

# Lena Gulch Bypass Pump Upgrade

Consolidated completed the Lena Gulch Bypass Pump Upgrade in April 2015, and we are seeing dramatic decreases in hardness in Maple Grove Reservoir water. Over the years, Lena Gulch has contributed an average flow of three-quarters of a million gallons to Maple Grove Reservoir daily. It's negative impact on the quality of Maple Grove water and consequently to the water delivered to our customers has been enormous.

Reported in grains per gallon (GPG), or milligrams per liter (mg/l), one grain of hardness equals 17.1 mg/l of water hardness. The water flowing down Lean Gulch ranges from 300mg/L to 600 mg/l of hardness.

Hardness in the reservoir has historically averaged 230 mg/l (13.5 GPG) in the winter month, and is now closer to 160 mg/l (9.4 GPG). The hardness is expected to be lower next year with the hopes of leveling out around the 100mg/L to 125mg/L range

Being very high in hardness and having high conductance, Lena Gulch water/runoff has proven to be a breeding ground for nuisance blue-green algae and cyanobacteria which are responsible for taste and odor complaints from our customers. Since Lena Gulch is an open channel, it has been a dumping ground for everything from road salt to grass clippings. Ongoing raw water source sampling has shown that Lena Gulch usually has very poor overall water quality. Lena Gulch is a testament to the fact that all raw water is not equal.

Consolidated continued to seek methods and procedures in this major initiative to reduce water hardness further in Maple Grove Reservoir related to Lena Gulch water/runoff in-flow. In February 2017, The Rocky Mountain Water Company allowed Consolidated to pump Lena Gulch runoff/water directly into their ditch while it was off for the winter season. This new procedure resulted in continued dramatic reductions in hard water flowing into Maple Grove Reservoir, benefitting our customers.

