

## **Waterman Center Filter Media and Underdrain Replacement**

*By: Walt Schwarz, Project Manager*

The filter underdrains installed during construction of the Ray Waterman Regional Water Treatment Center (RWRWTC) in 2005 were a plastic material with slotted openings on top. During normal operations filtered water collects in the underdrain, is then conveyed through piping to the clearwell, and is ultimately pumped into the water distribution system.

Installed directly onto the plastic underdrain assemblies were seven layers of varying sizes of graded gravel. The gravel base layers were to support the overlaying filter media (greensand and anthracite) and prevent smaller filter media from passing through the slots of the plastic underdrain. In years 2010 & 2013 the Operations team (with significant effort) cleaned a total of about 21,500 pounds of filter media out the clearwell. Clearly, the media and underdrain systems were no longer functioning properly.

The current contract with AWI-Anthracite for \$553,500 includes removing the existing media and all the plastic underdrain systems. AWI will then manufacture (in the USA) and install new stainless steel underdrains for all eight filter beds. The steel underdrains are fabricated with laser cut slits that allow filtered water to flow through but will retain all media (no gravel base layer needed). AWI is on schedule to install the new underdrains and media by mid-March 2016.



Showing three stages – vacuum media out, demo underdrain & remove, and prepare base, filter gullet, and air scour piping for new underdrains.

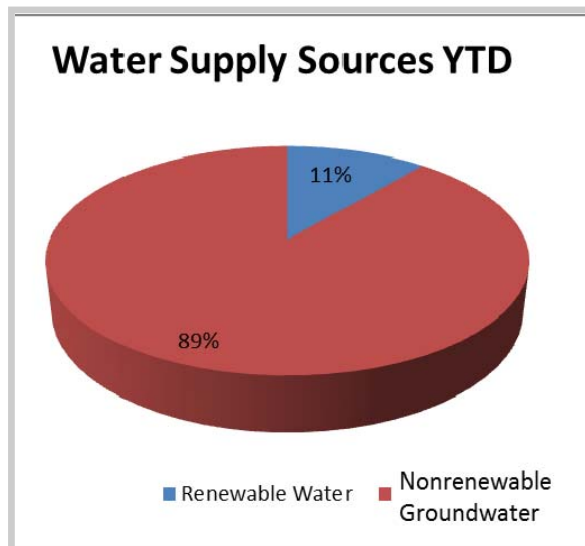
### **OUR VISION**

***We will be a national leader among water utilities focused on customer satisfaction and delivering outstanding quality and value.***

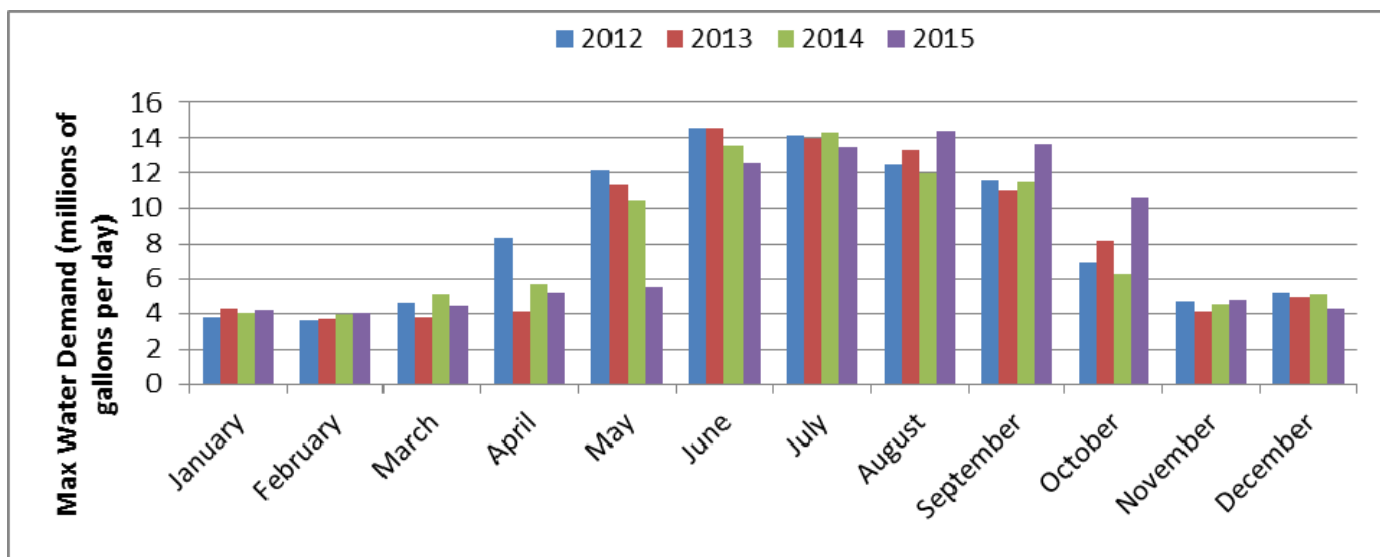
## 2015 Water Demands

By: Sheri Scott, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2012 to the current month. As observed by the data, the maximum demand for the month of December was 4.3 million gallons per day (MGD) which was about 7% less than the 5-year average maximum daily demand. Summer time maximum demands inform us of the size of the infrastructure necessary to provide water service over short periods of time and help us to plan future water resources needs. An average of the winter month (November, December, January, and February) usages, reflect indoor or base demand. The water demand total for December was 114 million gallons (MG), which was a 7% decrease from the November 2015 total of 122 MG, and a slight decrease from the December 2014 demand of 115 MG.



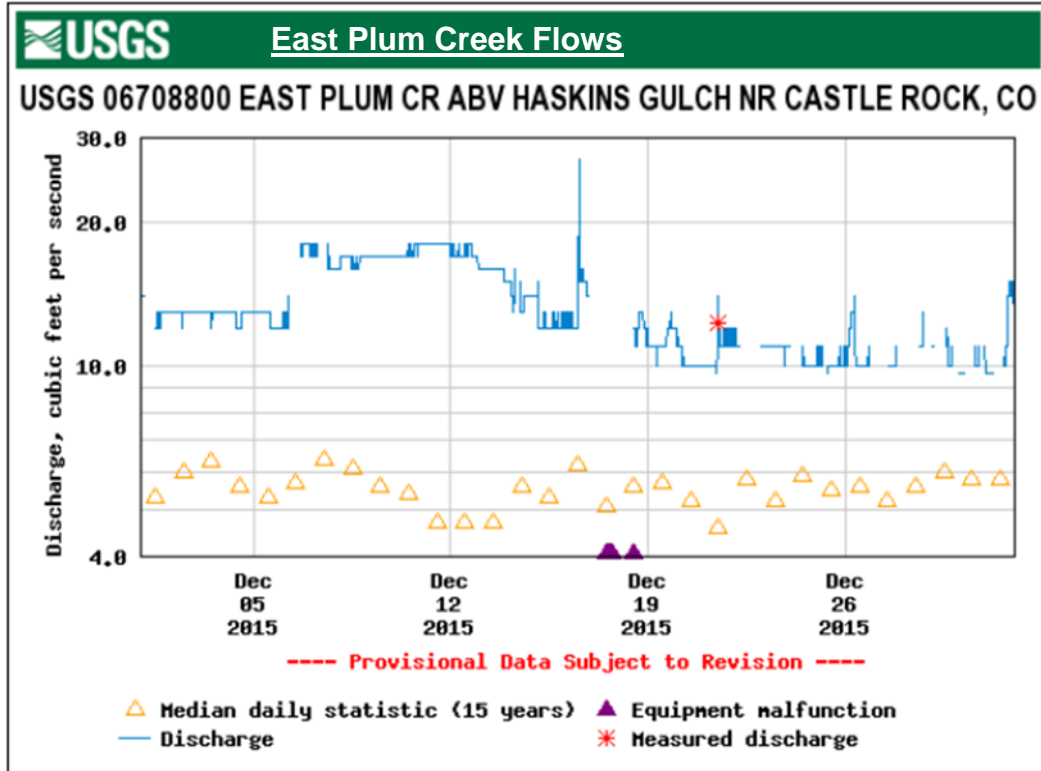
The Town's nine alluvial wells produced a total of 20 MG of renewable water during December, which represents 17% of the total water supply for the month and 11% (272 MG or 835 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 745 MG, which represents 11% of the Town's total water supply since the alluvial wells began pumping in May of 2013. Currently, the Town's renewable water rights surpass the capacity of the alluvial wells. The construction of additional alluvial wells was approved by Council in December, and the construction of these three additional wells will begin in January 2016.



The flow hydrograph (on next page) represents stream flows in East Plum Creek taken from the stream gauge located at Haskins Gulch. The hydrograph shows that the East Plum Creek basin experienced stream flows between 10 to 20 cubic feet per second (cfs) for the majority of the month and a flow spike nearing 26 cfs mid-month. During the month there were no calls on the main stem of the South Platte, therefore a Free River condition and no out-of-priority depletions needed to be made up. The river call may change at any time as a result of downstream water diversion calls. The NRCS Colorado SNOTEL report for January 4, 2016 shows the snow/precipitation for the South Platte River Basin is at 114% of average.

Continued on next page

## 2015 Water Demands, continued



### Plan Review Update

By Kurtis Cotton  
 Plan Review Engineer

The applications reviewed consisted of:

- 24 1<sup>st</sup> Submittals
- 21 2<sup>nd</sup> Submittals
- 22 Special reviews

Utilities reviewed 67 applications this month which compares to 61 during the same time period in 2014. The average assigned due date by Development Services was 1.6 weeks, and Utilities completed the reviews in 1.3 weeks, which included:

- 5 Agreements
- 1 Planned Development Plan
- 9 Plats
- 4 Preliminary Project Applications
- 16 Construction Drawings
- 10 Site Development Plans
- 9 Technical Criteria Variances
- 4 Field Change Orders
- 8 Grading, Erosion and Sediment Control (GESC) Plans
- 4 Grading, Erosion and Sediment Control (GESC) Permits

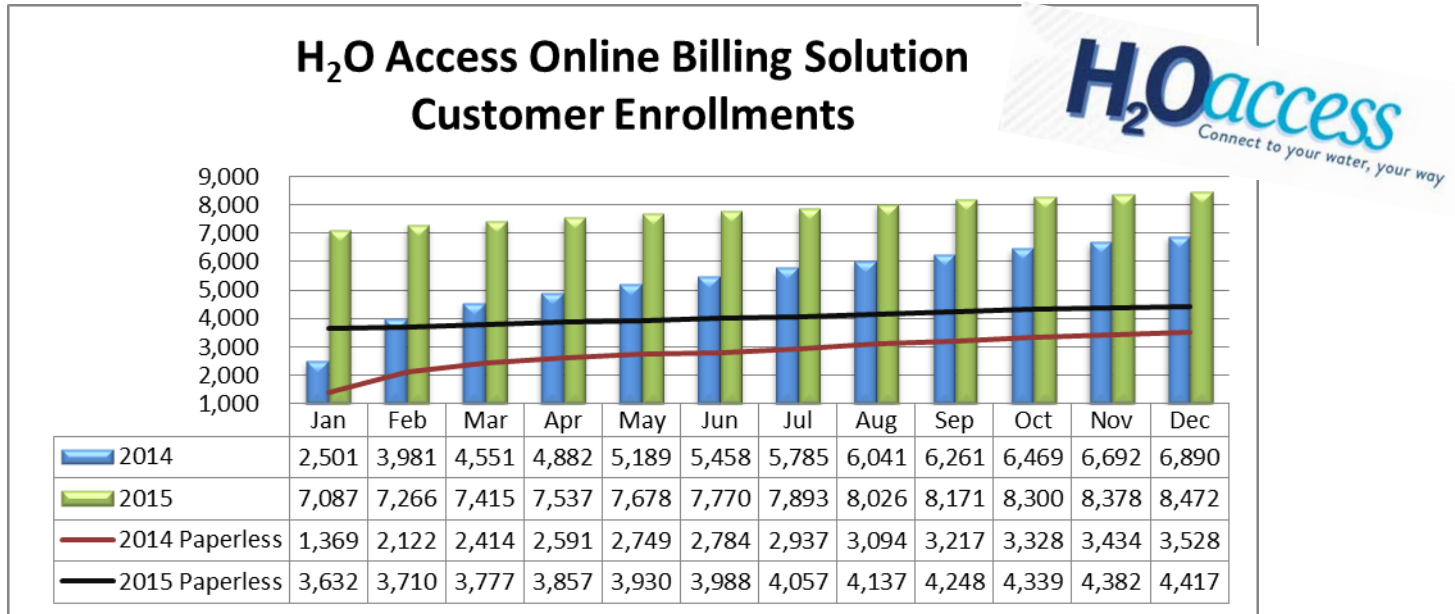
In addition to completing the above listed applications as scheduled, Utilities completed 55 single family utility reviews and associated system development fees.



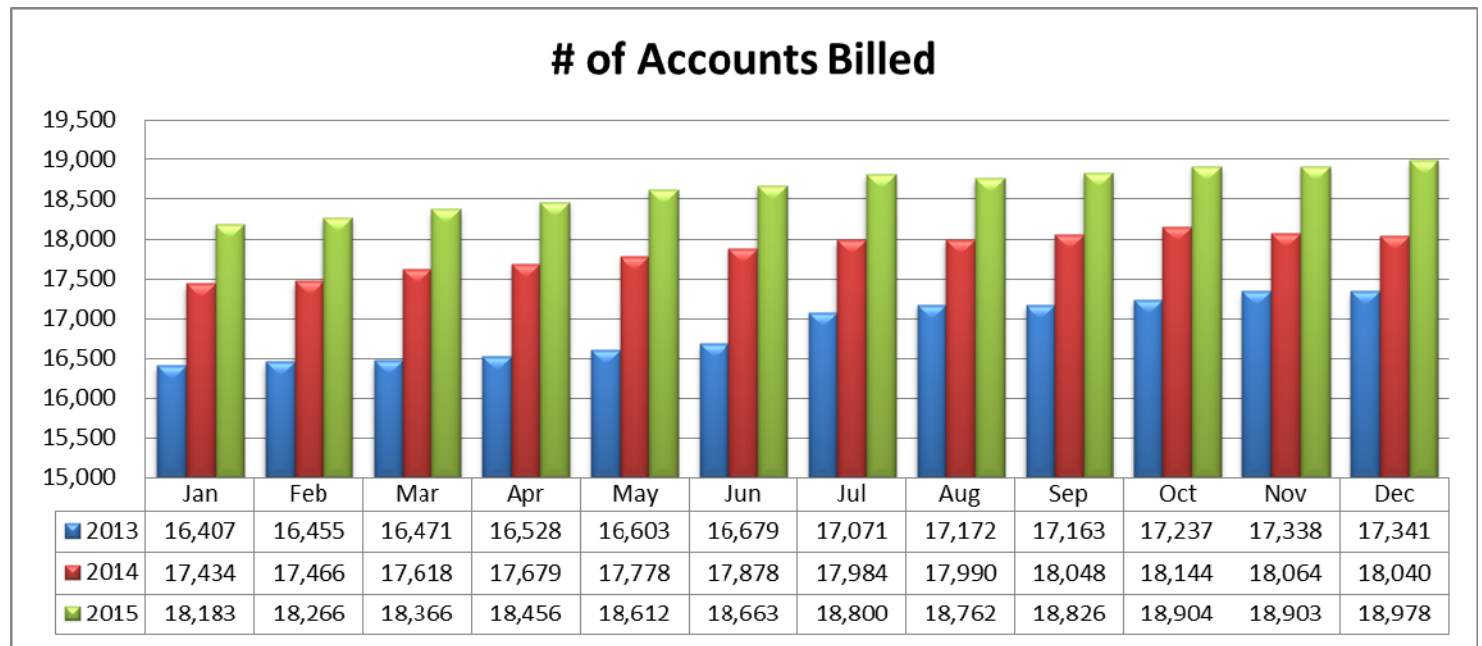
# Customer Statistics

By: Anne Glassman, Business Solutions Manager

Our Business Solutions Team continues to track a host of statistics and data as we continue to evaluate our levels of service and look for efficient ways to improve on these levels.

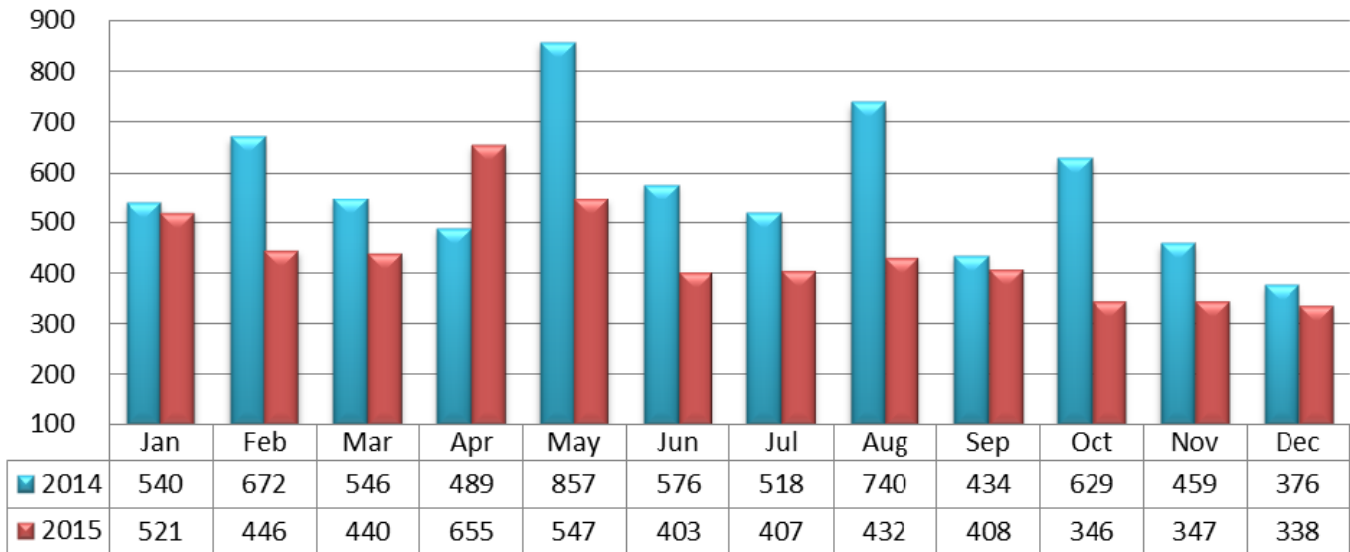


The H<sub>2</sub>OAccess online billing solution was launched in January 2014. The number of customers who have enrolled in online bill pay and have also chosen to go paperless remains steady at 52%.



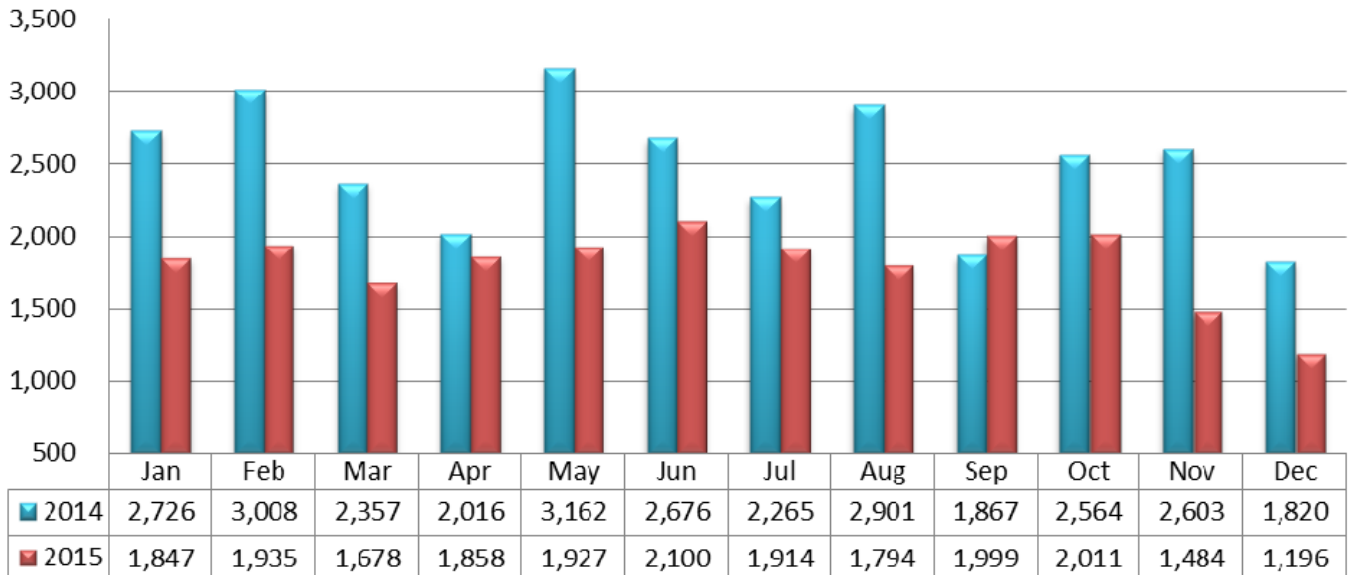
The number of accounts billed continues to steadily increase month-to-month mostly due to new residential growth.

## Walk-In Customers



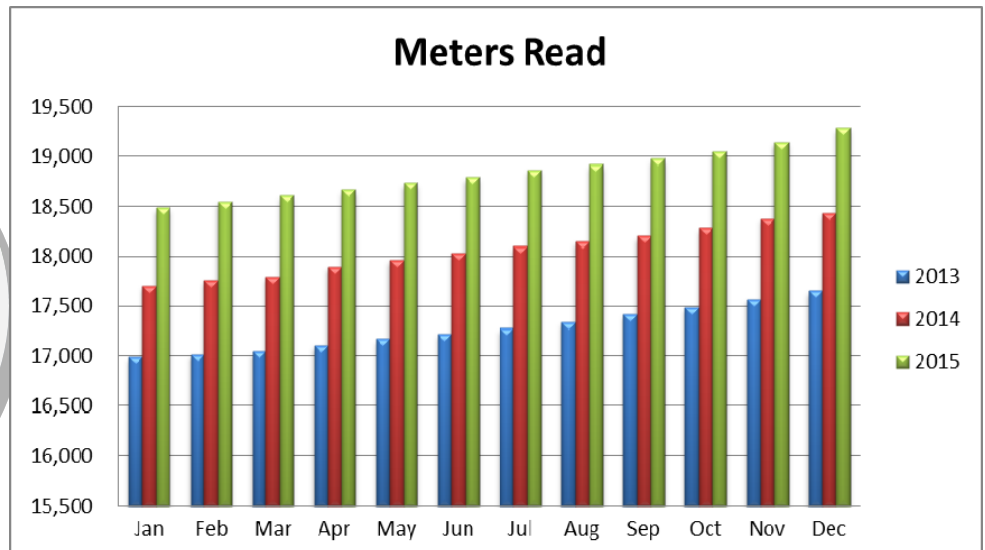
Walk-in customers were consistent with the previous month.

## Customer Phone Calls

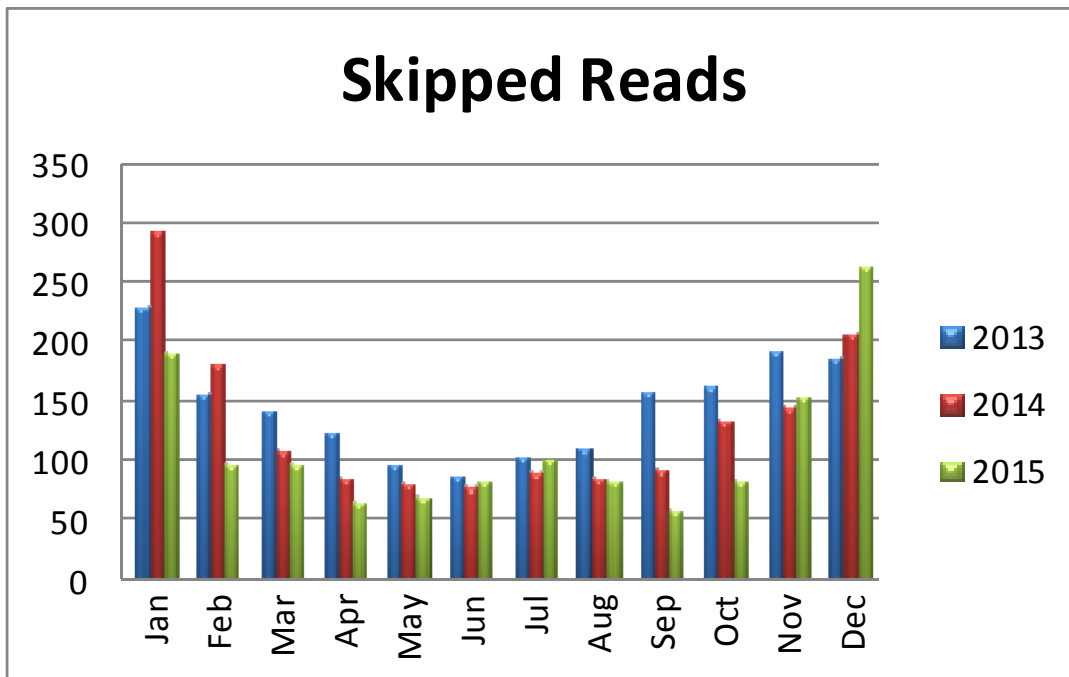


Customer phone calls were lower than last year at this time due to more customers using the online billing system and more calls last year surrounding a payment issue.

## Meters



The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase from December 2014.



The American Water Works Association (AWWA) standard is 2 percent, so at 1.39 percent, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure. December 2015 is higher than November 2015 due to the colder temperatures which can cause batteries that are already weak to just stop working.

### *Why is this important?*

It is a strong indication of the level of preventative maintenance being done by our team. A skipped read is indicative of a problem with the meter. Less skipped reads means more properly working meters, which is good for all our customers.

# CERTIFICATIONS

The water, wastewater and stormwater utility business is highly technical and regulated. As such, Castle Rock Water has to maintain an extensive staff of professionally licensed individuals. Most of these licenses require specialized education and the passing of state testing, as well as proof of continuing education. Below is a list of those passing various certifications this month:



**Colton Maloney**  
Collections System Operator I



**Thomas Hecker**  
Distribution System Operator 2

## New Operations & Maintenance Building Construction

*By: Josh Hansen, Project Manager*

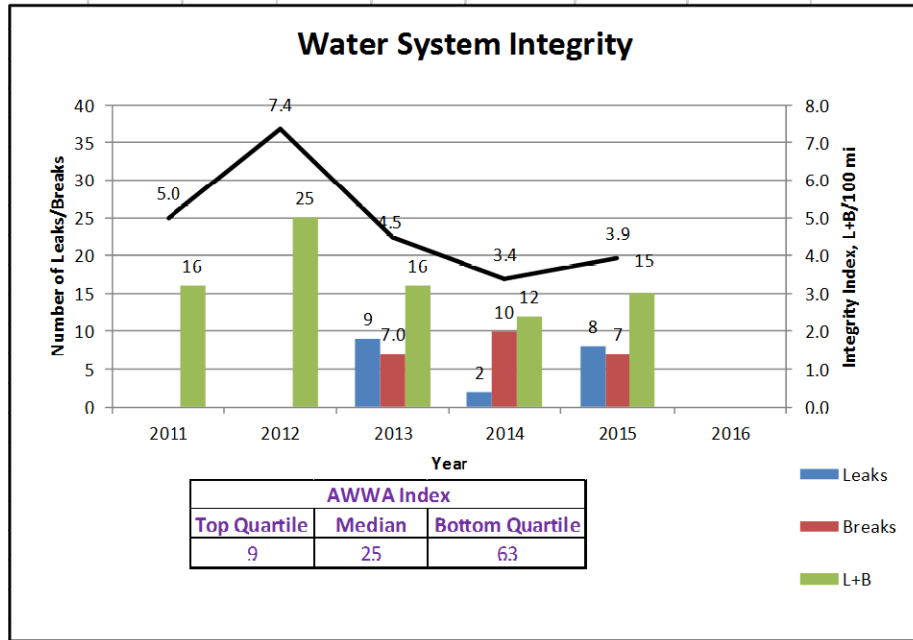
O&M Center construction was substantially completed in December on-time and within the approved budget. This allowed the department to obtain a temporary certificate of occupancy and use the facility for several events, including a holiday luncheon, host a tour for the Utilities Commission, hold several meetings in the new facility and show the documentary “Great Divide” to staff. The contractor completed metal siding and roofing along with a tremendous amount of work within the building. Building systems were brought online and tested this month. Appliances have been installed and furniture installation is scheduled for late January. Fiber optic communication lines to the building were also completed in December.



The contractor will be onsite throughout January completing items remaining for final completion scheduled for the end of the month. Additional work in January will include installation of security cameras and card reader door access, along with various IT and audio/visual equipment. Utilities staff will move into the building in February.

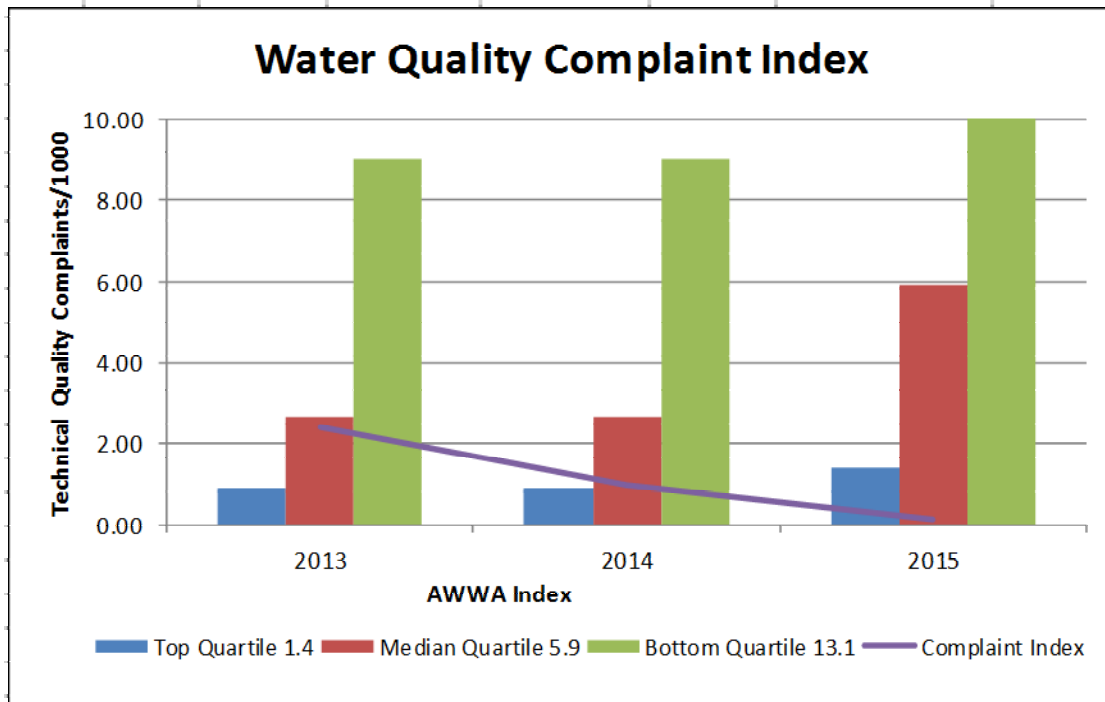
# Water System Integrity

There were no service line leaks, and one main line break this month. An overall rating of 3.93 breaks per 100 miles kept us in the top quartile as compared to national standards for 2015.



# Water Quality Complaints

There have been three water quality complaints for the year ending December 2015. Castle Rock Water compared favorably to industry standards falling in the top quartile at .17 in the index for this metric in 2015. We succeeded being in the top quartile for the year. For more information, view the current water quality report at [CRgov.com/waterquality](http://CRgov.com/waterquality).





# DECEMBER LEVELS OF SERVICE

## Drinking Water Compliance

Castle Rock Water will deliver water that meets or exceeds both Primary Drinking Water Regulations and Secondary Maximum Contaminant Levels 100% of the time. Sixty routine samples were completed. All samples were within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards.

## Pressure Adequacy

< 1% of our customers will experience less than 43 pounds per square inch (psi) of pressure at the meter during normal operations. Castle Rock Water met the objective again in 2015 with <1% of our customers experiencing a low pressure event. We did have one event in December impacting 31 customers.

## Drinking Water Supply Outages

<5% of our customers will experience water outages for one or more event totaling more than 30 hours/year. Less than 5 percent of customers experienced a water outage this month; however, the following issues were reported:

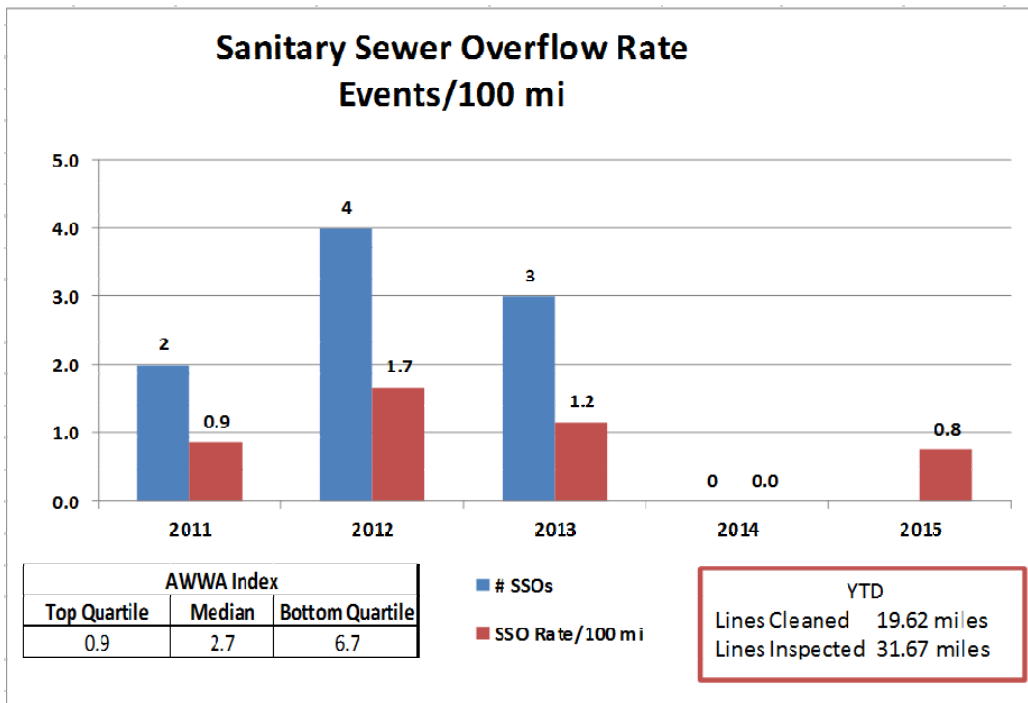
- A line break at 6th and Lewis on Dec. 1. Repairs were completed the same day within four hours of the leak being confirmed. Eight houses had lower than normal pressure for less than 20 minutes.

## Sewer System Effectiveness

<1% of our customers will experience a sewer backup caused by the utility's sewer system per year. Castle Rock did not have any sewer backups due to the system in December. The total for the year remained well below the 1% target.

## Sanitary Sewer Overflows

Total sewer overflows in 2015 were two. Our 5-year average is 0.8 events per 100 miles, which is in the Top Quartile (the best) of American Water Works Association (AWWA) entities participating in the national benchmarking. *The lower the number the better the performance!*



## How do we avoid overflows?

Our team runs a camera through the sewer mains to look for problems. When problems are identified they are cleared with a high pressure water jet. In 2014, the camera was run through 21.4 miles of pipe, and we cleaned 18.7 miles. In 2015, we inspected 31.7 miles of pipe, and cleaned 19.6 miles. This exceeds the performance in 2014.