BURNS McDONNELL

CASE STUDY

Flexible Design Allows Castle Rock Water to be Ahead of the Curve in Changing PFAS Regulations

Maintaining clean drinking water is critical to keeping the health and safety of a community a top priority. Leaders in the Town of Castle Rock, Colorado, took this commitment seriously with the addition of new treatment technologies to treat surface water for per- and polyfluoroalkyl substances (PFAS), a leading contaminant of concern, and other contaminants of emerging concern (CECs).

Challenge

Castle Rock Water (CRW) set a goal of having 75% of the utility's water come from surface water, a renewable source, by 2050. What made this goal particularly ambitious is that CRW at the time received water from only non-renewable groundwater sources. CRW decided to start transforming its water supply by constructing the Plum Creek Water Purification Facility (PCWPF).

The PCWPF is the only treatment facility in CRW's system that treats surface water, making it one of the most important pieces of infrastructure for the Town of Castle Rock. But even with this ability to treat surface water, CRW officials knew they still had challenges ahead: CECs were gaining attention among regulators, and treating for such contaminants would require specialized systems and equipment. And with no specific regulations in place at the time of design and construction pertaining to constituents when it came to CECs, trying to predict which CECs might fall under mandates was proving to be a moving target for the utility.

Solution

Rather than determining which specific CECs to treat and plan for, CRW took a more holistic approach to water treatment. Burns & McDonnell was hired to design a facility that could treat many different constituents, hedging against future

Project Stats

Client
Castle Rock Water

Location
Town of Castle Rock, Colorado

regulations. This provided the utility with greater flexibility in the likely event that new CEC mandates would eventually go into effect.

This led to the design and construction of the PCWPF Advanced Treatment Facility, which added ozone, biofiltration, granular activated carbon (GAC) and ultraviolet technology to the existing PCWPF. It included multiple ozone dosing locations, allowing for targeting of different constituents. The facility also utilized an approach to GAC that allowed the vessels to run in parallel, or series mode, depending on the constituent being targeted and the removal goal. This process granted CRW the capability to treat a greater variety of CECs.

Results

In 2022, the U.S. Environmental Protection Agency released revised health advisory levels regarding PFAS. Since CRW took a conservative approach to targeted CECs, CRW's facility was already removing PFAS from the water.

With its addition of the PCWPF Advanced Treatment Facility, CRW took a forward-thinking approach in the treatment of CECs. While other communities were investigating what the new health advisories might mean for them, CRW was treating PFAS to levels below detection. With a proactive approach, along with our team's flexible design, CRW is able to deliver clean, treated water and remains prepared for even the newest CEC regulations.

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