Commercial Operations

- 37,000 metered customers
  - 23,000 inside City (Ordinance)
  - 14,000 outside City (Water Tariff)

- Accurate and reliable metering is crucial to ensure customers are charged fairly for their water consumption.

- Commercial Operations bureau has 11 employees dedicated to meter reading, billing, and dispute resolution.

Types of Water Meters

- Positive Displacement
  - Mechanical device with moving parts
  - Water flow rotates a disc which measures volume
  - Touch-pad used to collect data
  - 21,000 meters; most installed in 1990's

- Electromagnetic
  - Battery powered; no moving parts
  - Water flows through a magnetic field/chamber which induces a voltage proportional to flow
  - 14,000 meters

- Turbine
  - Water flow rotates impeller to measure volume
  - Large customers; high flows
  - 2,000 meters

Meter Replacement Project

Goal: Replace all remaining positive displacement meters with electromagnetic

- 4,000 meters per year for next 5 years
- $2M annual budget
- Sensus iPerl model
- All residential customers will have new meters by 2028

Automated Metering Infrastructure (AMI)

- Concurrent with meter replacement project – install radio-frequency end points
    - Allow for automatic transmission of meter reads to City billing database
- Currently 12,000 customers on AMI
- 4,000 per year for the next 5 years
- By 2028 we should have approximately 95% of all customers on AMI

Billing Dispute Resolution

- Tariff and Ordinance include procedures to address billing disputes
- Customers can file a dispute and request meter test
  - We assist customers with troubleshooting and strive to reach a fair and amicable resolution
- Prescribed remedies for fast/slow/stopped meters
- Since 2015 the City has received 28 formal requests for meter tests (approximately 3 per year)
  - All 28 meters tested 100% accurate

Water Billing Adjustments

Tariff and Ordinance state:

“No adjustment of amount registered is permitted for any reason except malfunction of meter, or upon a positive showing by the customer in instances of excessive usage that the usage resulted from circumstances beyond his ability to control.”

Meter Testing

- Since 2015 we have tested approximately 2,000 meters that were replaced to check overall accuracy of our meter stock
    - 97% tested accurate
    - 3% tested slow (under-reporting) or stopped
    - 0% tested fast
- There have been 650 stopped meters identified/replaced in the past 10 years (65 per year)
    - Common failure mode for PD meters is that they stop working
    - We do not back-charge customers found to have stopped or slow meters
- No problems have been encountered with the new EM meters to date.
- No problems have been encountered with transfer of meter reads to billing database.

High Usage Notification

- Customers with PD Meters and T-Pad
    - Read once per quarter (1 data point per quarter)
    - Run report every billing cycle to identify customers with usage 50% above their quarterly average
    - Notify customers
- Customers with AMI Meters
    - System collects meter data hourly (2,000+ data points per quarter)
    - Generate “high flow” alarm if flow is high – 3,000 gpd for residential
    - Checked daily
    - Allows for timely notification of customer
- Approximately 10-20 high usage notifications per month.

Case Studies

- **Customer A**
    - Normal quarterly usage: 8,000 gal
    - Peaked quarter 48,000 gal
    - Identified leaking toilet
    - After corrective action, usage returned to normal
    - Customer responsible for water and sewer use
- **Customer B**
    - Normal quarterly usage: 20,000 gal
    - Peaked quarter 72,000 gal
    - Identified leak in lawn irrigation system
    - After corrective action, usage returned to normal
    - Sewer credit applied
- **Customer C**
    - Normal quarterly usage: 10,000 gal
    - Peaked quarter 227,000 gal
    - Identified plumbing leak in unfinished crawl space
    - After corrective action, usage returned to normal
    - Sewer credit applied

Flow rate equivalents

1	gallon/minute
1,440	gallons/day
10,080	gallons/week
43,200	gallons/month