

Bear Canyon Recharge and Large-Scale Aquifer Storage and Recovery Projects

Albuquerque, New Mexico

CLIENT

Albuquerque Bernalillo County Water Utility Authority

HIGHLIGHTS

- **Conjunctive management of surface water and groundwater using imported treated water**
- **Successfully obtained OSE permitting for first full-scale USR permit in New Mexico (Bear Canyon Recharge [USR-2]), and demonstration permit (DWTP [USR-4])**
- **Establishing long-term drought reserve**
- **Recharge demonstration using instream infiltration, vadose zone, and ASR wells**
- **Two-time recipient of the New Mexico Chapter of the American Council of Engineering Companies Engineering Excellence Award**

The Albuquerque Bernalillo County Water Utility Authority (Water Authority) is implementing recharge projects for conjunctive management of surface water and groundwater resources using treated San Juan-Chama water imported from the San Juan River Basin and diverted from the Rio Grande. The purpose is to recharge the Santa Fe Group aquifer system of the Middle Rio Grande Basin, establishing a long-term drought reserve.

The New Mexico Office of the State Engineer (OSE) requires that each underground storage and recovery (USR) project be tested first as a demonstration project. If successful, the applicant may apply for a full-scale permit. DBS&A assisted the Water Authority to successfully obtain OSE permits for two USR projects; full-scale and demonstration permits for Bear Canyon Recharge (USR-2), and a demonstration permit for the Drinking Water Treatment Plant (DWTP) Large-Scale Recharge Demonstration (USR-4).

The Bear Canyon Recharge project involves releasing bank-filtered surface water into an arroyo channel to infiltrate through the 500-foot-thick vadose zone profile during the winter months. The permit allows the Water Authority to recharge up to 3,000 acre-feet per year. DBS&A designed and implemented the demonstration project, including significant monitoring to demonstrate the effectiveness of the recharge methods. Due to the success of the demonstration project, the OSE established a storage account for the recharged water. This project became the first full-scale permitted recharge project in the State of New Mexico.

The DWTP Large-Scale Recharge Demonstration project (USR-4) will recharge potable water using one aquifer storage and recovery (ASR) well and one vadose zone well at the Water Authority's DWTP. Demonstration project construction has included recharge well drilling, construction, and aquifer testing. Depending on performance, up to nine additional vadose zone wells may be installed for the full-scale project, with a maximum recharge capacity of 5,000 acre-feet per year.



The success of the artificial recharge project was critical to demonstrate that aquifer recharge is a viable water management strategy.