

BETWEEN A CONFINED SPACE AND A WILDFIRE

Critical work at Joe Wright Reservoir – success against the odds

Providing a year of diverse challenges is one way to think of how 2020 impacted the City of Fort Collins and Utilities specifically. In early spring, COVID-19 effectively shut down normal operations across the City as more than half the employees began working remotely and the critical workforce onsite kept the City operating under extensive safety protocols and reduced staffing.

Infrastructure maintenance is critical work, not just for Fort Collins but also for regional partners. The Horsetooth Outlet Project (HOP) had been planned for two years and would stay on schedule if possible. In preparation for using only Poudre River water during the project, prior to October, repair and replacement of valves at the outlet of Joe Wright Reservoir was necessary.

Read [more](#) about how Joe Wright Reservoir and the Michigan Ditch are crucial to Utilities' high-mountain water delivery system.

Risk assessment was a huge part of the planning process, according to Project Manager **Amy Johnson**. Location of the reservoir, extremely tight confined-space conditions, and the unknowns that come with this type of repair project were of utmost importance. The recent inspection in August (first one since 1996), using divers and an ROV (remote operated vehicle), indicated immediate repairs were required to ensure the safe and continued release of water from the reservoir. In summary, the low flow valve, stem and operator were completely replaced and the stem on the downstream operating gate was aligned and secured for proper gate operation to regulate the flow of water from the reservoir into our delivery system. (Amy can give you all the details, complete with photos of the old, worn parts and the newly installed equipment.)

Plans were made, parts purchased, and Marine Diving Solutions (MDS) given the go-ahead to begin. Amy's role was to manage all the moving parts and 'get it done' by Oct. 1 to facilitate our collaboration with Northern Water on the HOP project so water delivery to our customers was not threatened. **Ross Lamb**, Supervisor of Plant Operations, was the City representative onsite, as well as the Safety Officer, responsible for all personnel and following procedures such as daily COVID symptom checks.

In mid-August, the Cameron Peak Fire ignited. Now, in addition to the other safety and logistical issues, Ross, his team of three and the MDS contractors, also had to deal with an extremely unpredictable and dangerous wildfire very near the project.



View of Cameron Peak Fire smoke from the dam.

Onsite work involved a large crane that sat on the edge of the dam and lowered a worker in a 'crane basket,' only 3.5'W x 8'L, down 120 feet. Thankfully, during that 9-day period, the wind did not create an even more dangerous situation with the crane. Confined space work like this is dark and dirty, especially when trying to fix past work instead of starting new. On the spot decisions were made, creating some tense moments. The 42-inch gate valve was anticipated to take a half day to repair – it took a full week. One part was sent down the canyon to the Water Treatment Facility, typically a two-hour drive, when there is no wildfire. **Scott Foreman**, Sr. Maintenance Supervisor at the plant, was able to quickly machine a new keyway in it and keep the project moving. Ross credits MDS for helping come up with a solution so we could operate the downstream gate safely during the HOP project. We currently are in the process of rebuilding and reinstalling both main gate operators.

Ross and Amy wholeheartedly thank **Jim Byrne**, the City's Director of Emergency Preparedness and Security, and **Chris Wolf**, PFA Emergency Management Specialist, for coordinating with the Forest Service so Ross and his crews could work at Joe Wright during the fire. Jim also was instrumental in getting them up and down the canyon on a few occasions to run parts. Ross commented that "The view of the fire was incredible from our perspective. During the week, we had small smoke columns that would come and go within a mile from us. It was very reassuring to know that there were fire fighters a half mile away." Sadly, they also witnessed some of the most destructive days in the canyon.

Inspiring words come to mind following the success of this project: safety, ingenuity, collaboration, cross-departmental cooperation/support, risk management, advance planning, teamwork, critical/effective communication – having the right people on the job. In addition to 'within budget' and 'on time'! Well done, Amy, Ross and team!



Crane on top of dam used to lower men into work area, 120' down



It was a dirty job.



Above ground, lowering basket.



Going down into the shaft.