

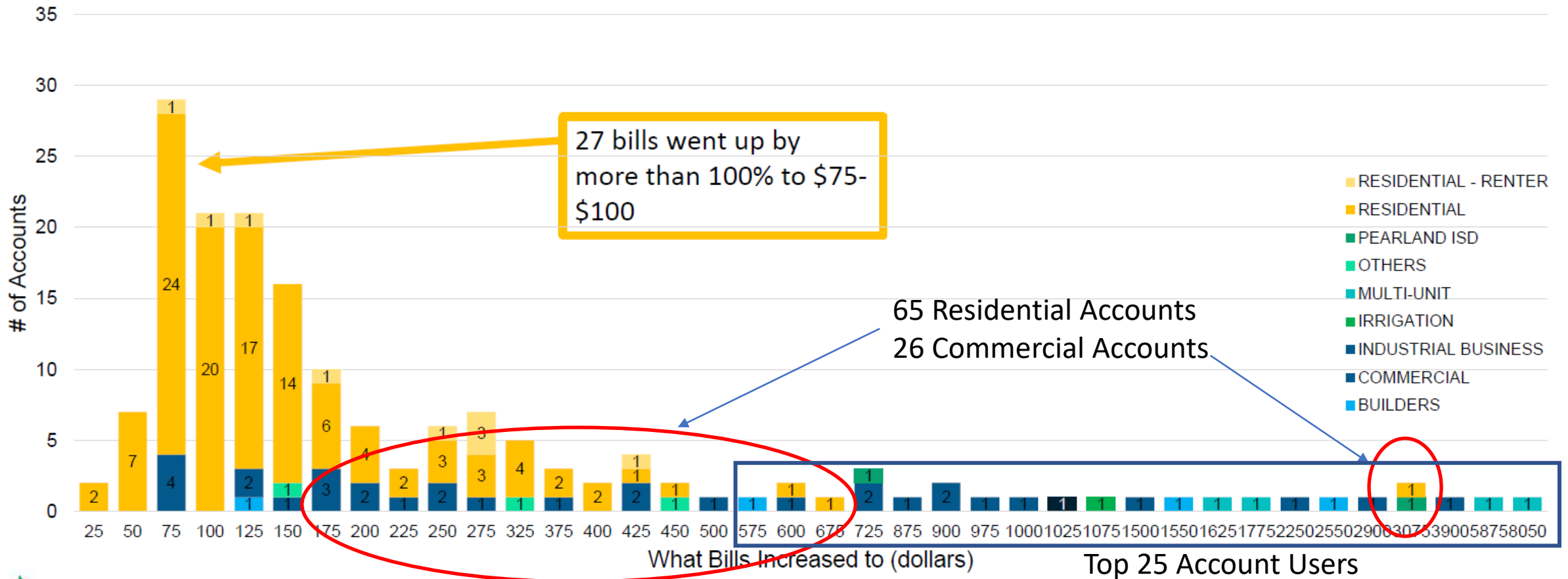
Initial Technical Discussion

Pearland!!! Do we have a problem????

Agenda

- Presentation and review of staff generated analysis - high bills
- Community user perceptions and social media feedback
- Discuss and reach agreement as to IF a problem potentially may exist.
- My background and technical capability
- Review and a look-ahead of potential future actions

How much did the 171 accounts (0.5% of total accounts) increase from November to December?



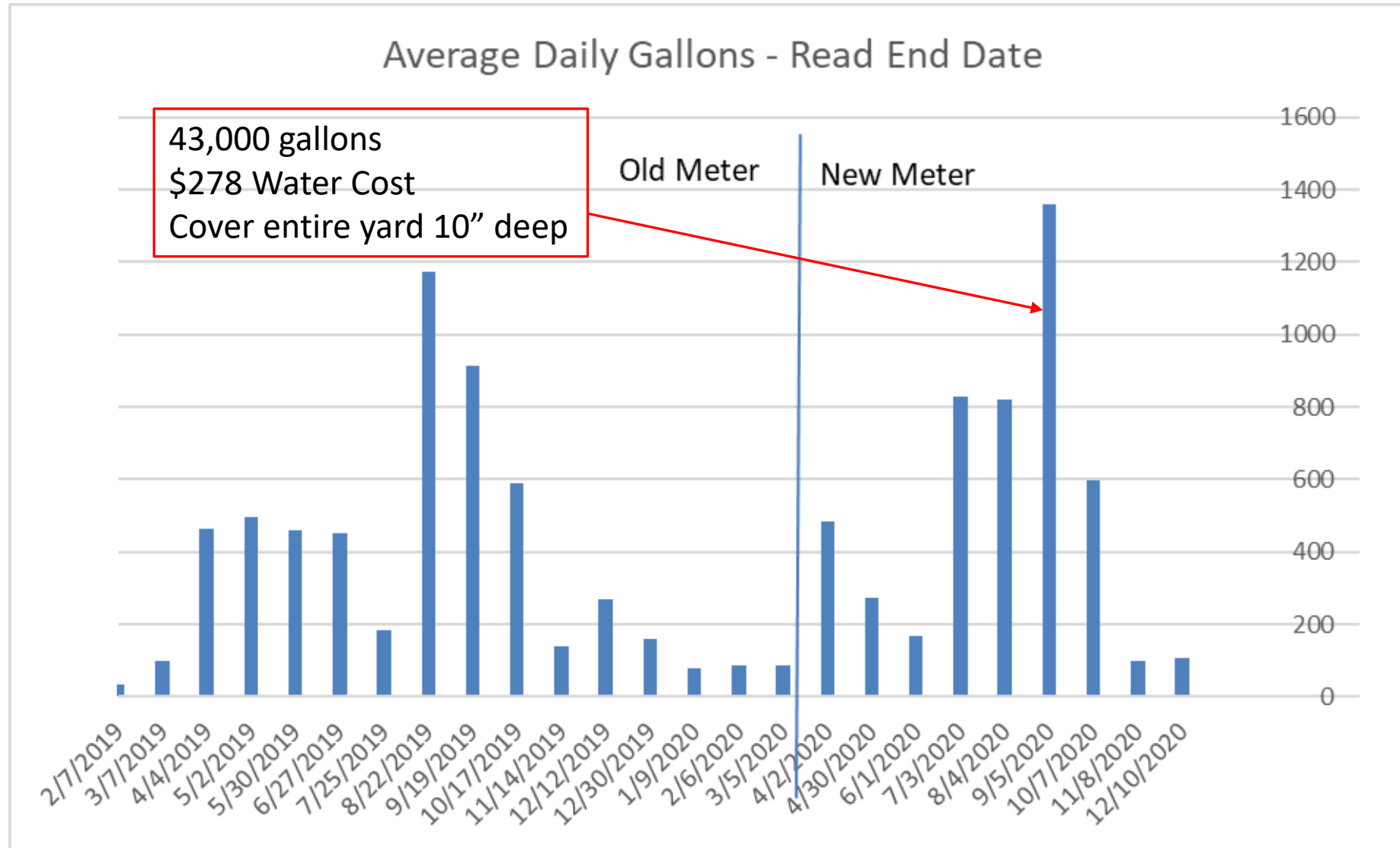
Face-Book Survey Results

- Are you in this group because of high water bills?
 - Yes – have pool or sprinkler – 42 votes
 - Yes – no pool or sprinkler – 28 votes
 - No billing issues – here for awareness – 42 votes
 - No – billing cycle issue 32/30 – 6 votes
 - No – other water billing issue – 2 votes
 - Total – 120 responses out of 1,200 members – 10% of the group
 - 70 indicating issues with high bills or ~58% of responses
- Three committee members have questions about their own or someone else's high water bills.

FB Posts – A Few Examples

- “So my mother has been hit by these water pirates.... She received a courtesy call to inform here they saw a spike in her usage to the tune of 95,000 gallons of water used. Told her she has a leaking toilet. 2 adults, 2 kids under 6, no pool, no sprinklers. Absolutely ridiculous! How do you all fight this?”
 - Subsequent to this post; posted plumber receipt showing NO leaks
- “32,000 gallons used they said..... Never in my 27 years living in Pearland have I ever had a bill that high. No leaks, no pool, sprinkler yes and seldom used. This is a systemic issue with either the meters, billing software, or just pure larceny of our hard earned money. We can't wait months or a year for this to be resolved!!”

My Water Usage Amounts – Monthly/Days



Consensus?

- Does the City have a citizen perceived issue with the current water metering?
- Should this committee attempt to address this perception (real or not) in making recommendations to the city for a resolution path forward to reestablish trust and ensure metering validation?
- My editorial comment here – I think there is a path forward to deal with this issue in a systematic approach that can be understood by the citizens and can assist the city staff in how to address such issues.

Ralph E. King, Ret. SC PE

- 43-year experienced mechanical engineer with a broad range of technical experiences
- Retired from LyondellBasell as a Principal Engineering Advisor of their Global Engineering Services – 35 years
- Subject Matter Expert Consultant for Stress Engineering Services (SES) – 8 years
- Currently Semi-Retired – Mentor SES personnel on the more challenging projects
- Broad range of engineering experiences:
 - Fitness-For-Service expert for processing, oil and gas, refinery and energy industries
 - Maintenance / reliability engineering
 - Process / production engineering
 - Process safety
 - **Incident and failure investigations – Apollo Root Cause and Kepner-Tregoe**
- Recognized world expert in auto-refrigeration and brittle fracture prevention
 - Utilizing API-579 / ASME FFS-1 methodologies
 - Subject focused process hazards analysis (PHA) methods
 - Established the methods and provided training of the approach to Ethylene Producers and AIChE Process Safety Professionals
- BSME degree from the University of Houston
- Retired Licensed PE in South Carolina

Pearland Water Billing

Search For Root Cause

Highest Priority

Second Priority

Issues

Delayed Billing

32/30

High Usage

Other User Survey

- Meter
- Software
- Billing

Water System Meter Management Statistics

Reconciliation

Project/Spec./Selection

Forensics

Accuracy/Data Retention

Configuration

AMI Implementation

Future – Metering and Potential Options

- I have already executed considerable research and investigation as to a path forward and potential options.
 - Currently preparing a presentation of what I know and suspect
 - Lay out various options as to a path forward
 - Potentially propose additional actions to aid City Staff in dealing with this issue.
- REK Editorial Comment:
 - I think the City of Pearland and by extension the City Staff have been a victim of this issue along with the users. This appears to be a very complex and very random issue (failure) over a small fraction of accounts. What is the root-cause may be very difficult to surmise. BUT I think certain mitigating monitoring and actions CAN resolve the issue sufficiently to begin to rebuild trust and have assurance in the metering.

Thoughts? Questions?