

## **Water Quality Report**

The most important mission that Castle Rock Water fulfills is to ensure the highest quality of drinking water possible is provided to our customers at a reasonable cost. Our Mission specifically states “We provide our community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner.” There are very detailed State and Federal regulations that set standards for water quality. Castle Rock Water meets and exceeds those standards as is apparent in our 2017 Water Quality Report . The most important aspect of water quality, however, is not just to meet a numeric standard set by the State or Federal government, but to protect public health to the maximum extent possible and provide the highest quality water at the best value in terms of cost.

Like all public water systems, Castle Rock Water is required by Federal and State regulations to publish an annual Water Quality Report, visit [CRgov.com/WaterQualityReport](http://CRgov.com/WaterQualityReport). You can also visit, [CRgov.com/WaterQuality](http://CRgov.com/WaterQuality) for other information about water quality including appearance, safety, what to do about concerns, and frequently asked questions.



Public water systems have been in the news recently with respect to water quality. It is important to recognize that despite challenges in isolated cities around the country by and large water quality in public water systems is as good as or better than it has ever been. It is also generally as good as bottled water (while being a thousand times less expensive) which as noted above is not required to be tested nearly as often. Science is changing and improving, and today we know more about our water than we ever did before. Castle Rock Water has embraced this knowledge, and a key tactic in our strategic plan is to stay abreast of the latest science and ahead of regulatory requirements. To this end, our water quality team will be doing an annual review of the latest science relative to water quality as a part of implementing our strategic plan.

Other ways we have gone beyond State and Federal requirements include our approach to lead and copper testing. Castle Rock Water has done extensive lead and copper testing since 1992 in accordance with State and Federal requirements, but in 2015 and 2016 we went beyond those requirements. To date, no samples have had lead or copper at levels which exceed the action levels. In 2016, Castle Rock Water reached out to all of our customers who might have private plumbing with a risk of containing lead. Over 1,500 letters were sent to a targeted group of customers with houses of an age where this kind of

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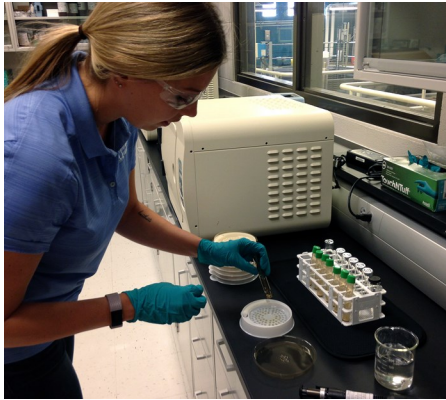
### **OUR VISION**

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

## Water Quality Report, continued

plumbing might still exist, and Castle Rock Water offered to test the water at any of these houses where the customer might have concerns (CRgov.com/watertesting).

Another area where Castle Rock Water is going above the requirements is with respect to our Source Water Protection Plan (SWPP). Castle Rock Water, in conjunction with the Colorado Rural Water Association, is developing a Source Water Protection Plan to provide our customers with information about their drinking water, as well as provide the community a way to get involved in protecting the quality of their drinking water. Preparing this plan is voluntary and Castle Rock Water has engaged stakeholders in the East Plum Creek watershed through a series of workshops to raise awareness, identify potential sources of contaminants and implement Best Management Practices (BMPs) to reduce the likelihood of contaminants entering our drinking water supply. Source water protection was founded on the concept that informed citizens, equipped with fundamental knowledge about their drinking water source and the threats to it, will be the most effective advocates for protecting this valuable resource. Once completed, the SWPP will be presented to the community and there will be ongoing educational opportunities to reinforce the importance of preserving the high quality of source water that comprises our drinking water supply.



*Lauren Tyner, Water Quality Technician*



*Evan Bahn, Regulatory and Water Quality Compliance Analyst*

## CR-1 Diversion Project

*By: Matt Hayes, Project Manager*

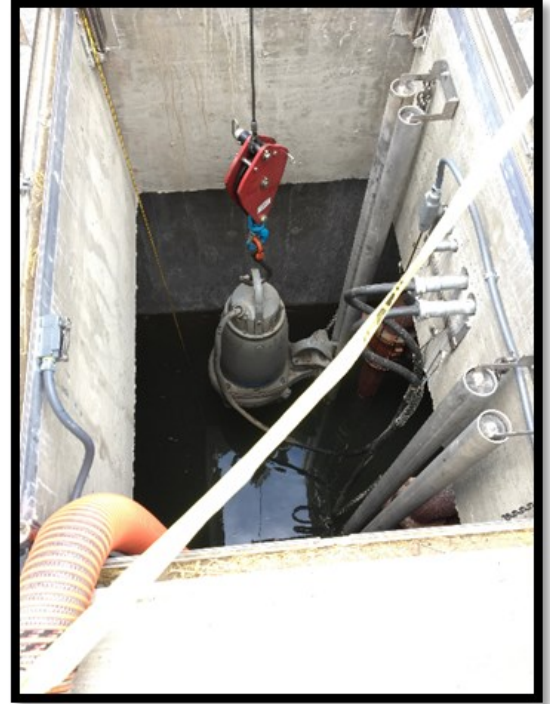
Castle Rock Water has recently completed the CR-1 diversion project near the Plum Creek Water Purification Facility (PCWPF). In 2016 and early 2017, Castle Rock Water installed a temporary pump in East Plum Creek to capture our existing water rights. During this temporary operation, when weather permitted, we were able to capture approximately 430,000 gallons of renewable water per day. The permanent diversion is designed to capture up to 3.7 million gallons per day of renewable water from East Plum Creek.



## CR-1 Diversion, continued

The project consisted of modifying an existing 24-inch pipe, which was exposed in the East Plum Creek, into a diversion structure. A portion of the 24-inch pipe was removed and replaced with a screen, to allow water to flow into the pipe. Since the pipe was an existing structure and the pipe modification did not disturb the stream, Federal permitting was not required to complete these modifications. A new pump station and pipeline was constructed to convey this water to PCWPF. Approximately 1,300 linear feet of 12-inch pipe was installed between a new pump station and the existing raw water transmission pipeline that feeds PCWPF. Additional facilities that were constructed with this project include a flow monitoring station and control facilities for operations.

The CR-1 diversion began operating on June 22 and has been producing approximately 1.15 million gallons per day of renewable water. The total project cost was approximately \$773,000 including design and construction. If CR-1 is able to average 1 million gallons per day of production per year, the value of this water in terms of capital investment is approximately \$28 million per year.



## NEW 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:*



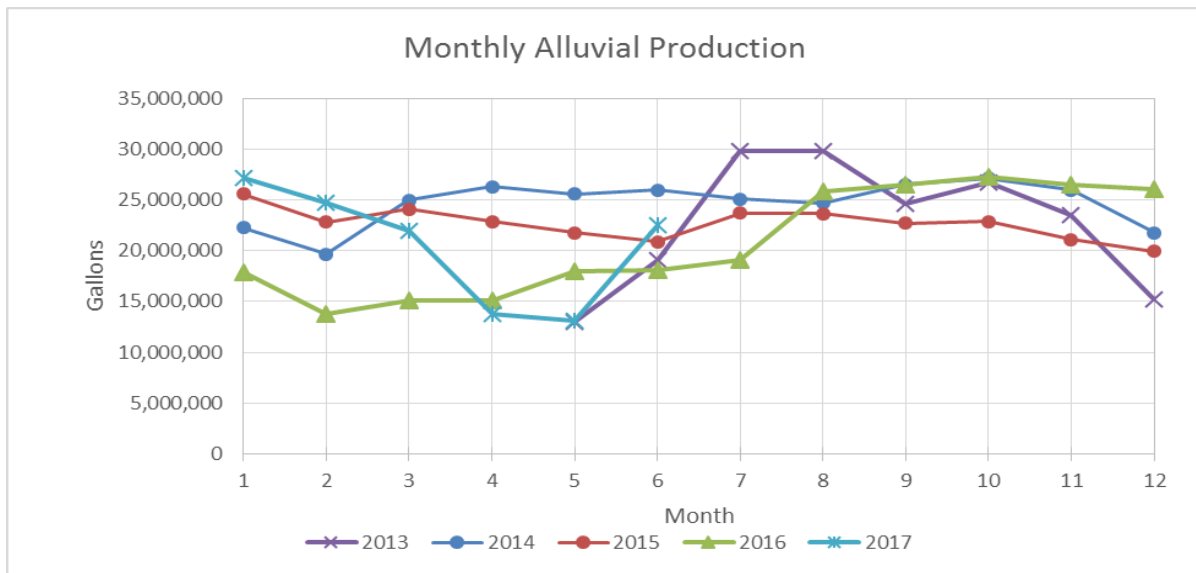
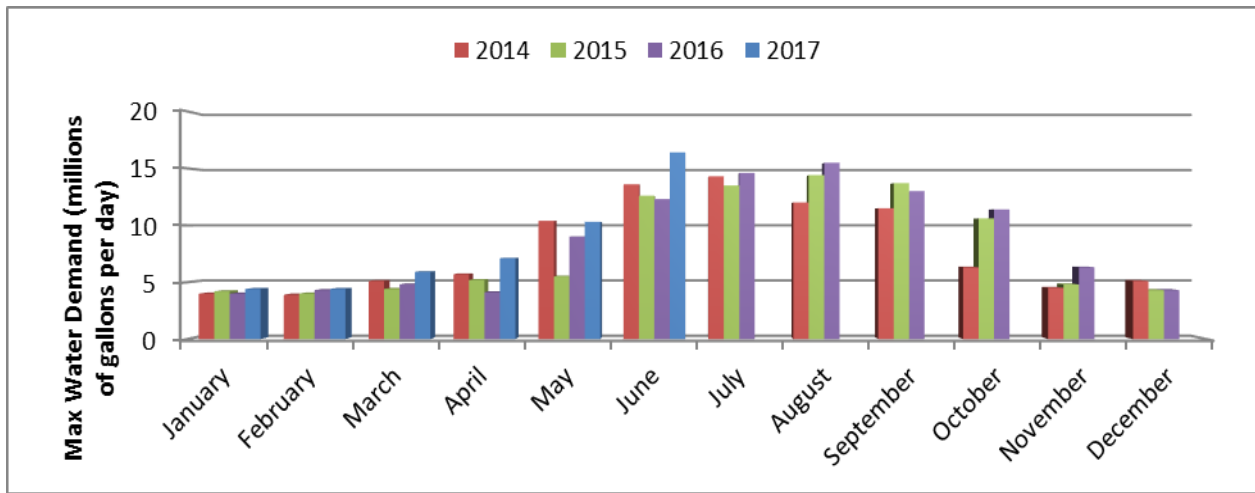
**Chris Damrow**  
Class D Water Operator

# 2017 Water Demands

By: Kurtis Cotten, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2014 to the current month. As observed by the data, the maximum demand for the month of June was 16.4 million gallons per day (MGD) which was about 18% more than the 5-year average maximum daily demand for the month. 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. The water demand total for June was 420.7 million gallons (MG), which was about a 93% increase from the May 2017 total of 218.1 MG, and a 38% increase from the June 2016 demand of 303.8 MG.

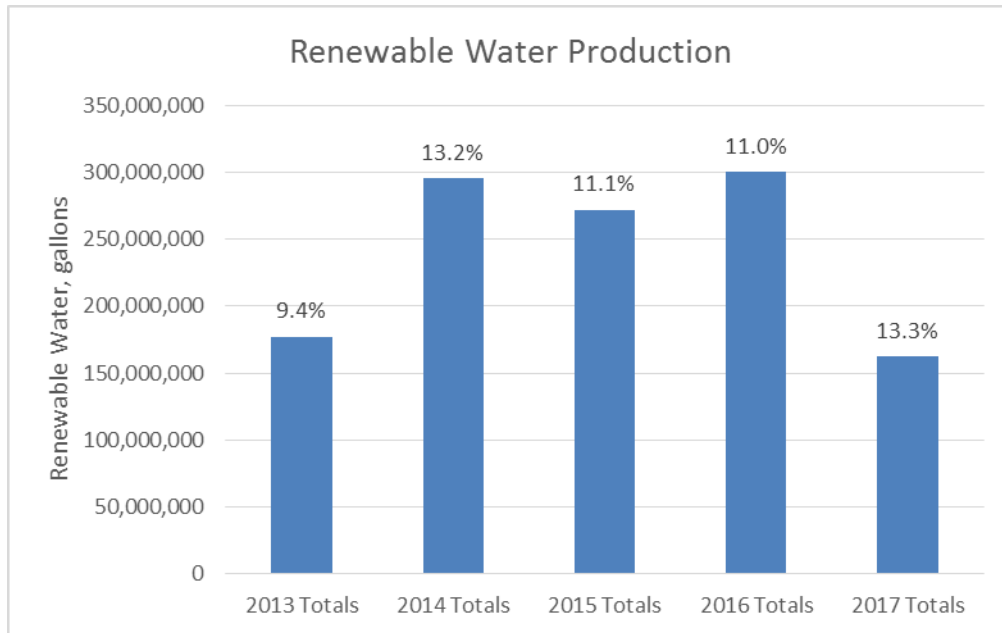
The permanent pumps for CR-1 were brought online in June and the diversion produced an average of 0.6 MGD for the month. The Town's twelve alluvial wells and CR-1 produced a total of 41.0 MG of renewable water during June, which represents 9.5% of the total water supply for the month and 13.3% (162 MG or 498 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 1,207 MG, which represents 11.5% of the



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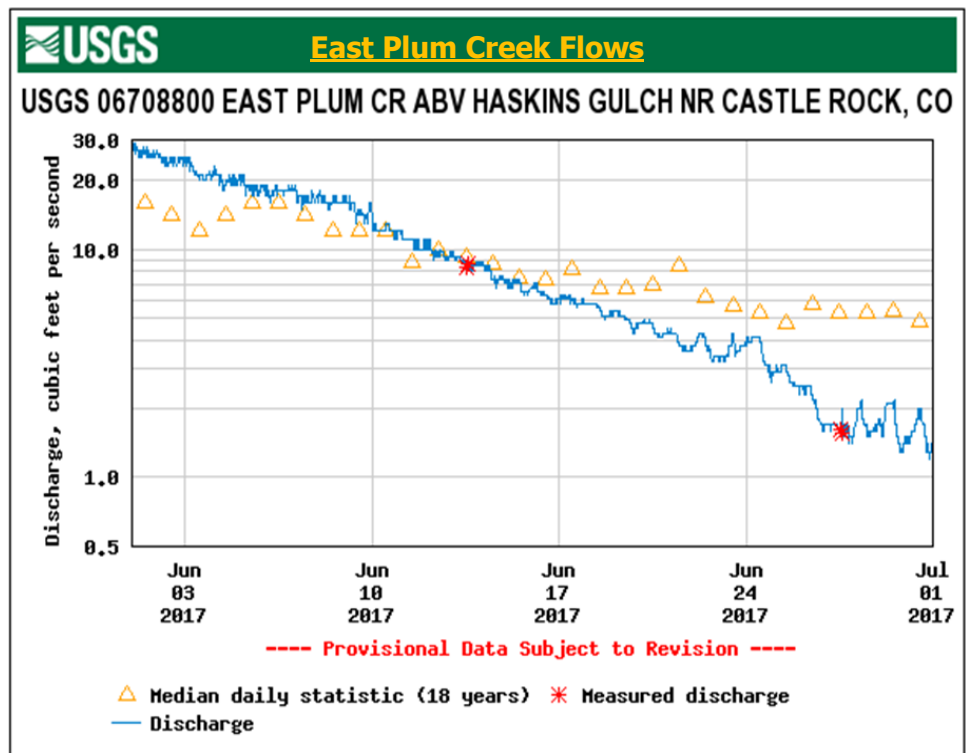
## Water Demands, continued

Town's total water supply since the alluvial wells began pumping in May 2013. Currently, the Town's renewable water rights surpass the capacity of the alluvial wells. The renewable water projects the Town is currently working on will help close this gap.



The percentage shown on top of the bars is the amount of renewable water relative to total water production.

The flow hydrograph represents stream flows in East Plum Creek taken from the stream gauge located above Haskins Gulch. The hydrograph shows that flows in the East Plum Creek basin ranged between 1 and 30 cubic feet per second (cfs) during the month of June, with flows averaging around 10 cfs for the month. During June, there were active calls on the South Platte River. Some of the active calls have had a more senior water right than some of the Town's water rights. This means that those diversions are out-of-priority, so the stream depletions will be covered by non-tributary return flows. This also means that the Town will have slightly less reusable water going down Plum Creek during



an active call. The priority date on a river call may change each day depending on the stream flow available and the seniority of the diversions that need water on that day.

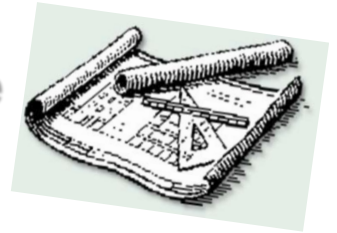
Castle Rock Water reviewed 74 applications this month which compares to 65 during the same time period in 2016. The average assigned due date by Development Services was six days, and we completed the reviews in an average of six days, which included:

- 4 Agreements
- 8 Plats
- 3 County Referral
- 11 Field Change Orders
- 11 Site Development Plans
- 2 Preliminary Project Applications
- 10 Grading, Erosion and Sediment Control (GESC) Plans
- 18 Construction Drawings
- 1 Sketch Plan
- 5 Technical Criteria Variances
- 1 Use by Special Review Application

The applications reviewed consisted of:

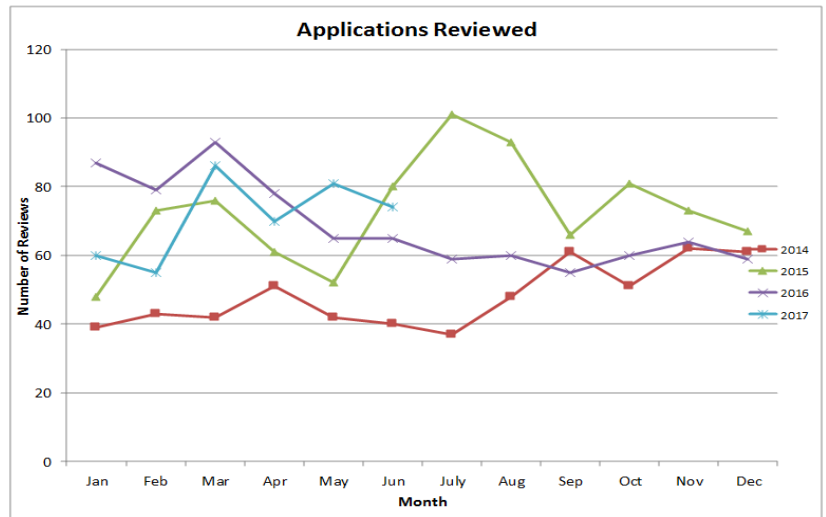
- 44 1<sup>st</sup> Submittals
- 18 2<sup>nd</sup> Submittals
- 12 Special reviews
- 22 Completed late
- 52 Completed on-time as scheduled

## Plan Review Update



By Mark Mantua, Plan Review Engineer

Castle Rock Water provides plan review for all water, wastewater and stormwater projects submitted through the development review process. The line graph (below) shows development activity data (by month and year) since 2014.

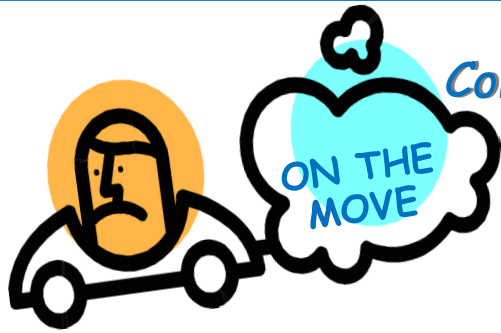


In addition, Castle Rock Water completed 99 building permit reviews and associated system development fees.

**Welcome to our Team!**



**Avery Worland**  
Water Distribution  
System Operator I



*Congratulations on your recent promotion!*



**Jared Wagner**  
Geographic Information System  
(GIS) Technician

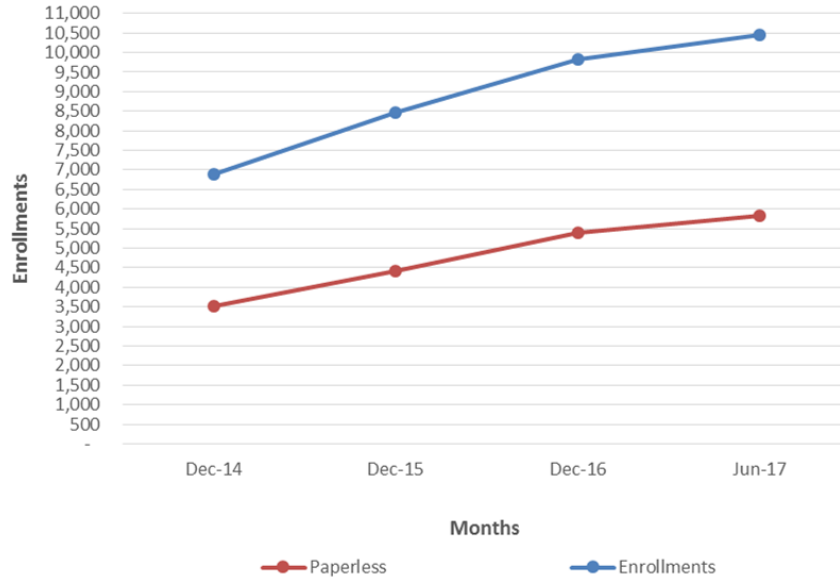
## Customer Statistics

By: Anne Glassman, Business Solutions Manager



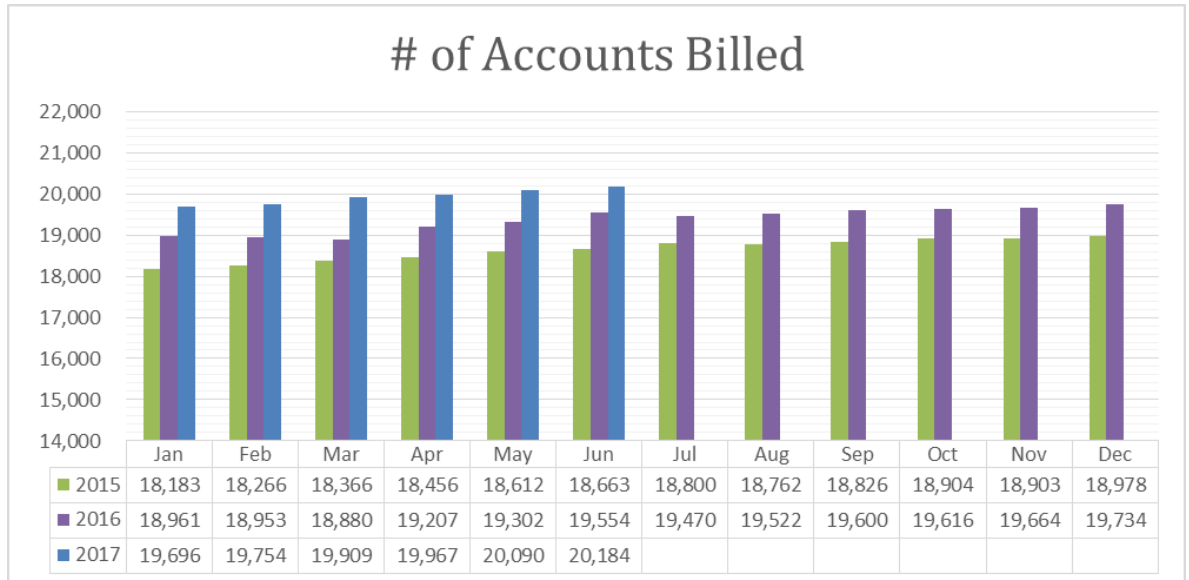
Our Business Solutions Team continues to track a host of statistics and data as we continue to evaluate our levels of service and look for efficient ways to improve on these levels.

H<sub>2</sub>O Access Customer Enrollments



Fifty-six percent of the customers enrolled in H<sub>2</sub>OAccess have also chosen to “Go Paperless.”

# of Accounts Billed

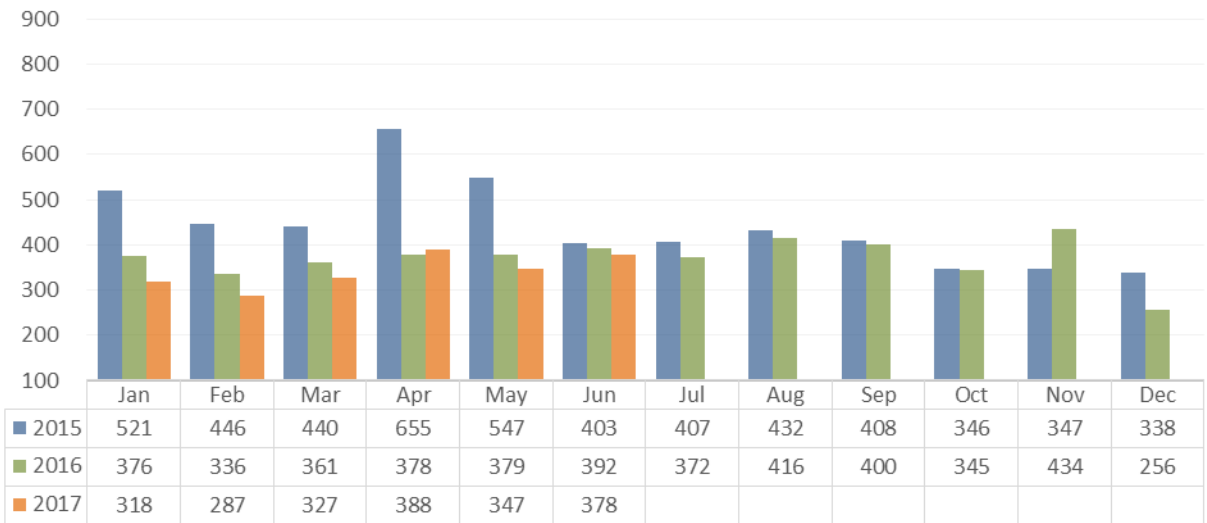


The number of accounts billed continues to increase year over year due to new residential and commercial growth.



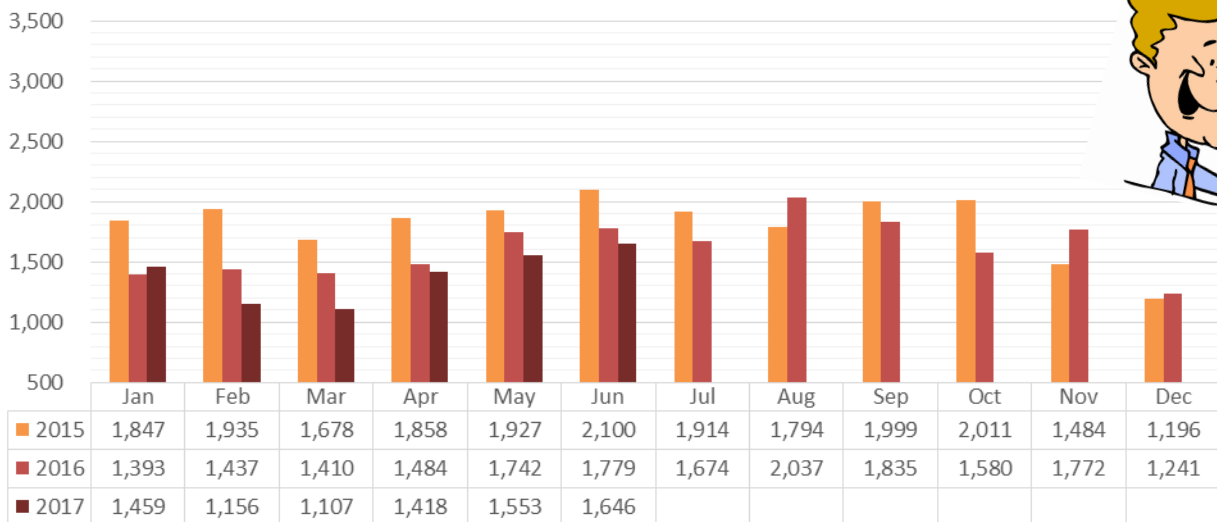


## Walk-In Customers



Walk-in customers are consistent with this same period last year.

## Customer Phone Calls



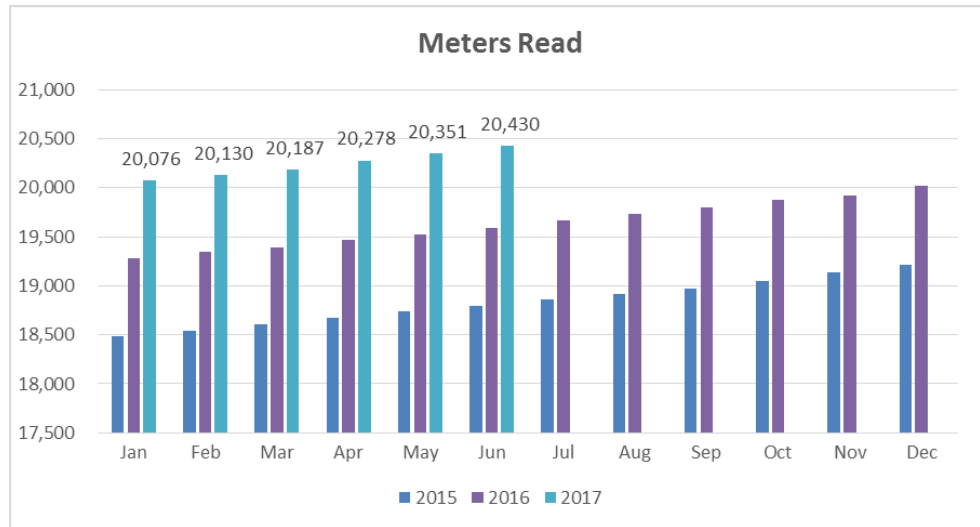
Customer calls are consistent with this same time last year.

# METERS



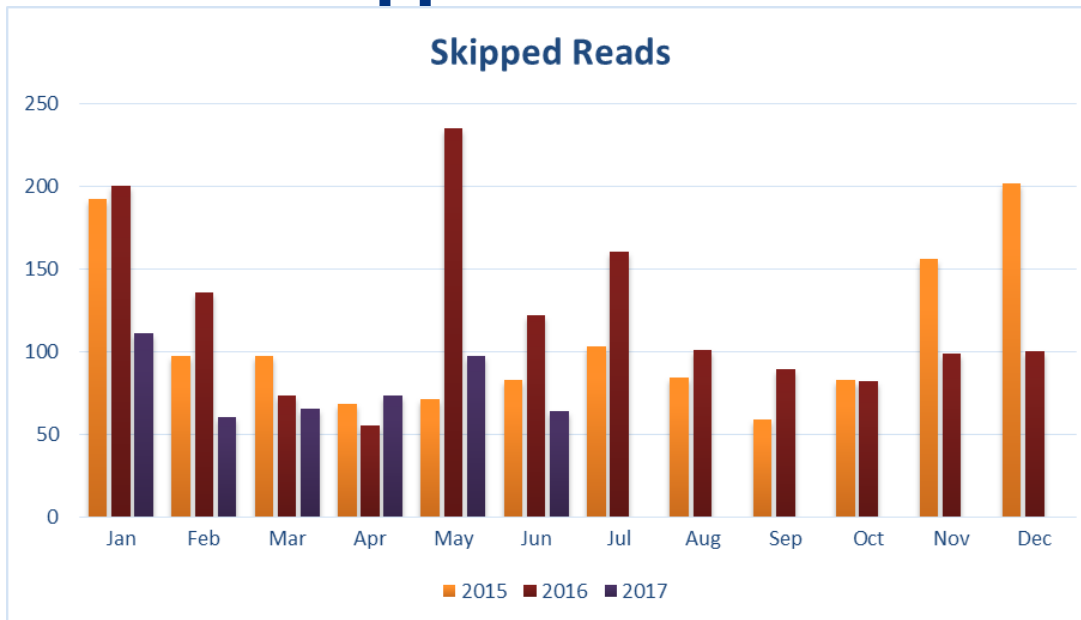
## Meter Sets

Month-to-Date 91  
Year-to-date 450



The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase year-over-year.

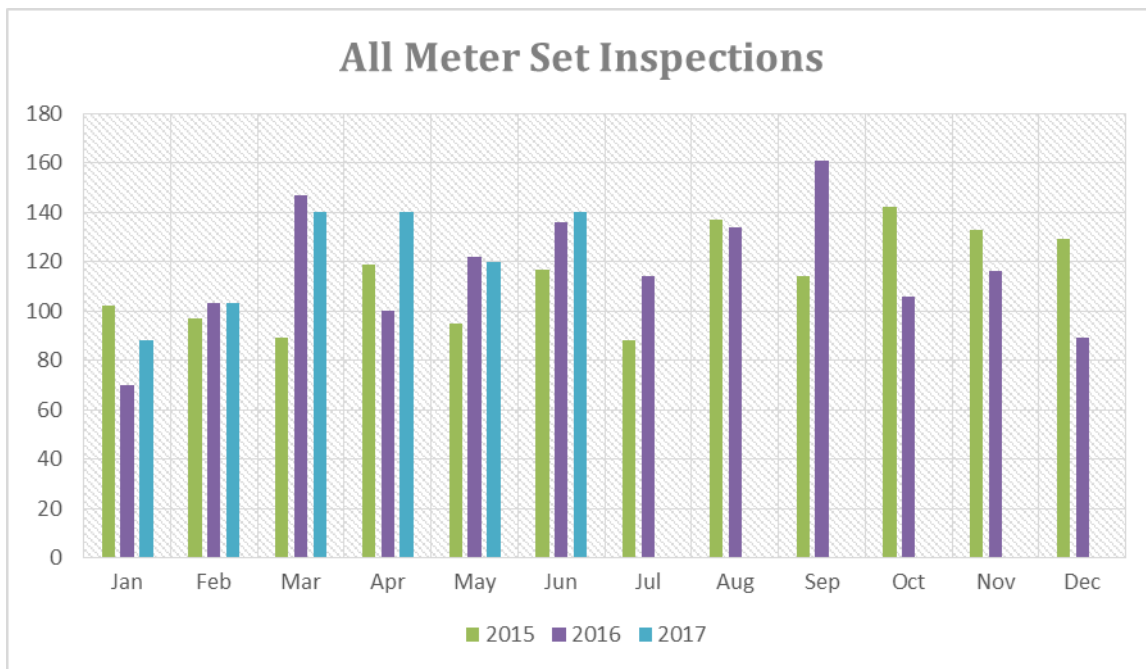
## Skipped Reads



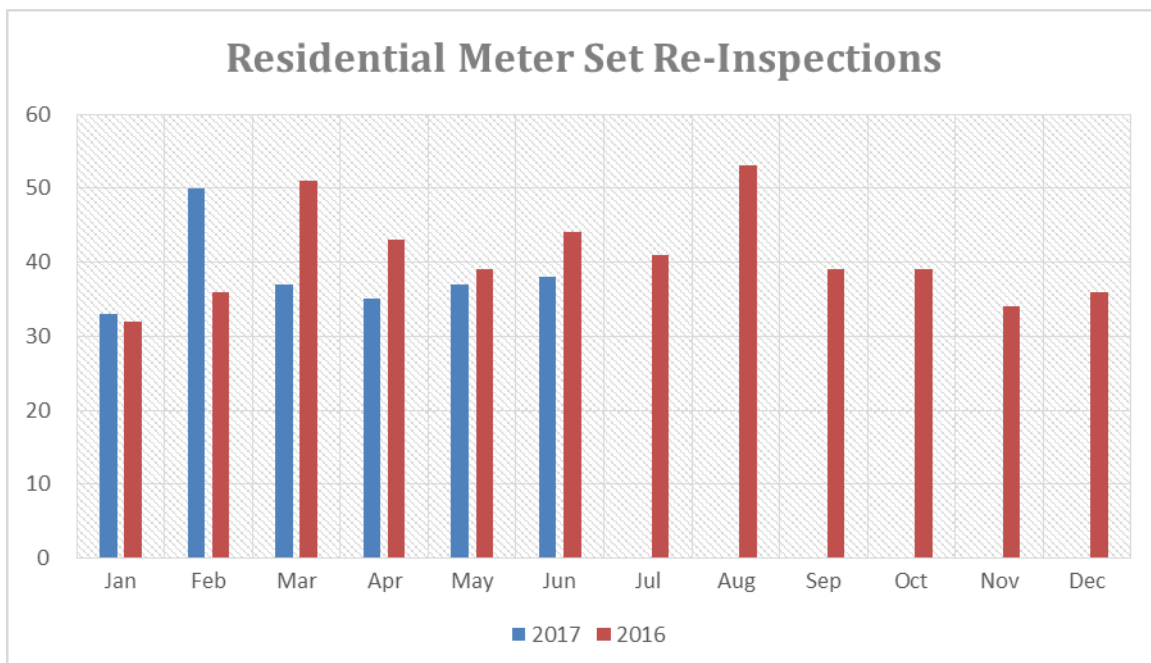
The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.31 percent, we still continue to stay below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure. The higher number of skipped reads in May 2016 were due to equipment failure.

### 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 metering infrastructure (i.e. battery, wiring, etc.) Fewer skipped reads means more properly working meters, which is good for all our customers.



Meter set inspections are fairly consistent with prior years at this time.



Residential meter set re-inspections through June 2017 are very similar to those seen last year through June 2016.



# STORMWATER UPDATE

*Our team of four “storm troopers” maintains over 138 miles of pipe and drainageways, 110 detention ponds and 4,439 inlets as well as completes special projects designed to improve water quality.*



*The Stormwater Team conducted maintenance of the stormwater pond located near the KinderCare at Founders and Front St. A total of 110 cubic yards of material were removed, restoring the trickle channel!*



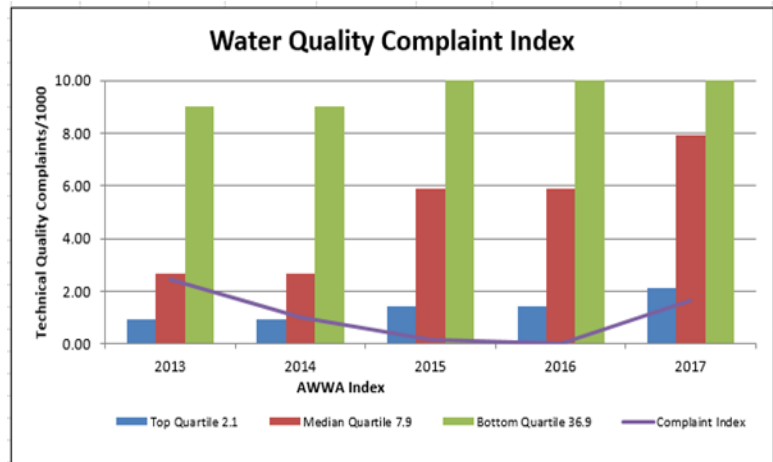
*The Stormwater Team used the Vac Truck to remove algae, sediment and debris from the Lowe’s stormwater pond outfall. Their work will enable proper flow and reduce mosquito breeding conditions.*



**Our team maintains about 810 miles of water, wastewater and stormwater pipeline, enough to run from Castle Rock to Las Vegas, Nevada.**

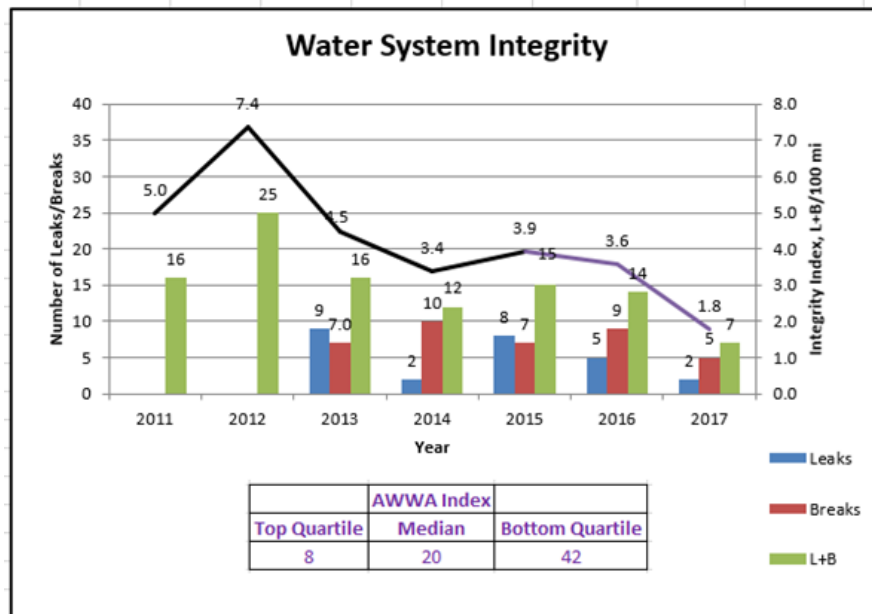
## Water Quality Complaints

The Water Quality Complaint index shows that we are doing very well in this category; rating in the Top Quartile since at least 2015 according to the American Water Works Association. Our score was even better in 2016! There were no water quality complaints in June of 2017.



For more information, view the current water quality report at [CRgov.com/waterqualityreport](http://CRgov.com/waterqualityreport).

## Water System Integrity



As the Water System Integrity chart indicates, our occurrence rate has generally decreased over the last four years. We have been in the top quartile, the top 25%, for water system integrity based on American Water Works Association benchmarking since 2011. There were three water system integrity issues in June.



Before you start a project, call 811. Whether you are planning to do it yourself, or hiring a professional, we'll help you do it safely. The local 811 Call Center will contact Castle Rock Water. We will schedule a time to come out to locate public water and wastewater lines in the road and in your project area.

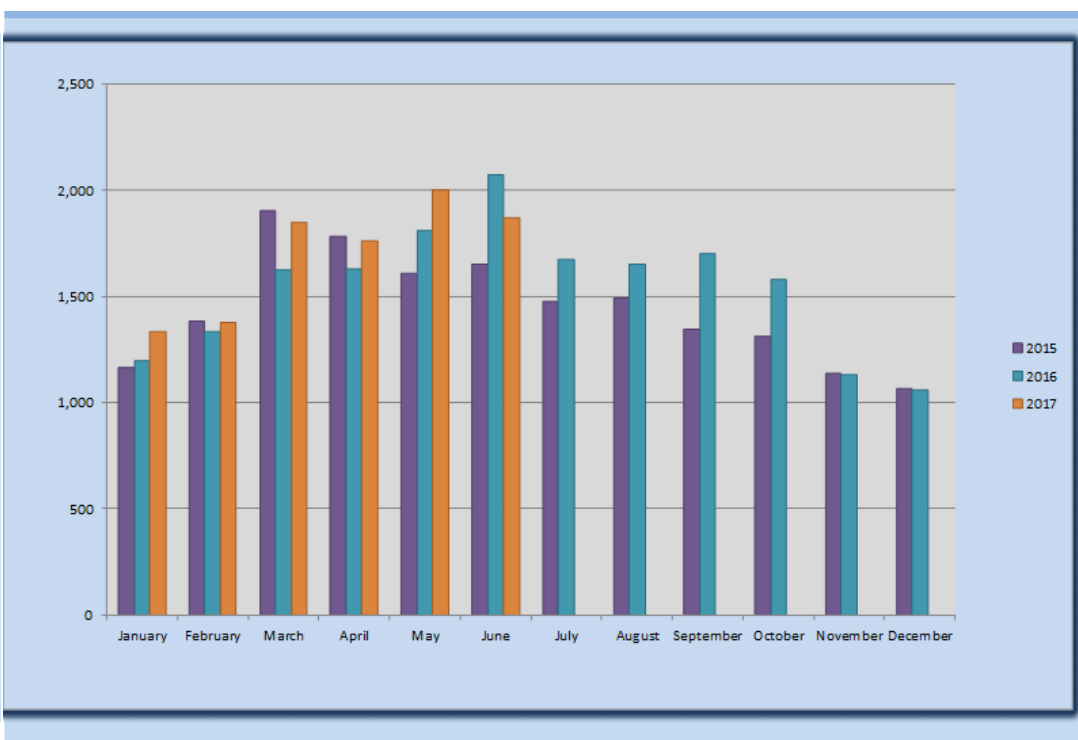
The graphs below show our monthly utility locates and a chart showing the year-to-year comparison

## ANNUAL UTILITY LOCATES

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
January	577	475	617	1,190	1,289	1,162	1,199	1,334				
February	521	485	538	1,094	1,093	1,383	1,334	1,378				
March	660	552	818	1,437	1,349	1,906	1,625	1,851				
April	838	681	1,025	1,482	1,552	1,784	1,631	1,760				
May	853	863	985	1,541	1,531	1,609	1,809	2,002				
June	969	844	982	1,314	1,399	1,654	2,075	1,872				
July	680	582	859	1,350	1,392	1,477	1,675					
August	901	723	1,123	1,476	1,468	1,494	1,651					
September	880	723	1,029	1,240	1,373	1,343	1,701					
October	715	688	1,155	1,501	1,376	1,314	1,579					
November	536	518	1,041	1,072	866	1,134	1,131					
December	415	405	925	1,005	1,043	1,063	1,059					
<b>Total</b>	<b>8,545</b>	<b>7,539</b>	<b>11,097</b>	<b>15,702</b>	<b>15,731</b>	<b>17,323</b>	<b>18,469</b>	<b>10,197</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Difference from previous year's total	N/A	-1,006	3,558	4,605	29	1,592	1,146	-8,272	-10,197	0	0	0



### 3-YEAR LOCATE TREND



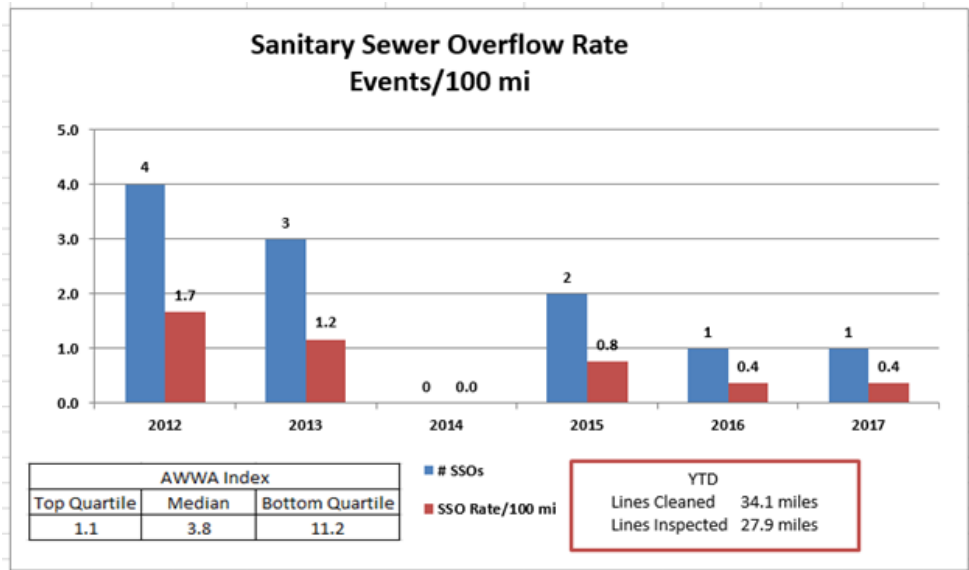
# Sanitary Sewer Overflows

We are also tracking in the Top Quartile in the Sanitary Sewer Overflow Rate since 2014, according to the American Water Works Association, showing one incident in 2017. There were no sanitary sewer issues in June.

## 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 2015 and 2016, we inspected and cleaned 42.44 and 45.65 miles, respectively.

The goal this year is to clean and video approximately 33 percent of the collection system or about 90 miles.



## JUNE 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.  
*Seventy routine samples were completed. All samples were within the parameters set forth by the Federal 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.  
*There were no issues in June.*

**Sewer System Effectiveness**  
 <1% of our customers will experience a sewer backup caused by the utility's sewer system per year.  
*There were no issues in June.*

**Drinking Water Supply Outages**  
 <5% of our customers will experience water outages for one or more events totaling more than 30 hours/year.  
*There were two water service line breaks in The Meadows. These lines had just come out of warranty and were repaired by Field Services staff.*

*There was a planned water line replacement on Johnson Dr. The water line was shut down for eight hours and approximately 50 homes were affected while the water lines were replaced.*

*There was a water main break, due to a one inch round hole in the 8" ductile iron pipe, in Plum Creek. The repair was completed in four hours; staff did a great job and no residents were affected by this repair.*