

Mayor's Challenge for Water Conservation

By: Sandi Aguilar, Customer Relations Program Manager

Castle Rock Water entered into the Mayor's Challenge for Water Conservation and for the fourth year in a row, we placed within the top ten for number of online pledges made! This year, we were at 6th place in our population category which represented 5,787 pledges saving more than 23.6 million gallons of water and was our best finish yet. We were in great company with more than 740,000 people from across the nation pledging to save three billion gallons of water. This is national competition hosted by Wyland Foundation, National League of Cities and Toyota.



Thank you, tremendously, to everyone that pledged - your pledge made a difference!



Pursuing Excellence

By: Sandi Aquilar, Customer Relations Program Manager

Castle Rock Water is truly dedicated to providing high quality water to our customers and committed to sharing best practices and advancing water technologies across the state of Colorado. In April, Castle Rock Water was once again awarded the Gold Tier in the Pursuing Excellence Program. The Colorado Department of Public Health and Environment recognizes systems that go above and beyond regulatory compliance and helps systems collaborate and learn from each other. To maintain the gold, we must not have any significant violations, and we must submit plans highlighting select notable projects that improve our drinking water system. This year, we highlighted the Obligation Management Tool which is custom software that assists staff with the governance of any agreement where the Town of Castle Rock is a participating party.

Watering Season Begins!

Water used for outdoor landscaping accounts for the largest demand on our water system. Castle Rock Water incorporates water use management guidelines to help create a community culture that embraces water efficiency. Increasing water efficiency can save the Town and its rate payers millions of dollars in infrastructure, help stabilize future rates, protect the investments of property owners, and most importantly, extend the life of the aquifers. And it works - Castle Rock residents have conserved 20 percent since implementation!

This year, the watering schedule has been expanded to include the months of May and September for both residential and non-residential customers.

Water Season, continued

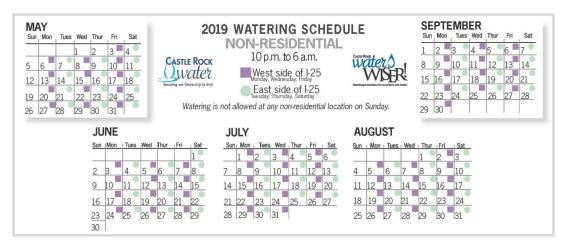
Residential

Castle Rock residents have followed an every-third-day irrigation schedule (based on the last number of your address) since 1985. Watering is allowed before 8 a.m. or after 8 p.m. when humidity is higher, and there is a reduction in solar radiation, temperatures, and winds. Watering during these times has been shown to reduce water loss from evaporation.



Non-Residential

Non-residential properties must adhere to a three-day-a-week watering schedule and are designated as properties west of I-25 may water Monday, Wednesday, and Friday; and properties east of I-25 may water Tuesday, Thursday and Saturday. The watering hours are 10 p.m. to 6 a.m.



Water Wiser Workshops

Castle Rock Water provides opportunities to learn how to become more efficient with your water usage. Did you realize you could be wasting between 20 and 75 percent of your sprinkler water? All sprinkler heads are not created equally, and over watering is the primary cause of unhealthy plants. These workshops show how easy it is to improve the efficiency of your sprinkler system, detect water waste and better understand your landscape watering needs. Completion of this free workshop earns you a "Water Wiser" designation and exempts you from the every-third-day watering schedule.



Smartscape solutions for your lawn and home.

Workshops, continued

So far this year, 582 residents have attended one of the eight workshops that have been held. There is still time to register for one of this year's workshops. Visit CRconserve.com/waterwiser for a complete list of remaining workshops.



With new technology and best practices being developed, residents must attend a Water Wiser workshop every five years to keep apprised of these updates and renew your water wiser status. If you attended a Water Wiser workshop before 2013, your Water Wiser designation will expire on Dec. 31, 2019. Visit CRconserve.com/waterwiser for a list of workshops still available.

Water Star Award

The Water Star Award recognizes a coworker within Castle Rock Water for doing an excellent job in fulfilling the Department's Vision and Mission. Similar to the Town's Rock Star Award, the award is passed from one employee to another in a different division who demonstrated performance and/or behavior that supports our Vision and Mission. The award will be presented at each monthly staff meeting. The person presenting the award will explain why he/she chose the recipient, and the recipient will pass it along at the next staff meeting. The following criteria are the basis for awarding this coveted honor:

Safety

Demonstrated outstanding safety conscious behavior in performing a job or task.

Exceptional Service

Provided exceptional service to either an internal or an external customer.

Quality

Delivered excellent quality service or product.

Value

Provided remarkable value for our customers.

Environmental:

Demonstrated extraordinary environmental responsibility.

Fiscal

Demonstrated superb fiscal responsibility.





April's Water Star Award recipient, Walt Schwarz passes the award to Adan Rivas, Stormwater Inspector (left to right). Adan has been with Castle Rock Water since 2008.



WHAT'S NEW IN WATER?

Castle Rock Water wants you to know what's happening around town and in your local neighborhood. Check back here for a list of upcoming projects, or visit us at CRgov.com/waterprojects.

HIGHWAY 85 TRANSMISSION PROJECT

Planned for construction in 2019, the Highway 85 transmission line project will complete about 2,100 linear feet of 20-inch potable water transmission line in a stretch beginning near the Meadows Boulevard intersection, extending south towards Justice Way. The project is needed to efficiently move water around the town to make best use of WISE water being distributed by the Ray Waterman Regional Water Treatment Center. The project was awarded to T. Lowell Construction. The project cost is \$697,000.

2019 Water Meter Replacement Project



This project will rehabilitate meter pits at several apartment complexes to improve accessibility for meters crews to perform maintenance and replace aging metering infrastructure. Several old fire hydrants will be replaced, and a new one added to increase fire protection in the apartment neighborhood complex. Work to begin in June 2019 by T. Lowell Construction. The project cost is \$370,000.

LANTERNS RAW WATERLINE



The Lanterns Raw Waterline will move raw water from new deep groundwater wells being constructed in the Lanterns. to an existing pipeline to the Plum Creek Water Purification Facility (PCWPF) for treatment. The 1,700 linear feet of new eight-inch raw water pipeline was completed in two phases. Hudick Excavating constructed roughly 600 linear feet of the raw waterline under the new Plum Creek Trail prior to the trail construction. Global Undergrund then directionally bored the remaining 1,100 linear feet of fused pipe under the railroad and the East Plum Creek to a connection to an existing raw waterline. The raw waterline was completed mid-May. Target date for project completion of the new wells, well facilities and pipeline is mid-July. The cost for the pipeline portion of the project was \$375,000.

RED HAWK REUSE LINE



The Red Hawk reuse line is a planned 3.4 miles-long, eight-inch diameter reuse line to take treated effluent from the Plum Creek Water Reclamation Authority plant to the Red Hawk Golf Course so the reuse water can be beneficially used for golf course irrigation. The Red Hawk Golf Course has its own well for irrigation water, but in the height of summer heat, often needs supplemental irrigation water from Castle Rock Water. This is a high priority project for 2019. Estimated total project costs are \$2.95 million. The pipeline project was awarded to Global Underground and will involve a combination of horizontally directionally drilled pipe under major roadways and drainage crossings, a bored crossing under the railroad, and also open-cut trenched installation. Work began in mid-May and completion of the waterline is expected to be mid-July.

GORDON DRIVE INFRASTRUCTURE IMPROVEMENTS



Construction began in April to install storm sewer infrastructure along a portion of Gordon Drive. Improvements also include replacement of water, sewer and roadway infrastructure along Gordon Drive and the adjacent cul-desacs. This project is driven by excessive drainage within the street resulting in damage to pavement, temporary disruptions to traffic, and flood hazards. The project will bring streets and utilities up to current design standards and reduce public safety hazards. Construction of the project was awarded to Iron Woman Construction, and is expected to be completed by December 2019, weather permitting. The total project cost, of approximately \$2.6 million, is jointly funded by Castle Rock Water and the Public Works Department.

EAST PLUM CREEK (EPC) REACH 6 STREAM STABILIZATION



This project is currently under design and scheduled for construction beginning Fall 2019 through Spring 2020. Stream improvements to reduce bank erosion and channel migration will span from the lower Town limits near the Plum Creek Water Reclamation Facility up to the new North Meadows Boulevard bridge. This project will enhance riparian habitat and water quality in the stream system. The Town is coordinating with US Geological Survey to relocate an existing stream gage that currently experiences frequent loss of data due to the migrating stream to a more stable location upstream of a proposed grade control structure for improved readings. The current estimated budget for construction is \$1,000,000.

What's New in Water?, continued

PLUM CREEK RAW WATER RETURN PIPELINE

Construction began in early 2019 on the Plum Creek Raw Water Return Pipeline. The roughly six miles of 30-inch steel pipeline begins in Sedalia and will connect to an existing raw waterline in the Meadows, just south of the Castle Rock Parkway. Project challenges include a difficult alignment within a six mile stretch between Castle Rock and just west of Sedalia. This alignment includes crossing of Union Pacific (UPRR) and Burlington Northern-Santa Fe (BNSF) railroads, U.S. Highway 85, crossing of East Plum Creek, Indian Creek, Lehigh Gulch and several other drainages. The project is being designed by Providence Infrastructure Consultants and constructed by Reynolds Construction. Total project estimated costs are \$16,280,000, with substantial completion targeted for July 2020.

PLUM CREEK PUMP STATION

In 2017, Castle Rock Water purchased infrastructure which included the Plum Creek Diversion in Sedalia. The Plum Creek Diversion structure has a capacity to capture up to 25.8 million gallons per day (MGD), but is only able to pump 1.15 MGD up to the Castle Rock Reservoir 1. This project is to construct a new Diversion Pump Station that is capable of pumping 25.8 MGD up to the reservoir. This project will also construct the new Plum Creek Pump Station that will pump water from the Castle Rock Reservoir 1 to the Plum Creek Water Purification Facility. The Plum Creek Pump Station will initially be capable of pumping eight MGD and will be expandable up to 15 MGD. The pump station has been designed by Dewberry Integra Engineers. Construction of the project has been awarded to RN Civil at a cost of \$9,228,500. Construction should begin in June 2019 with substantial completion by June 2020.

PLUM CREEK WATER PURIFICATION FACILITY (PCWPF) ADVANCED TREATMENT PROJECT

The PCWPF Advanced Treatment project consists of treating collected renewable surface water sources from East Plum Creek. Under separate contracts for a pump station and pipeline, surface water will be pumped to PCWPF from a Town owned reservoir in Sedalia, CO. A multiple barrier treatment approach was designed by Burns & McDonnell Engineering to treat this new water source. The advanced treatment will include ozone, biologically active carbon filtration, granular activated carbon adsorption, and UV disinfection. These systems are designed for removal of pathogens, organics, regulated drinking water contaminants, and nonregulated contaminants of emerging concern (CECs). The primary goal of this project is to meet or exceed requirements of the US EPA Safe Drinking Water Act, as well as additional requirements from the Colorado Department of Public Health and Environment (CDPHE). Construction of the project was awarded to Garney Companies in the amount of \$28,452,538 with final completion expected by December, 2020.

2019 DISTRIBUTION SYSTEM UPGRADES

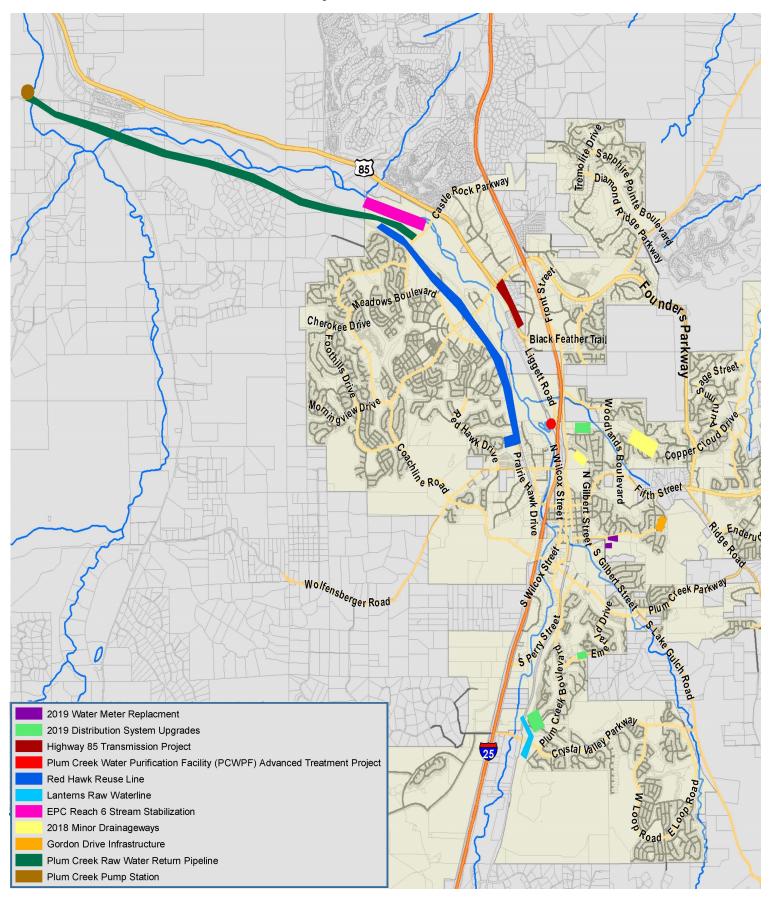
A project is planned to rehabilitate pressure reducing valve vaults (PRVs) on Oakwood Drive and Mt. Royal Drive, and to install a system check valve on Prestwick Drive. The PRV vaults are aged and in need of rehabilitation to ensure reliability. The check valve will eliminate a closed valve zone break and will allow for flow of water between the zones in the event of a pipeline break. Estimated project cost is \$375,000.

2018 MINOR DRAINAGEWAY IMPROVEMENTS

This project will address several priority areas where minor drainage systems have failed due to lack of infrastructure. Improvements in two residential neighborhoods including Woodlands and Escavera will convert open space erosional areas to underground storm sewer. These improvements will protect open space and private property. Improvements along Canyon Drive in the Rock Park open space will also contain erosional flow in a pipe and armor channel banks where they threaten the roadway system. Construction is scheduled for April 2019 based on available budget. Current estimates exceed available budget at \$1,300,000.

Project map, see page 6

PROJECT MAP





Congratulations on your recent promotion!



Jonathon Cornwell Sr. Distribution Operator



Dawn TiffanyWater Operations Admin. Assistant

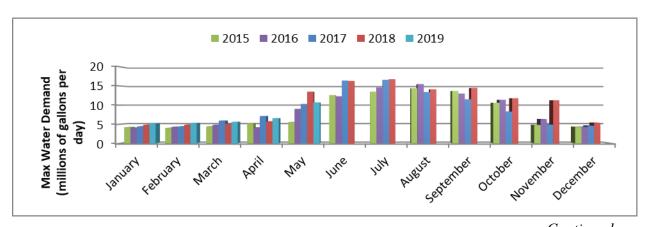
Water Demands

By: Lauren Moore, Water Resources Program Analyst

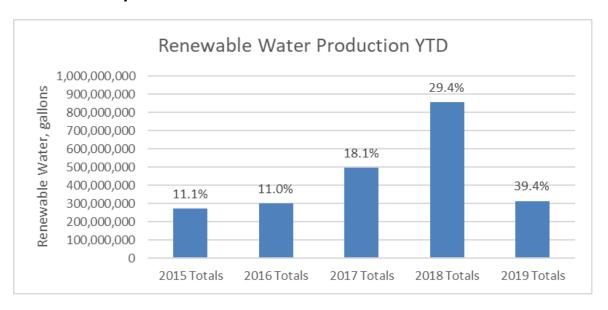
The maximum daily water demands are plotted by month from 2015 to the current month. As observed by the data, the maximum demand for the month of May was 10.7 million gallons per day (MGD) which was 9% greater than the 5-year average maximum daily demand for the month. Maximum demands inform us of the 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 May was 241.2 million gallons (MG), which was about a 59% increase from the April 2019 total of 151.9 MG. There was a 20% decrease from the previous year's May 2018 demand of 285.7 MG.

The CR-1 diversion produced an average of 1.99 MGD for the month of May. The Town's 13 alluvial wells and CR-1 produced a total of 81.77 MG of renewable water. WISE water supplied an additional 24.5 MG of renewable water. In total, renewable supplies accounted for 42.9% of the total water supply for the month and 39.4% of the annual water supply (799 MG or 2,453 acre-feet) to date.

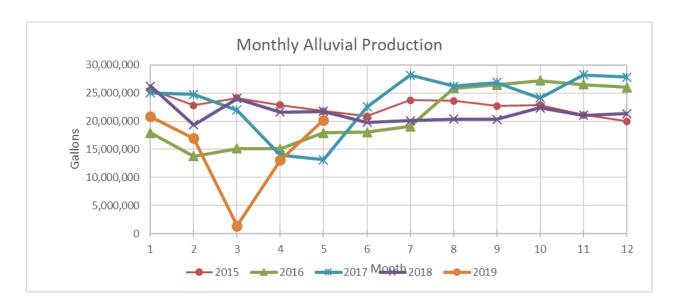
Renewable supplies are those water sources that are replenished by precipitation (think of our alluvial wells, CR-1, and WISE), whereas reusable supplies are those waters that are either from the Denver Basin (deep wells) or imported supplies (such as WISE and RHR) that can be used over and over, to extinction. The average reusable supplies used by Castle Rock for 2019 through May is 22.0% with 38.8% of available reusable supplies being used in the month of May.



Water Demands, continued



The following graph shows the monthly production of the Town's alluvial well system. The production from the alluvial wells in May 2019 was 20.2 MG, which is less than the second half of 2017 (when the last alluvial well rehab project was completed). Alluvial wells help to supply PCWPF, six of the 13 alluvial wells are scheduled rehabilitations for this spring, which began in March.

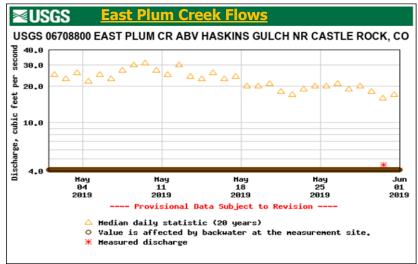


The flow hydrograph represents stream flows in East Plum Creek taken from the stream gauge located above Haskins Gulch. As the graph illustrates, data for the month is not available due to backwater at the measurement site. The U.S.G.S. is currently working on this issue. The one measured discharge during the end of the month was around 4.8 cubic feet per second (cfs), which is lower than max discharge of 46.8 cfs during May of last year.

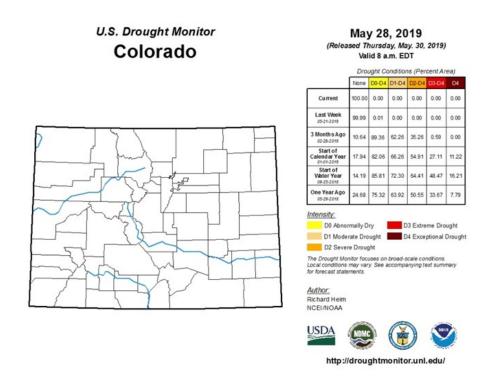
There were active calls on the South Platte River in May. Some of the active calls have had a more senior water right than some of the Town's water rights. This means that those diversions are out-of-priority, so the stream depletions will be covered by non-tributary return flows. This also means that

Water Demands, continued

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. However, there were also 8 days during May in which Castle Rock Water operated under Free River conditions (as determined by the state) which meant the Town was able to pump as much water as operationally possible until a call was again placed on the river.

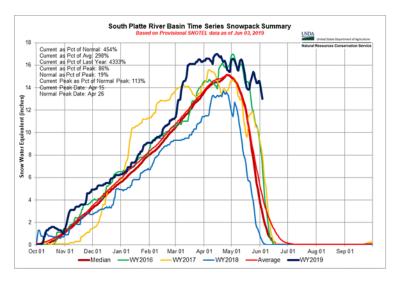


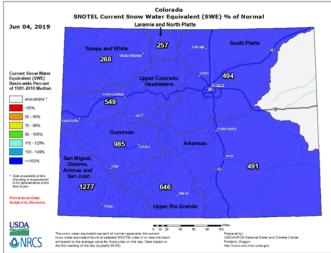
According to the U.S. Drought Monitor from USDA, for the first time since the Drought Monitor was established in 2000, Colorado is 100% drought free, a marked improvement over three months ago when approximately 89% of Colorado was experiencing abnormally dry or drought conditions. The Town of Castle Rock Drought Management Plan uses a Water Supply Index (WSI) for the Town that is similar to the U.S. Drought Monitor in that it provides us an indicator to drought level; however, the WSI accounts for local conditions relative to the Town's capability to address our water resources and daily water demands. The WSI is calculated by taking the sum of our supply (deep groundwater, alluvial wells, surface water, and WISE) and dividing that by our maximum daily demand. We generally want to see a WSI above 1.1, which means that we have enough resources to meet our demands. Anything below a 1.1 will trigger a drought stage relative to its severity. The average WSI for May was 2.1, well above the 1.1 trigger level, which is considered "good."



Water Demands, continued

The NRCS Colorado SNOTEL report for June 3, 2019 shows the water year to date snowpack for the South Platte River Basin is at 298 % of average and the snow water equivalent (SWE) is at 494% of median. This is because snowpack for the year was above average and is melting off much later than normal, which is conducive to strong summer stream flows.





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:



Linda GouldQualified Water Efficient
Landscaper (QWEL)
and Master Gardener



Patrick (PJ) Thorstenson Cartegraph Administrator



Rick Schultz Qualified Water Efficient Landscaper (QWEL)



Mark Billman Supervisory Certificate



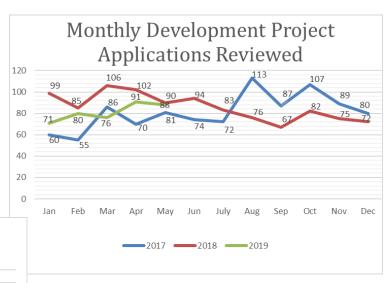
Sandi Aguilar Supervisory Certificate

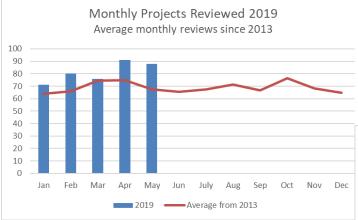
Plan Review Update

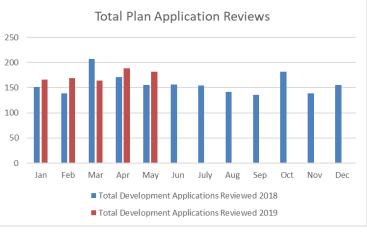


By Tina Close, Plan Review Supervisor

Castle Rock Water provides plan review for all water, wastewater and stormwater projects submitted through the development review process.







The Plan Review Team completed 182 development application reviews, encompassing 88 projects for the month of May. This is in comparison to 155 development applications and 90 projects during the same month in 2018.

The average number of days assigned to review: 11.7 days

The average number of days to complete assigned reviews: 12 days

Reviews completed on-time 76% Permits* reviewed on-time 99% Reviews completed late: 24% Permits* completed late: 1%

^{*}Total number of permits reviewed were 45.



Harvey Bessonett Instrument Technician

Welcome to our Team!



Bryan Gaspar Seasonal Landscape & Irrigation Inspector



Ben Zerwekh Seasonal Water Monitor



Dennis Novak Seasonal Water Monitor



Wayne Hagin Seasonal Water Monitor



Adam Scrivens
Seasonal Distribution



Michelle Strang Seasonal Meters Technician



Hannah DeFrees Seasonal Water Monitor



Zach Montgomery Seasonal Distribution



Matt Arpaio Seasonal Water Treatment



Nicki Wojtak Seasonal Water Monitor



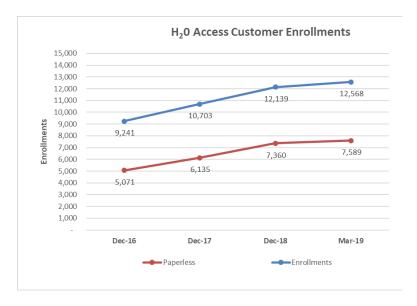
Nico Cacciaroni Seasonal Water Treatment

Customer Statistics

By: Anne Glassman, Business Solutions Manager

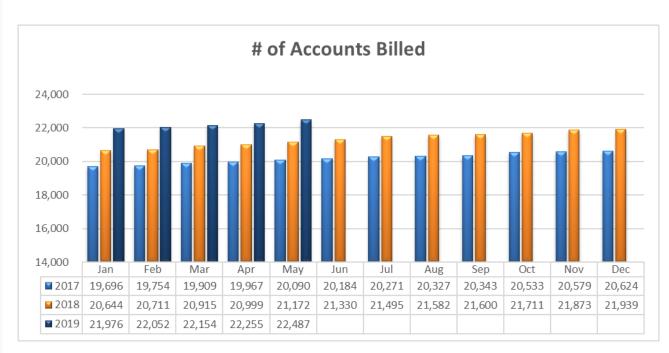
Our Business Solutions Team continues to track a host of statistics and data as we evaluate our levels of service and look for efficient ways to improve on these levels.





Updated quarterly - Data reported quarter ending 3/2019

The number of customers enrolled in paperless billing has remained steady at 60% over the last several months.

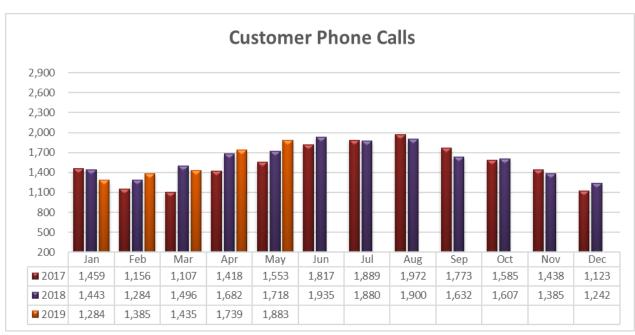


The number of accounts billed continues to increase year over year due to new residential and commercial growth.





Walk-in customers are consistent with this time of year.



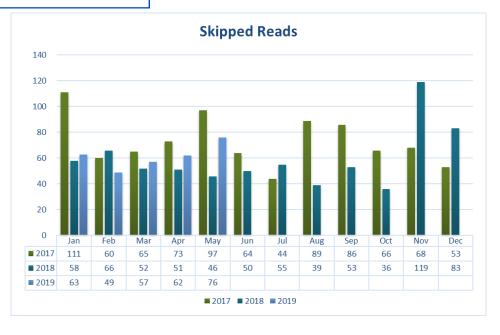


Customer phone calls are consistent with this time of year.

METERS

Skipped Reads

The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.34% in May, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.



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.

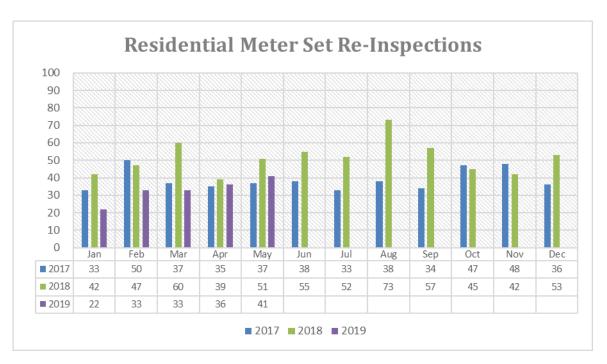
Meter Sets

Month-to-Date 89 Year-to-date 502

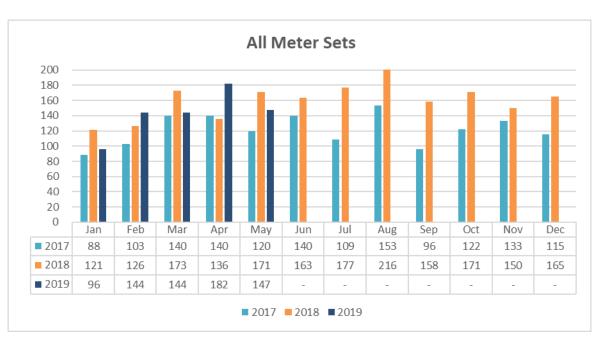




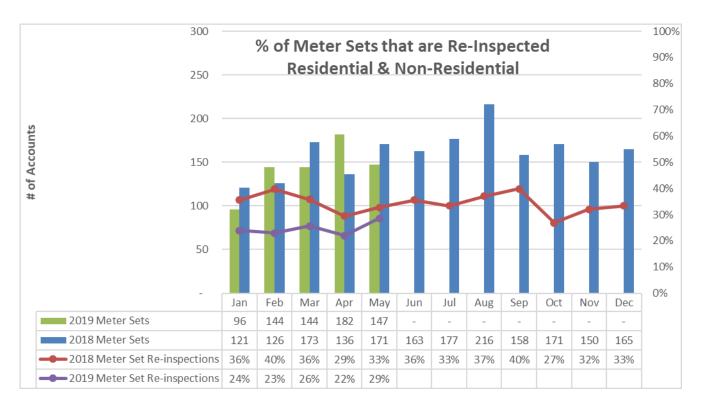
The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase year-over-year.



Residential meter set re-inspections are improving from last year. This indicates that more meter set inspections are passing on the original inspection and requiring less site visits.

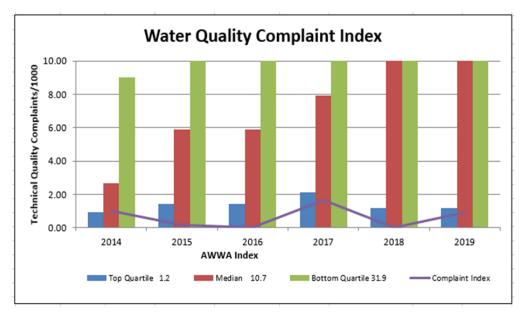


Meter sets, including residential and non-residential, are starting to trend back up which is normal for this time of year. This table (All Meter Sets) includes re-inspections too.



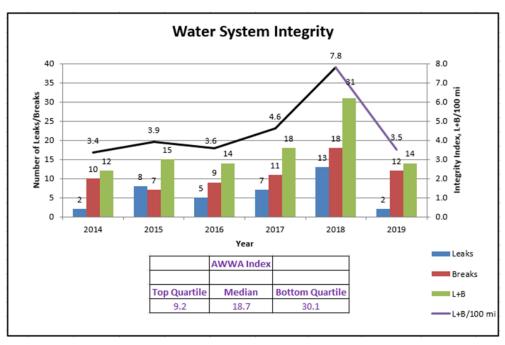
Meter sets are down in May 2019 compared to May 2018, however we expect this trend to increase. Re-inspections are down 4% from last year at this same time which is a good trend to see. This indicates that more meter set inspections are passing on the original inspection and requiring less site visits.

Water Quality Complaints



The Water Quality Complaint index shows that we are doing very well in this category; rating in the top quartile since 2015 according to the American Water Works Association (AWWA). There were no water quality issues in May.

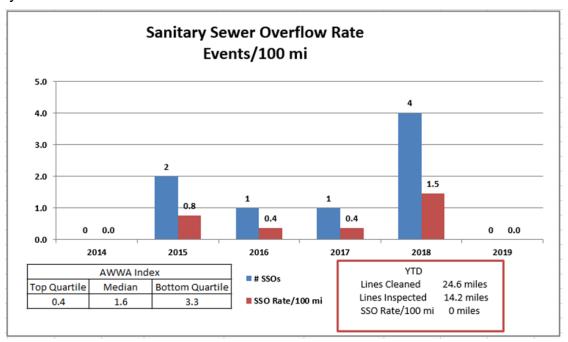
Water System Integrity



As the Water System Integrity chart indicates we have consistently remained in the top quartile for water system integrity based on American Water Works Association (AWWA) benchmarking since 2011. There was one water system integrity issue in May.

Sanitary Sewer Overflows

We are tracking in the Top Quartile in the Sanitary Sewer Overflow Rate, according to the American Water Works Association (AWWA), showing no incidents for the year. There were no sanitary sewer issues in May.



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. So far, this year we have cleaned and inspected 24.6 and 14.2 miles, respectively. The goal this year is to clean and inspect approximately one-fifth (1/5) of the collection system or about 55 miles.

MAY 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.

Ninety routine samples were completed. All samples were within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards. Our annual Consumer Confidence Report is available to view at CRgov.com/waterquality.

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 water pressure issues in May.

Sewer System Effectiveness

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

Drinking Water Supply Outages

<5% of our customers will experience water outages for one or more events totaling more than 30 hours/year.

• Thirteen homes in The Meadows were out of water for less than four hours during a service line repair.



STORMWATER UPDATE

Our team of four "storm troopers" maintains over 166 miles of pipe and culverts, 96 town-owned detention ponds and 4,978 inlets as well as completes special projects designed to improve water quality.







Area of erosion on top of the sanitary sewer line, adjacent to the walking trail, in The Meadows off of Sabercat. Repair, backfill, and prep work consisted of grading, resurfacing and rock placement for erosion control.







Renovation of the drainage swale behind the properties on Gould Circle.



Before you start a project, call 811. Whether you are planning to do it yourself, or hiring a professional, we will 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. To date, there has been one incident below dence of damage to lines, as a result of incorrect locate marks.

811 Locate requests hit a record number in May, for a total of 2,122. Locate requests are on pace to top 20,500 tickets for the 2019 calendar year, another all-time high for Castle Rock Water.

| ANNUAL UTILITY LOCATES | | | | | | | | | | | | |
|------------------------|-------|-------------|--------|--------|--------|-------------|-------------|--------|--------|-------------|-------------|-------------|
| | 2010 | <u>2011</u> | 2012 | 2013 | 2014 | <u>2015</u> | <u>2016</u> | 2017 | 2018 | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| January | 577 | 475 | 617 | 1,190 | 1,289 | 1,162 | 1,199 | 1,334 | 1,442 | 1,472 | | |
| February | 521 | 485 | 538 | 1,094 | 1,093 | 1,383 | 1,334 | 1,378 | 1,293 | 1,404 | | |
| March | 660 | 552 | 818 | 1,437 | 1,349 | 1,906 | 1,625 | 1,851 | 1,514 | 1,560 | | |
| April | 838 | 681 | 1,025 | 1,482 | 1,552 | 1,784 | 1,631 | 1,760 | 1,856 | 1,984 | | |
| May | 853 | 863 | 985 | 1,541 | 1,531 | 1,609 | 1,809 | 2,002 | 1,801 | 2,122 | | |
| June | 969 | 844 | 982 | 1,314 | 1,399 | 1,654 | 2,075 | 1,872 | 1,854 | | | |
| July | 680 | 582 | 859 | 1,350 | 1,392 | 1,477 | 1,675 | 1,582 | 1,556 | | | |
| August | 901 | 723 | 1,123 | 1,476 | 1,468 | 1,494 | 1,651 | 2,001 | 1,986 | | | |
| September | 880 | 723 | 1,029 | 1,240 | 1,373 | 1,343 | 1,701 | 2,102 | 1,747 | | | |
| October | 715 | 688 | 1,155 | 1,501 | 1,376 | 1,314 | 1,579 | 1,792 | 2,064 | | | |
| November | 536 | 518 | 1,041 | 1,072 | 866 | 1,134 | 1,131 | 1,460 | 1,469 | | | |
| December | 415 | 405 | 925 | 1,005 | 1,043 | 1,063 | 1,059 | 1,277 | 1,293 | | | |
| Totals | 8,545 | 7,539 | 11,097 | 15,702 | 15,731 | 17,323 | 18,469 | 20,411 | 19,875 | 8,542 | | |

4 Year Locate Trend

