

## **Navajo-Gallup Water Supply Project**

### **7.0 SURFACE WATER SUPPLY OPTIONS**

With more than 40 percent of the Navajo population lacking domestic water, and static water levels in the City of Gallup's well fields declining by hundreds of feet, the need for the Navajo-Gallup Water Supply Project is clear. Numerous investigations have found that additional groundwater sources are inadequate, and that they can only temporarily delay water supply shortfalls. This conclusion was presented in the 1976 Turney report which was the basis for the 1984 Plan Formulation and Environmental Statement. The objective of this section is to present the advantages and disadvantages of various surface water sources for the Project. While the following discussion adheres to the context of the 1922 Colorado River Compact and the 1948 Upper Colorado River Basin Compact, it should be noted that the Navajo Nation firmly believes the allocations in these compacts do not limit the Navajo Nation's claim to water within the Colorado River system.

Sources of surface water that were considered for the Project demand within New Mexico include: (1) acquisition of private water rights or options, (2) a San Juan River contract for water with the Department of the Interior, (3) a San Juan River contract for water from the Jicarilla Apache Nation (Apache Nation), (4) Navajo Indian Irrigation Project water, and (5) Navajo Nation non-NIIP water. Approximately 25 percent of the Project's water demand is in the Lower Colorado River Basin within the State of Arizona. For addressing the Arizona demands the Navajo Nation is investigating Central Arizona Project water and other main-stem Colorado River water. These water supply options are discussed in greater detail below, followed by a conclusion.

#### **7.1 Acquisition of private water rights or water options**

One option for providing a permanent water supply for the Project is to purchase private water rights or water options from water users within the San Juan River Basin. One advantage of acquiring private water rights is that these existing depletions have been included in past Section 7 Consultations with the USFWS and will most likely be included in future consultations. Through these consultations the USFWS determines which additional depletions can occur in the San Juan River basin without causing jeopardy to the endangered fish. Identifying water within the baseline reduces, but does not necessarily eliminate, the complications associated with compliance with the Endangered Species Act. Another advantage of acquiring private water rights is that these water rights are within the State of New Mexico's Upper Colorado River Basin compact allocation.

Although private water rights may have a senior priority date, they may not have a full water supply every year. Furthermore, these water rights do not come with a storage right behind Navajo Dam. They would not be subject to the Colorado River Storage Project Act (CRSPA) fee which is approximately \$60 per acre-foot. However, if this water is conveyed through the NIIP facilities it would be subject to an administration fee for the use of Navajo Reservoir as a point of the diversion. The administration fee is less than the CRSPA fee.

The primary disadvantage to purchasing private water rights is that they are not cheap. Long-term water contracts in the Colorado River Basin frequently cost \$2,000 to \$5,000 per acre-foot. Recent small transactions in the Farmington area have been for approximately \$1,500 per acre-foot. At that

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price, water for the City of Gallup's demand could cost between \$11 and \$20 million and water for the Navajo demands could cost in excess of \$40 and \$70 million.

Another disadvantage of purchasing water rights is that the depletions associated with these water rights will need to be transferred to the Project. It is very likely that these transfers will be protested by numerous parties within the Basin. The effect of the depletions that may be transferred will be closely scrutinized. If downstream depletions are to be transferred upstream to the Navajo Reservoir, a large number of water users may claim to be impacted. The Office of the State Engineer has a process for administrating transfers. However, these hearing processes may become complicated, protracted and expensive. A final disadvantage is that private water rights within the San Juan River Basin, even those purchased by the City of Gallup, may not necessarily be exempt from any ultimate federally reserved water rights claim exerted by the Navajo Nation.

Acquiring water options for San Juan River water would most likely be less expensive than purchasing water rights. These water options may take the form of forbearance agreements. Under these forbearance agreements current water users would agree that if there is a call on the river to meet either the flow recommendations or the compact requirements, then those water users would agree to discontinue their uses. These water options would not necessarily be exercised every year. Presumably the need to exercise an option would be based on the water supply forecast for the San Juan River and the flow recommendations in effect at that time. As a practical matter, it is unlikely that these options would be exercised at least until NIIP and the ALP projects begin to fully utilize their allocations.

### **7.2 A San Juan River water contract with the Department of the Interior**

The City of Gallup has no water rights for San Juan River water, nor does it have any San Juan River water under contract. During the 1950's and 1960's the City of Gallup filed three notices of intent to divert water from the San Juan River. After the construction of Navajo Reservoir, the State Engineer indicated that the City would need a contract with the Secretary of the Interior for water. In 1966 a contract for 7,500 acre-feet of water was drafted and several meetings were held between Reclamation and the City of Gallup to work out the details. That contract was never finalized. In 1967 the ISC recommended, and the Secretary of the Interior granted, a temporary allocation for the City of Gallup of 7,500 acre-feet per year through the year 2005. In the 1988 Hydrologic Determination Reclamation identified 24,000 acre-feet of water in New Mexico and 7,000 acre-feet of water in Arizona that was temporarily available from the San Juan River for the Navajo-Gallup Water Supply Project through the year 2039. In a letter dated November 22, 2000 from Kelsey A. Begaye, President of the Navajo Nation and John Pena, Mayor of the City of Gallup to Eluid Martinez, Commissioner of Reclamation, the Project participants request separate water contracts from the Navajo Reservoir Water Supply. The Navajo contract would be for 29,300 acre-feet per year and the City of Gallup contract would be for 7,500 acre-feet per year.

Several important issues need to be addressed by the authorizing legislation before this water could be contracted by the Secretary. These issues are summarized in a letter dated June 30, 1994 from Rob Luethouser, Reclamation to the Project participants and include:

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- The Navajo-Gallup Water Supply Project was never specifically authorized by Congress as part of the Colorado River Storage Project Act (CRSP). Consequently, the Project is limited to temporary water contracts from Navajo Reservoir.
- CRSP temporary water service contracts for municipal and industrial uses are authorized by Section 9(c)(2) of Reclamation Project Act of 1939. However, they are limited to a maximum term of 40 years. Contract renewal may be subject to the extent of other water developments in the San Juan River Basin. The long-term dependability of contract water needs to be evaluated.
- Before any temporary contract from Navajo Reservoir can be allowed to extend past the year 2039, the 1988 Hydrologic Determination must be officially updated and approved by the Secretary of the Interior, and transmitted to Congress.
- Due to specific language in the authorizing legislation of NIIP (Public Law 87-483), any additional 40-year contracts from Navajo Reservoir must be authorized by Congress. Congressional approval may take several years.

Other issues that need to be addressed before contracting new water from the San Juan River include:

- A new contract will require an examination of future depletions in the Upper Basin. The determination of when, and if, the Upper Basin exceeds its allocation depends in part on various interpretations of the river compacts. Based on Reclamation's 1967 Hydrologic Determination, an additional 100,000 acre-feet of water was temporarily allocated to the State of New Mexico through the year 2005. This 100,000 acre-foot block of temporarily allocated water includes 7,500 acre-feet for the City of Gallup. Based on the Department of the Interior's interpretation, 5.8 million acre-feet per year of Upper Basin depletion was set as an upper limit for planning purposes. According to Reclamation's 1988 Hydrologic Determination, New Mexico's Upper Basin water allocation of 669,000 acre-feet per year will be exceeded by 74,000 acre-feet by the year 2039. Consequently, Reclamation limits new contracts. The current Reclamation administrative policy limits new contracts to 25 years.

The Upper Basin States do not agree with the Department of the Interior's interpretation that they are limited to 5.8 million acre-feet per year. Under the State's interpretation, the State of New Mexico is entitled to 727,000 acre-feet of depletion per year. In a letter dated December 13, 1973 from Steve Reynolds, the New Mexico State Engineer, to James A. Bradley, Regional Director, Southwest Region, Reclamation the State Engineer writes "It is New Mexico's position that under a correct interpretation of the compact's provisions, the full 100,000 acre-feet of consumptive use from Navajo Reservoir contracts would be available in perpetuity," and "New Mexico's view is that there is sufficient water available from the San Juan River Basin to Supply Gallup 7,500 acre-feet annually for at least 50 years."

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In December 1999 the Upper Colorado River Commission updated the depletions presented in the previous determinations. Based on the updated tables, the State of New Mexico will not exceed 669,000 acre-feet of depletion until sometime between 2030 and 2040. And, it may be possible for the Project participants to develop new water contracts based in part on the Upper Basin's unused allocation through the year 2060.

- Even if a new contract is granted, these depletions have not been included in previous Section 7 Consultations with the USFWS. The San Juan River may not be able to accommodate additional depletions without jeopardizing the endangered fish.
- The overall impact of a new contract on Indian Trust Assets within the San Juan River Basin will need to be evaluated by the Department of the Interior. Four Indian tribes including the Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, the Jicarilla Apache Nation, and the Navajo Nation, may have concerns regarding the potential impacts.
- The City of Gallup in New Mexico and Window Rock in Arizona are geographically located in the Little Colorado River Basin which is tributary to the Lower Colorado River Basin. The provisions of the 1948 Upper Colorado River Basin Compact need to be addressed to utilize an Upper Basin allocation of water in either the Gallup or Window Rock subareas.

### **7.3 Contract water from the Jicarilla Apache Nation**

The recent Jicarilla Apache Nation settlement includes 25,500 acre-feet of depletion per year of the Navajo Reservoir supply that may be available for marketing within the State of New Mexico. The Apache Nation is pursuing a variety of development options for using its San Juan River Basin depletions including potential third party contracts and on-reservation water projects. Consequently, under certain circumstances, the Apache Nation may be amenable to providing some water for this Project.

The Apache Nation water has a quantified water right and shares priority with other Navajo Reservoir users. Unlike other Navajo Reservoir contracts with the Secretary, the Secretary has already determined that sufficient water is available to fulfill the Apache Nation's settlement. While third party contracts for Apache Nation water must be approved by the Secretary (through his designee with Reclamation), no further Congressional action is necessary for the use of Apache Nation water. In addition, these depletions will be recognized in future hydrologic determinations, while the Navajo-Gallup Project water may not.

If Apache Nation water was made available for this Project under terms favorable to the Apache Nation, they would have incentive to support the Project during Section 7 Consultation with the USFWS and during NEPA compliance. In addition, because the Apache Nation already has a contract with the Secretary, a subcontract with the Apache Nation eliminates the need for a new Secretarial water use contract out of Navajo Reservoir. This subcontract may require an annual construction payment currently set at \$2.60 per acre-foot, and a payment for the proportionate share of the operation and maintenance of Navajo Dam.

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However, a long-term Apache Nation water lease may not be cheap, and it may not be less expensive than leasing private water rights. In addition, the Apache Nation water has not been included in recent environmental baselines for previous consultations under Section 7 of the Endangered Species Act in the San Juan River Basin. Consequently, even with an Apache Nation subcontract, it may not be possible to meet the new San Juan River flow recommendations for the additional depletions needed for this Project.

The City of Gallup, as well as the Navajo Nation, need long-term, essentially permanent municipal water supplies. However, the Apache Nation may be more inclined to support a short-term contract. Any arrangement with the Apache Nation will need to consider an equitable renewal clause. Such a clause may be able to reference future water prices against some mutually agreed upon benchmarks. Even with these limitations, the Apache Nation water may provide a short-term “bridge,” allowing the Project to proceed until broader water rights settlement issues for the Navajo Nation can be resolved, or additional depletions are made available through the Recovery Program.

### **7.4 Navajo Indian Irrigation Project water**

The Navajo Indian Irrigation Project was authorized in 1962 by Public Law 87-483. This public law authorized the Secretary of the Interior to construct, operate, and maintain NIIP for the principal purpose of furnishing irrigation water to approximately 110,630 acres of land. NIIP consists of the initial land development, water distribution system, water delivery, roads, and other infrastructure. In 1970 the Navajo Nation created the Navajo Agricultural Products Industry (NAPI) to run the agricultural business venture and take responsibility for operating the NIIP facilities. The boundaries of NIIP are shown in Figure 2.1.

NIIP is approximately 60 percent complete with 64,000 acres developed. In 1999, NIIP diverted 193,100 acre-feet of water from Navajo Reservoir and depleted 129,571 acre-feet of San Juan River water. Based on an average unit depletion of 2.44 acre-feet per acre, at full build-out, with all of the Project acreage irrigated, NIIP will deplete approximately 270,000 acre-feet per year of San Juan River water. Based on the current overall Project irrigation efficiency, NIIP would divert approximately 337,500 acre-feet of water (*Navajo Indian Irrigation Project Biological Assessment*, June 11, 1999, Keller Bliesner Engineering and Ecosystems Research Institute Inc.).

NIIP has successfully consulted with the USFWS on approximately 270,000 acre-feet of depletion which according to the USFWS can be depleted without jeopardizing the endangered fish. However, NIIP was only able to acquire the water it needs to complete Blocks 9, 10, and 11 by shifting more than 16,000 acre-feet of baseline depletions away from the Hogback and Fruitland irrigation projects. Even so, NIIP’s depletions may include two types of water that may under certain circumstances be available for municipal use: unused NIIP water and forbearing the use of NIIP irrigation water. These options, which will need to overcome considerable legal and political hurdles, are described in the following sections.

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- Municipal use of unused NIIP Water

At current funding levels, it will take more than 18 years to complete NIIP. This completion date delays the time when NIIP can provide all of the benefits that are envisioned. A revised completion schedule to complete NIIP by the year 2009 has been proposed by Reclamation, NAPI and the BIA. The revised schedule assumes that the financial and environmental challenges can be addressed, enabling all 110,630 acres of land to be developed as soon as the year 2006. The drains, the system control and data acquisition facilities, and Gallegos Dam would be completed by the year 2009.

Consequently, there is a six to 18 year period during which unused NIIP water, which has undergone Section 7 Consultation, may be available. Sequencing the construction of NIIP with this Project may enable NIIP to realize some benefits from this water resource until it can be used for irrigation. However, several issues need to be addressed before this water can be used for municipal purposes.

The authorized purposes of the NIIP facilities include conveying water for municipal, domestic, and industrial uses, and for other beneficial purposes. The Secretary is authorized to provide capacity for municipal and industrial water supplies or miscellaneous purposes over and above the diversion requirements for irrigation of NIIP, but such additional capacity will not be constructed and no appropriation of funds for such construction will be made until contracts have been executed which provide satisfactory assurance of repayment of all costs properly allocated.

Even if the Navajo Nation is willing to convert unused NIIP water from irrigation uses to municipal uses, under the present contract the Secretary of the Interior is not authorized to deliver water for uses other than irrigation. NIIP's statutory authorization, and the Navajo Nation's contract with the Secretary of the Interior, allocate to NIIP an average annual diversion of 508,000 acre-feet of water per year from the San Juan River for the principal purpose of furnishing irrigation water to approximately 110,630 acres of land. It is presently unresolved whether (and how) NIIP irrigation water can be used for municipal and industrial purposes. Furthermore, the Secretary has no authority to contract for the delivery of any water from Navajo Reservoir which would impair the availability of water for the irrigation of 110,630 acres of Navajo Indian land.

In addition, if irrigation water is transferred away from any of the 110,630 acres, Navajo Dam and Reservoir may have separable costs allocated to NIIP which could become a repayment obligation. And, a portion of the NIIP capital costs associated with the idled acreage could also become a repayment obligation. Presumably these issues can be addressed through the Project's enabling legislation.

A more critical issue is that unused NIIP water is only temporarily available, perhaps for a six to 18 year period. The municipal demand, however, requires a nearly permanent supply. Committing this water temporarily to non-NIIP municipal water demand creates significant disincentives for the completion of NIIP, and it may eventually result in conflict between

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the irrigation and municipal uses. Even with these concerns, the unused NIIP water may be able to provide a short-term "bridge," allowing the Project to proceed until biological and water rights settlement issues can be resolved.

- A forbearance agreement for NIIP water

Another water supply option is for the Navajo Nation to enter into a forbearance agreement to provide water for municipal needs. Unlike the "unused" water described in the previous section, under a forbearance agreement NIIP would forbear the use of a specific volume of water that it could otherwise make use of for a designated period of time. This foregone use may come at the expense of not irrigating a specific number of acres. Based on an average depletion of 2.44 acre-feet per acre, the Gallup water supply would require idling or fallowing, approximately 3,000 acres and the Navajo demand would require approximately 10,000 acres.

Instead of idling acreage, it may be possible to change the proposed crop mix to include crops that require less water, or to under irrigate some of the irrigated crops in the current mix. However, these approaches have agronomic impacts on NIIP including lower revenue, fewer jobs, and greater risk of crop failure.

Another approach is to improve the overall irrigation efficiency at NIIP. Most, but not all, of the water diverted by NIIP is depleted directly by the crops. However, much of the reported irrigation inefficiency returns to the San Juan River (Keller-Bliesner, 1999). This portion of NIIP's diversion is not credited against NIIP's San Juan River depletions. However, some portion of the water diverted by NIIP is depleted by a variety of causes including evaporation in the canals and from the sprinklers. The State of New Mexico refers to these losses as incidental depletions. If improved irrigation technology can be deployed at NIIP, these incidental depletions may be reduced. Theoretically, reducing NIIP's overall depletions from 2.44 to 2.1 acre-feet per acre, or 11 percent, would result in a depletion saving that could provide water for the Navajo Gallup Project's entire municipal demand.

Some of this technology, such as improved sprinklers, is relatively straightforward. Other techniques, such as improving the match between water application and climate conditions, require extremely vigilant management. Still other techniques, such as adding amendments to the soil to reduce infiltration losses, are still experimental. All of these techniques hold promise for reducing NIIP's depletions. Due to the expense of moving water from Navajo Reservoir to the NIIP fields, reducing these depletions offers some economic benefit to NIIP. However, none of these methods are inexpensive, and they all have agronomic impact. And, under its current Biological Opinion, NIIP is already committed to improving its overall efficiency by 10 percent, from 55 percent to 65 percent. Even so, eventually, this approach may result in water that can be utilized for a long-term municipal water supply. However, the potential promise must be weighed against the unknown agronomic costs. The trade offs between increasing efficiency and impacting NIIP should be investigated by the Project participants.

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If NIIP water is converted from an irrigation to a municipal use, a repayment obligation may exist for costs against the Indian owned land that is idled. In addition there may be conflicts between state and federal law. From the State of New Mexico's perspective, agricultural water rights can only be transferred from irrigated land if the irrigated land is fallowed or dry farmed. These water rights only include the consumptive use of the crop, not the incidental losses. Since there is no inherent right to the incidental losses, reducing them does not "free up" water that can be transferred between water users. From the irrigators' perspective, the main incentives for conserving water in this manner are to lower pumping costs and to make more water available to the crops during times of shortage.

In conclusion, although NIIP has a relatively large amount of water that has undergone Section 7 Consultation and other environmental compliance, forbearance agreements for NIIP water will not be simple or inexpensive. These agreements would need to be developed around the current contractual constraints and without creating disincentives to the completion of NIIP. However, this option may provide a bridge until broader water issues are resolved.

### **7.5 Navajo non-NIIP water**

One option to provide a water supply for the Navajo-Gallup Water Supply Project is for the Navajo Nation to assume the responsibility for guaranteeing depletions out of water supplies allocated to the Navajo Nation, either through existing statutes or an eventual settlement of the Navajo Nation's federally reserved water claims. Such an approach saves the City of Gallup from having to deal directly with the San Juan Basin interests, and provides the Navajo Nation the opportunity to redistribute its water resources consistent with its internal policies.

The primary disadvantage with this approach is that the Navajo Nation has very limited non-NIIP water in the San Juan River Basin that has a quantified water right and that could be leased to Gallup. For instance, as a result of its Section 7 Consultation with the USFWS, unused water from the Shiprock irrigation projects has already been temporarily utilized by NIIP to ensure that NIIP's construction can continue. When this depletion is restored to the Shiprock irrigation projects, it may under certain circumstances in the future, be available for the Navajo-Gallup Project. However, utilizing Navajo Nation water to meet non-Navajo municipal demands raises issues that will need to be addressed.

The Navajo Nation is concerned that using the non-NIIP water for the Navajo-Gallup Project may hinder other future Navajo water development. Even if Navajo non-NIIP water becomes available under favorable terms, it will not necessarily be less expensive than acquiring private water rights. Consequently, in the short-term, this non-NIIP water option may not meet the City of Gallup's need to secure a long-term water supply.

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### 7.6 Central Arizona Project or other Main-stem Colorado River water

The 1988 Hydrologic Determination identified 7,000 acre-feet of water in the Upper Basin of Arizona for the Arizona portion of this Project. However, the most recent Reclamation Consumptive Use and Loss Report for that area does not identify depletions for this Project. Water allocated to the Lower Colorado River Basin may fit most readily into existing Compact allocations for use in Lower Basin areas like Window Rock, Arizona. For instance, the Navajo Nation is in the process of adjudicating its Little Colorado River water rights. Through that adjudication a modest amount of Central Arizona Project water may be available to address on-reservation needs in the Window Rock Subarea. However, many of the Central Arizona Water Conservancy District constituents are opposed to water leaving that district's service area. Other scenarios are to acquire non Central Arizona Project main-stem water or lower priority non-municipal water.

Procuring Central Arizona Project water or other main-stem Colorado River water may be expensive. It will also require an adequate accounting system to ensure that system gains and losses are accurately calculated, and that other issues such as lost power revenues and increased salinity are addressed. Reclamation has initiated work on an *Environmental Impact Statement on the Allocation of Water Supply and Expected Long-term Contract Execution for the CAP*. The results of that study may have a direct impact on this water supply option.

### 7.7 Conclusions

All of the water supply options pose difficult challenges. One option for a water supply is the outright acquisition of water rights within the environmental baseline from a willing seller. Unfortunately, this option is, in the short-term, the most expensive. Depending on the specific conditions, acquiring water options may be less expensive. The City of Gallup can approach either the Navajo Nation or the Jicarilla Apache Nation for a lease. However, the longer the lease, the more expensive the terms will become.

Even though the Navajo Nation has the paramount water right in the San Juan River Basin, that right has not been fully quantified. Consequently, the Navajo Nation shares some of the same water supply obstacles as the City of Gallup in meeting its long-term water supply needs. Until there is a fully quantified water right, the Navajo Nation can convert NIIP irrigation water to municipal use, acquire water from willing sellers or willing leasers, or join the City in pursuing a new Secretarial water contract. Such a contract could secure the Project water until the interpretation of the compacts and the Navajo Nation's water rights are resolved. With respect to compliance with the Endangered Species Act, it may be possible to work with various entities that have water in the currently described environmental baseline to ensure that specific depletions will be scheduled in a manner that provides an opportunity for this Project to deplete water during an interim period.

The City and the Navajo Nation have approached the Commissioner of Reclamation for two new water contracts. These Secretarial contracts will require the tacit support of the Indian tribes in the basin. For instance, the water that may be available for the City through their proposed contract may

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be water that would otherwise be included in a Navajo water rights settlement. Or, it may affect existing Navajo or Apache Secretarial contracts. Although a Secretarial contract does not provide a permanent guarantee of water, even under the most restrictive interpretation of the compacts, the full water supply should be available at least through the year 2060. According to the interpretation by the State of New Mexico, the supply should be available for a much longer period. A contract with the Secretary may also result in the smallest short-term financial burden to the City and the Navajo Nation.