

CASE STUDY

Building for the Future: The Bayfield Water Treatment Plant Expansion

Location: Bayfield, Colorado

HIGHLIGHTS

Installation of 500,000 gallon clearwell and 1 MGD filtration system.

Maintained continuous water treatment during construction.

Quickly adapted to unexpected shallow groundwater discovery.

SUSTAINABLE SOLUTION MEETS BUDGET CONSTRAINTS

Integrated Water Services (IWS) completed the construction and start-up of the Bayfield Water Treatment Plant Expansion located in southwest Colorado. This vital project was a partnership between Bayfield, a rural town, and the local La Plata Archuleta Water District to upgrade and expand the existing water treatment plant to serve the town and surrounding areas. The work encompassed demolition, upgrades to intake facilities, modifications to the existing building, and construction of a new plant, all while maintaining the continuous operation of the existing facility.

CHALLENGES FACED

- **Maintaining operation during construction:** The entire scope of work, including demolition, upgrades, and new construction, needed to be completed while the existing plant remained in operation.
- **Complexity of Concrete Work:** The construction of the below-grade, 500,000-gallon clearwell was a major undertaking, requiring over \$1,300yd³ of concrete and 175 tons of rebar, which due to its size and complexity, had to be formed and poured in various sections over four months⁹. Addressing the unexpected discovery of shallow groundwater during excavation.



SOLUTIONS IMPLEMENTED

- **Phased and Coordinated Work:** Careful coordination of work upstream of the plant and new construction adjacent to the existing building.
- **Close Collaboration with Engineering:** Worked closely with the Project Engineer, FEI Engineering, to address changes in field conditions and maintain the schedule.
- **Rapid Dewatering Mobilization:** To address shallow groundwater, IWS quickly mobilized resources to dewater the site, which involved the construction of eight wells.



OUTCOME AND IMPACT

- **Expanded Capacity and Service:** The completed expansion will upgrade and expand the existing water treatment plant, serving the town and surrounding areas of Bayfield.
- **Critical Infrastructure Upgrades:** The project includes the installation of major new systems like a 500,000-gallon clearwell, an ultraviolet disinfection reactor, an Actiflo filtration system, and a new gaseous chlorine storage and feed room.
- **On-Time Completion and Efficiency:** Despite challenges like shallow groundwater, IWS managed to keep the project on track, with the plant scheduled completion.

The Bayfield Water Treatment Plant Expansion was a successful critical infrastructure upgrade for the town of Bayfield. The project team skillfully managed complex construction, which included a 500,000-gallon clearwell. By collaborating closely and mobilizing rapidly, they overcame the challenge of unexpected shallow groundwater and achieved an on-time completion, all without interrupting the existing plant's operation.

"IWS did a great job in maintaining the schedule and staying ahead of the constructibility issues, which included unanticipated dewatering for the main excavation. I would highly recommend IWS for future projects."

Ron Saba

Town of Bayfield Public Works Director