

Re-appropriate Water Above Otowi Gage in Combination with Water Rights Firming

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1. Summary of the Alternative

A potential source of supply for the Aamodt settlement is to re-appropriate water in the Rio Grande above the Otowi gage. This source of supply might be available if current depletions are less than New Mexico's allowable depletions as of 1929. The Rio Grande Compact uses an inflow-outflow model to determine the water delivery obligations of Colorado and New Mexico. These obligations are based on uses as of 1929 and as documented in the 1938 Rio Grande Joint Investigation (National Resources Committee, 1938). Because uses have shifted (decrease in amount of irrigated agriculture, increase in number of groundwater wells), it is possible that New Mexico's depletions above the Otowi gage are less than in 1929, and water is available to appropriate under normal hydrologic conditions. This alternative would require approval of the Office of the State Engineer (OSE). If the State Engineer determines that water is available, then additional appropriations could be made above the gage for use in the settlement.

Because there is insufficient information at present to determine the viability of this source of supply, one possibility would be to combine this approach with a water rights firming program. A firming program would focus on methods to reduce depletions on the river by whatever method or methods deemed by the State to be most feasible and practicable, including but not limited to acquiring, retiring and/or otherwise disposing of water rights; reducing depletions within the stream system; increasing efficiencies of existing uses; and increasing accretions to the system. Securing other water rights, including imported water from the San Juan-Chama Project, is probably the best firming method.

2. Technical Feasibility

In order to have an appropriation of this type approved by the OSE, a comparison of waters being depleted in 1929 with waters currently being depleted is required. In 1929, a greater percentage of the region was in agricultural use than is presently. Conversely, more groundwater

is currently being used by domestic and municipal wells than in 1929. If the net change between 1929 and the present reflects lower water use, there would potentially be water available for appropriation. Natural depletions within the watershed would also have to be factored in. If flora in the woodlands, highlands and bosques consume more water today, then the available supply could be reduced or eliminated.

Waters being used in 1929 were documented in a Rio Grande Joint Investigation done in 1937 (Natural Resources Committee, 1938). The study presented depletions for the San Luis Valley (Colorado), the Middle Rio Grande Valley (Colorado border to Elephant Butte), and the area below Elephant Butte. Estimates for depletions in the entire Middle Valley are about 500,000 acre-feet per year. According to the 1937 study, streamflow depletions are defined as

The amount of water which annually flows into a valley, or upon a particular land area (I), minus the amount which flows out of the valley or off from the particular land area (R) is designated "stream-flow depletion" (I-R). It is usually less than the consumptive use and is distinguished from consumptive use in the Rio Grande studies.

The Pojoaque basin is part of the Jemez y Sangre Water Planning Region. The Jemez y Sangre Water Planning Council recently developed water budgets for each subregion within the planning area. The subregions that are located above the Otowi gage include Velarde, Santa Cruz, Santa Clara, Pojoaque-Nambe, Tesuque, and portions of the Los Alamos sub-basin. The water budgets included both a total inflow component and a total outflow component for surface water and groundwater. To be consistent with the 1937 study, total inflows minus total outflows (as reported by Jemez y Sangre [2001]) were calculated for both surface water and groundwater (groundwater was included because it is considered to be stream-connected). The total mean annual inflows minus the total mean annual outflows for the sub-basins above Otowi gage (excluding Los Alamos) was approximately 36,000 acre-feet.

In order for an appropriation of this type to be approved by the OSE, a more in-depth study of the current depletions would be required. A detailed study of depletions corresponding to the areas surveyed in the 1937 study would be required, so that accurate comparisons of changes in depletions could be evaluated.

A firming program would focus on methods to reduce depletions on the river by whatever means deemed by the State to be most feasible and practicable: Such means could include:

- Acquiring, retiring and/or otherwise disposing of water rights. This method could look to the market for existing water rights or to contracting for water from existing projects, in particular the San Juan-Chama Project. It also could develop a mechanism to retire or reduce existing human uses.
- Reducing depletions within the stream system. This approach would seek to reduce natural depletions through watershed management or reduce reservoir evaporation using new technologies or operations.
- Increasing efficiencies of existing uses. One source of supply could be through conservation of existing uses. Irrigation efficiency improvements could provide such a source.
- Increasing accretions to the system. Either through new technologies or by importing additional water, the overall supply could be increased.

3. Financial Feasibility

Technical costs associated with re-appropriation are primarily related to completion of a depletion survey. The overriding cost would be in carrying out the firming program. Under a worst case scenario, all water rights granted as new appropriations would have to be firmed up or replaced one for one by acquisition of already existing water rights. Such water rights may vary from \$4,000 to \$35,000 or more per acre-foot per annum, consumptive use.

4. Legal Feasibility

If depletions today are less than in 1929, then New Mexico is not making full use above Otowi of water quantified for use there. That would mean that New Mexico is allowing more water to pass the Otowi gage than is required by the Compact, and further, that New Mexico is then delivering more water to Elephant Butte than would otherwise be necessary. Such an over-delivery does have the benefit of increasing supply in the Middle Valley. Short of an adjustment in the Otowi inflow-outflow index, water comprising existing over-deliveries could be recaptured by re-appropriation. This would have to be done so as not to impair vested water users downstream.

If such water is available, it could be re-appropriated for use in northern New Mexico. On June 26, 2001, Santa Fe County filed a notice to appropriate all unappropriated water above the Otowi gage, on behalf of northern New Mexico users, including on behalf of the Aamodt parties. The application to appropriate must be filed by June 26, 2004.

References

Dominique Cartron and John W. Utton, *Alternative: Reappropriate Water Above Otowi Gage Up to 1929 Conditions*, White paper prepared for the Jemez y Sangre Regional Water Planning Council. Daniel B. Stephens & Associates, Inc., Albuquerque, New Mexico. February 2002.

National Resources Committee. 1938. *Regional planning part VI – The Rio Grande joint investigation in the Upper Rio Grande Basin in Colorado, New Mexico, and Texas, 1936 – 1937*. United States Government Printing Office, Washington, DC.