

NEW MEXICO WATER RESOURCES
UPPER COLORADO RIVER SYSTEM

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The San Juan River and its tributaries constitute the Upper Colorado River System in New Mexico. The availability of water from the San Juan River System for beneficial consumptive use in New Mexico is founded on the Colorado River Compacts.

The Colorado River Compact of 1922 apportioned the consumptive use of 8.5 million acre-feet of the waters of the Colorado River System to the Lower Basin States of California, Arizona, Nevada, Utah and New Mexico. The compact apportioned the consumptive use of 7.5 million acre-feet of the waters of the System to the Upper Basin. Article III (d) provides that the states of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75 million acre-feet in any period of ten consecutive years.

The Upper Colorado River Basin Compact of 1948 divided the 7.5 million acre-feet of consumptive use apportioned to the Upper Basin by the 1922 Compact among the Upper Basin States. It was agreed that Arizona should have 50,000 acre-feet annually and that the balance would be divided among the other four states. New Mexico's share is set at 11.25% of that balance. If the full

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amount of 7.5 million acre-feet is available to the Upper Basin, New Mexico is allowed to make uses that would deplete the flow of the river at Lee Ferry by 838,000 acre-feet annually. Since 1922, it has become clear that the Colorado River at Lee Ferry may be as much as a million acre-feet short of the 15 million acre-feet presumed to be divided by the 1922 Compact. It does not appear that 7.5 million acre-feet annually will remain available for consumptive use in the Upper Basin after delivering to the Lower Basin 75 million acre-feet in each period of ten consecutive years. Using conservative estimates of runoff, it now appears that even with the nearly complete regulation of the river provided by the storage units of the Colorado River Storage Project, the Upper Basin may be able to use only about 6.3 million acre-feet of the 7.5 million acre-feet allocated to it. Current estimates indicate that we will be able to consume at sites of use in New Mexico, about 730,000 acre-feet per year.

The 1922 Compact ensured the rights of the Upper Basin States against the imminent early development in the Lower Basin that, under the law of the West, could have deprived the Upper Basin States of all but the minimal quantities already put to use by a few pioneers. But definitive plans for the use of the Upper Basin's entitlement necessarily awaited consummation of the Upper Basin Compact of 1948. As of 1948 New Mexico was consuming only about 70,000 acre-feet annually from the San Juan River system, nearly all of it for irrigation. New Mexico acted decisively, working closely with the Bureau of Reclamation to complete plans for the use of her share of the Colorado River. The projects settled on included Navajo Dam and Reservoir, one of the storage units of the Colorado River Storage Project; the small Hammond Irrigation Project which furnishes water for 3900 acres; the San Juan-Chama Project to export an average of 110,000 acre-feet annually from the San Juan River System to the Rio Grande System; the Navajo Indian Irrigation Project for the irrigation of 110,630 acres by Navajo Indians; and the Animas-La Plata Project in New Mexico and Colorado for irrigation and municipal and industrial purposes which would consume about 34,000 acre-feet of New Mexico's allocation. All of these developments have been authorized and all but the Animas-La Plata Project are completed or under construction. Total cost of these projects is now estimated at about \$475 million. These commitments of water apportioned to New Mexico and the commitment to rights existing before the authorizations described, left a consumptive use of about 100,000 acre feet annually available for municipal and industrial purposes.

Before the developments I have outlined were authorized New Mexico had already made a substantial commitment of water resources to energy development in the San Juan Basin. In February of 1955 Utah Construction Company made application for 139,000 acre-feet annually for the operation of coal-fired electric generators to be fueled from a large coal surface mining project and for the use of industries expected to locate in the area to take advantage of cheap electric energy. The permit ultimately granted was limited to use in coal mining and power generation for the reason that it was inappropriate under our law to grant water rights for uses as yet ill-defined and uncertain. Under the permit the diversion is limited to an average of 55,000 acre-feet annually and consumptive use is limited to 39,000 acre-feet annually. The water is now being used for the operation of five units with a total generating capacity of 2,075 megawatts; the mine and the generating units are located on the Navajo Indian Reservation. It may be of some interest that this permit is prior in time and therefore prior in right to the water rights granted to the Secretary of the

therefore prior in right to the water rights granted to the Secretary of the Interior by the State for the developments that I outlined earlier.

In an unusual, if not unique, provision the law authorizing the San Juan-Chama and Navajo Projects in 1962 (Public Law 87-483) prohibits the Secretary of the Interior from entering any contract for water from Navajo Reservoir for municipal and industrial purposes until the Secretary has determined by hydrologic investigation that sufficient water is available in New Mexico's allocation to fulfill the contract and until Congress has approved the contract. This provision is in some respects cumbersome but it has had the desirable effect of assuring us a considerable voice in determining the purposes for which the water available for municipal and industrial purposes is contracted; it is doubtful that the Secretary would propose or the Congress would approve a contract not supported by the State.

At the insistence of the State, the Secretary of the Interior made a hydrologic investigation and in November of 1963 reported that there is available, under the Secretary's rights in the San Juan River System in New Mexico, sufficient water for contracts allowing a depletion of 100,000 acre-feet annually, provided that the terms of the contracts are limited to the year 2005. The most difficult problem confronting the Secretary in his investigation was the determination of what part, in any, of the 1944 Mexican Treaty obligation would have to be met by releases from the Upper Basin in excess of the 75 million acre-feet in each period of ten consecutive years required by Article III (d) of the 1922 Compact. Article III (c) of the compact was prospective; it provided that if the United States should recognize in Mexico any right to the use of the waters of the Colorado River System, the waters would be supplied from waters over and above the aggregate of the Article III (a) and Article III (b) apportionments to the Lower Basin and the Upper Basin. Article III (c) further provided that if the surplus proved insufficient, then the burden of the deficiency would be equally borne by the Upper Basin and the Lower Basin, and the states of the Upper Division would deliver at Lee Ferry water to supply one-half of the deficiency, in addition to the amount required to be delivered by Article III (d).

The Secretary was able to avoid, or at least defer, an interpretation of the provisions of the Compact dealing with the Mexican Treaty obligation. This was done by determining from projections of future development in the Upper Basin that there would be water in excess of total Upper Basin requirements plus one-half of the Treaty obligation until at least the year 2005. This excess was found sufficient to support consumptive uses of 100,000 acre-feet annually in New Mexico under municipal and industrial contracts terminating in 2005.

The New Mexico Interstate Stream Commission concurred in the 2005 term for contracts so long as it did not inhibit the development and use of New Mexico's water resources. It is New Mexico's position that the full amount of 100,000 acre-feet will be available for the contracts in perpetuity. Interstate Stream Commission studies show that under the terms of the 1922 Compact and reasonable projections of stream flow, it will not be necessary for the Upper Basin to make deliveries in excess of 75 million acre-feet in each period of ten consecutive years to meet any part of the United States obligation to deliver 1.5 million acre-feet annually to Mexico. Studies show that with an average annual

delivery of 7.5 million acre-feet from the Upper Basin water available from the main stream and tributaries in the Lower Basin is sufficient to furnish the 8.5 million acre-feet apportioned to the Lower Basin and, in addition, the 1.5 million acre-feet required for delivery to Mexico.

With the support of the State, the Congress in 1968 (Public Law 90-272) authorized the Secretary to enter a contract with Southern Union Gas Company for 50 acre-feet annually for cooling in a compressor station; a contract with the Public Service Company of New Mexico for the diversion of 20,200 acre-feet of water, a part of which is not being used for the operation of the company's San Juan plant near the Four Corners; and a contract with Utah Construction and Mining Company for a diversion of 44,000 acre-feet annually. It now appears that water under this latter contract will be used for coal gasification units with a total capacity of 1 billion cubic feet per day.

In September of 1972 the New Mexico Interstate Stream Commission recommended to Governor King that the state support a contract with El Paso Natural Gas Company for 28,250 acre-feet for the operation of a coal gasification complex with a total capacity of 785 million cubic feet per day. The Governor did this by a letter to Secretary of the Interior dated September 12, 1972, and by letters to the members of the New Mexico Congressional delegation. Public hearings on the draft environmental impact statement on the proposed contract were held in Window Rock and Farmington last week. Contract negotiations were completed sometime ago and the Secretary of the Interior has had his determination on the availability of water for the contract under active consideration for a number months. We expect a favorable determination at an early date and hope to have the opportunity to support Congressional authorization of the contract in the current session.

The contracts already authorized and the proposed contract with El Paso Natural Gas Company would commit all but 7500 acre-feet of the 100,000 acre-feet of water estimated by the Secretary to be available for contract for municipal and industrial purposes. It is the position of the Interstate Stream Commission that this residual amount should be tentatively reserved for possible use by the City of Gallup through a project now under investigation by the Bureau of Reclamation.

The 100,000 acre-feet of consumptive use found by the Secretary to be available for municipal industrial contracts does not necessarily represent the ultimate limit on water from the San Juan River System in New Mexico for municipal and industrial purposes. The original design of the Animas-La Plata Project would have provided 13,500 acre-feet of water annually for municipal and industrial use in New Mexico. Studies for the definite plan report on the project indicate that this amount may be considerably higher for the reason that some of the new lands originally planned to be irrigated may not be suitable.

The strippable low-sulfur coal resources of the San Juan Basin in New Mexico have been estimated at about 3 billion tons with an overburden of less than 150 feet, and another 3 billion tons with an overburden of 150 to

250 feet.¹ The State of New Mexico has committed, or supported the commitment of, 131,500 acre-feet of its allocation of Colorado River System water to the use of these coal resources at a rate of about 80 million tons per year.

It is noteworthy that over 111,000 acre-feet of this amount is committed for use on the Navajo Reservation. In 1972, the Vice-Chairman of the Navajo Tribal Council reported that the unemployment rate for the Navajo Tribe is 65 percent. The proposed El Paso Natural Gas Company contract for 28,250 acre-feet would provide the water needed for the operation of two coal gasification units on the Navajo Reservation. These two units would be capable of producing a total of 785 million cubic feet per day of synthetic gas. The two units, the last of which would be completed in 1981 will process about 77,000 tons of Navajo coal per day; royalties to the tribe are conservatively estimated at about \$11 million per year. Jobs made available in the construction phase of the development would peak at 4,100 in 1979. About 3,000 employees would be required in the plant operation after 1982; services to support operation of the plants after 1982 will provide an estimated additional 5,700 jobs. The terms of the proposed water contract require that Navajo Indians be given preference in employment for the operation of the mine and gasification facilities. To comprehend the full impact of the proposed gasification of Navajo coal, it should be remembered that WESCO proposes to develop another gasification complex capable of producing 1 billion cubic feet per day of synthetic gas, a complex slightly larger than that proposed by El Paso Natural Gas Company.

The development and use of the coal and water resources of northwestern New Mexico can make a substantial contribution to the achievement of energy self-sufficiency for the United States. But there is legitimate concern that the development of energy resources will siphon off water that otherwise could be used for irrigation to help meet current and prospective world-wide food shortages. I believe it is fair to say that there is a reasonable balance in the water commitments New Mexico has made to these two objectives. At full development, in about 1986, the 110,630 acre Navajo Irrigation Project will consume about 230,000 acre-feet of New Mexico's entitlement; these lands promise to be some of the most productive in New Mexico.

In passing I should point out that full development of the Navajo Project and the gasification units will bring the use of San Juan River water on the Navajo Reservation to about 375,000 acre-feet annually, or a little more than one-half of New Mexico's entitlement under the Compacts.

1. Memoir 25, New Mexico State Bureau of Mines and Mineral Resources, "Strippable low-sulphur coal resources of the San Juan Basin in New Mexico and Colorado", 1971.

Most of the electrical energy that is being generated and the energy in the form of electricity and gas that will be generated from the coal in the Four Corners area in New Mexico has been, and will be, transmitted for use in other states; a large share of the total will be used in southern California. A current and recurring suggestion is that New Mexico withhold its water from gas production unless and until an agreement is reached under which the water used to produce the gas would be charged against the compact entitlements of the downstream states such as California, where some of the gas is to be used. Obviously, such a suggestion is appealing to the New Mexico State Engineer and I have explored it carefully. However, there is reason to believe that such an agreement could not be negotiated; and the time lost through an effort to negotiate it could so shorten the amortization period as to make the contemplated development infeasible under a water contract terminating in 2005.

Under the Upper Basin Compact of 1948 (Article VII), any water used in New Mexico, on or off an Indian Reservation, is chargeable against New Mexico's apportionment whether the diversion from the stream is made in New Mexico or in some other state. For us to acquire rights to the use of water to which California is entitled under the compact for the manufacture of gas to be used in California, Article III (d) of the 1922 Compact, which requires the delivery of an average of 7.5 million acre-feet per year at Lee Ferry, would have to be amended. All seven states of the Colorado River Basin would have to agree to the amendment by a legislative ratification and the Congress would have to give its consent to the amendment. The first necessary step, of course, would be to persuade those in California having rights to Colorado River water to give up their rights to New Mexico in order that the needs of gas users in California could be met. You can probably best appraise this obstacle by imagining a similar circumstance in New Mexico.

Assuming that the Colorado River Compact of 1922 could be amended, the next step would be the amendment of the Upper Colorado River Basin Compact of 1948. By Article XIV of the Upper Basin Compact Colorado agrees to deliver to New Mexico from the San Juan River and its tributaries a quantity of water sufficient to enable New Mexico to make full use of the water apportioned to us by the Compact. In order for New Mexico to manufacture gas with water that California would otherwise be entitled to it would be necessary to amend the Upper Basin Compact to require Colorado to leave more San Juan River water for use in New Mexico, thus forcing Colorado to take a larger share of its entitlement from other Colorado River tributaries. I can see no incentive for Colorado to so agree and it can reasonably be expected that residents of the San Juan River Basin in Colorado would resist an amendment which would have the effect of transferring water from their area to other tributaries in Colorado. Again, I invite you to imagine a similar circumstance in New Mexico.

Any amendment of the Upper Basin Compact would require ratification by the legislatures of the States of Arizona, Colorado, Utah, New Mexico and Wyoming and the Congress of the United States.

I believe that what I have said supports the view that, while it is theoretically possible to use California water for the manufacture of gas in New Mexico, such an arrangement is not practicable.

I am not aware of any early opportunities to put New Mexico's Colorado River System water to beneficial uses other than energy development projects such as proposed by the El Paso Natural Gas Company. If putting our water to beneficial use is delayed by unpromising negotiations, the water will continue to run downhill and California will have it for use, even if she doesn't have gas.