

Fred Allen received a Bachelor of Science degree in Civil Engineering from the University of New Mexico. He spent 30 years with the State Engineer's Technical Division including thirteen years as Chief of the Hydrographic Survey Section and thirteen years as Chief of the Technical Division. After retirement from the Office of the State Engineer, Fred served with Plains Electric as a Water Resource Engineer. Currently, he is a contract hearing examiner with the Office of the State Engineer and a Water Resource Consultant. Fred is a registered New Mexico Professional Engineer and Surveyor.



Delivery of
San Juan
Water to the
Otowi Gage

Delivery of San Juan Water to the Otowi Gage

In the late 1950s, the State Engineer, in anticipation of the proposed San Juan/Chama Transmountain Diversion Project, was concerned that the San Juan water to be delivered to the Rio Chama would reach the Otowi Gage on the Rio Grande. The schedule set forth in the 1948 Resolution of the Rio Grande Compact Commission provides that the flow at the Otowi Gage shall be adjusted for any transmountain diversions into the Rio Grande between Lobatos, Colorado and the Otowi Gage. As the Rio Chama enters the Rio Grande above the Otowi Gage just north of Española, the discharges of the Rio Grande at the Otowi Gage would be adjusted for San Juan transmountain diversions.

The principal area of concern was the reach of the Rio Chama from Abiquiu Dam to its confluence with the Rio Grande. The State Engineer's objective was to be able to control diversions in this reach so that the acequias would not divert San Juan water during release of those waters into the Rio Chama unless they had made prior arrangements for San Juan water. A watermaster would be needed to accomplish this objective.

It became clear that an adjudication of Rio Chama water rights would be necessary in order to have a watermaster appointed by the court to

supervise the apportionment of the Rio Chama water. Section 72-2-9 of the New Mexico statutes provides that "the state engineer shall have the supervision of the apportionment of water in this state according to the licenses issued by him and his predecessors and the adjudications of the courts."

The first step to an adjudication is a hydrographic survey. The hydrographic survey of the Rio Chama was initiated in September, 1957 and plane table surveys of isolated lands were completed by June, 1959. The main stem surveys were accomplished by photogrammetric methods. The survey of the Rio Chama reach from Abiquiu Dam to its confluence with the Rio Grande was virtually completed by the end of the State Engineer's twenty-seventh biennial period, which ended on June 30, 1966. We called this reach the Española to Abiquiu reach because we began the survey downstream and worked our way upstream. The survey was done piecemeal beginning with the most downstream acequia. Once the survey was completed, the hydrographic survey report and maps were turned over to the State Engineer legal staff for adjudication.

The adjudication suit on the Rio Chama stream system below El Vado Dam was initiated during the twenty-fifth biennial period, that is the period from July 1, 1960 to June 30, 1962. The State Engineer's biennial report for that period states that the adjudication suit was initiated in contemplation of construction of the San Juan Transmountain Diversion Project.

In addition, a court ordered hydrographic survey of the Rio Puerco de Chama was underway and it was accomplished by plane table method. The Rio Puerco de Chama is a south side tributary of the Rio Chama and empties into Abiquiu Reservoir. Most of the irrigated land is near the Village of Coyote. The survey was completed during the July 1, 1960 to June 30, 1962 period and the per-acre cost of that survey amounted to over \$29. Now, in 1962, \$29 per acre in that rural community was just about what the land was worth. Steve Reynolds almost went into a state of shock when he found out what the cost of that survey was.

The Rio Chama Hydrographic Survey and the Rio Puerco de Chama Hydrographic Survey brought about a significant piece of legislation and that was the elimination of the Hydrographic Survey Fund. At the time these surveys were undertaken, the New Mexico statutes contained a section that established a Hydrographic Survey Fund for the purpose of financing surveys and water studies necessary in the adjudication of water rights. Once the water rights were adjudicated in a particular stream system, the costs of the hydrographic survey were assessed to the owners in proportion to the acres of water rights adjudicated to them. That is, the total cost of the survey was divided by the total acres of water rights adjudicated to obtain a per-acre cost.

The Rio Chama hydrographic survey was not so much for the benefit of the Rio Chama water right owners as for the beneficiaries of the San Juan imported water. The State Engineer was convinced that it was in the state's best interest that the state bear the cost of the hydrographic surveys.

State Senator Matt Chacon of Rio Arriba County represented many of the water right owners in both the Rio Puerco de Chama and Rio Chama adjudication suits. He was very receptive and supportive of legislation to eliminate the Hydrographic Survey Fund. He sponsored such legislation and the fund was eliminated by Chapter 124, Laws of 1965 and it provided that the costs of hydrographic surveys be borne by the state.

The San Juan/Chama Transmountain Diversion Project was initiated in late 1964 when excavation of the Azotea Tunnel was commenced. The contract for the Blanco Tunnel was awarded in May, 1965 and the contract for the Oso Tunnel was awarded in February 1966. The San Juan/Chama

Diversion Project was completed in late 1970 when Heron Dam was constructed and the first water under the project was diverted in November 1970.

The adjudication of the Rio Chama mainstem reach from Espanola to Abiquiu was completed in 1971 and the court appointed George Shaw as watermaster on August 9, 1971. Measuring devices on the acequias in this reach were installed early in 1972, which allowed the watermaster to control diversions of Rio Chama water.

The State Engineer's objective to control diversions of Rio Chama water during releases of San Juan water—so that the San Juan water reached Otowi Gage—was achieved in June 1972 when diversions of water from the Rio Chama in the Espanola to Abiquiu reach were administered by the Rio Chama Watermaster.