

Denver Water South Platte Modeling

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Abstract. The reliability or dependability of a raw water supply system to meet demands throughout an extended drought period is commonly measured in terms of its firm yield. A determination of the firm yield of Denver's existing water supply system, as well as the projected firm yield of conditional water rights and proposed facilities is required for planning purposes. Denver's firm yield is calculated using the Platte and Colorado Simulation Model (PACSM). PACSM is a water allocation model that simulates streamflow, reservoir operations and water supply in portions of the Platte and Colorado River basins. The model incorporates Denver's and raw water supply systems of many others operating according to Colorado's Prior Appropriations Doctrine and numerous operating agreements.

This presentation will provide a brief overview of PACSM and review the water supply yields and operations of the following projects. Although each of these projects involve construction of facilities in the South Platte River basin, they rely on reusable water supplies imported from the Colorado River basin.

- Non-Potable Reuse - Denver's Non Potable Reuse Project currently under construction is expected to meet a firm yield demand of more than 17,000 acre-feet/year. The project requires 4,000 acre-feet of new storage to provide a source of augmentation water for those times when reusable effluent amounts are less than needed by the project.
- Exchange Reservoirs - Denver's raw water system can meet an additional 5,000 acre-feet of demand by constructing 8,000 acre-feet of gravel pit storage downstream of Denver. The gravel pits under development will be used to store reusable effluent for subsequent exchange upstream to Denver's diversion facilities.
- South Metro Conjunctive Use - This study is evaluating water development strategies in the South Metro area, including coordinated use of surface water and groundwater supplies.