

2015 Water Demands

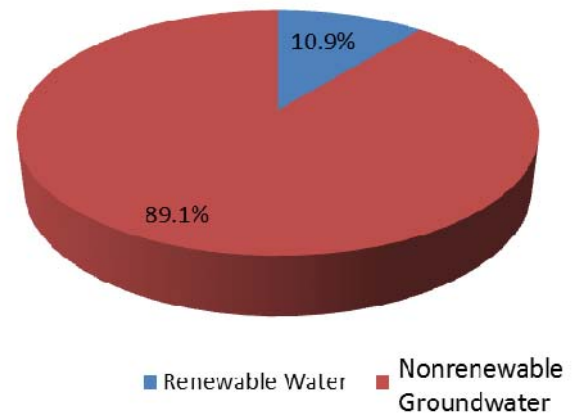
By: Sheri Scott, Water Resources Program Analyst

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 November was 4.5 million gallons per day (MGD) which was about 4% greater 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, reflects indoor or base demand. The water demand total for November was 106.9 million gallons (MG), which was a 53% decrease from the October 2015 total of 229.1 MG, and a very slight decrease (1%) from November 2014 demand of 107.9 MG. November was a cold month and the Town received several significant snow events.

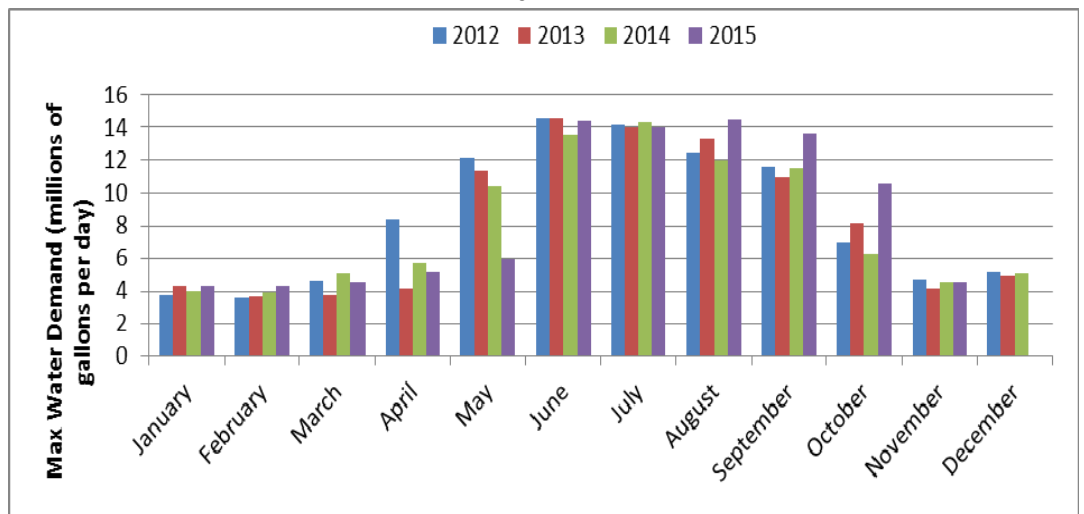
The Town's nine alluvial wells produced a total of 21.1 MG of renewable water during November, which represents 19.7% of the total water supply for the month and 10.9% (252 MG or 773 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 725 MG, which represents 11.3% 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. Staff is presenting an alluvial well project to Council in December that will help address this issue.

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Water Supply Sources YTD



Maximum Daily Water Demands



OUR VISION

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

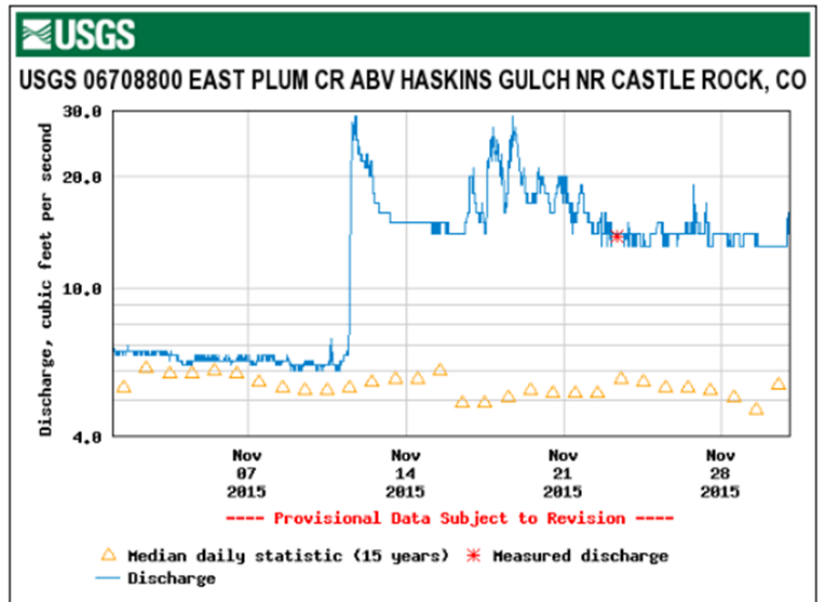
2015 Water Demands, continued

The flow hydrograph 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 6 to 7 cubic feet per second (cfs) early in the month, flow spikes nearing 30 cfs on several occasions following several winter storm events mid-month. The flow in the stream leveled to approximately 13 cfs at the end of the 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.

This month's Headwater Magazine had several interesting articles concerning water use on the Colorado River and the future impacts to water users. "No longer do states and water users talk exclusively about how much water they're legally entitled to take. Now, they increasingly discuss ways to balance what they need with what the river provides, and they've begun to move forward with experiments designed to chisel away at decades of

overuse in order to live on a water diet designed not by the courts or state legislatures, but by the river's own highly variable flows" (*A Defining Moment on the Colorado River*, Headwaters Magazine, Fall 2015). Major discussions and risk studies are occurring in the Colorado River Basin that will "evaluate ways to stabilize the system so that no one will have to be involuntarily rationed" (*Bound by a River*, Headwaters Fall 2015). The outcomes from the Colorado River Basin discussions/studies will undoubtedly affect all other major river basins leaving the state of Colorado. To read the Headwater Magazine articles, go to

<https://www.yourwatercolorado.org/cfwe-education/headwaters-magazine/fall-2015-colorado-basin>.



Welcome to our
Team!



Charles Roubidoux
Water Operator III

New Operations & Maintenance Building Construction

By: Josh Hansen, Project Manager

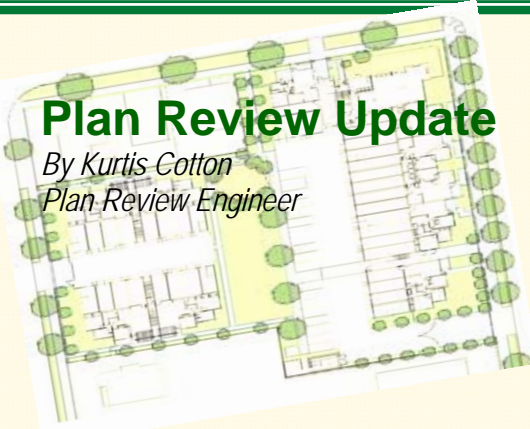
November was a busy month with a flurry of construction activity as the pieces of the building are coming together and on schedule for completion in December. The building received electrical service this month making working conditions inside much more comfortable. The majority of metal siding and roofing panels have been installed and the concrete on the project is now complete. Windows, storefront, and doors are nearing completion. There are a multitude of workers inside the building now installing flooring, paint, ceiling tiles, cabinetry, and all of the various mechanical, electrical, and plumbing components of the building.



Another big thanks to the Operations group this month for hauling off a large amount of unanticipated excess dirt from the site and for helping power up part of the building with one of our generators so that elevator installation could be completed in advance of electrical service. These significant efforts from staff helped to keep the project within approved budget.

Plan Review Update

By Kurtis Cotton
Plan Review Engineer



The applications reviewed consisted of:

- 33 1st Submittals
- 16 2nd Submittals
- 24 Special reviews

Utilities reviewed 73 applications this month which compares to 62 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 1.4 weeks, which included:

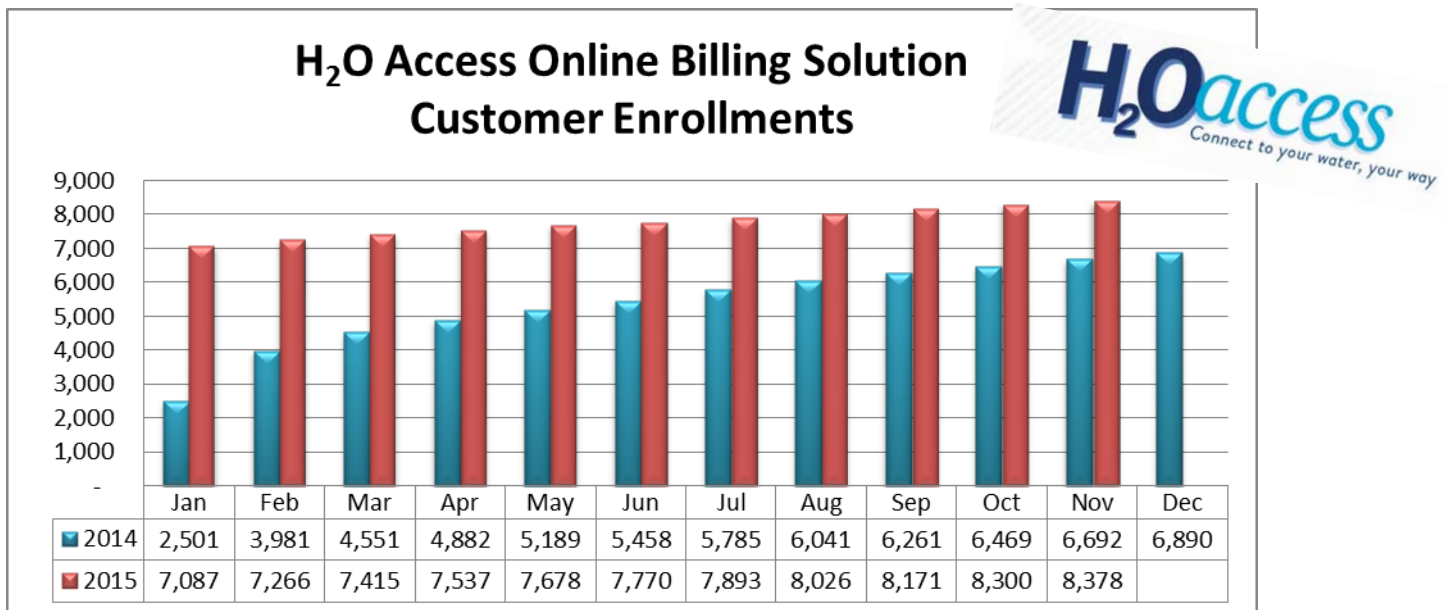
- 1 Agreement
- 2 Annexation
- 1 Miscellaneous
- 1 Planned Development Plan
- 10 Plats
- 6 Preliminary Project Applications
- 16 Construction Drawings
- 12 Site Development Plans
- 2 Technical Criteria Variances
- 11 Field Change Orders
- 1 Lot Line Adjustment
- 10 Grading, Erosion and Sediment Control (GESC) Plans

In addition to completing the above listed applications as scheduled, Utilities completed 95 single family utility reviews and associated system development fees.

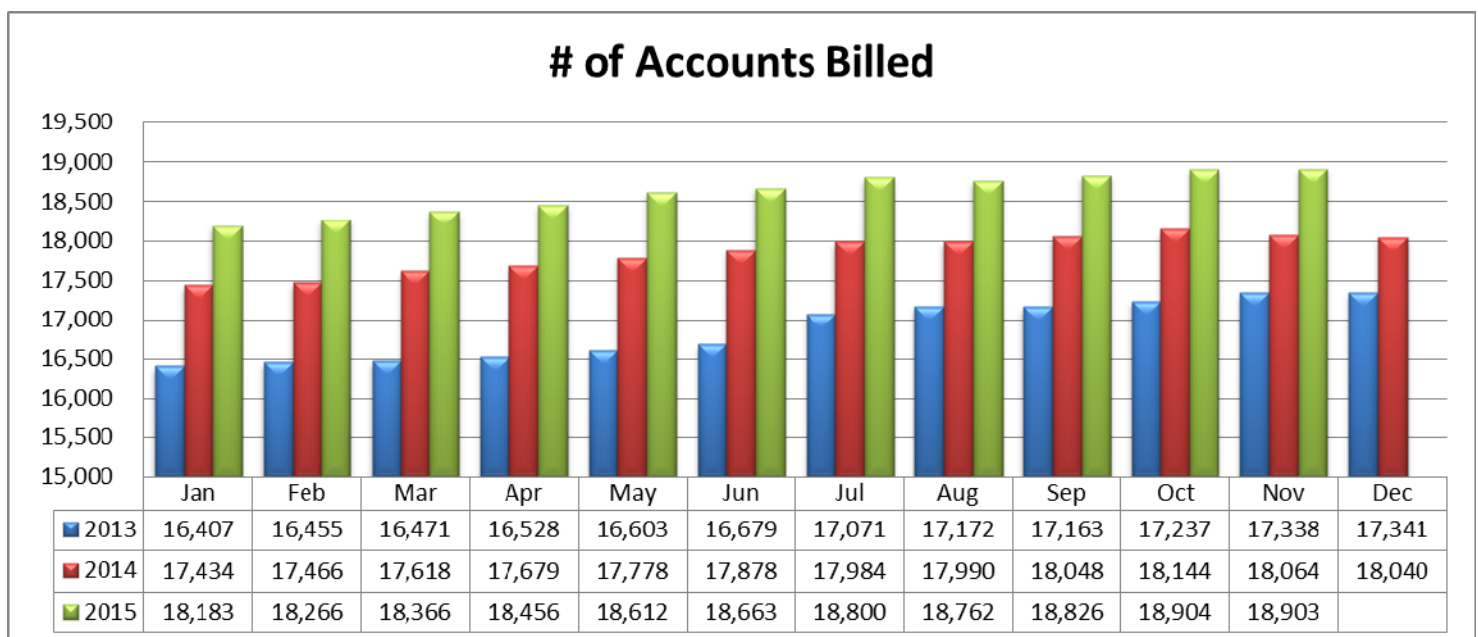
Customer Statistics

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.

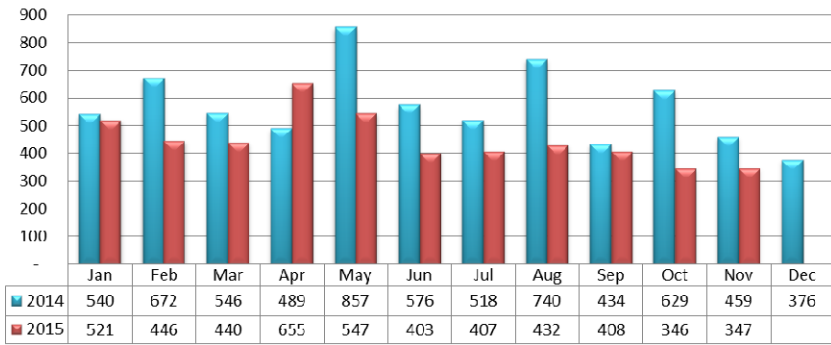


The H₂OAccess online billing solution was launched in January 2014. The number of customers who have enrolled in online bill pay and have also chosen to go paperless remains steady at 52%. Utilities is working on a campaign for 2016 to increase the level of online and paperless users.



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

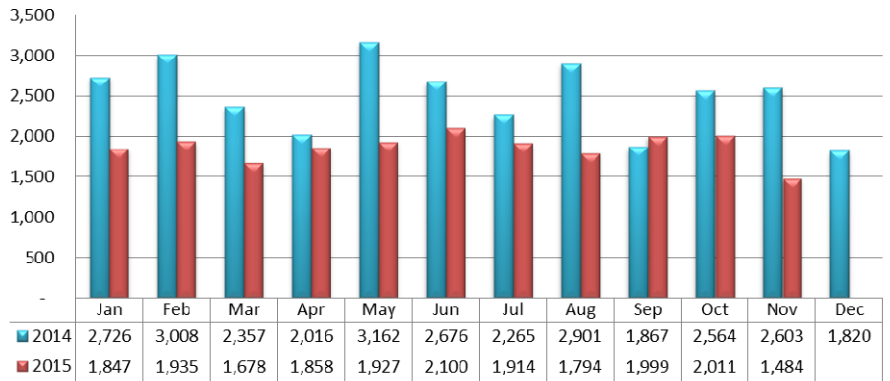
Walk-In Customers



Walk-in customers were consistent with the previous month.

Customer phone calls were lower than last month due mostly to the decreases in consumption for this time of year. Utilities is getting ready to implement a new software that will allow us to track additional details about phone calls, including time of day, duration of the calls and calls per phone line.

Customer Phone Calls



Meter Retrofit Completed

By: Nikki Hoyt, Meter Services Supervisor

The Town's meter reading system is currently Automatic Meter Reading (AMR) infrastructure. This allows our meter reading team to collect meter reads automatically by driving specific routes. The first units were installed in the Town as far back as 1995. This installation continued throughout the Town for several years after this at which time the remaining 697 meters were left as a walking route due to the desire to move to more advanced technology. With the advancement in technology, Meter Services completed The Meadows walking route retrofit on November 24, 2015 and converted these 697 meters to our current AMR system by placing an MXU on the house so that the meter can be read electronically rather than manually. The MXU's that were installed are compatible with the most current technology.



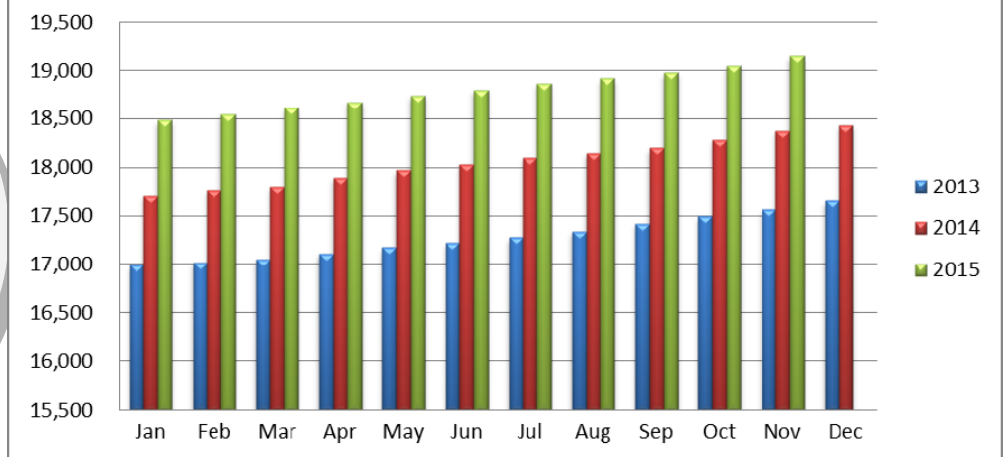
Previously what took the team 10-12 man hours in all types of weather conditions to complete by walking eight to ten miles monthly will now be done by one technician in about 90 minutes using the truck and antenna technology to collect the reads. The completion of this project will increase efficiency, safety of our staff and reduce overall costs of obtaining these reads.

This picture depicts the new equipment being used. The equipment on the left is a vehicle gateway base (VGB) station and is mounted in the trucks and used to collect monthly meter reads. The small white box on the right is mounted on the side of the house and sends radio signals to the VGB.

Meters

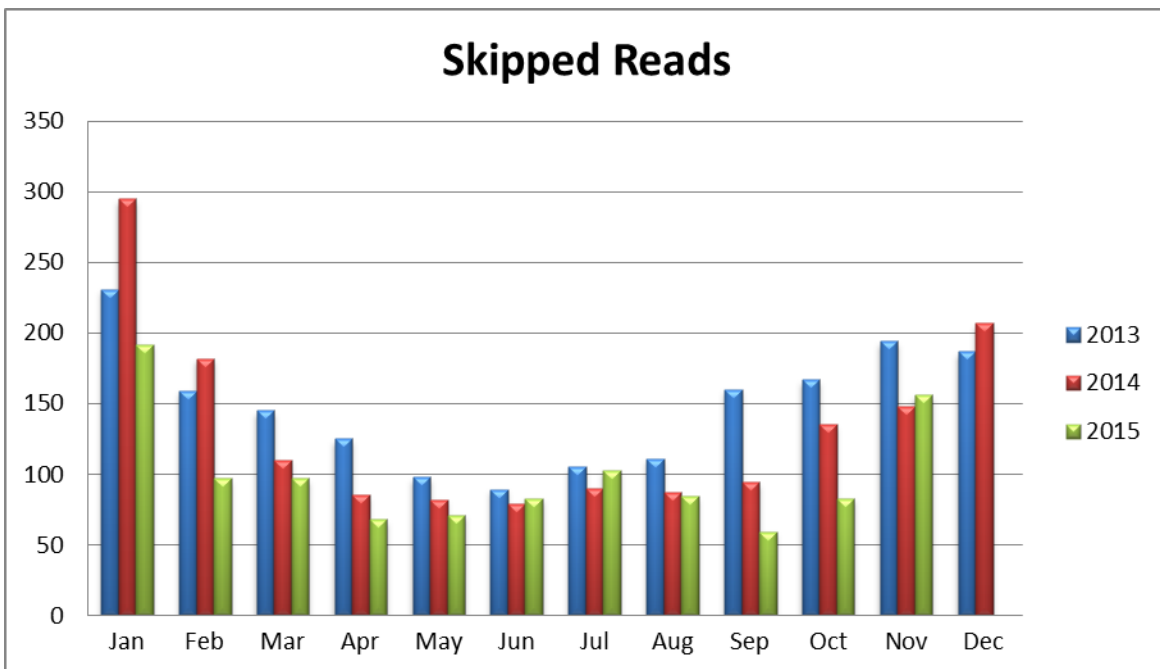


Meters Read



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

Skipped Reads



The American Water Works Association (AWWA) standard is 2 percent, so at 0.82 percent, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure. November 2015 is higher than October 2015 due to the colder temperatures which can cause the batteries that are weak to just stop working. However, the skipped reads are consistent with the same time last year.

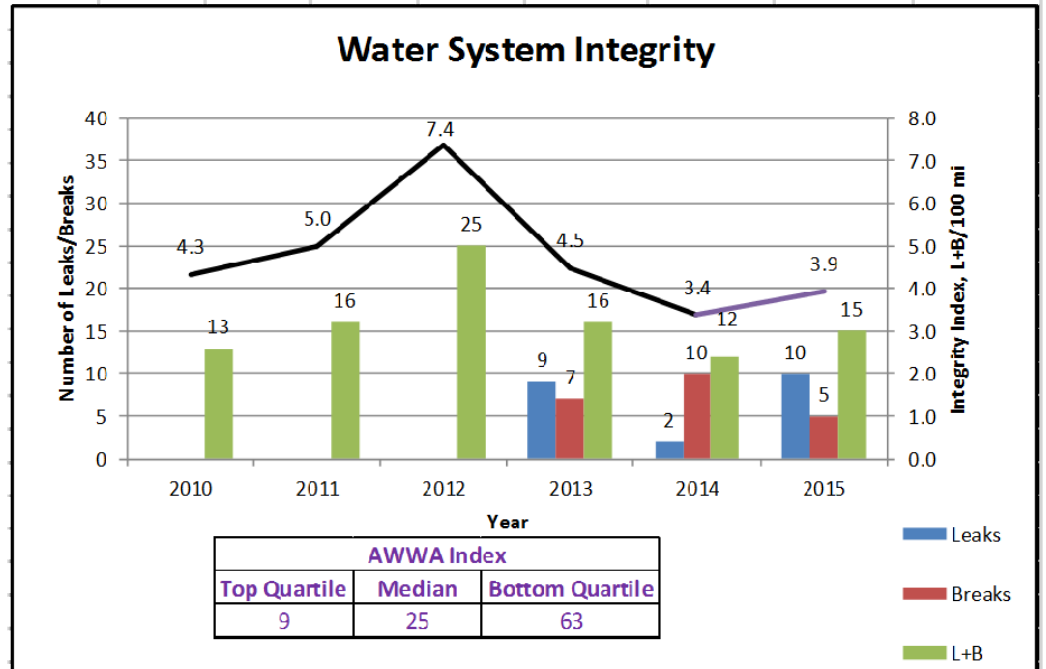
Why is this important?

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.

Water System Integrity

There was one service line break, and one valve break this month. An overall rating of 3.9 breaks per 100 miles kept us in the top quartile as compared to national standards for 2015.

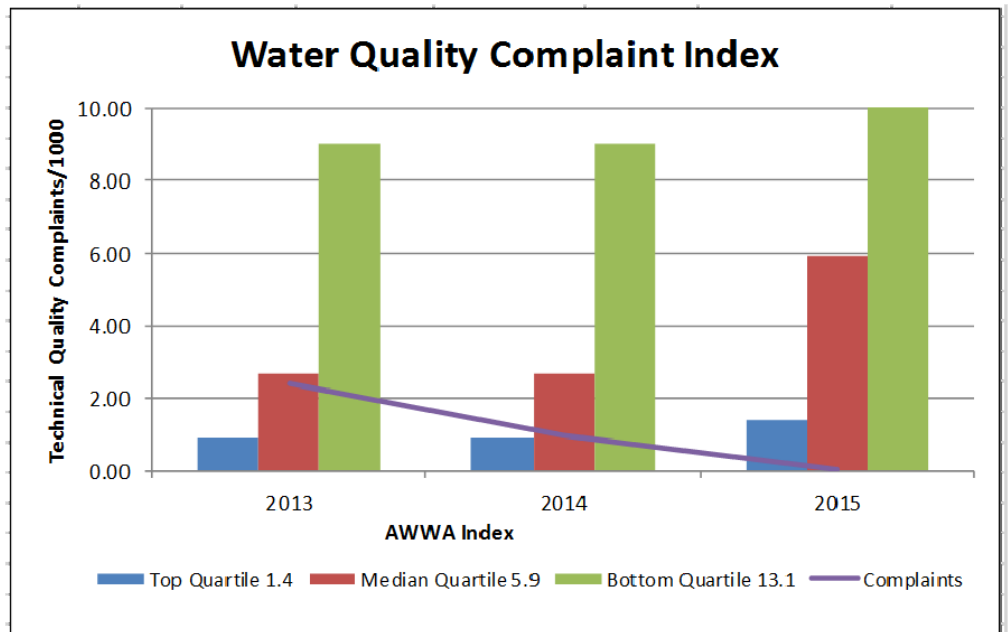
As of November 30, our crews have exercised and maintained 5,914 valves and 2,471 first hydrants. This is 52% of the 11,401 system valves that we operate and maintain in the valve maintenance program, and 67% of the 3,696 fire hydrants in the distribution system. This puts us in line with the American Water Works Association standards for system valve inspection once very two years.



Water Quality Complaints

There were two water quality complaints in October 2015. Castle Rock Water compared favorably to industry standards falling just outside the top quartile (best of the best) for this metric in 2014. Year-to-date we are on-track to be in the top quartile this year. For more information, view the current water quality report at CRgov.com/waterquality.

In 2015, leak detection was done in The Meadows (Coachhouse Loop) where multiple service line breaks occurred this year, Castlewood Ranch subdivision and a portion of the Crystal Valley Ranch subdivision. The remainder of Crystal Valley Ranch is expected to be completed before the end of the year. Results of the leak detection have been positive - only one leaking fire hydrant in The Meadows.



NOVEMBER 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. No pressure issues.

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 service line break on Coachhouse Loop on Nov. 9. Repairs were made the next day due to the slow loss of water. Water service was lost for 30 minutes, and no other customers were without water.
- A water valve break at Eaton Cr. and Plum Creek Pkwy. at the entrance to the rolling Hills Apartments on Nov. 16. Ten customers experienced lower pressure before being shut down completely. Repairs were made and these customers were without water for less than two hours.

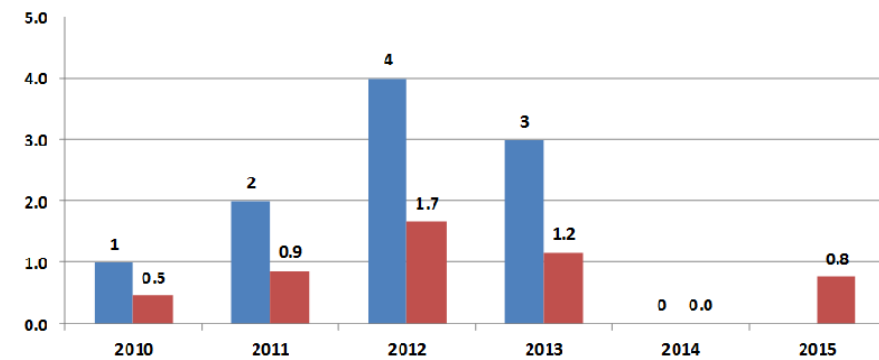
Sewer System Effectiveness

<1% of our customers will experience a sewer backup caused by the utility's sewer system per year. There were no sanitary sewer issues this month.

Sanitary Sewer Overflows

We ended 2014 with no sewer over-flows or backups which is the best performance over the last five years. Our total sewer overflows to-date in 2015 is 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!*

Sanitary Sewer Overflow Rate
Events/100 mi



AWWA Index		
Top Quartile	Median	Bottom Quartile
0.9	2.7	6.7

■ # SSOs
■ SSO Rate/100 mi

YTD	
Lines Cleaned	19.62 miles
Lines Inspected	29.73 miles

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. So far in 2015, we have inspected 29.7 miles of pipe, and cleaned 19.6 miles. This exceeds 2014's performance!