



CONTENTS

	Page
Chapter I – Introduction	
Purpose of and Need for the Proposed Project	I-1
The Proposed Project	I-1
Scope.....	I-3
The Proposed Project Area	I-4
Navajo Nation	I-4
Jicarilla Apache Nation.....	I-4
City of Gallup	I-4
Proposed Project Authorization, Related Agreements, and Resolutions.....	I-5
Reclamation	I-5
Water Resource Development Strategy of the Navajo Nation	I-5
City of Gallup and the Navajo Nation	I-6
Upper Colorado River Commission.....	I-6
State of New Mexico/Navajo Nation Negotiations	I-9
Jicarilla Apache Tribal Council Resolution(s).....	I-9
Cooperating Agencies, Public Involvement, and Scoping.....	I-10
Previous Studies.....	I-10
Other Projects and Actions in the San Juan River Basin.....	I-11
Navajo Indian Irrigation Project	I-11
San Juan River Basin Recovery Implementation Program.....	I-12
Animas-La Plata Project	I-14
Navajo Reservoir Operations (Navajo Unit of the Colorado River Storage Project).....	I-15
San Juan-Chama Project	I-15
Other Related Actions.....	I-15
Water Rights Background.....	I-16
Indian Water Rights	I-16
Non-Indian Water Rights.....	I-17
Responsibilities and Compliance.....	I-18
Environmental.....	I-18
Cultural Preservation	I-18
American Indian.....	I-18
Other	I-19
Document Review.....	I-19
Document Organization.....	I-20

	Page
Chapter II – Need for Action	
Introduction.....	II-1
Navajo Nation and Gallup, New Mexico – Problem Identification.....	II-2
Navajo Nation	II-2
City of Gallup	II-2
Navajo Nation and Gallup, New Mexico – Problem Quantification	II-3
Population Projections	II-3
Water Resource.....	II-3
Water Infrastructure	II-11
City of Gallup	II-11
Jicarilla Apache Nation – Problem Identification.....	II-12
Jicarilla Apache Nation – Problem Quantification	II-13
Water Demand	II-14
Chapter III – Opportunities/Resources and Constraints	
Introduction.....	III-1
Proposed Project Water Opportunities/Resources and Issues	III-2
Proposed Project Water Supply in New Mexico	III-2
Acquisition of Private Water Rights	III-2
A San Juan River Water Contract with the U.S Department of the Interior.....	III-3
Contract Water from the Jicarilla Apache Nation.....	III-6
Navajo Indian Irrigation Project Water.....	III-7
Navajo Nation Non-NIIP Water	III-8
Proposed Project Water Supply in Arizona	III-9
Central Arizona Project or Other Main Stem Arizona Lower Basin Colorado River Water.....	III-9
Arizona Upper Colorado River Basin Water	III-9
Navajo Nation	III-10
Existing Opportunities/Resources.....	III-10
Constraints	III-10
Jicarilla Apache Nation.....	III-12
Existing Opportunities/Resources.....	III-12
Constraints	III-13
City of Gallup	III-13
Existing Opportunities/Resources.....	III-13
Constraints	III-16
Chapter IV – Alternatives	
Introduction.....	IV-1
Plan Formulation Process	IV-2
The No Action Alternative.....	IV-3

	Page
Chapter IV – Alternatives (continued)	
Nonstructural Alternatives	IV-4
Water Conservation	IV-4
Water Re-Use.....	IV-5
Structural Alternatives	IV-5
Introduction.....	IV-5
Basic Design Considerations	IV-6
Conjunctive Use of Groundwater and Aquifer Storage	IV-7
Delivery Data	IV-8
Commonalities of the Structural Alternatives.....	IV-9
Surface Water Diversions	IV-11
NIIP Alternatives	IV-11
San Juan River Alternatives.....	IV-11
Description of the Alternatives	IV-13
NIIP Moncisco Alternative	IV-13
NIIP Cutter Alternative.....	IV-14
NIIP Coury Lateral Alternative	IV-14
NIIP Amarillo Alternative	IV-15
SJRPNM Alternative	IV-15
San Juan River Infiltration Alternative	IV-16
Overall Operational Configuration	IV-16
Other Alternative Cost Attributes	IV-18
Land, Relocations, and Damages.....	IV-18
Environmental Mitigation.....	IV-19
Cultural Resources	IV-19
Screening Process	IV-19
The Principles and Guidelines	IV-20
The Four Tests of Viability.....	IV-20
The Four Accounts.....	IV-21
Comparative Total Costs of the Alternatives.....	IV-21
Alternatives Comparison and Weighting.....	IV-23
Comparison of Alternatives by All Factors	IV-24
Alternatives Considered but Eliminated	IV-27
Nonstructural Alternatives Eliminated	IV-27
Structural Alternatives Eliminated.....	IV-28
Preferred Alternative Selection.....	IV-29
Chapter V – Affected Environment and Environmental Consequences	
Introduction.....	V-1
Setting	V-2
Navajo Reservoir Operations	V-3

	Page
Chapter V – Affected Environment and Environmental Consequences (continued)	
Affected Resources	V-3
Water Uses and Resources.....	V-5
Water Uses and Resources – Affected Environment.....	V-5
Water Uses and Resources – Methodology	V-13
Water Uses and Resources – Impact Indicators.....	V-13
Water Uses and Resources – Impacts Analysis	V-14
Water Uses and Resources – Mitigation Measures.....	V-17
Water Resources and Uses – Summary of Impacts	V-18
Indian Trust Assets	V-18
Indian Trust Assets – Affected Environment.....	V-19
Indian Trust Assets – Methodology	V-30
Indian Trust Assets – Impacts Analysis.....	V-30
Indian Trust Assets – Mitigation Measures	V-32
Indian Trust Assets – Summary of Impacts	V-32
Water Quality.....	V-32
Water Quality – Affected Environment.....	V-33
Water Quality – Methodology	V-37
Water Quality – Impacts Analysis	V-39
Water Quality – Mitigation Measures.....	V-41
Water Quality – Summary of Impacts	V-42
Vegetation Resources.....	V-42
Vegetation Resources – Affected Environment.....	V-43
Vegetation Resources – Methodology	V-45
Vegetation Resources – Impacts Analysis.....	V-46
Vegetation Resources – Mitigation Measures	V-49
Vegetation Resources – Summary of Impacts	V-50
Wildlife Resources.....	V-51
Wildlife Resources – Affected Environment.....	V-51
Wildlife Resources – Methodology	V-53
Wildlife Resources – Impacts Analysis	V-53
Wildlife Resources – Mitigation Measures.....	V-56
Wildlife Resources – Summary of Impacts	V-56
Aquatic Resources	V-57
Aquatic Resources – Affected Environment.....	V-58
Aquatic Resources – Methodology	V-66
Aquatic Resources – Impacts Analysis.....	V-67
Aquatic Resources – Mitigation Measures	V-71
Aquatic Resources – Summary of Impacts	V-71
Special Status Species.....	V-71
Special Status Species – Affected Environment.....	V-72

	Page
Chapter V – Affected Environment and Environmental Consequences (continued)	
Special Status Species – Methodology	V-84
Special Status Species – Impacts Analysis	V-84
Special Status Species – Mitigation Measures.....	V-88
Special Status Species – Summary of Impacts	V-89
Recreation	V-89
Recreation – Affected Environment	V-90
Recreation – Methodology.....	V-95
Recreation – Impacts Analysis.....	V-96
Recreation – Mitigation Measures	V-100
Recreation – Summary of Impacts.....	V-100
Land Use	V-100
Land Use – Affected Environment	V-101
Land Use – Methodology.....	V-104
Land Use – Impacts Analysis	V-104
Land Use – Mitigation Measures	V-107
Land Use – Summary of Impacts.....	V-107
Hazardous Materials	V-108
Hazardous Materials – Affected Environment	V-108
Hazardous Materials – Methodology.....	V-109
Hazardous Materials – Impacts Analysis.....	V-109
Hazardous Materials – Mitigation Measures	V-110
Hazardous Materials – Summary of Impacts.....	V-110
Soils.....	V-110
Soils – Affected Environment.....	V-111
Soils – Methodology	V-111
Soils – Impacts Analysis.....	V-111
Soils – Mitigation Measures	V-114
Soils – Summary of Impacts.....	V-115
Geology.....	V-115
Geology – Affected Environment.....	V-116
Geology – Impacts Analysis	V-116
Geology – Mitigation Measures.....	V-116
Paleontologic Resources	V-116
Paleontologic Resources – Affected Environment	V-119
Paleontologic Resources – Methodology.....	V-120
Paleontologic Resources – Impacts Analysis	V-120
Paleontologic Resources – Mitigation Measures	V-120
Paleontologic Resources – Summary of Impacts.....	V-121
Air Quality and Noise	V-121
Air Quality and Noise – Affected Environment	V-122

	Page
Chapter V – Affected Environment and Environmental Consequences (continued)	
Air Quality and Noise – Methodology.....	V-123
Air Quality and Noise – Impacts Analysis	V-124
Air Quality and Noise – Mitigation Measures.....	V-125
Air Quality and Noise – Summary of Impacts.....	V-125
Socioeconomics	V-125
Socioeconomics – Affected Environment	V-126
Socioeconomics – Methodology.....	V-127
Socioeconomics – Impacts Analysis.....	V-127
Socioeconomics – Mitigation Measures	V-129
Socioeconomics – Summary of Impacts.....	V-129
Environmental Justice	V-130
Environmental Justice – Introduction	V-130
Environmental Justice – Affected Environment	V-130
Environmental Justice – Methodology	V-131
Environmental Justice – Impacts Analysis	V-131
Environmental Justice – Mitigation Measures.....	V-131
Environmental Justice – Summary of Impacts	V-131
Cultural Resources	V-131
Cultural Resources – Introduction	V-132
Cultural Resources – Affected Environment	V-132
Cultural Resources – Methodology	V-135
Cultural Resources – Impacts Analysis	V-136
Cultural Resources – Mitigation Measures	V-137
Cultural Resources – Summary of Impacts	V-139
Biodiversity and Sustainability	V-139
Other Impacts Considerations.....	V-141
Indirect Effects.....	V-141
Connected, Cumulative, and Related Actions	V-142
Navajo Reservoir Operations and the San Juan River Basin	
Recovery Implementation Program	V-142
Animas-La Plata Project	V-143
Navajo Indian Irrigation Project and San Juan River	
Irrigation Projects.....	V-144
Desert Rock Energy Project.....	V-145
Jicarilla Apache Nation Navajo River Water Supply Project.....	V-146
Cumulative Impacts	V-147
Operation of Navajo Dam	V-147
Animas-La Plata Project	V-149
Navajo Indian Irrigation Project	V-149
Desert Rock Energy Project.....	V-149
Jicarilla Apache Nation Navajo River Water Supply Project	V-149

	Page
Chapter V – Affected Environment and Environmental Consequences (continued)	
San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement.....	V-150
Relationship between Short-Term Uses and Long-Term Productivity.....	V-150
Long-Term Benefits and Productivity	V-151
Short-Term Uses of Resources	V-151
Irreversible and Irretrievable Commitments of Resources	V-152
Conclusions and Summary of Impacts	V-153
Chapter VI – Environmental Commitments and Mitigation Measures	
Introduction.....	VI-1
General Commitments	VI-1
Navajo Reservoir Operations	VI-2
Water Uses and Resources Commitments	VI-2
Indian Trust Assets Commitments.....	VI-3
Water Quality Commitments	VI-3
Vegetation Commitments	VI-3
Wildlife Commitments.....	VI-4
Aquatic Resources Commitments.....	VI-5
Special Status Species Commitments	VI-5
Recreation Commitments.....	VI-6
Land Use Commitments	VI-6
Hazardous Materials Commitments.....	VI-6
Soils Commitments.....	VI-6
Geology Commitments	VI-7
Paleontologic Commitments.....	VI-7
Air Quality and Noise Commitments	VI-7
Socioeconomics Commitments.....	VI-7
Environmental Justice Commitments	VI-7
Cultural Resources Commitments	VI-7
Chapter VII – Consultation and Coordination	
Introduction.....	VII-1
Scoping Meetings.....	VII-1
Consultation and Coordination Process	VII-3
Coordination Activities	VII-3
Consultation Activities.....	VII-3
U.S. Fish and Wildlife Service	VII-3
Environmental Protection Agency/U.S. Army Corps of Engineers	VII-8
Cultural Resources	VII-8

	Page
Chapter VII – Consultation and Coordination (continued)	
Navajo-Gallup Steering Committee.....	VII-10
The Upper Colorado River Commission	VII-11
The Arizona Department of Water Resources	VII-11
San Juan River Basin Recovery Implementation Program.....	VII-11
Other Consultation/Coordination Functions	VII-11
Public Information	VII-12
Distribution List.....	VII-13

Chapter VIII – Permits, Approvals, and Regulatory Requirements

Introduction.....	VIII-1
Endangered Species Act	VIII-2
Clean Water Act.....	VIII-2
Cultural Resource Laws and Policies	VIII-2
Other Regulatory Requirements	VIII-4

List of Preparers

Bibliography

Glossary

Tables

Table		Page
I-1	State of New Mexico schedule of anticipated Upper Basin depletions (May 2006).....	I-7
II-1	Projected population in the proposed project service area by basin	II-3
II-2	Municipal water demand by basin for the proposed project (2020)	II-4
II-3	Municipal water demand by basin for the proposed project (2040)	II-5
II-4	Chapter water demand for the proposed project (2020)	II-6
II-5	Chapter water demand for the proposed project (2040)	II-8
II-6	Projected municipal demand (excluding Navajo Agricultural Products Industry) in the proposed project service area by basin.....	II-10
II-7	Population projections for the Jicarilla Apache Nation	II-13
II-8	Projected water needs for the Jicarilla Apache Nation	II-14
III-1	Regional municipal water production during 2005	III-11
IV-1	General summary of components	IV-10
IV-2	Gallup Regional System	IV-10
IV-3	Application of the viability tests	IV-21
IV-4	Present worth of alternatives.....	IV-22
IV-5	Alternative selection criteria (May 14, 2003)	IV-25
IV-6	Alternative comparison for environmental factors (May 14, 2003)	IV-26
V-1	New Mexico permits held by the United States.....	V-8
V-2	Preliminary list of San Juan River water rights between Navajo Dam and the Animas River confluence	V-9
V-3	Baseline and current depletion summary within the Basin.....	V-11
V-4	Navajo Reservoir content and releases for the alternatives	V-16
V-5	Summary of major existing and future Tribal uses of Basin water	V-22
V-6	Historical (1950–98) water quality measurements on the San Juan River	V-35
V-7	Acres of affected vegetation within the proposed project area.....	V-47
V-8	Fishes documented in the Basin.....	V-59
V-9	Summary of flow statistics for the SJRPNM Alternative	V-68
V-10	Threatened or endangered species (section 7)	V-73
V-11	Estimated angler use below Navajo Reservoir	V-97
V-12	Land ownership within the project area.....	V-103
V-13	Land ownership within 500 feet of the SJRPNM Alternative pipeline route	V-105
V-14	Land ownership within 500 feet of the NIIP Amarillo Alternative pipeline route	V-106

Tables (continued)

Table		Page
V-15	Geologic formations within the proposed project area	V-118
V-16	Air quality criteria pollutants and regulatory limits.....	V-123
V-17	Summary of impacts	V-155
VII-1	Agencies and organizations that participated in the project consultation and coordination process	VII-4
VIII-1	Federal, State, local, and Tribal permit approval and consultation requirements.....	VIII-5
VIII-2	Contracts, legislation, and agreements that may apply to the proposed project.....	VIII-9

Figures

Figure		Page
I-1	Proposed project area.....	I-3
I-2	Colorado pikeminnow and razorback sucker.....	I-13
III-1	City of Gallup historic annual water demand	III-14
III-2	City of Gallup static water table	III-15
IV-1	NIIP Moncisco Alternative	follows IV-14
IV-2	NIIP Cutter Alternative	follows IV-14
IV-3	NIIP Coury Lateral Alternative	follows IV-14
IV-4	NIIP Amarillo Alternative	follows IV-16
IV-5	SJRPNM Alternative	follows IV-16
IV-6	San Juan River Infiltration Alternative	follows IV-16
V-1	River mile locations and gauging stations	V-4
V-2	Hydrograph of San Juan River at Shiprock	V-7
V-3	Gap Analysis vegetation classification within the project service area.....	V-44
V-4	San Juan RM locations.....	V-61
V-5	Special status wildlife within the proposed project area.....	V-75
V-6	Special status plant species within the proposed project area.....	V-83
V-7	San Juan River segments and general recreation areas potentially affected by the proposed project	V-91
V-8	Land ownership within the proposed project area	V-102
V-9	General soil classifications within the proposed project area	V-112
V-10	Geologic formations within the proposed project area	V-117

Attachments

Attachment

- A Memorandum of Agreement between the City of Gallup and the Navajo Nation to Cooperate on the Navajo-Gallup Water Supply Project (IGRF-33-98)
- B Resolutions of the Upper Colorado River Commission
- C Letter from Jicarilla Apache Tribe to the Bureau of Reclamation (February 16, 2001)
- D Letter from Honorable Kelsey A. Begaye, President of the Navajo Nation, and Honorable John Peña, Mayor of the City of Gallup, to Eluid Martinez, Commissioner of the Bureau of Reclamation (November 22, 2000)
- E Letter from Rick L. Gold, Regional Director, Upper Colorado Regional Office, to Honorable Kelsey A. Begaye, President of the Navajo Nation, and Honorable John Peña, Mayor of the City of Gallup (June 13, 2001)
- F Preferred Alternative
- G Screening Report
- H Vegetation
- I List of Wildlife Found in the Project Area and Habitat Associations
- J Soil and Geology Descriptions

Under separate cover:

Volume II – Technical Appendices to the Planning Report and Draft Environmental Impact Statement