



## GEOTECHNICAL AND WATER RESOURCES ENGINEERING



### KEY COMPONENTS:

- Embankment design
- Spillway design
- Outlet works design
- Delivery piping design
- Pump station design
- Environmental permitting support
- Preparation of cost estimates
- Preparation of design analyses and reports, construction drawings, and specifications
- Multi-facility project
- Construction management

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## RUETER-HESS DAM AND RESERVOIR, DOUGLAS COUNTY, CO PARKER WATER & SANITATION DISTRICT

Phase I of the Rueter-Hess Dam and Reservoir is a 135-foot-tall, 5,300-foot-long zoned earthen embankment dam, located about 3 miles southwest of Parker, Colorado. It includes a service spillway capable of passing the 100-year flood, and an auxiliary spillway able to pass the probable maximum flood. The reservoir will store about 16,200 acre-feet (ac-ft) of water.

RJH Consultants, Inc. (RJH) is the Design and Construction Engineer for the Rueter-Hess Dam and Reservoir project. Responsibilities include field explorations; engineering analysis to design the dam, outlet works, emergency spillway, and other ancillary facilities; preparation of design memoranda, design drawings, specifications, and contract documents. RJH also provided a Resident Engineer and Field Engineer during construction.

During the initial stages of construction, Parker Water & Sanitation District (PWSD) elected to modify the original design to accommodate a near-term enlargement and avoid building components such as the spillway and terminal facilities, which would no longer be needed after enlargement. The engineering team worked closely with the State Engineer to obtain authorization to implement these significant changes on an on-going project.

Although initially the enlargement phase was to occur decades later, during construction of the Phase I embankment and due to high demand for water storage, PWSD elected to move directly into the design and construction of the enlargement.

The enlarged reservoir increases the dam to a height of about 200 feet and the storage capacity to about 72,000 ac-ft. The embankment volume (including the enlargement) will be about 14,400,000 cubic yards. The dam crest length will be about 7,500 feet, and the embankment will contain about 16 million cubic yards of fill. Project features include a multi-chamber selective withdrawal tower, which includes a service spillway capable of passing the 100-year flood, and a soil-cement auxiliary/earthen (erodible) spillway that can safely pass the probable maximum flood.

The enlargement also includes raising the gate tower by 65 feet, extending the downstream conduits, construction of the terminal facilities, construction of an access bridge from the dam to the tower, construction of a 48-inch pipeline to a future water treatment plant, and construction of the auxiliary spillway.

