

Water Meters and Automatic Meter Reading



Council Presentation
April 18, 2017



Objectives

1. Identify components of the City of Corpus Christi's automated meter reading (AMR) program.
 2. Outline the number of service connections and sizes.
 3. Illustrate types of meters and registers.
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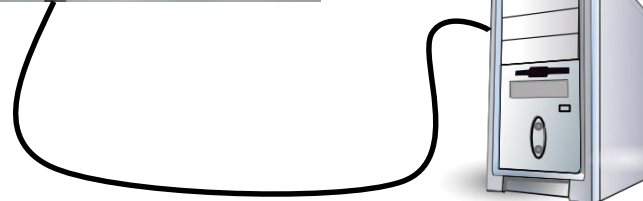


Automatic Meter Reading (AMR)

Meter
Transmission
Unit (MTU)



Data Collection
Unit (DCU)



STAR Database

Utility Billing
Office (HTE)





Meter Transmission Units (MTU)

- Meter Transmission Units (MTUs) are programmed with the type of meter, size, and service location.
- MTUs carry a full warranty for the first ten years and prorated warranty for the following ten years.





STAR Database

MTU 2404765, Port 1 Readings

Readings for the past 60 and 90 days

Items Per Page
25

Readings In 1 Gals.
Channel Reporting Gals.

Time	Reading
03/23/2017 11:43:28 PM (CDT)	0335450
03/23/2017 11:31:30 AM (CDT)	0335300
03/22/2017 11:16:48 PM (CDT)	0335300
03/22/2017 11:01:55 AM (CDT)	0335200
03/21/2017 10:48:36 PM (CDT)	0335150
03/21/2017 10:35:06 AM (CDT)	0335100
03/20/2017 10:21:01 PM (CDT)	0335000
03/20/2017 10:07:10 AM (CDT)	0334950
03/19/2017 09:53:13 PM (CDT)	0334850
03/19/2017 09:39:51 AM (CDT)	0334700
03/18/2017 09:24:49 PM (CDT)	0334600
03/18/2017 09:13:35 AM (CDT)	0334350
03/17/2017 09:00:04 PM (CDT)	0334250
03/17/2017 08:45:40 AM (CDT)	0333900
03/16/2017 08:35:22 PM (CDT)	0333700
03/16/2017 08:21:27 AM (CDT)	0333600
03/15/2017 08:06:53 PM (CDT)	0333550
03/15/2017 07:55:54 AM (CDT)	0333500
03/14/2017 07:41:22 PM (CDT)	0333400
03/14/2017 07:27:53 AM (CDT)	0333400
03/13/2017 07:10:19 PM (CDT)	0333350
03/13/2017 06:59:14 AM (CDT)	0333300
03/12/2017 06:47:00 PM (CDT)	0333100
03/12/2017 06:33:33 AM (CDT)	0332800
03/11/2017 05:21:40 PM (CST)	0332700

Date Installed: 06/22/2010 12:27:12 PM CDT

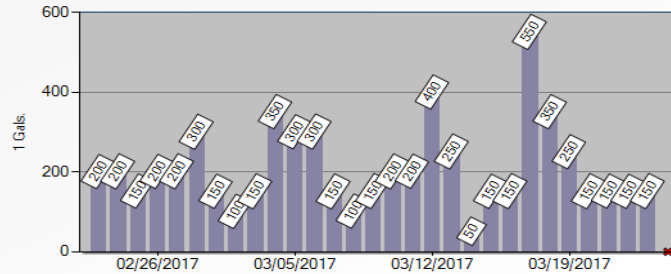
Meter Serial #: WT00023052

Meter Type: Schlumberger 5/8x3/4 T-10 ProRead 6 Digit 10 Gal

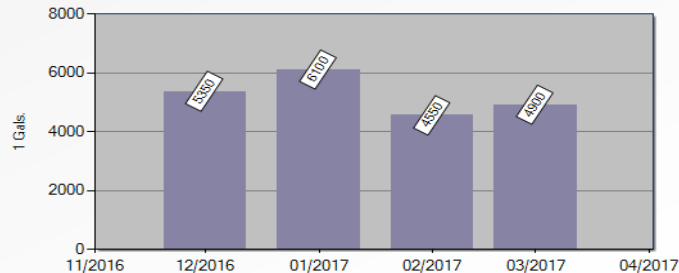


Error Legend

Daily Consumption, 02/23/2017 to 03/24/2017



Monthly Consumption, 12/01/2016 to 03/24/2017

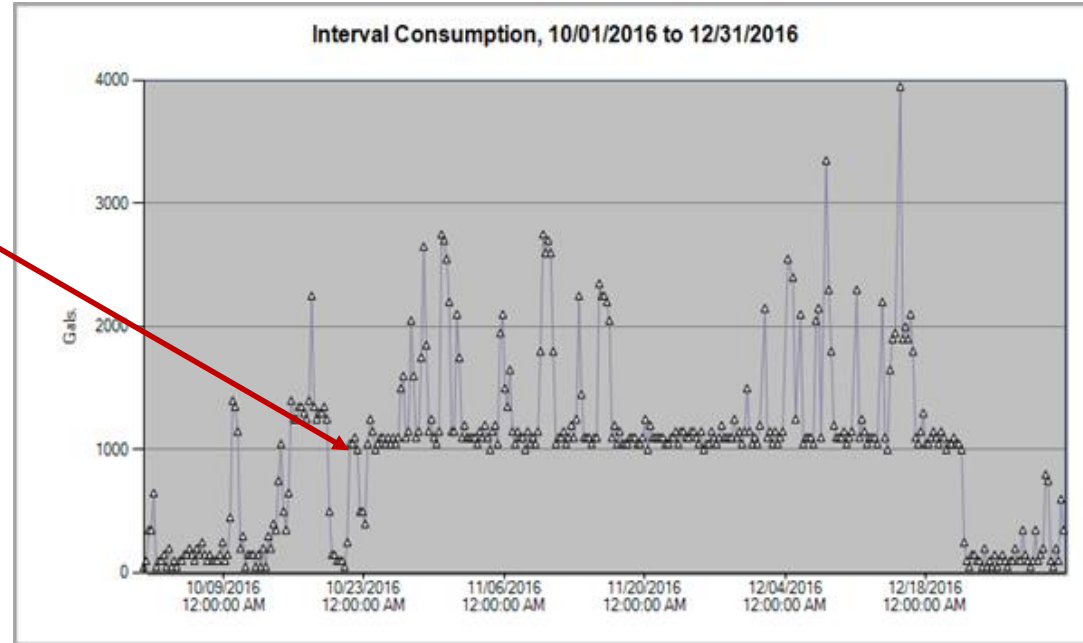




STAR Database

Constant Consumption

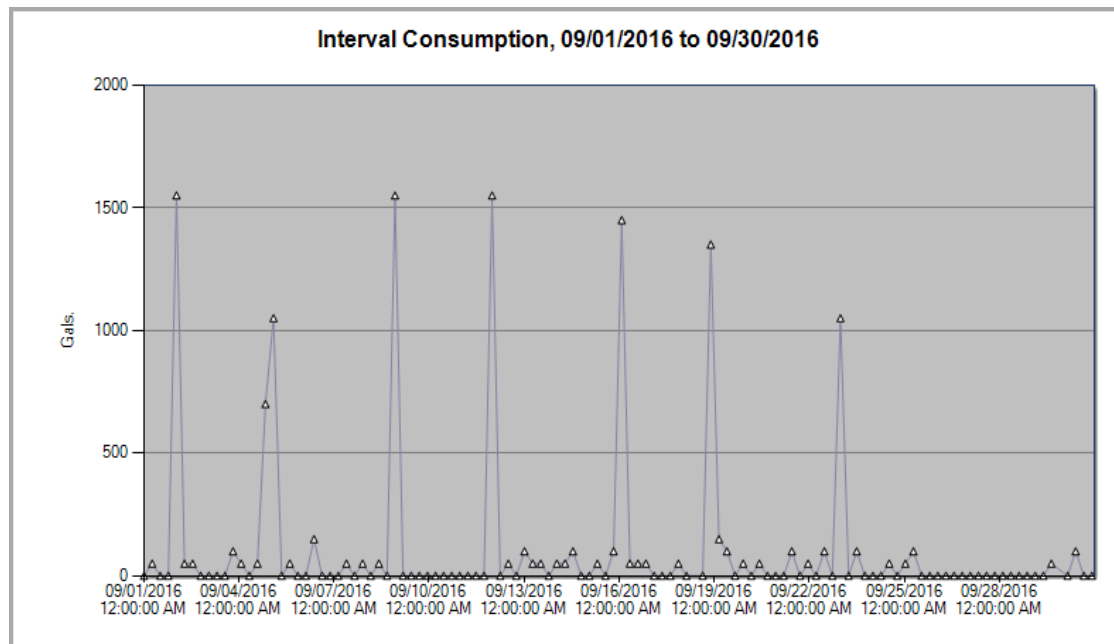
Water use
never
returning to
zero points
to a possible
leak





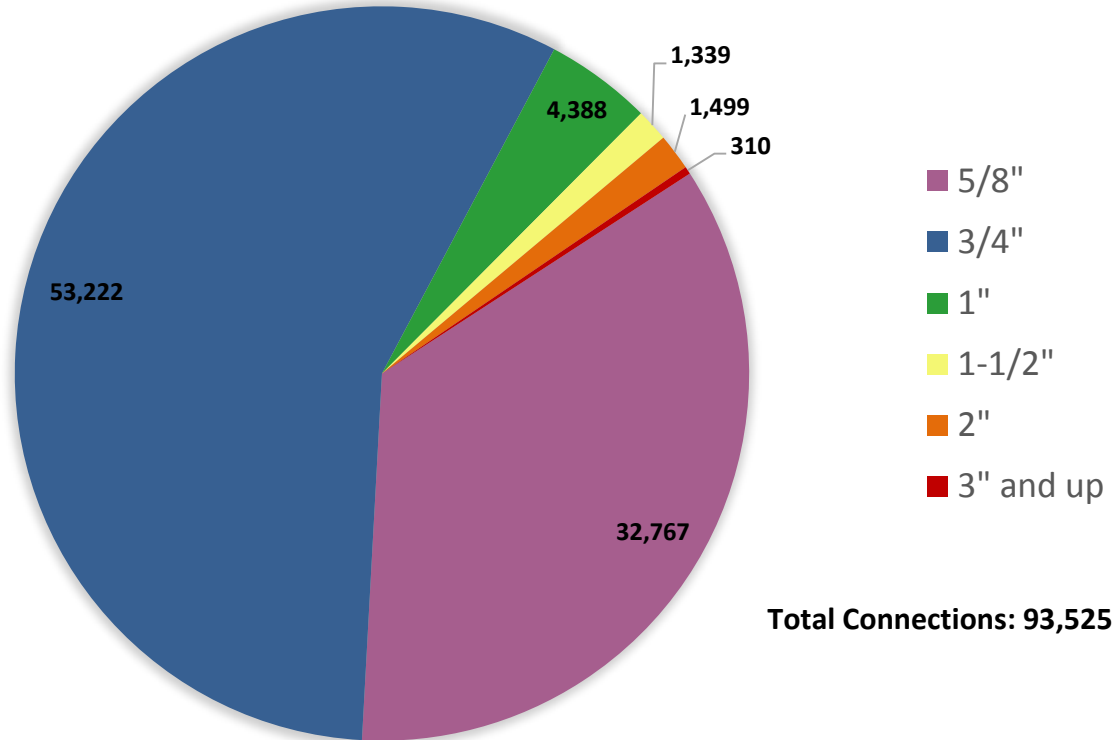
STAR Database

Sprinkler System





Distribution Meter Statistics





Types of Meters

- Positive Displacement Meter
 - Most common, especially among residential applications.
- Current/Velocity Meter
 - Mostly commercial and industrial accounts.
- Compound Meter
 - Utilized in applications where both low and high flow exist such as hospitals and apartment complexes.



Positive Displacement Meter

The City utilizes Neptune T-10 meters with $\frac{5}{8}$ ", $\frac{3}{4}$ " and 1" connections

Advantages

- ✓ Reliability
- ✓ Excellent low flow accuracy.
- ✓ Accurate over broad range of flows.
- ✓ Inexpensive

Disadvantages

- X Limitations at high flows due to pressure loss.
- X Limitations in size due to forces on ball and disk.





Turbine Meter

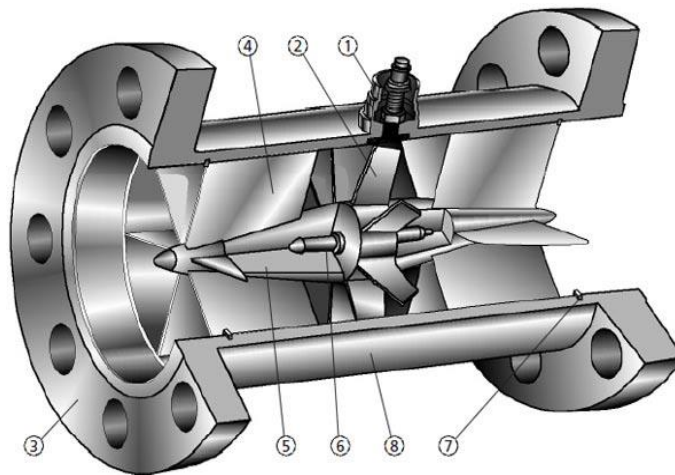
The City utilizes a Neptune High Performance Turbine (HPT) meters with connections that are 1-½" and larger.

Advantages

- ✓ Turbine meters are accurate at variable, intermediate and high flow
- ✓ Durable at increased velocities associated with high flows.
- ✓ Low pressure loss

Disadvantages

- X Slightly less accurate at low flows
- X A straight run of pipe upstream and downstream of the meter needs to be installed to allow homogenization of the flow pattern





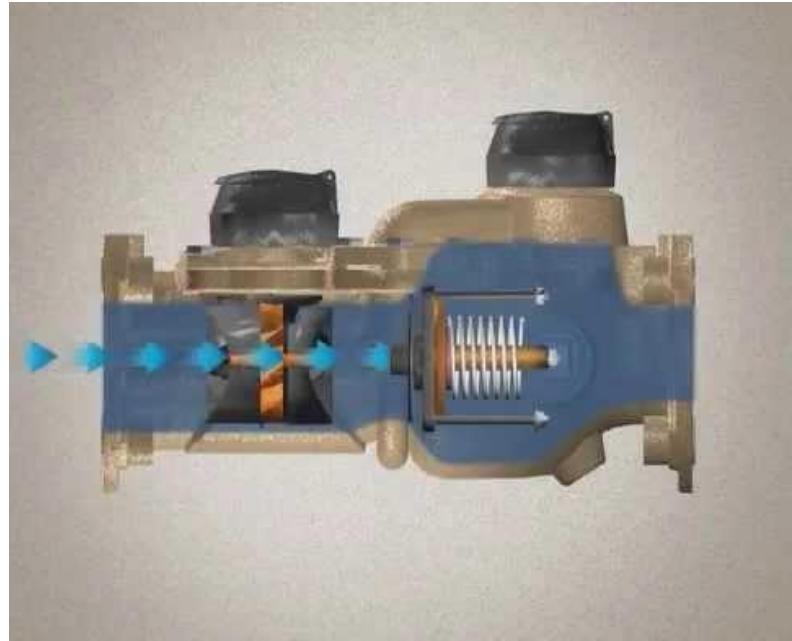
Compound Meter

Advantages

- ✓ Allows accurate measurement at both high and low flows

Disadvantages

- X Cost prohibitive for many applications





Registers

- Registers record the volume of water passing through the meter
- Neptune ProRead registers are used on both T-10 and High Performance Turbine (HPT) Neptune meters.
 - Less Expensive
 - Durable
 - Measures flows to 1/10th of a gallon

