

The Cucharas #5 Dam Removal; a Story of Determination, Persistence and Partners

Mark Perry, P.E., Colorado Division of Water Resources

Bill McCormick, P.E., P.G., Colorado Division of Water Resources

Paul Bennington, Colorado Department of Law

Phillip Lopez, Colorado Department of Law

The recently completed removal of the Cucharas #5 Dam is a story 110 years in the making and involved all the drama, intrigue, and plot twists of a suspense novel. Cucharas #5 was a 135-foot-tall concrete-faced rockfill dam in picturesque canyon lands of Southeastern Colorado, constructed around 1910 by a private irrigation company. The dam sat below a 650 square-mile drainage basin, capturing snowmelt from the Sangre De Cristo Mountains and irrigating farms on the Great Plains. But numerous structural problems plagued the dam since the beginning, including differential settlement, hinge-cracking of the concrete face, and rapid weathering and internal instability of poor quality rockfill. In 1987 after the last of several dam-raises, the dam experienced a partial failure. Complete failure was only averted when the Colorado National Guard dynamited a spillway section and rapidly lowered the reservoir. Over the next 25 years schemes to rebuild the dam fell through. Around 2010 a Wall Street investment company purchased the dam. The Colorado Dam Safety Branch worked with the new owner to develop a dam safety compliance plan with hard deadlines. Despite good intentions the company came to realize rehabilitation of the dam was not economically feasible, and Colorado Dam Safety's discussions moved into uncharted territory -- removal of a large on-channel dam. The State Engineer issued a zero-storage restriction order, followed by a dam breach order. The dam owner violated those orders. As a result, Colorado's Attorney General litigated what proved to be a landmark test of Colorado's dam safety statutes, for which there was little previous case law. The parties were sent to mediation to negotiate a consent decree. The dam owner defaulted. The Attorney General successfully litigated a contempt-of-court case. The proverbial time ran out in 2017 when the dam's upper drainage basin burned in a historic 170 square mile forest fire, placing the dam at increased risk of an uncontrolled fill. For the first time in the state's history, the State Engineer exercised his statutory authority and took emergency control of a dam. Working with stakeholders, Colorado Dam Safety developed a dam removal and site-restoration plan, executed an emergency contract, and oversaw removal of the dam. Construction costs and fines were recovered in court for the citizens of Colorado and members of the dam owners Board of Directors were heavily fined. The project received a 2019 Colorado Attorney General's Client Partnership award.