

**Client Contact:**

**Applegate Group, Inc.  
Mr. Mike Applegate  
303-452-6611**

**Services Provided:**

- **Geotechnical Study**
- **Preliminary Design**

**Project Summary:**

Cesare, Inc. (Cesare) conducted a geotechnical study and preliminary design for the Ovid Dam and Reservoir. The purpose of Cesare's involvement was to guide and assist the groundwater appropriators of the South Platte in project planning, budgeting, scheduling, and final design.

Several options for dam embankment were considered. The recommended dam embankment section consisted of a clay core constructed of on-site clay materials. A fill zone on the upstream side of the core constructed, consisted of a flattened upstream slope to create a "beaching" action. This approach did not require any additional erosion protections, such as soil cement or riprap. The downstream zone of the dam consists of two zones constructed of on-site sandy materials, with a toe drain system to alleviate pore pressures located in the toe of the downstream shell.

Various options were considered for sealing the reservoir, as on-site permeability tests showed the underlying sand and gravels were highly permeable, and the on-site clay was of limited and of poor quality for use as a clay liner. Cesare recommended a slurry wall be constructed under the core of the dam embankment extending down to the bedrock. The proposed slurry wall would also provide an estimated 2,000 acre-feet of additional storage.

