

Water Options Paper Aamodt Settlement

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Middle Rio Grande Efficiency

There is an opportunity to upgrade irrigation infrastructure to improve water delivery efficiency in the Middle Rio Grande Conservancy District (MRGCD). By making efficiency improvements water could be made available for other uses including Indian water right settlements. A number of efficiency improvement needs have already been identified that total about \$70,000,000. Automation of diversion dams is the first priority and would cost about \$1,000,000 each for 3 dams.

In addition, there is a perhaps greater potential for water savings within the MRGCD by installing on-farm irrigation efficiency improvements.

Advantages: Because of the historic over diversion of water by MRGCD there is good potential for water saving from efficiency improvements. There needs to be more work done to develop this proposal. Significant appropriations are needed, and cooperation with MRGCD is critical.

Disadvantages: Challenges are possible working with the MRGCD in development of a plan to provide saved water for purposes other than for use within the district. On-farm measures would require the support and participation of individual landowners. Ongoing drought may limit available water supply for the basin. The priority date of conserved water is undetermined.

Cochiti Dam Operations related to San Juan-Chama Project Water

P.L. 88-293 provides specific authorization for a permanent recreational pool of 1,200 surface acres for Cochiti Reservoir. This equates to approximately 50,000 ac-ft of water in storage. In addition, 5,000 ac-ft is provided annually by the Bureau of Reclamation from the San Juan-Chama project to replace evaporation from this permanent recreation pool.

Alternatives include examining a range of reservoir volume and pool elevation changes, including no change, draining to half of current pool, and completely draining the reservoir. An initial study is needed to examine impacts. The Pueblo of Cochiti has a strong interest in this study, and will decide internally if it is in their best interest to

support a change in the current operations. Congressional authorization is needed to implement changes from the existing project authorization.

Disadvantages: Tremendous uncertainty exists associated with the concept of habitat restoration related to changes in the reservoir ecosystem. There could be environmental health risks associated with redistribution of sediments from a dry reservoir bed. Pool changes could impact endangered southwestern willow flycatcher and bald eagle habitat. Cochiti Pueblo has major concerns about the impacts from the potential changes.

Advantages: If the reservoir were drained and operated for flood control only (no storage - run of the river) this would make the 5,000 ac-ft currently used for evaporation offset available for consumption, and provide an initial 50,000 ac-ft surplus as well.

Water Purchase by State of New Mexico

The State of New Mexico could solicit proposals, much like they did in the Pecos River basin, to purchase existing water rights and transfer them to other uses. The Federal Government does not have the authority to buy water rights to settle Aamodt.

Dr. Bonnie Colby presented a report representing the cost of water for the Aamodt settlement, where she presented a range of costs from \$35.5 million to \$88.2 million. She concludes that there appears to be no simple, low cost or risk-free options to acquire *Aamodt* settlement water. There are considerable uncertainties regarding costs and both legal and political feasibility for all of the options she discussed. Securing settlement water is going to require substantial financial commitments, and breakthroughs in existing water management arrangements in the region.

Reallocation of San Juan-Chama by State of New Mexico

Several San Juan-Chama contractors have water service contracts that will be expiring in the next 20 years.

Contracting Entity	Quantity of Water Under Contract	Contract Expiration Date
City and County of Santa Fe	5,605 ac-ft	12/31/2016
County of Los Alamos	1,200 ac-ft	01/10/2007
City of Espanola	1,000 ac-ft	12/31/2018
Village of Los Lunas	400 ac-ft	12/31/2017
Town of Taos	100 ac-ft	12/31/2021
Village of Taos Ski Valley	15 ac-ft	12/31/2017

When these contracts expire the State of New Mexico can change the allocation, which could make water available for the Aamodt settlement. Many of these contractors have not been using their full allocation, but entering into third party leases with others for river depletions, and with the Bureau of Reclamation for supplemental water for the Rio Grande Silvery Minnow.

Advantages: There is considerable interest in SJ-C water if the State decides to change the allocation.

Disadvantages: There has been resistance to changing any SJ-C contracts because of the possible environmental and economic impacts. There are a number of interests that would like this water, including pueblos, cities and municipalities. The process will be controversial.

Nambe Falls Dam reoperation, and PVID Efficiency Improvements

The Pojoaque Tributary Unit is a component of the San Juan-Chama Project, PL 87-483, and provides supplemental water (1,030 af) for approximately 2,786 acres of irrigated land, of which Indian lands comprise approximately 34 percent of the total. The storage feature of the Pojoaque Tributary Unit is Nambe Falls Dam and Reservoir located on the Rio Nambe. It is a concrete and earth embankment structure which forms a reservoir of 2,020 af capacity. The operation and maintenance of Nambe' Falls Dam and Reservoir is performed by Pojoaque Valley Irrigation District (PVID) under an agreement with the Bureau of Reclamation. Reclamation maintains oversight responsibility for this work. Water that is physically stored in the reservoir is native to the Rio Grande Basin. SJ-C water is released from Heron Reservoir to the river to offset depletions of native water as a result of reservoir operations at Nambe Falls Dam as described in the corresponding contract between the United States and PVID (Contract # 14-06-500-1986; 1972) which references PL 87-483 and is in compliance with the Rio Grande Compact. The annual flow at Otowi Gage, the index gage for New Mexico to determine the State's compact delivery requirements, on the main stem of the Rio Grande effectively include the natural tributary input from the Rio Nambe.

There may be some opportunity to enlarge the storage capacity, or re-operate Nambe to maximize the use of the full depletion of the 1,030 ac-ft. Or there could be irrigation efficiency improvements made to reduce the depletions and provide the savings to settle Aamodt. An initial study is needed to investigate these possibilities and determine the feasibility of any such approaches. Estimated study costs \$100,000 for Nambe Reservoir operations and dam modification, and \$200,000 to investigate PVID irrigation efficiency improvements.

Advantages: If new water becomes available from these types of changes, it is close to the place where the water is needed for Aamodt. Little water would be needed to provide transfer losses.

Disadvantages: Even if this proves viable, there will be a limited supply of water made available by these options.

Upper Rio Grande Basin Operations

A comprehensive study of water storage strategies in the Upper Rio Grande Basin would include investigation of:

1. Modifying authorities for operation of existing reservoirs;
2. Enlarging or reconfiguring the bathymetry of existing reservoirs;

3. Construction of new reservoirs;
4. Managed conjunctive use of ground and surface water; and
5. Watershed management for increased yield and natural storage.

Study costs would be \$250,000 per year for 3 years.

Advantages: Potential benefits of changing water storage strategies in the basin would be a reduction in net total reservoir evaporation resulting in a net increase in overall basin water supply. Adding storage, re-operating the river system and watershed management could yield significant additional water supplies.

Disadvantages: There has been resistance in to past to look at new storage in the basin, and a general lack of interest in changing legal and political frameworks to study proposals of this type. Any water from these measures would not be available for use for probably five to ten years.