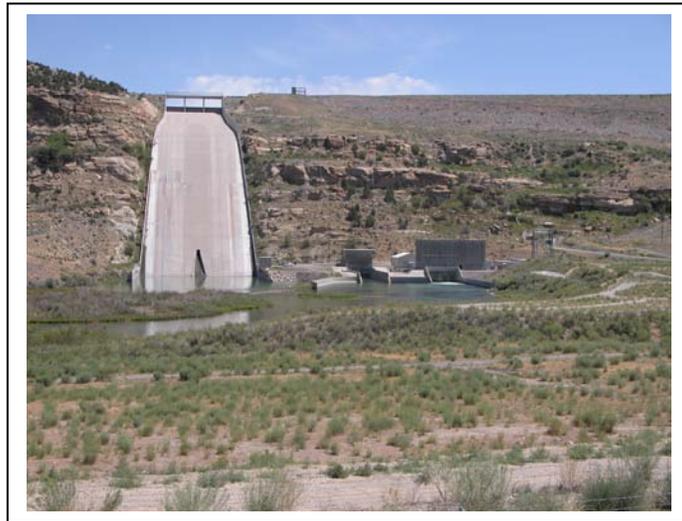


**FINAL
ENVIRONMENTAL ASSESSMENT
AND
FINDING OF NO SIGNIFICANT IMPACT**

**REVISION: WATER CONTROL MANUAL
FOR THE
NAVAJO DAM AND RESERVOIR,
SAN JUAN RIVER, COLORADO AND NEW MEXICO**



May 2011

Prepared for:

**U.S. Army Corps of Engineers,
Albuquerque District**



**US Army Corps
of Engineers®**

Prepared by:

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Albuquerque, New Mexico 87110**



CONVERSION FACTORS

	From	Multiplier	To
Length	inches	25.4	millimeters
	feet	0.3048	meters
	miles	1.6093	kilometers
Area	acres	0.0407	hectares
	square miles	2.590	square kilometers
Volume	cubic yards	0.7646	cubic meters
	acre-feet	1,613.33	cubic yards
	acre-feet	1,233.5	cubic meters
	acre-feet	325,851	gallons
Flow	cubic feet/second (cfs)	0.0283	cubic meters/second
	cubic feet/second (cfs)	1.983	acre-feet/day
Mass (weight)	tons (short ton)	0.9072	metric tons
Velocity	feet/second (fps)	0.3048	meters/second
Salinity	μSiemens/cm	0.32379	parts/million NaCl
	or μmhos/cm		or mg/liter NaCl
Temperature	° Fahrenheit (°F)	(°F-32)/1.8	° Celsius (°C)

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US Army Corps
Of Engineers
Albuquerque District

Finding of No Significant Impact Revision: Water Control Manual for the Navajo Dam and Reservoir, San Juan River, Colorado and New Mexico

Construction of the Navajo Dam and Reservoir (Navajo Unit) was authorized as a unit of the Colorado River Storage Project by act of the 84th Congress dated April 11, 1956 (Public Law 485, 70 Stat. 105). The Department of the Interior, Bureau of Reclamation completed construction in March 1963. The primary purpose of the dam is to impound water for irrigation and municipal and industrial purposes. The reservoir is also used for flood control and recreation; however, they are secondary to its use for conservation (USACE 1970a).

The Corps of Engineers is responsible for flood control regulation of Navajo Dam under the provisions of Section 7 of the Flood Control Act of 1944 (58 Stat. 890). Procedures for flood control operations are detailed in the Navajo Reservoir Water Control Manual (USACE 1970b).

The original Corps of Engineers' Navajo Reservoir Water Control Manual (USACE 1970b) states that the safe channel capacity of the San Juan River is 16,000, 16,800, and 17,600 cubic feet per second (cfs) at Blanco, Farmington, and Shiprock, New Mexico, respectively. Since completion of the construction of the dam in 1963, the outlet capacity has restricted operation to discharges at or below 5,000 cfs. The Corps has determined that the current safe channel capacities are 5,000 cfs in the San Juan River from below Navajo Dam to Farmington, 12,000 cfs below the Animas River confluence, and 12,000 cfs through Shiprock, NM. The Corps proposes to modify the original Water Control Manual to reflect this change (Planned Action).

In compliance with the Endangered Species Act and the National Environmental Policy Act, the Bureau of Reclamation, in cooperation with the Corps of Engineers and numerous other Federal, State, and local agencies and entities, and Tribes, completed the Final Environmental Impact Statement entitled *Navajo Reservoir Operations, Navajo Unit – San Juan River New Mexico, Colorado, Utah*, dated April 2006 (USBR 2006). This document has been incorporated by reference into the Environmental Assessment.

The Bureau of Reclamation evaluated seven flow alternatives in the Navajo Unit EIS including a No Action; 250/5000 (Preferred Alternative); 500/5000, 250 Variable/5000; 250/6000; 500/6000; and decommissioning and breaching the dam. The No Action and the 250/5000 and 500/5000 cfs flow ranges were carried forward for further evaluation. The 250 Variable/5000 was eliminated from further consideration as adequate flow variability was provided in the

Preferred Alternative. Decommissioning and breaching the dam was eliminated as the Bureau of Reclamation determined that such action would not be feasible for many reasons.

Two of the alternatives, the 250/6000 and 500/6000 cfs range of flows, were eliminated for the following reasons: the maximum release of 6,000 cfs was not feasible without performing major structural modifications to the dam's outlet works and to channel and diversion improvements between the dam and the Animas River confluence; the Corps had determined that the current safe channel capacity for that reach of the river is a maximum 5,000 cfs. Because the two flow alternatives carried forward for further effects analysis involved a maximum flow of 5,000 cfs, much of the environmental effects discussion in the EIS was applied to assessing the effects of the Corps' Planned Action.

Since the Corps has determined that the maximum safe channel capacity from Navajo Dam to Farmington, New Mexico is 5,000 cfs, the only other alternative considered to the Planned Action was the No Action. Under the No Action Alternative, the designated channel capacities in the Water Control Manual would be incorrect. Therefore, this alternative was rejected.

There would be no adverse impacts to cultural resources along the river as a result of this action. Since the proposal does not involve construction of any nature, the provisions of the Clean Water Act are not applicable to the Planned Action. This action would have no effect on threatened and endangered species protected by the Endangered Species Act of 1973.

Adoption of the 5,000 cfs safe channel capacity flow would not result in the potential to increase maximum flows in the San Juan River below Navajo Dam beyond what has been normal since activation of the dam in 1963 to the present time. There is also no construction associated with the action. Therefore, no impacts would occur to Geology; Soils; Air Quality; Climate Change; Noise; Water Uses and Water Resources; Flood Control and Wetlands; Navajo Dam Operations and Maintenance; Safety of Dams; Hydropower; Diversion Structures; Hydropower; Water Quality; Limnology; Vegetation and Wildlife Resources; Aquatic Resources; Special Status Species; Noxious Weeds; Land Use; Recreation; Cultural Resources; Indian Trust Assets; Hazardous Materials; Socioeconomics; and Environmental Justice. The project would not result in any direct or indirect, short-term, long-term, or cumulative effects.

A 30-day public review period for this project was conducted from February 10, 2011 to March 11, 2011. The NOA was published in the Durango Herald and the Farmington Daily Times with copies of the Draft Environmental Assessment available at Public Libraries in Bloomfield (NM), Farmington (NM), and Durango (CO), and the Albuquerque District's website. No public comments were received.

The planned action has been fully coordinated with federal and state agencies with jurisdiction over the physical and biological resources of the project area. Based upon these factors and others discussed in detail in the Environmental Assessment, the planned action to modify the



May 2011

safe channel capacity of the San Juan River below Navajo Dam to 5,000 cfs and modifying the Water Control Manual to reflect this change would not have a significant impact on the human environment. Therefore, an Environmental Impact Statement will not be prepared for this project.

6 MAY 11
Date

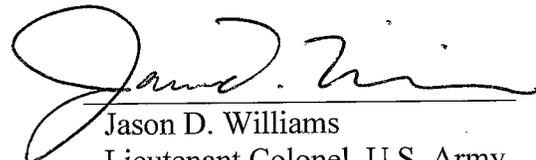

Jason D. Williams
Lieutenant Colonel, U.S. Army
District Commander

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Appendix A. Cultural Resources Report

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1.0 PURPOSE AND NEED

1.1 Introduction and Project Location

This Environmental Assessment (EA) addresses impacts to the San Juan River channel from Navajo Dam to Farmington, New Mexico associated with updating the Albuquerque District Corps of Engineers' (Corps) Navajo Dam and Reservoir Water Control Manual and codifying the safe channel capacity at 5,000 cfs. The study area is located in the Four Corners area of Utah, Colorado, Arizona, and New Mexico (see Figure 1). The dam and reservoir are located on the river in San Juan and Rio Arriba Counties in New Mexico and Archuleta County Colorado approximately 33 air miles east of Farmington, New Mexico. The dam structure is situated about two miles downstream from the confluence of the Los Pinos (Pine) River with the San Juan River.

The changes to the manual are being made to accurately reflect current operations. No changes in actual maximum discharges or in channel capacity are proposed. The original water control manual includes inaccurate information on safe channel capacities that would be corrected.

1.2 Authorization

Construction of the Navajo Dam and Reservoir (Navajo Unit) was authorized as a unit of the Colorado River Storage Project by act of the 84th Congress dated April 11, 1956 (Public Law 485, 70 Stat. 105). The Department of the Interior, Bureau of Reclamation (Reclamation), completed construction in March 1963. The primary purpose of the dam is to impound water for irrigation and municipal and industrial purposes. The reservoir is also used for flood control and recreation; however, they are secondary to its use for conservation (USACE 1970a).

The Corps is responsible for flood control regulation of Navajo Dam under the provisions of Section 7 of the Flood Control Act of 1944 (58 Stat. 890). Procedures for flood control operations are detailed in the Navajo Dam and Reservoir Water Control Manual (USACE 1970b) and in the revision to the Water Control Manual (USACE 2011).

1.3 Purpose and Need for Planned Action

A water control manual documents the day-to-day measures and procedures for the operation of the dam and reservoir. It serves as a reference source for the Corps and for new personnel who will become concerned with, or responsible for regulation of the water control project. The original Corps Navajo Reservoir Water Control Manual (USACE 1970b) states that the safe channel capacity of the San Juan River is 16,000, 16,800, and 17,600 cubic feet per second (cfs) at Blanco, Farmington, and Shiprock, New Mexico, respectively. The hydrograph in Figure 2 illustrates that maximum discharges recorded at the gage downstream of the dam at Archuleta,



Figure 1. Location Map of the San Juan River and Navajo Reservoir.

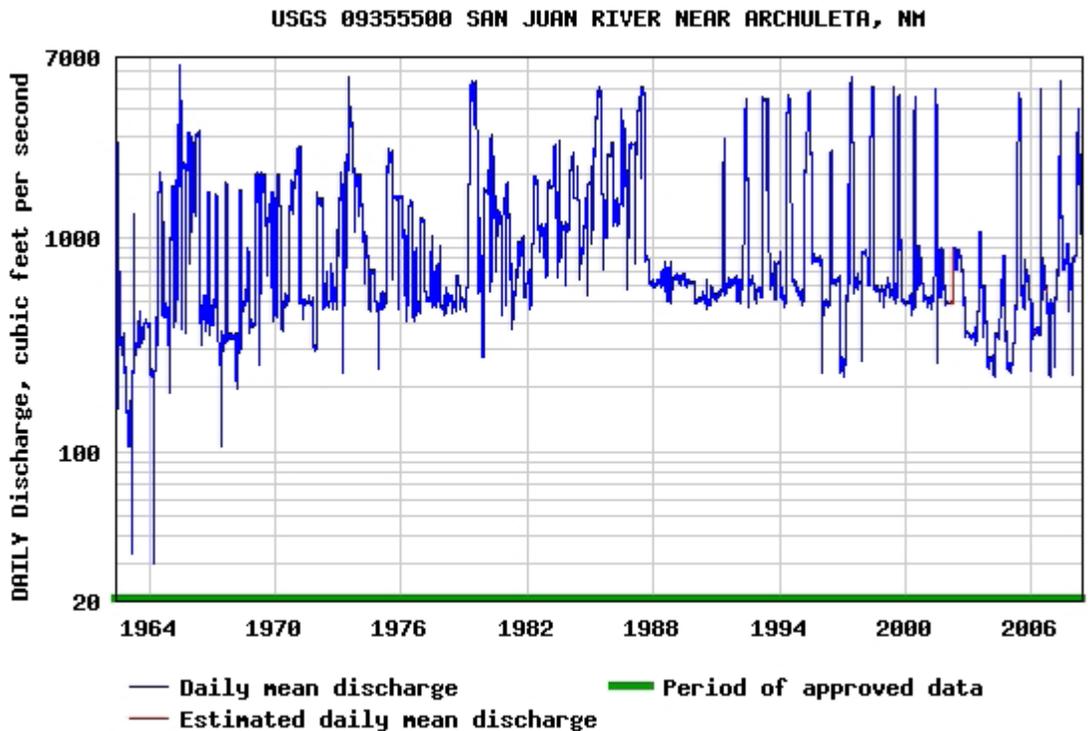


Figure 2. Historic Flows in San Juan River below Navajo Dam

New Mexico rarely exceeded 5,000 cfs since the dam was completed in 1963. Greater flows at the gage are possible under flood conditions. Studies by the Corps of Engineers and Reclamation demonstrated that releases over 5,000 cfs are not feasible without performing major structural modifications to the dam’s outlet works and to channel and diversion improvements between the dam and the Animas River confluence. The Corps has determined that the current safe channel capacities are 5,000 cfs in the San Juan River cfs from below Navajo dam to Farmington, 12,000 cfs below the Animas River confluence, and 12,000 cfs through Shiprock, NM. The Corps proposes to modify the original Water Control Manual to reflect this change (Planned Action).

The need for the Planned Action is to revise and update the Navajo Reservoir Water Control Manual according to guidance and requirements found in ER 1110-2-8156, ER 1110-2-240 and EM 1110-2-3600. Water control plans and the documentation in the water control manual must reflect current knowledge of conditions regarding river basin management and be revised to make them applicable to current conditions. There is a requirement to update all water control manuals either when baseline conditions change or about every ten years. The purpose of the Planned Action is to ensure that the dam is operated safely for project purposes in compliance with all applicable requirements.

The Albuquerque District Corps began the process of revising the Water Control Manual shortly after the San Juan Basin in New Mexico was incorporated into the boundaries of the District

May 1, 1986. In 1991, the U.S. Fish and Wildlife Service requested that the Corps discontinue the process of revising the manual until the Reclamation completed an Environmental Impact Statement (EIS) on the operational impacts of Navajo Dam on the endangered Colorado pikeminnow (*Ptychocheilus lucius*) and the razorback sucker (*Xyrauchen texanus*). Reclamation did not complete an EIS and publish a Record of Decision (ROD) until 2006. The ROD recognized the Corps' determination of 5,000 cfs as the safe channel capacity of the San Juan River below Navajo Dam and the dam has continued to be operated under those parameters.

1.4 Regulatory Compliance

This Environmental Assessment (EA) was prepared by the Corps Albuquerque District, in compliance with all applicable Federal Statutes, Regulations, and Executive Orders, including the following:

- National Historic Preservation Act (16 U.S.C. 470 et seq.)
- Archaeological Resources Protection Act (16 U.S.C. 470aa et seq.)
- Clean Water Act (33 U.S.C. 1251 et seq.)
- Clean Air Act (42 U.S.C. 7401 et seq.)
- Endangered Species Act (16 U.S.C. 1531 et seq.)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations
- Executive Order 11988, Floodplain Management
- National Environmental Policy Act 42 U.S.C. 4321 et seq
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Part 1500 et seq.)
- Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)
- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 11990, Protection of Wetlands
- U.S. Army Corps of Engineers' Procedures for Implementing NEPA (33 CFR Part 230; ER 200-2-2)
- Farmland Protection Policy Act (7 U.S.C. 4201 et seq.)
- Executive Order 13112, Invasive Species
- Federal Noxious Weed Act (7 U.S.C. 2814)
- Energy Independence and Security Act of 2007, P.L. 110-140, Section 438, 121 Stat. 1492, 1620 (2007)
- Migratory Bird Treaty Act, 16 U.S.C. 703, et seq.
- Fish and Wildlife Coordination Act, 48 Stat. 401; 16 USC 661 et. seq.
- Executive Order 13524, Federal Leadership in Environmental, Energy, and Economic Performance

Compliance with applicable State of New Mexico regulations and standards for water quality, as well as regulations conserving endangered plants and animals are also reflected in this EA.

1.5 Incorporation by Reference

In compliance with the National Environmental Policy Act and the Endangered Species Act, Reclamation, in cooperation with the Corps and numerous other Federal, State, and local agencies and entities, and Tribes, completed the Final Environmental Impact Statement entitled *Navajo Reservoir Operations, Navajo Unit – San Juan River New Mexico, Colorado, Utah* (USBR 2006) (Navajo Unit EIS) dated April 2006. The Navajo Unit EIS evaluated the potential impacts of implementing the San Juan River Basin Recovery Implementation Program *Flow Recommendations for the San Juan River* (Holden 1999) (Flow Recommendations) or a reasonable alternative to those recommendations. Under these recommendations, Navajo Dam would be operated so that release range from 250 cfs to 5,000 cfs and flexibility would be retained to adjust release rates within this range to respond to new information as it becomes available. The change in reservoir operations would assist in conserving endangered fish in the river and enable water development to proceed in the San Juan River Basin in compliance with applicable laws, compacts, court decrees, and American Indian trust responsibilities. To accomplish this, Reclamation would continue to operate Navajo Dam to meet the authorized project purposes while modifying reservoir release patterns to meet flow recommendations designed to maintain or improve habitat for the razorback sucker and Colorado pikeminnow. The document is hereby incorporated by reference because of its relevance to this EA. It is available for viewing at:

http://www.usbr.gov/uc/envdocs/eis/navajo/navresops_Feis.html

1.6 Alternatives Considered in the Navajo Unit EIS

Much of the information contained in the Navajo Unit EIS involves analyses of impacts pertinent to the Corps' Planned Action. The EIS initially considered seven flow alternatives. Three of these alternatives included a 5,000 cfs maximum flow, which is the safe channel capacity as determined by the Corps for the San Juan River below Navajo Dam. The EIS alternatives included:

- No Action Alternative (Historical Operation);
- 250/5000 Alternative (Flow Recommendations);
- 500/5000 Alternative;
- 250 Variable/5000 Alternative;
- 250/6000 Alternative;
- 500/6000 Alternative; and the
- Decommissioning/Breaching Navajo Dam Alternative.

Four of the seven alternatives were eliminated from further consideration. The 250 Variable/5000 Alternative had both positive and negative qualities, including flexibility. However, since the Flow Recommendations contain adequate flexibility, the Reclamation and

the U.S. Fish and Wildlife Service agreed that there was no need for a separate alternative that incorporated flexibility. Therefore, this alternative was not carried forward for further analysis.

One of the reasons Reclamation eliminated the 250/6000 and the 500/6000 Alternatives was that the maximum flow would exceed the 5,000 cfs safe channel capacity as determined by the Corps of Engineers. Additionally, studies by the Corps of Engineers and Reclamation demonstrated that a release of 6,000 cfs was not feasible without performing major structural modifications to the dam's outlet works and to channel and diversion improvements between the dam and the Animas River confluence.

Decommissioning and breaching the Navajo Dam would have generally met the conditions of a natural hydrograph and provide endangered fish with access to the portion of the San Juan River now inundated by Navajo Reservoir, as long as fish passage is provided throughout the river. Although spring peaks would be provided in the river, low flows during irrigation season would still be reduced by downstream diversions that would result in low flows substantially below 500 cfs below Farmington. Furthermore, this alternative also would not meet the Flow Recommendations. The alternative was considered unreasonable and impractical, as it did not meet the purpose and need for the proposed action and would not support maintaining the authorized purposes of the Navajo Dam project. It would result in loss of reservoir storage needed to allow contract water deliveries to the San Juan-Chama Project, the Navajo Indian Irrigation Project and other contractors, and would make it extraordinarily difficult, if not impossible, for the State of New Mexico to fully utilize their consumptive use apportionments under the Upper Colorado River Basin Compact. It would also precipitate litigation of Indian versus non-Indian water rights. Finally, this alternative would result in the loss of the following benefits provided by the Navajo Dam and reservoir: downstream flood control, reservoir, and tailwater fisheries, reservoir and downstream recreation, and hydropower generation. For these reasons, this alternative was removed from further consideration.

1.7 Alternatives Carried Forward in the Navajo Unit EIS

Three alternatives (No Action, 250/5000 [Flow Recommendations], and 500/5000) were retained for further analysis. The No Action Alternative would not have met Flow Recommendations and would adversely affect downstream endangered fish habitat and existing and future water development. It would have helped maintain or enhance the downstream trout fishery and river rafting by moderating flow fluctuations. However, it would require reinitiating consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act for the Animas-La Plata Project, which could place its completion at risk and affect existing non-Indian water uses. Selection of the No Action alternative could have put completion of the Navajo Indian Irrigation Project at risk and jeopardize the Jicarilla Apache nation's third-party contract with Public Service Company of New Mexico for the San Juan Generating Station diversion and other Navajo Reservoir Supply contracts serviced by the Jicarilla Apache Nation. Also, hydrologic impacts of the operation of existing project, such as San Juan-Chama would not be offset under this alternative.

The 500/5000 Alternative was retained for further analysis because of substantial public interest and concern even though it would not fully meet the Flow Recommendations, the purpose and need outlined in the EIS, or diversion demands from the Navajo Reservoir water supply.

Reclamation determined that operations under the 250/5000 Alternative (Flow Recommendations) would best meet the purpose and need for the proposed action. It would support projects that have met Endangered Species Act consultations and compliance with the National Environmental Policy Act. This alternative would also reduce the risk of impact to other water uses listed under the No Action Alternative. Dam operations would be modified to assist in conserving endangered species and their designated critical habitat, the authorized purpose of the Navajo Unit would be maintained, flexibility would be maintained for water releases to preserve or enhance seasonal flows for irrigation, recreation, hydropower, water quality, fish and wildlife, and other benefits. Finally, flows fall within the Corps determined 5000 cfs safe channel capacity. For these reasons, the Reclamation selected the Flow Recommendations as the Preferred Alternative.

2.0 ALTERNATIVES

This EA evaluates the effects on the human and natural environment resulting from implementing the Planned Action and the No Action Alternative. The Planned Action is the updating of the Corps' Navajo Dam and Reservoir Water Control Manual and codifying the safe channel capacity at 5,000 cfs for the San Juan River from below Navajo Dam to Farmington, 12,000 cfs below the Animas River confluence, and 12,000 cfs through Shiprock for operation of the flood-control component of the dam and reservoir. The Planned Action does not change current flow regimes (USACE 2011).

Under the No Action Alternative, the provisions of the updated Water Control Manual would not be implemented. The 5,000 cfs maximum release would continue under the ROD for the Navajo Unit EIS in order to meet the authorized project purposes and flow recommendations designed to maintain or improve fish habitat.

3.0 EXISTING ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following aspects of the existing environment and environmental consequences are discussed in detail in the Navajo Unit EIS: Geology; Soils; Air Quality; Noise; Water Uses and Water Resources; Flood Control; Navajo Dam Operations and Maintenance; Safety of Dams; Hydropower; Diversion Structures; Water Quality; Limnology; Aquatic Resources; Vegetation

and Wildlife Resources; Special Status Species; Land Use; Recreation; Cultural Resources; Indian Trust Assets; Hazardous Material; Socioeconomics; and Environmental Justice. Updated information on these resources is provided where relevant to the planned action. Brief discussions of Climate Change and Noxious Weeds, not covered in the Navajo Unit EIS are added here.

Since completion of the construction of the dam in 1963, the outlet capacity has restricted operation to discharges at or below 5,000 cfs. As such, the 5,000 cfs safe channel capacity can be considered the historical baseline of maximum flows below the dam against which all effects associated with the Planned Action can be compared. The Navajo Unit EIS assessed the effects of the No Action Alternative and impacts of flows up to 5,000 cfs under two action alternatives (250/5000 and 500/5000 cfs). Much of this information is incorporated by reference in the following discussion of the existing environment and impacts associated with the Planned and No Action Alternatives.

3.1 Geology

No impacts on geologic resources within the study area are expected to occur from the Planned and No Action Alternatives. There are no actions planned that would alter seismicity, restrict mineral recovery or change erosion and landslide potential.

3.2 Soils

Maximum flows would not be increased or changed under the Planned and No Action Alternatives. Therefore soil and erosion characteristics along the San Juan River would not be affected.

3.3 Air Quality

The Planned and No Action Alternatives do not involve construction or any new emission sources. There would be no change in vehicle use or other sources of dust or particulates. No impacts are anticipated.

3.4 Climate Change

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind patterns lasting for an extended period such as decades or longer. Climate change may result from: natural factors; natural processes within the climate system; and human activities that change the atmosphere's composition through burning fossil fuels or changes in the land surface such as deforestation, urbanization and desertification (EPA 2009).

Average air and sea-surface temperatures worldwide are predicted to increase beyond the current range of natural variability as human activities have, in the period since the onset of the Industrial Revolution, caused an accumulation of greenhouse gases (e.g. carbon dioxide) in the global atmosphere (EPA 2009). The potential effects resulting from climate change are varied

and imprecise; however, there is a virtual certainty that human-induced climate change represents a clear and ever-increasing threat to the natural and human environments. Long-term tree-ring records show severe droughts and mega-droughts to be part of the natural climate variability of the southwestern US. However, increased carbon dioxide and other greenhouse gas emissions in the earth's atmosphere are generally believed to be linked with worldwide climate trends, including the rapid melt of polar ice sheets, sea level rise, and the warming temperatures of the past century. Temperature and precipitation strongly influence the abundance and distribution of plant and animal life. Drought and climate change are likely to exacerbate the effects of natural and human disturbances, including wildfire, insect outbreaks, flooding, and erosion.

As a result of climate change, summer air temperatures in the southwestern United States are predicted to rise considerably from 2011 through 2039, average annual precipitation is expected to decrease, and mountain snow-packs are predicted to decrease significantly. Over 95% of New Mexico has experienced mean temperature increases of varying magnitude; warming has been greatest in southwestern, central and northwestern parts of the state, especially in the Jemez Mountains. Recent climate data compiled for 18 conservation areas in the New Mexico portion of Colorado Plateau shows that the Carracas Mesa/Navajo Reservoir site ranked highest in climate exposure, a measure of warmer-drier conditions or greater variability in temperature and precipitation (Enquist and Gori. 2008). Another study has also shown that dust from human activity in the Southwest may be causing snowmelt runoff in the San Juan Mountains to begin eight to 32 days earlier (Neff et al. 2008).

Measuring or quantifying inputs to climate change variables or overall patterns in a given area is difficult at best as the atmosphere is a well-mixed, essentially open system. New Mexico Governor Bill Richardson signed Executive Order 05-33 in 2005, which included development of recommendations for reducing greenhouse gas emissions in New Mexico to year 2000 levels by 2012, 10% below 2000 levels by 2020, and 75% below 2000 levels by 2050. The year 2000 reference level is 83 million metric tons of carbon dioxide equivalent gasses (New Mexico Climate Change Advisory Group 2006). Residential and commercial fuel use accounted for about five percent of total emissions in the State in 2000, or about 7.3 million metric tons of carbon dioxide equivalent gasses (New Mexico Climate Change Advisory Group 2006).

The Planned and No Action Alternatives do not involve construction or any other new sources of dust or greenhouse gas emissions. There would be no change in the existing maximum practical flow release for producing hydroelectric power at Navajo Dam and thus benefits of this energy source would continue. No impacts on regional climate or trends in climate change are anticipated.

3.5 Noise

The Planned and No Action Alternatives do not involve construction or any new sources of noise. No new impacts are anticipated.

3.6 Water Uses and Water Resources

The Planned and No Action Alternatives would not change or interfere with the delivery of downstream senior water rights, the completion of the Animas-La Plata Project and Navajo Indian Irrigation Projects, and existing water contracts from Navajo Reservoir. They would also not interfere with accomplishing future American Indian (Indian) and non-Indian water development. In total, the Planned and No Action Alternatives would not affect existing or planned water uses on the San Juan River below Navajo Dam.

3.7 Flood Control and Wetlands

As confirmed in the Leach-Kreiner study (1998), implementation of the Planned and No Action Alternatives would have no effect on flood control operations within the study area. The Planned Action would not increase flood elevations within the floodplain of the San Juan River. Therefore, the proposal complies with Executive Order 11988 (Floodplain Management).

Executive Order 11990 (Protection of Wetlands) requires the avoidance, to the maximum extent possible, of short- and long-term adverse impacts associated with the destruction, modification, or other disturbances of wetland habitats. Since the proposed change to the Water Control Manual would not involve construction activities or changes in maximum flow levels, no effects to wetlands would occur from the Planned and No Action Alternatives.

3.8 Navajo Dam Operations and Maintenance

The Planned and No Action Alternatives would not change or have any effect on the operation and maintenance of Navajo Dam.

3.9 Safety of Dams

The Planned and No Action Alternatives would not change current conditions or have any effect on Navajo Dam safety.

3.10 Diversion Structures

The Planned and No Action Alternatives would not change current conditions or have any effect on San Juan River water diversion structures downstream of Navajo Dam. During a test validating that the safe channel capacity is 5,000 cfs in the San Juan River from Farmington, New Mexico to the Navajo Dam, only one diversion structure (Turley-Manzanares Ditch) was observed incurring head gate over-topping (Leach and Kreiner 1998) (See Figure 1). It was determined that flows above 5,000 cfs would require improvements to protect the structure from significant damage. No other potential problems were observed with other diversion structures during this study. Therefore, the Planned and No Action Alternatives would have no effect on diversion structures in the study area.

3.11 Hydropower

Because the Planned and No Action Alternatives would not alter the existing maximum practical flow release for the Navajo Dam Hydroelectric Plant, they would not affect hydropower generation. The power plant has two turbines which can operate at 650 cfs each for a total of 1300 cfs.

3.12 Water Quality

The Planned and No Action Alternatives would not change current conditions or have any effect on water quality in Navajo Reservoir or the San Juan River.

Section 402 of the Clean Water Act (CWA; 33 U.S.C. 1251 *et seq.*) as amended regulates point-source discharges of pollutants into waters of the United States and specifies that storm-water discharges associated with construction activities shall be conducted under NPDES guidance. Construction activities associated with storm-water discharges are often characterized by activities such as clearing, grading, and excavation, subjecting the underlying soils to erosion by stormwater. Since the proposed change to the Water Control Manual would not involve construction activities, the NPDES general permit guidance does not apply to this project. Therefore, a Storm-Water Pollution Prevention Plan (SWPPP) is not required.

Section 404 of the CWA, (CWA; 33 U.S.C. 1251 *et seq.*) as amended, provides for the protection of waters of the United States through regulation of the discharge of dredged or fill material. A Section 404 (b) (1) analysis is required for any discharge or placement of fill material into a waters of the U.S. or special aquatic site. Section 404 of the CWA does not apply to this project, as there would be no discharge of dredged or fill material into waters of the United States.

Section 401 of the CWA, (CEA; 33 U.S.C. 1251 *et seq.*) as amended, requires that a Water Quality Certification Permit be obtained for anticipated discharges associated with construction activities or other disturbance within waterways. Section 401 of the CWA does not apply to this project, as there would be no discharge associated with construction activities or other disturbance within waterways.

3.13 Limnology

The Planned and No Action Alternatives would not have any effect on limnological conditions in Navajo Reservoir or the San Juan River. There would be no anticipated changes within the current range for nutrients, temperature, oxygen concentrations or sediment deposition.

3.14 Vegetation and Wildlife Resources

The Planned and No Action Alternatives would not change current conditions supporting vegetation and wildlife resources. Because there would be no change to current river flow regimes under the Planned and No Action Alternatives, vegetation and wildlife resources would not be affected.

By letter dated May 30, 2003, the U.S. Fish and Wildlife Service, New Mexico Ecological Field Office, issued their “Final Fish and Wildlife Coordination Act Report for the Modified Operations of the Navajo Dam and Reservoir, Colorado and New Mexico.” The report was prepared under the authority and in accordance with the requirements of Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat.401, as amended; 16 U.S.C, 661-667e). The complete report is included in Appendix L of the Navajo Unit EIS.

Telephonic coordination between the Corps and the U.S. Fish and Wildlife Service confirmed that the report adequately addresses the impacts of the Corps’ Planned Action (Personal Communication, Buntjer 2004). For this reason, the U.S. Fish and Wildlife Service concurred with the Corps that the report also addresses the impacts of the Planned Action and that a separate Coordination Act Report is not required.

3.15 Aquatic Resources

The Planned and No Action Alternatives would not change current conditions supporting aquatic resources. Potentially affected resources include non-native (game and non-game fish) and native fish in the study area. Allowing maximum flows up to the 5,000 cfs safe channel capacity would neither benefit nor adversely affect aquatic resources, as the Planned and No Action Alternatives would not modify the existing hydrograph of the study area.

3.16 Special Status Species

The purpose of the Navajo Unit EIS was to modify operations of Navajo Dam and Reservoir to provide sufficient releases of water at times, quantities, and durations believed to be necessary to conserve the two endangered fish species (Colorado pikeminnow and the razorback sucker) and their designated critical habitat, while meeting the authorized purposes of the Navajo Unit and other obligations and agreements. The US Fish and Wildlife Service concluded that meeting the Flow Recommendations should prove beneficial for the endangered fish, but that the endangered fish may be affected and are likely to be adversely affected by continued reservoir operations. The level of anticipated take would not likely to result in jeopardy or cause destruction or adverse modification of critical habitat. The US Fish and Wildlife Service also concluded that the Proposed Action of the Navajo Unit EIS would not jeopardize the continued existence of other special status species or adversely modify their critical habitat.

The Planned and No Action Alternatives would not change current conditions or affect implementation of the Flow Recommendations. There would be no effect on threatened or endangered species associated with the Planned and No Action Alternatives. Existing flows and maximum releases would not be altered to the benefit or detriment of wildlife or fisheries resources or fauna. The Colorado pikeminnow and the razorback sucker are likely to be adversely affected by continued reservoir operations and the continued level of anticipated take would not likely to result in jeopardy or cause destruction or adverse modification of critical habitat. This determination will be coordinated for review and comment under the Endangered

Species Act of 1973 with the U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico.

3.17 Noxious Weeds

The Federal Noxious Weed Act of 1974 (Public law 93-269; 7 U.S.C. 2801) provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce. Executive Order 13112 directs Federal agencies to prevent the introduction of invasive (exotic) species and to control and minimize the economic, ecological, and human health effects that invasive species cause. In addition, the State of New Mexico, under administration of the U.S. Department of Agriculture, designates and lists certain weed species as being noxious (Nellessen 2000). “Noxious” in this context means plants not native to New Mexico that may have a negative effect on the economy or environment and are targeted for management or control. Class C- listed weeds are common, widespread species that are fairly well established within the State. Management and suppression of Class C weeds is at the discretion of the lead agency. Class B weeds are considered common within certain regions of the State but are not widespread. Control objectives for Class B weeds are to prevent new infestations, and in areas where they are already abundant, to contain the infestation and prevent their further spread. Class A weeds have limited distributions within the State. Preventing new infestations and eliminating existing infestations is the priority for Class A weeds.

Several species of invasive plants and noxious weeds may be found throughout the reservoir area and adjoining lands, particularly on areas where soils have been disturbed or exposed, including the reservoir basin drawdown zone. Reclamation has not conducted any inventories for invasive plants on the reservoir area. However, their general presence in the area is known and populations are documented as they are found. Invasive and noxious weeds at Navajo State Park have been mapped and a weed management plan has been prepared (USBR 2008).

The Planned and No Action Alternatives would not change existing conditions or create new disturbance and would have no effect on the colonization and infestation of noxious weeds.

3.18 Land Use

The Planned and No Action Alternatives would not change current land use or change availability of water downstream. There would be no effects on land use.

3.19 Recreation

The Planned and No Action Alternatives would not modify the existing hydrograph and, therefore, would have no effect on existing water related recreational activities in the study area.

3.20 Cultural Resources

The Navajo Unit EIS and supporting references summarized the archaeological sites and investigations conducted between 1956 and 1962 in and around the reservoir prior to completion

of the construction of Navajo Dam in 1963. These investigations included both survey and excavation and were undertaken years prior to the passage of the National Historic Preservation Act in 1966. This was one of the first large-scale archaeological projects associated with dam construction in New Mexico. The results provided data concerning the material culture of, and a chronological framework for, the earliest time periods of the Pueblo Indians in New Mexico. Several archaeological cultures were defined, especially for the terminal Archaic and early Basketmaker Periods (approximately 500 BC to A.D. 500-600). The results of the investigations provided an archaeological template for future researchers in the four corners region of the Southwest to analyze and refine research questions, especially those concerning issues of material culture, adaptation, and temporal periods.

During the original survey a total of 143 sites were recorded within what is now the drawdown zone of the reservoir, approximately the elevation between 5,985 and 6,085 feet above sea level (USBR 2006). The sites range in time from prehistoric artifact scatters and habitation sites to historic period house foundations. The most common sites, about 40 percent of the site total, are Pueblo I and Pueblo II habitation locations (approximately A.D. 700 to 1100) containing masonry room blocks and pit structures. It was also noted that more recent investigations suggest that many of these sites retain much of their integrity. As formal determinations of eligibility of the archaeological sites have not been completed by Reclamation, all of these sites are considered to be potentially eligible to the National Register of Historic Places. As such, the effects of any undertaking on the archaeological sites must be evaluated prior to the implementation of any proposed action. A variety of proposals for the operations of the reservoir were considered by the Bureau during the preparation of the Navajo Unit EIS; therefore, they undertook consultation with the New Mexico and Colorado State Historic Preservation Officers and 15 Native American Indian Tribes. The Bureau is the lead Federal agency for the operation of the dam (USBR 2006).

A remote record search for any new information relevant to the Planned Action and No Action Alternative was conducted using the ARMS NMCRIS GIS/Database of ARMS in July 2010 by Kevin T. Doyle of Tetra Tech. The record search was conducted to determine if new sites have been identified since the Navajo Unit EIS was completed, and to make recommendations for the eligibility for nomination to the NRHP for any newly recorded sites and properties.

Using the MAPS feature, the reservoir shoreline was examined for new activities (inventories) within the reservoir below 6,100 feet above sea level, which is fifteen feet higher than the maximum reservoir water level. Although the Navajo Unit EIS was completed in 2006 it appears to have been based on data compiled in 2000. No new (post-2000) records of inventories or sites in the drawdown zone were located during the record search. No new sites have been recorded in the downstream channel. There have been many inventories in the vicinity of Navajo Dam, but none appear to be relevant to the Planned Action or the No Action Alternatives.

The Planned and No Action Alternatives would not change the flood control operation, maximum reservoir pool or the existing maximum flow allowed below Navajo Dam. No construction is proposed. The effects of ongoing operations on cultural resources have been previously assessed in the Navajo Unit EIS (USBR 2006). This document commits Reclamation

to the preparation of a Cultural Resource Management Plan, but this plan could not be located and may not have been completed. No consultation correspondence with the New Mexico or Colorado State Historic Preservation Offices was included in the Navajo Unit EIS (USBR 2006).

There is no new potential to cause effects to cultural resources and there will be no new additional or previously unanticipated downstream effects on cultural resources. For a further discussion of cultural resources see Appendix A.

3.21 Indian Trust Assets

The scope of these assets includes Indian trust water rights associated with Navajo Reservoir and the San Juan River and on surrounding trust/reservation lands of the Navajo and Jicarilla Apache Nations, and the Ute Mountain Ute and Southern Ute Indian Tribes. Since there would be no change to existing maximum flows allowed below Navajo Dam, the Planned and No Action Alternatives would have no effect on Indian trust assets.

3.22 Hazardous Materials

Hazardous material sites include pipeline crossing, gas wells, and sewage treatment facilities. Flooding would be the major risk associated with these facilities. Since river flood stages would not be increased, the Planned and No Action Alternatives would have no impacts to existing hazardous material sites.

3.23 Socioeconomics

The scope of this analysis addresses the potential impacts to social and economic sectors. Local economies associated with water use, such as recreation, tourism, and agriculture below the dam, would not be affected by the Planned and No Action Alternatives as neither would change the current maximum releases from Navajo Dam.

3.24 Environmental Justice

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations; February 11, 1994) was designed to focus the attention of Federal Agencies on the human health and environmental conditions of minority and low-income communities. It requires Federal agencies to adopt strategies to address environmental justice concerns within the context of agency operations and proposed actions. In an accompanying memorandum, President Clinton emphasized that existing laws, such as the National Environmental Policy Act (NEPA), should provide an opportunity for federal agencies to assess the environmental hazards and socioeconomic impacts associated with any given agency action upon minority and low-income communities. In April of 1995, the EPA released a guidance document entitled *Environmental Justice Strategy: Executive Order 12898*. In short, this document defines the approaches by which the EPA will ensure that disproportionately high environmental and/or socioeconomic effects on minority and low-income communities are identified and addressed.

Further, it establishes agency wide goals for all Native Americans with regard to Environmental Justice issues and concerns.

The scope of this analysis included areas of minority and low-income populations in northwestern New Mexico, southwestern Colorado, and southeastern Utah. It concerns impacts to environmental justice that could result from modifying the safe channel capacity. Since the proposed modification would not affect or alter the current maximum releases from Navajo Dam, the Planned Action and No Action Alternatives would not affect Environmental Justice considerations.

4.0 CUMULATIVE EFFECTS AND CONCLUSIONS

The Council on Environmental Quality regulations for implementing the National Environmental Policy Act requires the determination of short and long-term impacts, direct and indirect impacts, irreversible and irretrievable commitment of resources, and unavoidable adverse impacts. The regulations also call for the consideration of the relationship of the proposed action and its impacts to other projects, trends and activities in the area. The relationship can be direct, indirect, or cumulative in nature. Connected actions are those actions which are interrelated with the proposed action; cumulative actions are those actions, which, when viewed with other proposed actions, have cumulatively significant impacts; and related actions are those actions which, when viewed with other proposed actions, have similarities to the proposed action that provide a basis for evaluation together, such as common timing or geography.

Adoption of the 5,000 cfs safe channel capacity flow would not result in the potential to increase maximum flows in the San Juan River below Navajo Dam beyond what has been normal since activation of the dam in 1963 to the present time (see Figure 2). Therefore, there would be no long-term impacts associated with this action. Since there is no construction associated with the project, there are no short-term environmental impacts.

Water development projects within the study area include the Animas-La Plata Project and the Navajo Indian Irrigation Project. Implementation of the Planned Action would not result in any long-term, short-term, or cumulative impacts to these related activities.

Under the Navajo Unit EIS, Reclamation has adopted the San Juan River Basin Recovery Implementation Program *Flow Recommendations for the San Juan River*. Adoption of a 5,000 cfs safe channel capacity for the San Juan River as proposed under this action is within the upper limit of the flow recommendations. Furthermore, the Planned Action would not affect operating Navajo Dam and Reservoir to mimic the natural hydrograph as recommended under the Flow Recommendations.

Long-term trends in climate change and drought may affect water availability and timing of releases. The Planned or No Action Alternatives would not change the maximum release and continue to provide flexibility of releases to address water needs.

In summary, there would be no significant impact on the environment resulting from the incremental impact of the Planned or No Action Alternative when added to any other past, present, or reasonably foreseeable future actions of other Federal or non-federal agencies. In consideration of this information, the Planned Action would have no impacts on the existing human and natural environment within the scope of this study.

5.0 PREPARATION, CONSULTATION AND COORDINATION

5.1 Preparation

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5.5 Public Review Summary

A 30-day public review period for this project was conducted from February 10, 2011 to March 11, 2011. A copy of the Notice of Availability (NOA) is located in Appendix B of this report. The NOA was published in the XXX. The Draft Environmental Assessment (EA) for Water Control Manual for the Navajo Dam and Reservoir, San Juan River, Colorado and New Mexico dated February 2011 was placed on the Albuquerque District's website (<http://www.spa.usace.army.mil/fonsi/>) throughout the public comment period. A copy of the Draft EA was also available at the Bloomfield, Farmington, and Durango Public Libraries during this period.

No public comments were received. Section 5.4 above is the distribution list announcing the availability of the Draft EA for public review and comment.



6.0 REFERENCES

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- U.S. Army Corp of Engineers (USACE). 2011 Revised Water Control Manual, Navajo Dam and Reservoir, Sun Juan River Basin, Colorado and New Mexico. Department of the Army, Albuquerque District, Corps of Engineers, Albuquerque, New Mexico. October
- U.S. Department of the Interior, Bureau of Reclamation (USBR). 2006. Final Environmental Impact Statement Navajo Reservoir Operation, Navajo Unit – San Juan River, New Mexico, Colorado, Utah. Upper Colorado Region, Western Colorado Area Office, Grand Junction – Durango, Colorado. Internet web site accessed July 2010: http://www.usbr.gov/uc/envdocs/eis/navajo/navresops_Feis.html.
- U.S. Department of the Interior, Bureau of Reclamation (USBR). 2008. Navajo Reservoir Area Resource Management Plan, Final Environmental Assessment and Finding of No Significant Impact. Upper Colorado Region, Western Colorado Area Office, Grand Junction – Durango, Colorado. Internet web site accessed July 2010: <http://www.usbr.gov/uc/envdocs/ea/navajo/index.html>.

Personal Communication

- Buntjer, Michael J. 2004. Fishery Biologist, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office. Personal Communication, August 5, 2004.



Appendix A

Cultural Resources Report

Appendix A

Cultural Resources of the Navajo Dam Area

A.1 INTRODUCTION AND SCOPE

A.1.1 Introduction

This brief report incorporates and updates information from cultural resource summary data that were used in the preparation of the *Final Environmental Impact Statement entitled Navajo Reservoir Operations, Navajo Unit – San Juan River New Mexico, Colorado, Utah* (USBR 2006) (Navajo Unit EIS) dated April 2006. The Navajo Unit EIS evaluated the potential impacts of implementing the San Juan River Basin Recovery Implementation Program Flow Recommendations for the San Juan River (Holden 1999) (Flow Recommendations) or a reasonable alternative to those recommendations. Since completion of the construction of the dam in 1963, the outlet capacity has restricted operation to discharges at or below 5,000 cfs. As such, the 5,000 cfs safe channel capacity can be considered the historical baseline of maximum flows below the dam against which all effects associated with the Planned Action can be compared. The Navajo Unit EIS assessed the effects of the No Action Alternative and impacts of flows up to 5,000 cfs under two action alternatives (250/5000 and 500/5000 cfs). The Navajo Unit EIS Record of Decision (ROD) recognized the Corps' determination of 5,000 cfs as the safe channel capacity of the San Juan River below Navajo Dam and the dam has continued to be operated under those parameters. Under these recommendations, Navajo Dam would be operated so that releases range from 250 cfs to 5,000 cfs.

A.1.2 Scope

The scope of work for this Delivery Order is to compile data for any archaeological sites known to occur in the vicinity of the Planned Action as obtained from existing literature and data including that found in the files of the Archaeological Records Management Section (ARMS) of the New Mexico Laboratory of Anthropology in Santa Fe. The intent of this work was to determine if new sites have been identified since the Navajo Unit EIS was completed, to provide background information regarding previous cultural resources survey work within or adjacent to the project area, to compile existing cultural resources information, and to make recommendations for the eligibility for nomination to the National Register of Historic Places (NRHP) for any newly recorded sites and properties.

The scope of work references incorporating the Cultural Resources Survey Report for the Navajo Unit EIS. However, a document of that name or type has not been located. Background information and text were derived and incorporated from the cultural resource sections from the

Navajo Unit EIS (USBR 2006), the *Navajo Reservoir Resource Management Plan and Environmental Assessment (RMP/EA)* (USBR 2008) and the *Draft Technical Report on Potential Impacts to Archaeological Sites, Navajo Reservoir Reoperation Project, Colorado and New Mexico* (Alpine 2000).

A.2 CULTURAL RESOURCE BACKGROUND

Cultural resources are physical or other expressions of human activity or occupation, including culturally significant landscapes, prehistoric and historic archaeological sites and isolated artifacts or features, historic structures, human burials, sacred sites, and traditional cultural properties (TCPs). TCPs are sites or areas of important cultural value to existing communities and may not have actual physical remnants associated with their existence. Cultural resources are protected under the National Historic Preservation Act of 1966, as amended (NHPA), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), Executive Order 13007 (EO 13007) - Protection of Native American Sacred Sites, and other state, agency, or tribal laws and policies.

Under the NHPA, a historic property is defined as one that meets one or more of the eligibility criteria for the National Register of Historic Properties (NRHP). These include prehistoric or historic archaeological sites or properties of historic interest or cultural significance to a community or ethnic or social group and other cultural resources as defined above. Historic properties may also be protected under the NAGPRA and EO 13007, and other state, agency, or tribal laws and policies.

Under NAGPRA, cultural items, which include Native American burials, grave goods, and sacred objects, are protected. Cultural items may only be removed under certain conditions. EO 13007 protects access to places of religious significance to Native Americans.

While archaeological data provide some information about prehistoric and historic aboriginal use of the area, each tribe tied to the area has its own account of that tribe's traditional use of the area. In the Navajo Unit EIS, 15 contemporary Native American Tribes were identified as having ancestral and contemporary ties to the reservoir area. These tribes include the Hopi, the Jicarilla Apache, the Navajo, the Jemez, the Nambe, the Pojoaque, the San Ildefonso, the Santa Clara, the Taos, the Laguna, the Southern Ute, the Zuni, the Tesuque, the San Juan, and the Picuris (USBR 2006).

The reservoir area is located in one of the richest archaeological regions of the U.S. and is within an informal archaeological district known as the Navajo Reservoir District. This District was originally defined by salvage archaeology considerations for Navajo Dam and Reservoir, but has not been formally evaluated for its eligibility to the NRHP. Surveys and excavations conducted between 1956 and 1962 for the dam and reservoir were one of the largest mitigation projects ever conducted for a water project in the United States prior to the passage of NHPA. That mitigation

effort established the richness and diversity of the archaeological resources at Navajo Reservoir. The Navajo Reservoir District was conceived to represent the findings in the reservoir area in relationship to other recognized archaeological districts (e.g., Chaco Canyon, La Plata, Gobernador) in the region. The Navajo Reservoir District was further subdivided into geographic sections (Upper Pine, Lower Pine, Frances, La Jara, Burnt Mesa, Bancos, Rosa, Piedra, and Sandoval) to facilitate research (USBR 2008).

Since the passage of NHPA, cultural resources studies related to oil and gas and recreational development have been conducted in the vicinity of the reservoir and above the reservoir's high water line. This work has significantly increased the understanding of the prehistory and history of the area, and has defined a cultural sequence which extends well beyond the District (USBR 2008).

A.3 CULTURAL TRADITIONS AND CHRONOLOGY

Known cultural traditions at the reservoir include the Archaic Period (ca. 5,500 B.C. to A.D. 400), several phases of the Ancestral Puebloan Period (ca. A.D. 150-1,300), the Navajo Period (ca. A.D. 1450-1775), and the Euro-American Settlement Period (A.D. 1870- Present). These cultural traditions are described as follows:

Paleoindian sites (ca.10,000 to 5500 BC) are found throughout the Four Corners region, but have not been recorded at Navajo Reservoir. The Paleoindian Period provides evidence for the earliest occupation of northwestern New Mexico. This period includes the Clovis, Folsom and Plano stages and is traditionally characterized by big-game hunting using long lanceolate points.

The Archaic Period (ca. 5,500 B.C. to A.D. 400), in the region is typified by a change from a big-game hunting emphasis to the hunting of smaller game and the intensive collection and use of plant foods.

The Ancestral Puebloan Period is inclusive of several phases that have been characterized by archaeologists working in the four corners region. The majority of sites at the reservoir date to this time period. These include:

- *Basketmaker II Period- Los Pinos Phase (ca. A.D. 150-400):* The Basketmaker II Period is characterized by the adoption of structures and features for habitation and storage of surplus foods. Basketmaker culture was named for its finely woven baskets and lack of pottery.
- *Basketmaker III Period- Sambrito Phase (ca. A.D. 400-700):* The Basketmaker III Period marks the beginning of a more sedentary agricultural lifestyle and the use of ceramics and adoption of the bow and arrow. This period also represents the beginnings of the Ancestral Pueblo (Anasazi) site layout.

- *Pueblo I Period- Rosa Phase (ca. A.D. 700-850) and Piedra Phase (ca. A.D. 850-950):* The Pueblo I period is well represented with small hamlets scattered across the project area. It is during this period that surface structures become increasingly common.
- *Pueblo II- Arboles Phase (ca. A.D. 950-1,050) and Pueblo III Periods- Chimney Rock Phase (ca. A.D. 1050-1300):* The Pueblo II and III periods are characterized by larger pueblos which usually include masonry room blocks and larger semi-circular pit structures, called kivas. These are the ruins, such as those at Mesa Verde National Park, familiar to most modern visitors. The Pueblo III period is poorly represented in the Navajo Reservoir District and is the last vestige of Puebloan occupation in the area (USBR 2008).

During the Navajo Period (ca. A.D. 1450-1775), the Navajo, the Jicarilla Apache, and the Southern Ute began occupying the lands in and around Navajo Reservoir. Most of the sites at the reservoir from this time period are attributed to the Navajo.

The Navajo occupation of the Navajo Reservoir District is divided into three time frames: the Dinetah, the Gobernador, and the Post-Gobernador. The Dinetah phase applies to the era of the earliest Athapaskan-speaking groups. While the present-day Navajo consider the Navajo Reservoir District their homeland (from which the name Dinetah is derived), archaeologists believe the Athapaskans entered the region in the 1400s and occupied the area for about 250 years. The Gobernador phase applies to the period of acculturation following the Spanish reconquest of the region from 1692 through 1696, after the Pueblo Revolt of 1680. In the late 17th century, the Gobernador Navajo left the region, and apparently did not return until the Post-Gobernador period (mid-1800s), by which time the Navajo had fully adopted a pastoral way of life. In 1868, a treaty was signed (and amended in subsequent years) which established the Navajo Indian Reservation immediately west of the Navajo Reservoir District.

The Jicarilla Apache are also Athapaskan speakers and their ancestors in the area may derive from the same stock as the Dinetah phase. Their homeland is identified as the area extending between the Arkansas and Chama river valleys north and east of Navajo Reservoir. By 1700, the group distinguishable as the Jicarilla Apache had emerged. Beginning in 1874, an executive order was issued which set aside several reservations for the Jicarilla Apache, one of which included a portion of the present Navajo Reservoir. However, the Jicarilla never took up residence there. In 1887, an area immediately east of Navajo Reservoir eventually became what is now the Jicarilla Apache Nation Reservation.

Very little is known of the antiquity of the Colorado Ute Tribes. It is possible that the first Numic speaking groups (of which the Utes are part) entered southwestern Colorado from the north and west, as early as the 1200's, coinciding with the Puebloan departure from the area. The first historical references to the Utes (from Spanish explorers) date to 1626, at which time their range extended to parts of northwest New Mexico. In the 1870's, the Southern Ute Indian Reservation (since divided into the Southern Ute and Ute Mountain Ute Indian Reservations) was established, and includes the Colorado side of Navajo Reservoir. In the 1960s, the Federal Government

acquired some Southern Ute Reservation lands for Navajo Unit project purposes in exchange for lands adjacent to the reservation elsewhere (USBR 2008).

Unlike other parts of New Mexico, the Euro-American Settlement Period (A.D. 1870-Present) came late to the Navajo Reservoir region. By 1765, Spaniards from New Mexico settlements had visited the Navajo Reservoir region and in 1776, the Dominguez-Escalante expedition passed by what is now the upper end of Navajo Reservoir. In the following decades, Spanish and Mexican traders opened a trade route to California, known as the Old Spanish Trail, which followed the Dominguez-Escalante route through the project area. The trail continued to be used until 1848.

Beginning about 1870, emigrants of Hispanic descent began establishing settlements in the Navajo Reservoir region, including the towns of Rosa and Arboles. In the 1880s, a railroad line connecting Chama, New Mexico with Durango, Colorado, was constructed through the area. However, in the 1950s, the towns and the railroad were abandoned in preparation for the filling of Navajo Reservoir. While mostly beneath the waters of the reservoir and/or having been removed at the time of abandonment, some remnants of the Euro-American historic period can still be observed (USBR 2008).

A.4 RECORDED SITES

A study area was identified for salvage archaeology considerations for the Navajo Unit prior to its construction. Cultural resources surveys and excavations were conducted between 1956 and 1962. During the initial archaeological reconnaissance survey for the reservoir (1956-1959) 526 sites were found; 454 within the reservoir's maximum pool area. While this mitigation effort emphasized cultural sites within the inactive zone of the reservoir, it expanded the understanding of the prehistory and history of the area and defined a cultural sequence extending beyond the reservoir area (USBR 2006).

There is a high density of archaeological sites within the Navajo Reservoir District and it is presumed that a fair proportion of these sites are eligible for inclusion to the NRHP. In their evaluation of impacts to cultural resources from reservoir operations, Alpine Archaeological Associates estimated that 40% of the sites within the upper 110 feet of the reservoir basin may be eligible to the NRHP (Alpine, 2000). However, most sites within the reservoir area have not been evaluated to determine their NHPA eligibility.

Table 1 in Section 8 of this report lists the sites that were identified by Alpine (2000) as being in the drawdown zone. Cultural resource sites within the reservoir area are varied. The 143 known sites within the reservoir drawdown zone range from prehistoric/protohistoric artifact scatters to historic house foundations with the most common types (about 40 percent) being Pueblo I and Pueblo II habitations, which typically contain masonry room blocks associated with pit structures. Additionally, cultural items protected under NAGPRA exist on many of these sites.

The known sites within the reservoir drawdown zone have likely retained much of their integrity (especially pit features) but that integrity is presently being compromised to varying degrees due to wave action and exposure (Alpine, 2000). Other possible impacts include mass wasting, sedimentation, biochemical factors, vandalism, off-highway vehicle use, and past development. It is presumed that site density, type, and integrity of archaeological sites within the reservoir area, but outside of the reservoir drawdown zone, are similar to those of sites within the drawdown zone.

Many cultural sites within the reservoir area and nearby have already been damaged by natural and human-related activities whether or not related to the reservoir. Such damage has been caused by natural actions, such as erosion and wildfire, and human actions such as settlement, agricultural and energy development, recreation use and development, and reservoir construction and operations. Even with the current cultural resources protection requirements for federal undertakings, similar damage will likely continue to occur, especially due to the increased human activity in the area. Reclamation committed to develop, implement and maintain a programmatic cultural resources management plan (CRMP) to guide the long-term management of cultural resources within the reservoir area, but this plan could not be located and may not have been completed (USBR 2006, 2008).

Previous summaries of the cultural resources of the Navajo Dam area have not addressed sites that may have been present downstream of the dam in the San Juan River channel. The possibility of intact cultural resources in the active river channel seems unlikely given the unrestricted flows within the channel prior to the construction of the dam. However there may be deeply buried deposits or cultural resources in relict channels.

A.5 CULTURAL RESOURCE UPDATE

A remote record search for any new information relevant to the Planned Action and No Action Alternative was conducted using the ARMS NMCRIS GIS/Database of ARMS in July 2010 by Kevin T. Doyle of Tetra Tech. The record search was conducted to determine if new sites have been identified since the Navajo Unit EIS was completed, and to make recommendations for the eligibility for nomination to the NRHP for any newly recorded sites and properties.

Using the MAPS feature, the reservoir shoreline was examined for new activities (inventories) within the reservoir below 6,100 feet above sea level, which is fifteen feet higher than the maximum reservoir water level. Although the Navajo Unit EIS was completed in 2006 and the Navajo RMP/EA was completed in 2008 both documents appear to have been based on data compiled in 2000. No new (post-2000) records of inventories or sites in the drawdown zone were located during the record search. No new sites have been recorded in the downstream channel. There have been many inventories in the vicinity of Navajo Dam, but none appear to be relevant to the Planned Action or the No Action alternative.

A.6 DISCUSSION AND CONCLUSIONS

The Planned and No Action Alternatives would not change the flood control operation, maximum reservoir pool or the existing maximum flow allowed below Navajo Dam. No construction is proposed. The effects of ongoing operations on cultural resources have been previously assessed in the Navajo Unit EIS and the Navajo RMP/EA. However, each of these documents commits Reclamation to the preparation of a Cultural Resource Management Plan, but this plan could not be located and may not have been completed. No consultation correspondence with the New Mexico or Colorado State Historic Preservation Offices was included in the Navajo Unit EIS and the RMP/EA.

There is no new potential to cause effects to cultural resources and there will be no new additional or previously unanticipated downstream effects on cultural resources.

A.7 REFERENCES

- Alpine Archaeological Associates. 2000. Draft Technical Report, Potential Impacts to Archaeological Sites, Navajo Reservoir Reoperation Project: Colorado, New Mexico, Montrose, CO
- U.S. Department of the Interior, Bureau of Reclamation (USBR). 2006. Final Environmental Impact Statement *Navajo Reservoir Operation, Navajo Unit – San Juan River, New Mexico, Colorado, Utah*. Upper Colorado Region, Western Colorado Area Office, Grand Junction – Durango, Colorado. Internet web site accessed July 2010: http://www.usbr.gov/uc/envdocs/eis/navajo/navresops_Feis.html.
- U.S. Department of the Interior, Bureau of Reclamation (USBR). 2008. Navajo Reservoir Area Resource Management Plan, Final Environmental Assessment and Finding of No Significant Impact. Upper Colorado Region, Western Colorado Area Office, Grand Junction – Durango, Colorado. Internet web site accessed July 2010: <http://www.usbr.gov/uc/envdocs/ea/navajo/index.html>.

A.8 TABLE OF SITES IN THE NAVAJO RESERVOIR DRAWDOWN ZONE

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000).

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
5,980	LA 4198	Navajo; Anasazi	Structural Habitation	Room block, depression, pit, undefined, burial/grave, pithouse	
5,980	LA 4236	Anasazi	Artifact Scatter		
5,980	LA 4237	Anasazi	Structural Habitation	Isolated room, depression	
5,980	LA 4239	Anasazi	Structural Habitation	Pithouse, isolated room	
5,980	LA 4292	Navajo	Structural Habitation	Hearth	
5,980	LA 4337	Navajo	Structural Habitation	Pithouse	
5,980	LA 4352	Navajo	Structural Habitation	Isolated room	
5,980	LA 4387	Navajo	Structural Habitation	Pithouse, isolated room	
5,980	LA 4291	Navajo	Artifact Scatter	Rockshelter	
5,980	LA 5843	Navajo	Structural Habitation	Pithouse	
5,980	LA 6524	Navajo	Artifact Scatter	Cairn	
5,990	LA 3483	Navajo	Artifact Scatter		
5,990	LA 4192	Anasazi	Structural Habitation	Room block, pithouse	
5,990	LA 4253	Anasazi	Structural Habitation	Isolated room	
5,990	LA 4290	Navajo	Structural Habitation	Isolated room, pithouse	
5,990	LA4291	Navajo	Structural Habitation	Corral, horno/oven	
5,990	LA 4336	Navajo	Artifact Scatter		
5,990	LA 4388	Navajo	Structural Habitation	Isolated rooms (2), pithouse	
6,000	5AA1772	Anasazi PI (Rosa)	Artifact Scatter		

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,000	LA 3038	Navajo; Anasazi	Structural Habitation	Hogan, pithouse, cairn	
6,000	LA 4191	Anasazi	Structural Habitation	Room block, pithouse	
6,000	LA 4213	Anasazi	Structural Habitation	Isolated room, pithouse	
6,000	LA 4232	Anasazi	Artifact Scatter		
6,000	LA 4234	Anasazi	Artifact Scatter		
6,000	LA 4252	Anasazi	Structural Habitation	Isolated room	
6,000	LA 4254	Navajo	Structural Habitation	Hogan, bin/cistern, hearth	
6,000	LA 4274	Unknown historic	Structural Habitation	Water control device, dugout	
6,000	LA 4294	Navajo	Structural Habitation	Rockshelter, hearth, room block	
6,000	LA 4344	Navajo	Structural Habitation	Isolated room, pithouse	
6,000	LA 4386	Navajo	Structural Habitation	Room block, isolated room	
6,000	LA 4396	Navajo	Artifact Scatter	Forked stick hogan	
6,000	LA 4401	Navajo	Artifact Scatter		
6,010	5AA1773	Anasazi PI (Rosa); Navajo (Gobernador)	Structural Habitation	Possible pit structure or hogan	
6,010	LA 4215	Anasazi	Structural Habitation	Pithouse, cairn	
6,010	LA 4218	Anasazi	Structural Habitation	Depression	
6,010	LA 4249	Anasazi	Structural Habitation	Pithouse	

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,010	LA 4389	Navajo	Structural Habitation	Mound, pithouse	
6,020	5AA1272	Anasazi PI (Rosa -Piedra)	Structural Habitation	Burials (2), pithouse, room block small, jacal, pits, midden.	
6,020	5AA1345	Anasazi PI (Piedra)	Structural Habitation	Pithouses (5), rooms (2), pits (45), burials (1), hearths (1)	Radiocarbon dates available, excavated; destroyed
6,020	5AA1829	Anasazi PI-II (Piedra - Arboles); Navajo (Gobernador)	Artifact Scatter		
6,020	5AA1831	Anasazi PI-II (Piedra - Arboles); Navajo (Gobernador)	Artifact Scatter		Collected; destroyed
6,020	LA 3001	Navajo	Rock Alignment - other	Undefined rock alignment	Inundated
6,020	LA 3035	Anasazi	Structural Habitation	Isolated room, pithouse	Structure with cobble-paved floor exactly overlaid earlier pithouse. Cobble-paved structure badly eroded by water.
6,020	LA 3045	Unknown	Artifact Scatter		

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,020	LA 3460	Navajo	Structural Habitation	Hogan	
6,020	LA 4189	Anasazi	Structural Habitation	Pithouse, room block, depression	
6,020	LA 4190	Anasazi	Structural Habitation	Pithouse, room block	
6,020	LA 4217	Anasazi	Structural Habitation	Room block, pithouse, cairn	
6,020	LA 4222	Anasazi	Artifact Scatter		
6,020	LA 4224	Anasazi	Artifact Scatter		
6,020	LA 4231	Anasazi	Structural Habitation	Mound	
6,020	LA 4250	Anasazi	Structural Habitation	Pithouse, room block (2), midden, burial/grave	Pothunting in midden areas
6,020	LA 4273	Unknown historic	Structural Habitation	House foundation, outbuilding	
6,020	LA 4289	Navajo	Structural Habitation	Burial/grave, mound, pithouse	
6,020	LA 4338	Navajo	Structural Habitation	Hogan	
6,020	LA 4340	Navajo	Artifact Scatter		
6,020	LA 4383	Navajo	Artifact Scatter		
6,030	5AA1826	Anasazi PII (Arboles); Navajo (Gobernador)	Artifact Scatter	Ceramics and chipped stone concentration.	Destroyed; collected
6,030	LA 4194	Anasazi	Structural Habitation	Isolated room, pithouse	
6,030	LA 4297	Navajo	Structural Habitation	Hogan	
6,030	LA 4358	Navajo	Artifact Scatter	Undefined rock alignment	Sheet erosion and road construction

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,040	5AA1270	Anasazi PI -II (Rosa- Piedra- Arboles)	Structural Habitation	Middens (2), pithouses (4), stockade (1); burial (1) pit structure/depression (13)	Excavated; destroyed
6,040	5AA1774	Anasazi PI (Rosa- Piedra)	Structural Habitation	Structure (?), sandstone	Destroyed
6,040	5AA1775	Anasazi PI -II (Piedra- Arboles); Navajo (Dinetah - Gobernador)	Artifact Scatter		Heavy Disturbance
6,040	5AA1825	Navajo (Gobernador)	Artifact Scatter	Hearth	Collected
6,040	5AA1827	Anasazi PI (Rosa)	Artifact Scatter	Ceramics and chipped stone concentration	Collected
6,040	LA 26814	Navajo	Structural Habitation	Hearth	
6,040	LA 3031	Anasazi	Structural Habitation	Room block	
6,040	LA 3492	Navajo	Artifact Scatter	Depression	
6,040	LA 4197	Anasazi	Structural Habitation	Midden, stockade, room block, pithouse	
6,040	LA 4199	Navajo; Anasazi	Structural Habitation	Forked stick hogan, horno/oven, hearth, pit – undefined, cairn, ramada/shelter, isolated room	

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,040	LA 4200	Navajo; Anasazi	Structural Habitation	Forked stick hogan, undefined rock alignment, cairn, pithouse, room block	Cairn and hogans pothunted
6,040	LA 4202	Navajo	Structural Habitation	Outhouse, horno/oven, wood concentration, house extant	Reduced rubble mounds
6,040	LA 26814	Navajo	Structural Habitation	Hearth	
6,040	LA 3031	Anasazi	Structural Habitation	Room block	
6,040	LA 3492	Navajo	Artifact Scatter	Depression	
6,040	LA 4197	Anasazi	Structural Habitation	Midden, stockade, room block, pithouse.	
6,040	LA 4199	Navajo; Anasazi	Structural Habitation	Forked stick hogan, horno/oven, hearth, pit – undefined, cairn, ramada/shelter, isolated room,	
6,040	LA 4200	Navajo; Anasazi	Structural Habitation	Forked stick hogan, undefined rock alignment, cairn, pithouse, room block	Cairn and hogans pothunted
6,040	LA 4202	Navajo	Structural Habitation	Outhouse, horno/oven, wood concentration, house extant	Reduced rubble mounds
6,040	LA 4227	Anasazi	Structural Habitation	Hearth, isolated room (2)	
6,040	LA 4230	Anasazi	Artifact Scatter	Isolated room, ash stain	
6,040	LA 4245	Anasazi	Structural Habitation	Isolated room, pithouse	
6,040	LA 4246	Anasazi	Artifact Scatter		
6,040	LA 4247	Anasazi	Structural Habitation	Isolated room, pithouse	
6,040	LA 4248	Anasazi	Structural Habitation	Midden, pithouse, room block	

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). (*continued*)

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,040	LA 4251	Anasazi	Structural Habitation	Pithouse, room block, wall	
6,040	LA 4359	Navajo	Artifact Scatter	Undefined rock alignment	
6,040	LA 4368	Navajo	Structural Habitation	Charcoal stain, hearth, room block, kiva	Bulldozer cuts
6,040	LA 64611	Navajo	Structural Habitation	Room block, pithouse midden	
6,040	LA 64612	Navajo	Structural Habitation	Isolated room	
6,040	LA 82326	Navajo	Structural Habitation	Charcoal stain, hearth	NRHP- eligible
6,050	5AA1788	Navajo (Gobernador)	Structural Habitation	Hogan (3), ceramic and chipped stone concentration	Collected
6,050	5AA1789	Anasazi PI (Rosa- Piedra)	Structural Habitation	Room block –small (3), depression	Destroyed; collected
6,050	5AA1790	Anasazi PI -II (Piedra- Arboles)	Structural Habitation	Burial, pit structure/depression, structure, sandstone, midden	Excavated, collected, destroyed
6,050	5AA1793	Anasazi PI (Rosa- Piedra)	Structural Habitation	Room block –small, sandstone	Destroyed; collected
6,050	5AA1830	Anasazi PI (Rosa); Navajo (Dinetah)	Artifact Scatter		Destroyed
6,050	LA 130024	Unknown	Artifact Scatter		
6,050	LA 137024	Unknown	Artifact Scatter		
6,050	LA 4295	Navajo	Artifact Scatter	Roasting pit	

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,050	LA 4295	Navajo	Artifact Scatter	Hearth, undefined rock alignment, cairn	
6,050	LA 4360	Navajo	Artifact Scatter		
6,050	LA 78419	Navajo	Artifact Scatter		
6,050	LA 4247	Anasazi	Structural Habitation	Isolated room, pithouse	
6,050	LA 4248	Anasazi	Structural Habitation	Midden, pithouse, room block	
6,050	LA 4251	Anasazi	Structural Habitation	Pithouse, room block, wall	
6,050	LA 4231	Anasazi	Structural Habitation	Mound	
6,060	5AA12	Anasazi PI -II	Structural Habitation	Pit structure /depression, petroglyph	Collected
6,060	5AA1266	Anasazi PI (Rosa- Piedra) Navajo	Structural Habitation	Burned jacal, concentration, depression	Collected
6,060	5AA1280	Anasazi PI (Rosa)	Structural Habitation	Jacal, structures	Destroyed
6,060	5AA1785	Anasazi PI (Rosa); Navajo (Gobernador)	Structural Habitation	Structure, adobe, midden	Destroyed; collected
6,060	5AA1791	Anasazi PI -II (Piedra – Arboles)	Structural Habitation	Room block, jacal	Destroyed; collected

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,060	5AA1792	Anasazi PI -II (Piedra – Arboles)	Artifact Scatter		Destroyed; collected
6,060	LA 127928	Unknown	Artifact Scatter		
6,060	LA 3014	Anasazi	Structural Habitation	Petroglyph	
6,060	LA 3033	Unknown	Artifact Scatter		
6,060	LA 4201	Anasazi	Structural Habitation	Pithouse	
6,060	LA 4214	Navajo; Anasazi	Artifact Scatter	Burial/grave	
6,060	LA 4221	Anasazi	Artifact Scatter		
6,060	LA 4225	Navajo; Anasazi	Structural Habitation	Room block, forked stick Hogan, mound	
6,060	LA 4228	Anasazi	Artifact Scatter		
6,060	LA 4276	Navajo	Artifact Scatter		
6,060	LA 4353	Navajo	Structural Habitation	Isolated room	
6,060	LA 4372	Navajo	Structural Habitation	Isolated room	
6,060	LA 4392	Navajo	Structural Habitation	Hearth, forked stick, hogan	
6,060	LA 66246	Navajo	Artifact Scatter		
6,060	LA 79566	Navajo	Structural Habitation	Mound	NRHP-eligible
6,070	5AA1776	Anasazi PI (Rosa- Piedra)	Structural Habitation	Room, fire-cracked rock concentration	Collected

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,070	5AA1786	Anasazi PI (Rosa); Navajo (Gobernador)	Structural Habitation	Depression	Destroyed collected
6,070	5AA1794	Anasazi PI -II (Piedra – Arboles)	Structural Habitation	Field house, sandstone	Destroyed
6,070	5AA1785	Anasazi PI (Rosa); Navajo (Gobernador)	Structural Habitation	Structure, adobe, midden	Destroyed; collected; excavated
6,070	5AA1986	Anasazi PI - Basketmaker III	Artifact Scatter		
6,070	5AA1987	Anasazi PI	Artifact Scatter		
6,070	LA 4275	Navajo; Anasazi	Structural Habitation	Fire-cracked rock concentration, cairn, isolated room	
6,070	LA 4322	Navajo	Structural Habitation	Hogan	
6,080	5AA1267	Anasazi PI (Piedra)	Structural Habitation	Rooms, sandstone (2)	
6,080	5AA1291	Anasazi PI (Rosa – Piedra); Navajo (Gobernador)	Artifact Scatter	Depression	Destroyed collected

Table A-1. Sites in the Navajo Reservoir Drawdown Zone (from Alpine 2000). *(continued)*

Elevation	Site Number	Cultural Affiliation	Site Type	Features	Site Form Comments
6,080	5AA1292	Anasazi PI (Rosa – Piedra)	Structural Habitation	Rooms, sandstone depression	Destroyed collected
6,080	5AA1784	Anasazi PI (Rosa – Piedra)	Structural Habitation	Depression, foundation, sandstone	Destroyed; heavy disturbance; collected
6,080	5AA1787	Anasazi PI-II (Piedra - Arboles); Navajo (Gobernador)	Structural Habitation	Structure, sandstone, burned jacal, hogan, midden	Destroyed collected
6,080	5AA1795	Anasazi PII (Arboles)	Structural Habitation	Structure	Destroyed collected
6,080	5AA1985	Anasazi PI-II	Structural Habitation		
6,080	LA 118640	Unknown	Artifact Scatter		
6,080	LA 3034	Hispanic	Structural Habitation	Corral, house extant, dugout	
6,080	LA 3404	Navajo; Anasazi	Artifact Scatter		
6,080	LA 4187	Anasazi	Artifact Scatter	Hearth	
6,080	LA 4193	Anasazi	Structural Habitation	Pithouse, isolated room	
6,080	LA 4216	Anasazi	Structural Habitation	Pithouse, room block, midden	
6,080	LA 4373	Navajo	Artifact Scatter		
6,084	5AA1984	Anasazi PI-II	Structural Habitation		
6,084	5AA198	Anasazi PI	Structural Habitation		



Appendix B

Notice of Availability

Notice of Availability
Draft Environmental Assessment and Finding of No Significant Impact,
Revision: Water Control Manual for the Navajo Dam and Reservoir,
San Juan River, Colorado and New Mexico

Pursuant to the Council on Environmental Quality regulations that implement the National Environmental Policy Act, the U.S. Army Corps of Engineers (Corps), Albuquerque District, has completed the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), titled, “**Revision: Water Control Manual for the Navajo Dam and Reservoir, San Juan River, Colorado and New Mexico**”. This Draft EA/FONSI addresses impacts to the San Juan River channel from Navajo Dam to Farmington, New Mexico associated with updating the Corps Navajo Dam and Reservoir Water Control Manual and codifying the safe channel capacity at 5,000 cfs. The changes to the manual are being made to accurately reflect current operations. No changes in actual maximum discharges or in channel capacity are proposed. The original water control manual includes inaccurate information on safe channel capacities that will be corrected in this revision of the water control manual.

The Draft EA/FONSI is open for a 30-day public comment period and is electronically available for viewing and copying at the Albuquerque District website (under “FONSI/ Environmental Assessments”) at:

<http://www.spa.usace.army.mil>

or a hard copy will be sent upon written request to the following address:

U.S. Army Corps of Engineers
Albuquerque District
Environmental Resources Section
Attn: Mr. Michael Porter
Albuquerque, New Mexico 87109-3435

Paper copies of this document will also be available for review at:

Bloomfield Public Library
333 South First St.
Bloomfield, NM 87413

Farmington Public Library
2101 Farmington Ave
Farmington, NM 87401

Durango Public Library
1900 E 3rd Ave
Durango, CO 81301

The public review will extend from **February 10, 2011 to March 11, 2011**. Written comments should be sent to the above address and will be accepted until 4:00 PM, March 11, 2011. Alternatively, comments may be sent electronically to michael.d.porter@usace.army.mil.