



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

Chambers Reservoir Liner Rehabilitation

Arapahoe County Water and Wastewater Authority
Substantially Complete March 1, 2023

Chambers Reservoir's new liner prevents excessive leaking so that it can provide quality irrigation water



Project Description

The Arapahoe County Water and Wastewater Authority (ACWWA) was formed in 1988 to supply potable and non-potable water service and wastewater service to approximately 10,000 residents and numerous commercial and industrial customers in southern Arapahoe County and a small portion of northern Douglas counties. Chambers Reservoir was constructed in 2010 for ACWWA, who owns and operates the reservoir for the purpose of storing alluvial aquifer well water for non-potable irrigation use within its service area.

The original reservoir design included excavation below the natural ground surface, installation of a compacted clay liner, and construction of a dam across an unnamed tributary of Happy Canyon Creek. Due to design and construction defects, the reservoir was found to leak up to a calculated 27 AF per week when the reservoir was approximately $\frac{3}{4}$ full. The reservoir was subsequently drained in 2017 and a 500-foot long portion of the clay liner and reservoir side slope failed. The failure is thought to have occurred due to high groundwater from the leaking reservoir and insufficient clay liner thickness and material properties.

The project included raising the bottom of the reservoir, installing an underdrain system to capture and remove any groundwater that may damage the reservoir, installing a synthetic liner. Construction is expected to began in summer 2020 and was completed fall 2023.

P R O J E C T D A T A		
<i>Sponsor:</i> Arapahoe County Water and Wastewater Authority	<i>County:</i> Arapahoe	<i>Water Source:</i> Cherry Creek
<i>Type of Project:</i> Reservoir Rehabilitation	<i>Board Approval Date:</i> July 2021	
<i>Loan Terms: (Original)</i> \$2,525,000 @ 1.90% <i>(Final)</i> \$4,040,000 @ 1.90%		
<i>Design Engineer:</i> AECOM		
<i>Contractor:</i> Raven CLI Construction, Inc.		