



**Location:** Carbondale, CO

**Year:** 2005

**Construction Dollar Value:** \$0.35M

**Owner:** Ranch at Roaring Fork Homeowners Association, Inc.

**Contact:** George Doxey, Ranch Manager, 970-963-3500

**Key SGM Staff:** Warren Swanson, PE ; William Swigert, PE; Terry Bendetti

**Subconsultants and their project roles:** Grand Valley Engineering Solutions (Electrical Engineer); Ralston Mechanical Consulting (Mechanical Engineer); Western Ecological Resource (Wetlands)

## Client Benefits

- Improved system reliability and water production capacity
- Reduced sand delivery to distribution system
- More operator-friendly wellhouse facility
- Pro-active compliance with future regulations (Groundwater Rule)

## Challenges

- Careful planning and coordination during construction was required to maintain operations of existing system
- High groundwater table required buoyancy analysis for 24" contact line

SGM assisted this 160-home community to revamp its potable water supply system. The Ranch had been struggling for a number of years with a single well constructed next to a fishing pond. Overdrafting of the well was exacerbating a sand production problem. USEPA's future Groundwater Rule (GWR) also prompted concerns about future, more stringent regulation of the existing well due to risk of surface water influence. SGM's upfront system improvements prioritization effort identified installation of a new well with greater separation from the Ranch's surface water as a top priority to increase system reliability. Furthermore, the Ranch's existing wellhouse had long since reached the end of its useful life. SGM led an effort to site, design, test, and equip a new production well. It also designed a new wellhouse and buried 24"-diameter contact line to ensure provision of the maximum disinfection level to be required by the GWR. SGM worked with Western Ecological Resource to obtain wetlands construction approvals and ensure that disruption to the Ranch's ecosystems during construction was minimized. SGM also obtained State construction dewatering permits and potable water system construction approvals for the project.

## Project Elements

- 8"-diameter, 45'-deep production well
- 150-GPM well pump and with 30-hp motor
- Well pitless unit and 250-LF of 4" buried piping with stream crossing
- New pitless unit and well pump and piping for existing well
- Wellhouse with sand strainer, hypochlorite storage and feed system, flow meter and valves, and system instrumentation and controls
- Waste line and dry well for floor drain discharge
- 140-LF of buried 24" ductile iron pipe for disinfection contact time
- Tie-in to main distribution system