

BUILT BETTER

Project:
GROSS RESERVOIR DAM EXPANSION

Place:
Boulder, CO

Completion:
2027

Owner:
Denver Water

General Contractor:
Kiewit-Barnard JV

Engineering:
Stantec

Project Manager:
Black & Veatch



Denver Water's Gross Reservoir Dam Expansion Project will nearly triple the reservoir's water-storage capacity. Low-carbon roller-compacted concrete (RCC) will be used to increase the dam's height by 131 ft., its length by 890 ft., and its thickness by up to 90 ft. Upon its completion in 2027, the project will provide one-quarter of Colorado's population (1.5 million people) with greater water security during droughts and deliver essential resiliency in the face of increasing climate-change impacts.

Project:
GROSS RESERVOIR DAM EXPANSION



THE CHALLENGE

- Reducing carbon footprint of construction, a high priority for project stakeholders.
- Constructing the foundation initially called for an estimated 15,000 tons of Type I/II Ordinary Portland Cement (OPC) for producing 68,000 CY of high-performance concrete.
- Building 118 steps to raise the dam's height from 340 ft. to 471 ft. initially called for approximately 60,000 tons of Type I/II OPC for producing 740,000 CY of RCC in batch plant on jobsite.
- The remote mountainous work area—150 miles from the cement plant and with limited onsite storage capacity—created logistical challenges for continuous supply of large product volumes.

THE SOLUTION

- Switching from Type I/II OPC to Type II Portland Limestone Cement (PLC) will reduce the concrete dam's embodied carbon by 6% while achieving the project's stringent performance requirements.
- Estimated 75,000 tons of low-carbon OneCem® PLC used in 800,000+ CY of concrete for the project will provide CO₂ savings of 4,050 tons when compared to OPC.
- Extensive production forecasting, logistics planning and coordination with project partners will ensure reliable, on-demand product deliveries to keep construction schedules on track 24/7.

PROJECT HIGHLIGHTS

- **WORLD'S LARGEST DAM RAISE USING RCC**
- **TALLEST RCC DAM IN THE UNITED STATES**
- **TALLEST DAM IN COLORADO**
- **68,000+ CY OF FOUNDATION CONCRETE**
- **740,000+ CY OF RCC**
- **75,000 TONS OF TYPE II PLC**

ENVIRONMENTAL SUCCESS

6% REDUCTION IN CARBON DIOXIDE EMISSIONS

4,050 TONS OF CARBON DIOXIDE SAVINGS FOR THE PROJECT



Learn more about OneCem cement at holcim.us/onecem

Photos courtesy of Denver Water.

For more information, please contact roger.iverson@holcim.com or visit us at www.holcim.us/contact

