

Recharge of Central Arizona Project Water in San Xavier District Arroyos

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ABSTRACT

Central Arizona Project (CAP) water is recharged into Tohono O'odham Nation - San Xavier District (SXD) arroyos to meet reliability requirements to supply CAP water to the SXD. Arroyo recharge is proposed to provide the SXD with "as reasonably reliable a supply" of CAP water as is available to the Phoenix area during annually scheduled, CAP aqueduct maintenance outages. The volume of CAP water to be made available to the SXD is 2,820 acre-feet per year to be delivered during the scheduled outages. Following hydrogeologic investigations at SXD, an arroyo was selected to conduct a pilot recharge test based on: low construction costs, minimal environmental disturbance, test results indicating relatively high infiltration rates, close proximity to CAP source, local depth to groundwater, upgradient location to proposed recovery wells, potential for aquifer restoration and riparian enhancement, minimal operation and maintenance requirements, and the ability to fully meet the annual maintenance outage requirement for the SXD. During the pilot recharge project from 2004 through 2006, a total of 2,750 acre-feet of CAP water was recharged. Infiltration rates ranged from 4 to 12 feet per day with an average infiltration rate of 9 feet per day and minimal evapotranspiration losses. The project is being evaluated for potential long-term implementation, which would include expansion to additional arroyos to provide the requisite 2,820 acre-feet per year.