

**MULTI-REGION WATER SUPPLY ALTERNATIVES ANALYSIS IN A PROBABILISTIC FRAMEWORK****Deborah Hathaway, Karen MacClune, and Kevin Flanigan\***

**ABSTRACT:** A quantitative and probabilistic description of the conjunctive-use groundwater and surface water supply available to Middle Rio Grande basins in New Mexico was recently developed. The probabilistic description of the water supply is developed through a risk analysis model, incorporating the climatic-dependent variability in individual water budget components. Present and future impacts of groundwater pumping on surface water conditions are simulated through modeling analyses and are incorporated into the probabilistic water budget analysis. This water supply study provides a framework to support regional water planning efforts for the Middle Rio Grande and describes conditions relevant to maintaining compliance with the Rio Grande Compact.

Multi-region water supply alternatives analysis has been conducted using the probabilistic modeling framework. Two regional planning entities have developed water resource management alternatives; these alternatives have been evaluated individually and in conjunction with each other, to determine how well the proposed alternatives meet projected water demands with the identified water supplies; and, to determine whether both regions can adequately meet their demands while living within the broader Compact-limited water budget.

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