EXECUTIVE SUMMARY

Introduction
Purpose and Need
The Navajo-Gallup Water Supply Project
Planning Process
Alternative Screening Process
Preferred Alternative
Water Supply
Economic and Financial Analysis
Affected Environment and Environmental Consequences
Consultation and Coordination

INTRODUCTION

The Bureau of Reclamation (Reclamation) has developed this planning report and draft environmental impact statement (PR/DEIS) pursuant to Public Law 92-199 and the general authority to conduct water resources planning under the Reclamation Act of 1902 and all acts amendatory thereof and supplementary thereto. This document was undertaken to provide a discussion on (1) various ways to provide a municipal and industrial (M&I) water supply to the Navajo Nation, city of Gallup, and the Jicarilla Apache Nation and (2) the associated potential environmental impacts and costs of such an endeavor, should it be undertaken. Reclamation, however, does not have the current substantive or budgetary authorization that is required to construct, operate, and maintain any proposed facilities discussed in this PR/DEIS. It will take an act of Congress to provide such authority. In addition, Reclamation takes no position on whether such a project should be authorized. The indication of a preferred alternative is solely to meet the requirements of the National Environmental Policy Act (NEPA) and is not an indication that a particular alternative should be pursued since, as noted earlier, there is no project authorization that would allow Reclamation to commence this project.

Finally, we are aware that the Navajo Nation and the State of New Mexico have reached an agreement concerning the Navajo Nation's water rights in the San Juan River Basin in New Mexico and that a part of the proposed settlement is the construction, operation, and maintenance of the Navajo-Gallup Water Supply Project (proposed project). We wish to be clear that neither Reclamation, the Department of the Interior, nor the Administration has taken a position on the San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement executed between the Navajo Nation and the State of New Mexico and that nothing herein is any indication of any position regarding the overall settlement. The cost analysis contained in this PR/DEIS is based on an appraisal

level of analysis. As part of Reclamation's efforts to attain greater transparency and accountability with regards to its engineering analyses, the cost estimate is being re-priced. This means that instead of updating the 2005 cost estimates using engineering cost indices, the components of the proposed project will be individually re-priced in order to gain greater confidence in the estimate. Once the re-pricing is completed, which we anticipate to occur during the 90-day public comment period, Reclamation will update the PR/DEIS through an addendum or potentially the use of errata sheets.

Reclamation historically supports projects for construction after a feasibility report is completed, which includes a feasibility-level cost estimate. This appraisal-level cost estimate does not meet that requirement. Additional analysis, detail, and updating of the appraisal-level cost estimates presented in this draft report are needed before project construction authorization can be supported. Failure to complete this additional effort may result in reliance on a cost estimate for the project that is not sufficient to characterize the expected project cost. The appraisal-level design must be upgraded to feasibility level before Reclamation would begin construction. The cost of, and time for, completing this additional work would be substantial.

PURPOSE AND NEED

The proposed project is to provide a long-term (year 2040) supply, treatment, and transmission of M&I water to the Navajo Nation, the Jicarilla Apache Nation, and the city of Gallup, New Mexico.

A long-term sustainable water supply is needed for the area to support current and future populations. The proposed project would be designed to serve a future population of approximately 250,000 people by the year 2040. Existing groundwater supplies are dwindling, have limited capacity, and are of poor quality. More than 40 percent of Navajo households rely on water hauling to meet daily water needs. The city of Gallup's groundwater levels have dropped approximately 200 feet over the past 10 years, and the supply is not expected to meet current water demands within the decade. The Jicarilla Apache people are currently not able to live and work outside the Town of Dulce on the reservation because of a lack of water supply.

THE NAVAJO-GALLUP WATER SUPPLY PROJECT

The proposed project would convey a reliable M&I water supply to the eastern section of the Navajo Nation, the southwestern part of the Jicarilla Apache Nation, and the city of

Gallup via diversions from the San Juan River in northern New Mexico. The Navajo Nation, city of Gallup, and the Jicarilla Apache Nation are part of the project Steering Committee that assisted in preparation of portions of this document.

Navajo Nation communities and the city of Gallup rely on a rapidly depleting groundwater supply that is inadequate to meet present needs and anticipated growth. Other water sources are needed to meet current and future M&I demands of more than 43 Navajo chapters, including the communities of Fort Defiance and Window Rock in Arizona, the city of Gallup, and the Teepee Junction area of the Jicarilla Apache Nation.

The proposed project would deplete approximately 35,893 acre–feet of water annually from the San Juan River (Navajo Nation – 27,193 acre-feet, Jicarilla Apache Nation – 1,200 acre-feet, city of Gallup – 7,500 acre-feet). Based on the expected populations in the year 2040, the proposed project would serve approximately 203,000 people in 43 chapters in the Navajo Nation, 1,300 people in the Jicarilla Apache Nation, and approximately 47,000 people in the city of Gallup.

PLANNING PROCESS

Project planning has been intermittent over the past 40 years. Drawing from past analysis and projecting water needs and environmental conditions into the next 40 years have provided the basis for the planning work described in this report.

A project Steering Committee included representatives from the Navajo and Jicarilla Apache Nations, city of Gallup, State of New Mexico, Bureau of Indian Affairs (BIA), Indian Health Service (IHS), Navajo Tribal Utility Authority (NTUA), Northwest New Mexico Council of Governments, and Reclamation. The Steering Committee was formed in the early 1990s to guide the direction of this proposed project, provide technical analysis, support public involvement, provide political background, and conduct overall project coordination. Reclamation has provided planning, engineering, and environmental expertise to this committee.

Funding for project planning has mostly been through annual congressional write-in funds and cost sharing by the Navajo and Jicarilla Apache Nations and the city of Gallup. The level of analysis—appraisal verses feasibility level work—has been tailored to stay within the funds available.

To expedite planning and environmental steps, it was decided that this document would be a combined PR/DEIS. This document complies with the *Economic Principles and Guidelines for Water and Related Land Resources Implementation Studies* (*Principles and Guidelines*) and NEPA.

The NEPA process began with publishing of a Notice of Intent in the *Federal Register* on March 27, 2000. Scoping meetings were held at five locations in April and May 2000: Crownpoint, Gallup, Shiprock, and Farmington, New Mexico and Saint Michaels, Arizona. The meetings were moderately attended, with a range of 15 to 50 people per meeting. The most common comments from these meetings were that there is a great need for a reliable M&I water supply throughout the proposed project area, that existing groundwater is in limited supply, and that the water is usually of poor quality.

The Navajo and Jicarilla Apache Nations and the city of Gallup provided their current and projected populations and associated M&I water needs to year 2040. An estimated water use rate of 160 gallons per day per person was used for the proposed project design as requested by the Navajo and Jicarilla Apache Nations.[1] It was assumed that available groundwater would continue to be used and that project water would provide the remaining need.

The Steering Committee identified possible alternatives to meet current and future water needs. It was determined in all past studies, as well as in this study, that the San Juan River was the only sustainable source of water. Therefore, all the viable alternatives involved treating river water for use throughout the proposed project area.

Water conservation is currently well established in the proposed project area, and although additional conservation would reduce water use, it would not be enough to provide for future water needs. It is assumed that water conservation will continue with all project alternatives considered. Six physically different, viable alternatives were identified to bring San Juan River water to the proposed project area. These alternatives all would provide the same quantity of treated water to the same delivery locations. The variables included where the water would be diverted and the location of the alternatives' facilities. Maximizing the use of existing facilities and information were important factors in the design of the alternatives. All alternatives use Navajo Reservoir and Navajo Indian Irrigation Project (NIIP) facilities to some extent and have the same Gallup Regional System supplying water to the city of Gallup and surrounding Navajo chapters.

Four of the alternatives obtain all of the water from Navajo Reservoir and the NIIP facilities:

- NIIP Moncisco Alternative
- NIIP Coury Lateral Alternative
- NIIP Cutter Alternative
- NIIP Amarillo Alternative

[1] The city of Gallup uses 160 gallons per capita per day (gpcd) for current and future demand projections. The Navajo Tribal Utility Authority's current average water use rate is 100 gpcd.

The other two alternatives have a San Juan River diversion in addition to the diversion from the NIIP:

- San Juan River Public Service Company of New Mexico (SJRPNM) Alternative
- San River Infiltration Alternative

Table S-1 shows major features for each alternative.

Table S-1.—General summary of components

Component	NIIP Moncisco Alternative	NIIP Coury Lateral Alternative	NIIP Cutter Alternative	NIIP Amarillo Alternative	SJRPNM Alternative	San Juan River Infiltration Alternative
River intake					1	
Infiltration wells						26 (year 2040)
River pumping plant					1	
Treatment plants	1	1	1	2	2	2
Forebay tanks	12	8	11	17	19	20
Pumping plants	12	8	11	17	20	20
Regulating tanks	5	5	5	6	5	5
Community storage tanks	20	20	20	20	20	20
Feet of pipeline	1,361,954	1,389,378	1,466,248	1,286,082	1,237,792	1,189,145
Miles of pipeline	258	263	278	244	234	225
Gallup Regional System						
Pumping plants	4	4	4	4	4	4
Community storage tanks	5	5	5	5	5	5
Feet of pipeline	171,923	171,923	171,923	171,923	171,923	171,923
Miles of pipeline	32.6	32.6	32.6	32.6	32.6	32.6

ALTERNATIVE SCREENING PROCESS

The six viable alternatives were compared using nine factors derived from the four accounts described in the *Principles and Guidelines*. The SJRPNM Alternative surfaced

as the highest-ranked, or best, alternative considering all the factors. When considering only environmental factors, the SJRPNM Alternative also ranked the highest or least environmentally impacting. When considering only capital and annual operation, maintenance, and replacement (OM&R) costs as measured by present worth, the SJRPNM Alternative was least costly assuming Colorado River Storage Project (CRSP) power rates. When locally available power rates from the NTUA were used, the NIIP Amarillo Alternative was the least costly.

A detailed analysis of environmental impacts associated with the SJRPNM and NIIP Amarillo Alternatives and the No Action Alternative was completed in the environmental impact statement portion of this document. This analysis concluded that the SJRPNM Alternative is the least environmentally impacting alternative in most resources factors.

The SJRPNM Alternative has been identified as the preferred alternative considering all the factors and resources evaluated.

PREFERRED ALTERNATIVE

The SJRPNM Alternative would divert water from the San Juan River downstream of Fruitland, New Mexico, just above the existing Public Service Company of New Mexico (PNM) diversion structure, treat the water to drinking water standards, and then deliver it along Highway N36 and south to Navajo chapters along U.S. Highway 491. Water would be provided to Window Rock, Arizona, and Crownpoint, New Mexico, through sublaterals. Water delivery would continue to the Navajo Nation capital of Window Rock, Arizona, and to the city of Gallup, New Mexico. Another diversion would originate at Cutter Reservoir, an existing regulating reservoir on the NIIP, and would convey water to the eastern portion of the Navajo and Jicarilla Apache Nations.

The construction cost of this alternative is estimated to be $716,100,000 (Reclamation, March 2005 cost estimate, table S-2)

The annual OM&R costs for the preferred alternative are projected as shown in table S-3.

The appraisal-level design and cost estimate was done by Reclamation's Technical Service Center. The design and cost estimate was peer reviewed by an independent engineering consulting firm, Boyle Engineering. Revisions were made to the estimate based on the review, and the contingency factor was increased. This estimate represents what this project could be constructed for at a January 2005 price level. This assumes that no unknown factors were encountered or changes made.

Table S-2.—Preferred alternative cost estimate

Feature	Reclamation March 2005[1] cost estimate ($)
Pipelines	154,504,770
Pumping plants	32,270,000
Water treatment plants	46,541,780
Tanks and air chambers	67,730,000
Transmission lines	21,761,661
Turnout structure	1,778,490
Gallup Regional System	21,000,000
Subtotal	345,586,701
Mobilization 5%	17,500,000
Unlisted items 10%	36,913,299
Subtotal	400,000,000
Contingencies 25%	100,000,000
Subtotal (field costs)	500,000,000
Noncontract costs 30%	150,000,000
Subtotal	650,000,000
New Mexico taxes on field costs (estimated at 6%)	30,000,000
Navajo Nation taxes on field costs excluding Gallup Regional System field cost of $30 million (estimated at 3%)	14,100,000
Subtotal	694,100,000
Land, relocation, and damage[2]	7,000,000
Cultural resource mitigation	11,000,000
Environmental mitigation	4,000,000
Total project cost	716,100,000

[1] The cost analysis contained in this PR/DEIS is based on an appraisal level of analysis. As part of Reclamation's efforts to attain greater transparency and accountability with regards to its engineering analyses, the cost estimate is being re-priced. This means that instead of updating the 2005 cost estimates using engineering cost indices, the components of the proposed project will be individually re-priced in order to gain greater confidence in the estimate. Once the re-pricing is completed, which we anticipate to occur during the 90-day public comment period, Reclamation will update the PR/DEIS through an addendum or potentially the use of errata sheets.

[2] The estimate includes rights-of-way (ROW) costs for the San Juan Treatment Plant only. Should it be determined that ROW for the rest of the features needs to be included in the project costs, an additional $30–60 million should be added.

Table S-3.—Yearly OM&R costs ($) (SJRPNM Alternative)

Item	San Juan Lateral	Cutter Lateral	Gallup Regional System
NTUA power costs (relift pumping plant)	4,962,000	597,000	82,000
CRSP power costs (relift pumping plant)	1,678,000	202,000	28,000
NTUA power costs (booster pumping plant)	215,000	35,000	
CRSP power costs (booster pumping plant)	73,000	12,000	—
Relift pumping plant OM&R	1,796,000	693,000	359,000
Booster pumping plant OM&R	73,000	14,000	
Canal OM&R	—	32,000	—
NTUA power cost water treatment plant	511,000	63,000	—
CRSP power cost water treatment plant	171,000	20,000	—
Water treatment OM&R	2,602,157	$1,038,750	—
NTUA water treatment, miscellaneous 10%	311,000	$110,000	
CRSP water treatment, miscellaneous 10%	277,000	$106,000	
Power transmission OM&R	630,000	Included in San Juan Lateral	
Pipeline OM&R	619,000	153,000	32,000
Total NTUA	11,719,157	2,735,750	473,000
Total CRSP	7,919,157	2,270,750	419,000

Notes: (1) CRSP rate is 9.5 mils per kilowatthour and demand charge of $4.04 per kilowatt per month.
(2) CRSP total project power cost is $2,184,000.
(3) NTUA rate is 20 mils per kilowatthour and demand charge of $16.50 per kilowatt per month.
(4) NTUA total project power cost is $6,465,000.
(5) Cost reflects March 2005 project cost estimate with January 2005 price level.

WATER SUPPLY

Water for the Navajo Nation's use in New Mexico would be supplied from the State of New Mexico's Upper Basin apportionment, and water for the Navajo Nation use in Arizona would be supplied from the consumptive use apportionments made to the State of Arizona by compact or decree. Navajo Nation uses by the project in both States must

be serviced through long-term water supply contracts between the Secretary of the Interior (Secretary) and the Navajo Nation. The Secretary would make the water available for contract deliveries under existing New Mexico permits that the Secretary holds.

Jicarilla Apache Nation water would come from Navajo Reservoir as part of the water obtained through the Jicarilla Apache Nation Water Right Settlement. The Jicarilla Apache Nation has an existing water supply contract for this water. It is anticipated that the city of Gallup would contract through the Jicarilla Apache Nation and/or Navajo Nation for its water supply. A long-term water supply subcontract among the Jicarilla Apache Nation and/or Navajo Nation, the city of Gallup, and Reclamation would be needed to finalize this arrangement.

ECONOMIC AND FINANCIAL ANALYSIS

The economic analysis compares project benefits measured by willingness to pay and cost of alternative source of water to project cost. The benefit to cost ratio is 1.15, which represents a beneficial use of national resources. The financial analysis addresses the cost of project water delivered to the users. The levelized cost of project water to the user is estimated to be $6.98 per thousand gallons. This compares with $5.56 per thousand gallons for the Lewis and Clark Project and $8.32 per thousand gallons for the Rocky Boy's/North Central Montana Regional System, both of which are authorized Federal rural water projects.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Positive impacts would occur from implementing the preferred alternative. The average flow in the San Juan River would be increased by approximately 5 cubic feet per second between Navajo Dam and the SJRPNM diversion. This increase would provide additional dilution for water quality improvement and would improve the habitat for fish (including the tail water trout fishery). Indian Trust Assets could be put to use by providing the Navajo and Jicarilla Apache Nations a water supply system. The socioeconomic resources would be improved by providing up to 650 jobs during construction and boosting the income to the region. An M&I water supply would help boost the overall economic growth to the region.

Negative impacts associated with construction of such a large project are unavoidable. They consist of a permanent loss of 43 acres of vegetation and associated wildlife habitat,

including 1.1 acres of permanent loss of wetlands. There would be potential entrainment losses at the PNM diversion for flannel mouth sucker and speckled dace larva. Forty-three acres of private and Navajo Nation lands would be converted to project use by the alternative. Six families who currently live on the private land would be relocated. During construction there would be a temporary impact to grazing on Navajo Nation lands.

Special status species would be impacted due to the potential entrainment losses at the SJRPNM diversion for Colorado pikeminnow, razorback sucker, and bluehead sucker. Potential negative impacts would occur to the bald eagle and Southwestern willow flycatcher along the San Juan River. There are also potential negative impacts to the beautiful gilia and Mesa Verde cactus along the pipeline alignment.

Cultural resources could be potentially adversely impacted since there are an estimated 104 cultural resource sites within the area of potential effects. Approximately 90 sites could require treatment.

Mitigation measures addressing these potential impacts have been developed and are included in the preferred alternative design and cost estimate.

CONSULTATION AND COORDINATION

Reclamation, as the lead agency responsible for preparation of this PR/DEIS, used an interdisciplinary team to prepare the document in addition to representatives from the Navajo and Jicarilla Apache Nations and city of Gallup staff and consultants. In addition, the BIA, IHS, NTUA, State of New Mexico, and the Northwest New Mexico Council of Governments participated with the interdisciplinary team in preparing this document.

Consultation under the Endangered Species Act (ESA) is ongoing. Reclamation and the U.S. Fish and Wildlife Service (Service) have consulted, both formally and informally, regarding potential impacts to special status species as a result of potential development and operation of the preferred alternative.

A biological assessment was developed by Reclamation, and the Service issued a draft biological opinion under the ESA. In the draft biological opinion, the Service concluded that the proposed project, as described in the biological assessment and in this PR/DEIS, may affect, and is likely to adversely affect, the Colorado pikeminnow, razorback sucker, and Mesa Verde cactus. The draft biological opinion indicates that the final opinion would contain an incidental take permit for Colorado pikeminnow and razorback sucker larvae that may become entrained as a result of the diversion from the San Juan River.

Mesa Verde cactus may be directly taken during the construction of project features. The Service concurred that the proposed project may affect, but is not likely to adversely affect, the Southwestern willow flycatcher and bald eagle.

The draft biological opinion incorporates a Navajo Nation depletion guarantee, which limits new depletion associated with the project to 5,271 acre-feet at full development (see chapter VI and volume II, appendix C). The opinion concludes that the 5,271 acre-feet of new depletions associated with the proposed project would not adversely impact the Colorado pikeminnow or razorback sucker. However, because larval fish may be lost due to the project diversions, the fish would be adversely affected. The opinion identifies the San Juan River Basin Recovery Implementation Program as the reasonable and prudent measure to reduce incidental take of Colorado pikeminnow and razorback sucker and identifies conservation recommendations to reduce the direct take of Mesa Verde cactus. The opinion also states that if re-initiation is required, the Service will follow the procedures regarding re-initiation of consultation pursuant to the "Principles for Conducting Endangered Species Act Section 7 Consultations on Water Development and Water Management Activities Affecting Endangered Fish Species in the San Juan River Basin." Results of any additional consultation will be included in the final biological opinion and will be incorporated into the planning report and final environmental impact statement.

A Planning Aid Memorandum and draft Fish and Wildlife Coordination Act report have also been completed by the Service and the recommendations included, where appropriate, in the preferred alternative plan.