	\$2.50
4,000 Gallons at \$2.80 per 1,000	\$11.20
5,000 Gallons at \$5.60 per 1,000	\$28.00
9,000 Gallons at \$9.40 per 1,000	\$84.60
9,400 Gallons at \$12.25 per 1,000	\$115.15
29,400 Gallons at \$0.12 per 1,000 - Reserve Fund Surcharge	\$3.53
TOTAL CURRENT CHARGES	\$264.63

You are using 20846 Gallons more water than the average resident in your area.



WASTEWATER SERVICE

City of Austin Wastewater - Residential

Customer Charge	\$10.00
2,000 Gallons at \$4.31 per 1,000	\$8.62
24,000 Gallons at \$8.92 per 1,000	\$214.08
26,000 Gallons - Total Flow	
TOTAL CURRENT CHARGES	\$232.70

Water Bill \$555.75
 Including fixed meter fees

Month to Month Change

May Bill \$555.75

April Bill \$146.61

Increase \$409.14



Go low as you can go!

Some ways to save water in the winter and help lower your wastewater average are:

- Fix all leaky faucets and toilets
- Turn off your irrigation system for the fall and winter months
- Run your dishwasher and washing machine only with a full load
- Take shorter showers—place a timer in your bathroom
- When buying new water-using appliances look for the WaterSense® label
- Visit WaterWiseAustin.org for more water conservation ideas

Evidence For High Water Bills



Why is my bill is higher...



09/08/2011 10:17

Than my neighbors???





Talk it Out...

What is Said...

- “It hasn’t run all summer”
- “Only 4 people live here”
- “I water my plants with my bathwater”
- “We were out of town then”

What is Meant...

- I turned it off when I got the bill
- And... an irrigation system
- And... the lawn twice a day with irrigation system
- So, I adjusted the controller

Conclusions / Solutions

- Quantifying the irrigation budget
- Adopt recommendations
- Fix detected leaks
- Seasonally manage irrigation budget
- Follow restrictions
- Wastewater averaging awareness
- These strategies will lower and control the water bill

Thanks!



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