Final Environmental Assessment

and

Finding of No Significant Impact

for a

Temporary Deviation in the Operation of

Abiquiu Dam, Rio Arriba County, New Mexico

April 2022

Prepared by

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Final Finding of No Significant Impact
Temporary Deviation in the Operation of Abiquiu Dam
Rio Arriba County, New Mexico

The U.S. Army Corps of Engineers, Albuquerque District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final Environmental Assessment (EA) dated 2 May 2022, for the Temporary Deviation in the Operation of Abiquiu Dam addresses water management purposes, opportunities, and feasibility in Rio Arriba County, New Mexico.

The Final EA, incorporated herein by reference, evaluated various alternatives that would allow other responsible agencies to retain and release Rio Grande water at Abiquiu Reservoir while the El Vado Dam is undergoing repair in the study area. The recommended plan includes:

- Retention of up to 45,000 acre-feet per year of Rio Grande water in Abiquiu Reservoir to meet middle Rio Grande irrigation demand
- Retention of up to 20,000 acre-feet per year of Rio Grande water in Abiquiu Reservoir to meet the Six Middle Rio Grande Basin Pueblos' direct flow right

In addition to a "no action" plan, a single deviation alternative was evaluated. The deviation alternative included: 1) allowing Middle Rio Grande Conservancy District (MRGCD) to retain Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand; and/or 2) allowing the Bureau of Reclamation (Reclamation) to retain Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet per year to meet the Six Middle Rio Grande Basin Pueblos' direct flow right.

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Climate change	☐	☐	☒
Hydrology	☒	☐	☐
Water Quality	☐	☐	☒
Vegetation Communities	☐	☐	☒
Fish and Wildlife Habitat	☐	☐	☒
Recreation	☒	☐	☐
Indian Trust Assets	☒	☐	☐
Cultural Resources	☒	☐	☐

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. The proposed action is within normal water operations and doesn't need additional best management practices (BMPs) to minimize impacts.

No compensatory mitigation is required as part of the recommended plan.

Public review of the draft EA and FONSI was completed on 4 April 2022. All comments submitted during the public review period were responded to in the Final EA and FONSI.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the Corps determined that the recommended plan will have no effect on federally listed species or their designated critical habitat.

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the Corps determined that historic properties would not be adversely affected by the recommended plan. The New Mexico SHPO concurred with the determination on 17 March 2022. Tribes with interests in the area were consulted, and no concerns were received regarding this determination. The Rio Chama Acequia Association concurred on 18 March 2022 that the recommended plan would not adversely affect the historic aspects of acequia systems.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

Technical, environmental, and cost effectiveness criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State, and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

4/28/22

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Date

Patrick M. Stevens V.
Lieutenant Colonel, U.S. Army
District Commander

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List of Acronyms

ACE	Annual Chance Exceedance
ac	Acres
AF	Acre-feet
AFY	Acre-feet per year
APE	Area of potential effect
ARMS	Archaeological Records Management System
BMPs	Best Management Practices
BLM	U.S. Bureau of Land Management
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
cfs	Cubic feet per second referring to stream flow
Compact	Rio Grande Compact
CWA	Clean Water Act
ESRI	Environmental Systems Research Institute
GCS	Grade control structure
GIS	Geospatial Information System
HTRW	Hazardous, toxic, and radioactive waste
ITA	Indian Trust Asset
LiDAR	Light detection and ranging (aerial laser used to develop topography)
MBTA	Migratory Bird Treaty Act
MRG	Middle Rio Grande
MRGCD	Middle Rio Grande Conservancy District
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMCRIS	New Mexico Cultural Resources Information System
NMDGF	New Mexico Department of Game and Fish
NMISC	New Mexico Interstate Stream Commission
NMED	New Mexico Environment Department
NMLO	New Mexico Land Office
NM OSE	New Mexico Office of the State Engineer

NMSHPO	New Mexico State Historic Preservation Office
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
OHV	Off-Highway Vehicle
PCEs	Primary constituent elements
PDT	Project development team
Reclamation	U.S. Bureau of Reclamation
RED	Regional Economic Development
RGCC	Rio Grande Compact Commission
SHPO	State Historic Preservation Office/Officer
SJC	San Juan-Chama
TCP	Traditional cultural property
THPO	Tribal Historic Preservation Office/Officer
TSP	Tentatively selected plan
URGWOPS	Upper Rio Grande Water Operations
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
U.S.C.	U.S. Code
USGS	U.S. Geological Survey
Water Authority	Albuquerque Bernalillo County Water Utility Authority
WCP	Water Control Plan
WRDA	Water Resources Development Act
WSEL	Water surface elevation

1 INTRODUCTION

1.1 Background and Location

The U.S. Army Corps of Engineers (USACE), Albuquerque District is proposing a temporary deviation from the current Water Control Plan (WCP) at the Abiquiu Dam and Reservoir Project, Rio Arriba County, New Mexico. USACE received a request (Appendix C) from the New Mexico Interstate Stream Commission (NMISC), dated 15 December 2021, requesting USACE to deviate from its normal operation schedule at Abiquiu Dam to allow retention of native Rio Grande water (Rio Grande water) in Abiquiu Reservoir while El Vado Dam and Spillway are under repair by the U.S. Bureau of Reclamation (Reclamation). Retained Rio Grande water may be released to meet middle Rio Grande irrigation demand, and/or the Six Middle Rio Grande Basin Pueblos' direct flow right. USACE prepared this Final Environmental Assessment (FEA) to analyze potential effects that may result from the proposed retention of Rio Grande water in Abiquiu Reservoir.

The Abiquiu Dam and Reservoir is situated on the Rio Chama about 32 river miles upstream from its confluence with the Rio Grande. The project was authorized for construction by the Flood Control Act of 1948, (Pub. L. No. 80-858) and the Flood Control Act of 1950 (Pub. L. No. 81-516). The Abiquiu Dam and Reservoir were authorized for flood and sediment control, recreation, and development of fish and wildlife resources by Public Laws 80-858, 81-516, and 86-645. The Flood Control Act of 1960 (Pub. L. No. 86-645) requires Rio Grande Compact Commission (RGCC) advice and consent when deviating from the current WCP.

The El Vado Dam and Lake are located on the Rio Chama 32 miles upstream of Abiquiu Reservoir, and 30 miles downstream from Chama, NM. The dam was completed in 1935 to supplement irrigation water for the Middle Rio Grande Conservancy District (MRGCD) with a capacity of 198,000 acre-ft. for a 3,200-acre lake. Reclamation will begin conducting repairs and construction on El Vado Dam in spring 2022 for up to three years (USBR 2020). During the repairs and construction, El Vado will not be able to retain any Rio Grande water.

1.2 Purpose and Need for Action

The purpose of the proposed deviation action is to implement a temporary deviation from the WCP for Abiquiu Dam, which will allow other responsible agencies to retain and release Rio Grande water at Abiquiu Reservoir that would normally be retained at El Vado Reservoir while the El Vado Dam is undergoing repair (USBR 2020). The deviation request is for three (3) years until the completion of the El Vado Dam repairs, which are expected to start by the end of May 2022 and continue until December 2024. The water may be retained as Relinquishment Credit to meet middle Rio Grande water users' demand and/or as Prior and Paramount (P&P) water for the Six Middle Rio Grande Basin Pueblos. Responsible agencies retaining Rio Grande water under the deviation shall be subject to applicable state and Federal law. The deviation would be executed subject to advice and consent of the RGCC and any requirements of relevant and applicable permits.

1.3 Regulatory Compliance

This Environmental Assessment (EA) was prepared by the USACE, Albuquerque District, for the proposed deviation action in compliance with all applicable Federal Statutes, Regulations, and Executive Orders, including, but not limited to, the following:

- Archaeological Resources Protection Act (16 U.S.C. § 470aa *et seq*.)
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 C.F.R. Part 1500 *et seq*.)
- Clean Air Act (42 U.S.C. § 7401 § *et seq.*)
- Clean Water Act (33 U.S.C. § 1251 *et seq.*)
- Endangered Species Act (16 U.S.C. § 1531 *et seq*.)
- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 11988, Floodplain Management
- Executive Order 11990, Protection of Wetlands
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Executive Order 13112, Invasive Species
- Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance
- Farmland Protection Policy Act (7 U.S.C. § 4201 *et seq.*)
- Federal Noxious Weed Act (7 U.S.C. § 2814)
- Fish and Wildlife Coordination Act (48 Stat. 401; 16 USC § 661 *et. seq.*)
- Migratory Bird Treaty Act (16 U.S.C. § 703 *et seq.*)
- National Environmental Policy Act (NEPA, 42 U.S.C. § 4321 *et seq*.)
- National Historic Preservation Act (54 U.S.C. § 300101 *et seq*.)
- Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001 *et seq*.)
- Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 *et seq*.)
- Section 438 of the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140, § 438; 121 Stat. 1492, 1620)
- U.S. Army Corps of Engineers' Procedures for Implementing NEPA (33 C.F.R. Part 230; ER 200-2-2)

The New Mexico Office of the State Engineer (NM OSE) is charged with administration of all water in the State of New Mexico pursuant to NMSA 1978, § 72-2-1 (1982). In the Rio Grande basin, the NM OSE performs numerous activities, some of which may be affected by the proposed deviation action. Those activities include, but are not limited to, basic water rights administration under state law and NM OSE Rules and Regulations, Active Water Resource Management (AWRM), and addressing state water resource policy issues that may impact the river system.

The NMISC is charged with administration of all interstate water compacts for New Mexico, as well as protecting, conserving, and developing the waters and stream systems of the State (NMSA 1978, § 72-14-3, 1953). In the Rio Grande basin, the NMISC performs numerous activities, some of which may be affected by the proposed deviation action. Those activities include monitoring water operations of the USACE and Reclamation, conducting annual accounting of Rio Grande and San Juan-Chama (SJC) Project water, coordinating with the NM OSE and water users on Rio Chama water administration and active water resource management (shortage sharing), assessing

and determining Rio Grande Compact compliance, and addressing Federal natural resource policy issues that may impact the river system.

This EA also reflects compliance with all applicable State and local regulations, statutes, policies, and standards for conserving the environment, such as water and air quality, endangered plants and animals, and cultural resources.

1.3.1 Rio Grande Compact

The Rio Grande Compact (Compact) is an interstate agreement between New Mexico, Colorado, and Texas to equitably apportion the water of the Rio Grande between the three states and the Republic of Mexico (URGWOPS FEIS; USACE, USBR, NMISC, 2007). The Compact was approved by Congress on May 31, 1939 (Pub. L. No. 76-96), and is administered in New Mexico pursuant to NMSA 1978, § 72-15-23 (1945). A RGCC was established consisting of one representative from each state and a United States-designated representative.

1.3.2 Federal Trust Responsibilities to Pueblos and Tribes

The Federal Indian trust responsibility is a legal obligation under which the United States "has charged itself with moral obligations of the highest responsibility and trust" toward Indian tribes *Seminole Nation v. United States*, 316 U.S. 286 (1942). The Federal Indian trust responsibility is also a legally enforceable fiduciary obligation on the part of the United States to protect tribal treaty rights, lands, assets, and resources, as well as a duty to carry out the mandates of Federal law with respect to American Indian and Alaska Native tribes and villages.

1.4 Documents Incorporated by Reference

Incorporation of previous analysis by reference is encouraged by NEPA. For NEPA, the CEQ regulations (40 C.F.R. §§ 1500.4, 1502.21) state that agencies shall incorporate material by reference when the effect will be to reduce bulk without impeding agency and public review of the proposed deviation action alternative. The incorporated material shall be cited, and its content summarized. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data, which are themselves not available for review and comment, shall not be incorporated by reference.

This EA incorporates by reference information contained in the following documents:

- Upper Rio Grande Basin Water Operations Review. Final Environmental Impact Statement. (URGWOPS FEIS; USACE, USBR, NMISC, 2007). This document was prepared by USACE, Reclamation, and NMISC to analyze the effects of water operations by these agencies on the Rio Grande and Rio Chama.

Relevant portions of all documents incorporated by reference into this EA are summarized throughout this EA where specifically noted.

1.5 Abiquiu Dam and Reservoir

The USACE is responsible for operation and maintenance of Abiquiu Dam for flood risk management (flood control) on the Rio Chama (Figure 1). The primary purpose of Abiquiu Dam is flood and sediment control, with water supply and hydropower generation as authorized by Congress. Two Reclamation-operated facilities at Heron Reservoir and El Vado Dam upstream of Abiquiu Reservoir play important roles regulating tributary flow on the Rio Chama.

The Abiquiu Dam and Reservoir Project is situated on the Rio Chama about 32 river miles upstream from its confluence with the Rio Grande. The project was authorized for construction by the Flood Control Act of 1948 (Pub. L. No. 80-858) and the Flood Control Act of 1950 (Pub. L. No. 81-516). The Flood Control Act of 1960 (Pub. L. No. 86-645) requires that all USACE dams in the middle Rio Grande (Abiquiu, Cochiti, Jemez Canyon and Galisteo) work as a unit to reduce flood risk in the MRG. Any deviation from the current WCP will require the advice and consent of the RGCC. Construction of Abiquiu Dam was initiated by the USACE in 1956, and the project was completed and placed into operation in 1963. The dam is a rolled earthfill structure with a crest length of 1,800 feet, and the maximum height above the stream bed is approximately 341 feet. The drainage area contributing flow to Abiquiu Reservoir comprises 2,146 square miles.

Subsequent legislation added authority for water supply storage (specifically, SJC Project water storage). The reservoir's storage allocations include 502,000 acre-feet (AF) for flood control and 77,039 AF for sediment retention. At the end of 2021, an estimated 53,770 AF of the initial 77,039 AF sediment reserve space remained unfilled. Storage of SJC Project water occurs within the flood control space and unused portion of the sediment reserve space. Section 337 of the Water Resources Development Act (WRDA) of 2020 authorized USACE to simultaneously store both Rio Grande and SJC Project water at Abiquiu Reservoir. Section 337 of WRDA 2020 also changed the storage capacity at Abiquiu Reservoir from 200,000 AF to an elevation of 6,230 ft NGVD29. USACE will revise the Abiquiu WCP as necessary, to address the changes authorized by Section 337 of WRDA 2020.

1.5.1 Rio Chama Flood Regulation

Under current operating procedures, Rio Grande basin flow and releases from El Vado Reservoir upstream are passed through Abiquiu Reservoir without regulation. The only situation in which the USACE would take any action would be to maintain the safe channel capacity downstream. Due to reach-specific safe channel capacity constraints, releases from Abiquiu Reservoir are restricted to 1,800 cfs directly below the dam. Flows are regulated so as not to exceed 3,000 cfs at the Chamita gage or 10,000 cfs at the Otowi gage.

Operation of Abiquiu Dam for flood control is coordinated with Cochiti, Galisteo, and Jemez Canyon dams, which are jointly operated for a channel capacity of 7,000 cfs at Albuquerque (Central Avenue Bridge). Flood regulation is initiated at Abiquiu Dam when flows into the reservoir exceed the capacity of the Rio Chama downstream from the Dam or when flows on the Rio Grande equal or exceed its channel capacity. Flood regulation at Abiquiu Dam can be expected from April through June and during the monsoon season from July through September. Historically, storage level at Abiquiu Reservoir reached a maximum water storage to date of 402,258 AF (elevation 6,261.1) in June 1987, which is about 22.4 ft below top of the flood control (elevation 6283.5 ft).

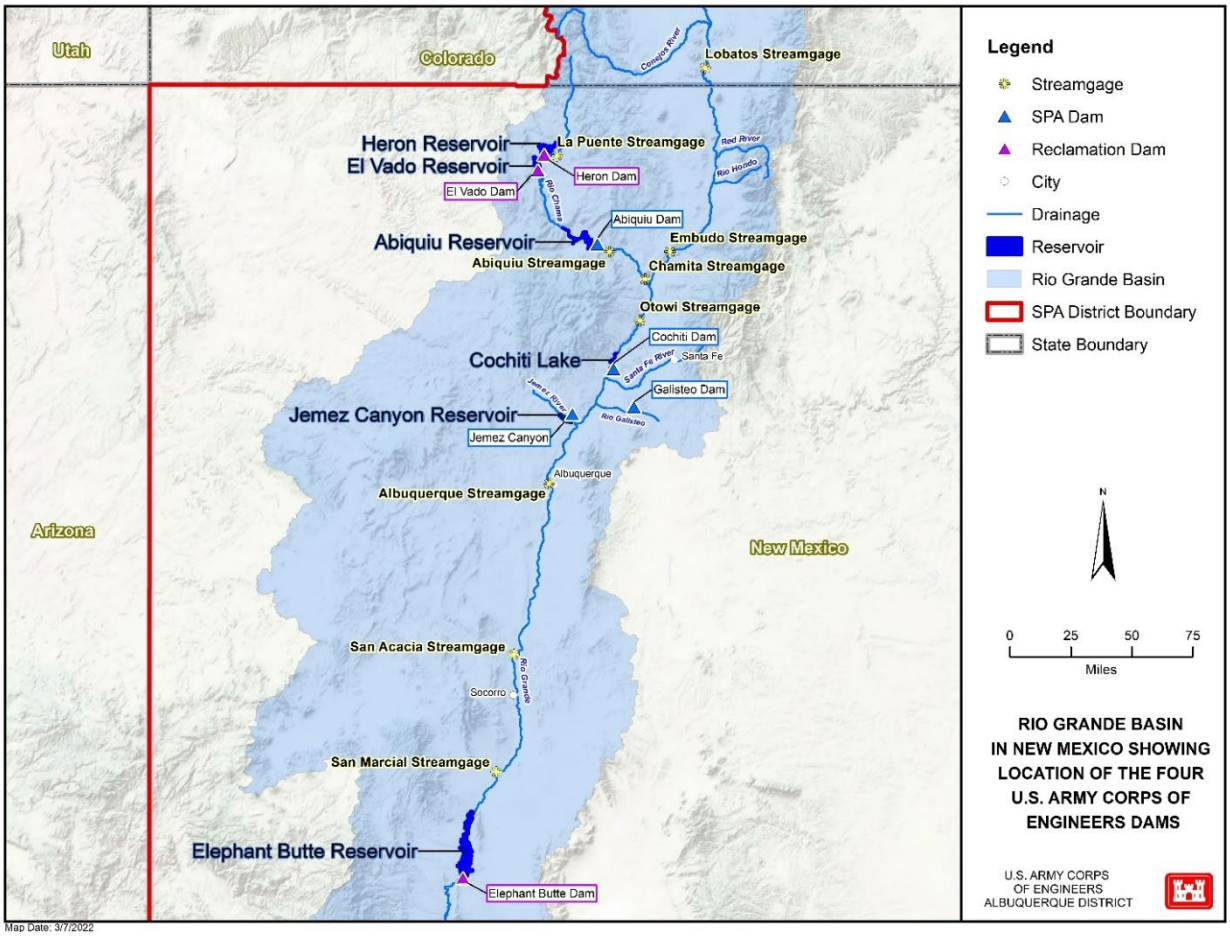

Figure 1 Map of the Rio Grande basin in New Mexico showing location of the four U.S. Army Corps of Engineers dams. USACE 2019.

1.5.2 Rio Chama Hydropower

A hydroelectric power facility was constructed downstream of Abiquiu Dam in 1991. The power plant was constructed and is currently owned and maintained by the incorporated County of Los Alamos. A written agreement between the County and the USACE prior to construction of the plant stipulates that no releases will be made specifically for the benefit of the power plant (USACE 1995). The plant is a run-of-the-river facility that does not impact reservoir storage or releases.

1.5.3 San Juan-Chama Water Retention

Reclamation's SJC Project diverts water from the Navajo, Little Navajo, and Blanco rivers, which are upper tributaries of the San Juan River (of the Colorado River basin), for use in the Rio Grande basin in New Mexico (USACE, USBR, ISC 2007). After being diverted through an underground tunnel, this water is stored at Heron Reservoir, upstream from Abiquiu Dam. Reclamation delivers SJC Project water to users in the middle Rio Grande basin based on contracts with various water-management entities. Delivery of SJC Project water is authorized for municipal, domestic, industrial, recreation, irrigation, and fish and wildlife purposes. The following statutory conditions must be met for use of SJC Project water:

- Must be consumptively and beneficially used in New Mexico.
- Must have a downstream destination.
- Must not harm Rio Grande water.
- Is not subject to provisions of the Rio Grande Compact.

SJC Project water is released from Heron Reservoir by Reclamation to a specific user, who can use such water immediately or store it in other facilities for future use. In 1981, Pub. L. No. 97-140 authorized the Secretary of the Army to enter into agreements with entities that have contracted with the Secretary of the Interior for water from the SJC Project. The authorization allows for up to 200,000 AF of this water to be stored in Abiquiu Reservoir within the flood control space and unused portion of the sediment reserve space. The USACE has entered into agreements with the Albuquerque Bernalillo County Water Utility Authority (Water Authority) and other entities for SJC Project water storage (Table 1.1). Up to 184,753 AF (elevation 6,220 ft.) could currently be stored pursuant to storage easements held by the Water Authority[1]. When full, this pool creates a 4,190-surface-acre reservoir. The authorizing legislation stipulates that storage of this water shall not interfere with the authorized purposes of Abiquiu Reservoir (namely, flood and sediment control). Releases of SJC Project water from Abiquiu Reservoir represent individual decisions made by contractors to call for their water, without any discretionary action by the USACE. The USACE does ensure that such flows are passed in a manner that does not threaten the safety or structural integrity of flood control facilities.

Table 1 San Juan-Chama Project storage allocations at Abiquiu Reservoir, 2021.

San Juan-Chama Project contractor	Allocation (AF)
Albuquerque-Bernalillo County Water Utility Authority	170,900
Middle Rio Grande Conservancy District	2,000
City of Santa Fe	7,542
City of Los Alamos	1,730
City of Española	1,442
Town of Bernalillo	577
County of Santa Fe	541
Twining Water & Sanitation District	22
Total	184,753

In 1988, Pub. L. No. 100-522 authorized the storage of up to 200,000 AF of Rio Grande system water at Abiquiu Reservoir in lieu of SJC Project water to the extent storage space is no longer required for the storage of SJC Project water as authorized by Pub. L. No. 97-140. Presently, all

[1] The upper limit of SJC storage is the 6,220-foot elevation, which corresponds to the vertical extent of the Water Authority's storage easements with surrounding landowners. The actual volume of allowable SJC storage decreases over time as sediment retention in the reservoir increases.

water supply storage at Abiquiu Reservoir consists of SJC Project water; there are no agreements for storage of Rio Grande water. Section 337 of WRDA 2020 authorized USACE to simultaneously store both Rio Grande and SJC Project water at Abiquiu Reservoir. Section 337 of WRDA 2020 also changed the storage capacity at Abiquiu Reservoir from 200,000 AF to an elevation of 6,230 ft NGVD29. USACE will revise the Abiquiu WCP, as necessary, to address the changes authorized by Section 337 of WRDA 2020.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

USACE is evaluating the pending deviation request from the Abiquiu WCP to retain Rio Grande water in Abiquiu Reservoir. Abiquiu Reservoir is the area for analysis of the proposed deviation action in this EA.

The retained water will serve two purposes. The first purpose will allow MRGCD (NM OSE 2022) to retain Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand. The water will be retained in the SJC Project conservation pool below elevation 6,220 ft NGVD. The total amount that will be retained during the deviation period is 90,000 acre-feet, with a maximum annual amount of 45,000 acre-feet. Unused water will be carried over to the following year.

The second purpose will allow Reclamation to retain Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet/year to meet the Six Middle Rio Grande Basin Pueblos' direct flow right. The water will be retained in the SJC Project conservation pool below elevation 6,220 ft NGVD. Unused water will be released between 01 November and 15 December of each year.

All water management actions performed by the responsible agencies under the proposed deviation shall be subject to applicable state and Federal law including the articles and provisions of the Rio Grande Compact. In addition, responsible agencies must secure the required real property interest for retention of water in Abiquiu Reservoir. Likewise, these agencies shall be responsible for acquiring any and all the appropriate and applicable state permits.

2.2 The No Action Alternative

Under the no action alternative, El Vado Dam, upstream of Abiquiu Dam, will be under repair and therefore not available to retain its typical amount of water starting in May 2022. Absent a deviation at Abiquiu Dam, all water will pass through El Vado and Abiquiu dams during the El Vado Dam repairs. Therefore, the proposed no action (baseline scenario) is to pass all inflow to El Vado and Abiquiu dams to the downstream channel capacity, except SJC Project water, which will follow normal operation at Abiquiu Dam.

2.3 Alternative Actions Evaluated

No other alternatives were considered for inclusion as components of the proposed deviation action.

3 EXISTING ENVIRONMENT AND FORESEEABLE EFFECTS OF THE NO ACTION ALTERNATIVE

The following general summary of the physical environment of the Abiquiu Dam and Reservoir is sufficient for the purposes of analyzing the effects of implementing a deviation to allow for Rio Grande water retention in the reservoir. This section describes the existing environmental resources in the action area and evaluates effects of the no action alternative.

3.1 Environmental Resources Addressed by the U.S. Bureau of Reclamation

3.1.1 Rio Grande Water Delivery

Rio Grande water management operations on the Rio Chama has been previously evaluated under NEPA (USACE, USBR, NMISC 2007), and the Endangered Species Act (ESA) by Reclamation (2015, 2020), and the Fish and Wildlife Service (USFWS 2016). Reclamation (2020) evaluated the effects on the Rio Chama between El Vado Reservoir and Abiquiu Reservoir during construction to repair El Vado Dam.

3.2 Environmental Resources Not Considered in Detail

Initial evaluation of the effects of the proposed deviation action indicated that there would likely be little to no effect on several resources with implementation of the proposed deviation action. This analysis also considers the 'no action' or 'without deviation' alternative where the proposed action is not implemented. These resources are discussed below to add to the overall understanding of the action area.

Initial evaluation of the effects of the proposed deviation action indicated that there would likely be little to no effect on regional geology, air quality, noise, floodplains and wetlands, noxious and invasive species, land use, aesthetics, socioeconomics demographics, and environmental justice with either "with" or "without" action alternatives. This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) for the effects of water management at Abiquiu Reservoir for these resources. Under the existing conditions (no action), there would likely be little to no effect on regional geology, air quality, ambient noise, aesthetics, hazardous waste, demographics, socioeconomics, and land use.

3.2.1 Regional geology

The action area lies within the Española Basin, a sediment-filled asymmetric west-tilted half-graben that formed as part of the Rio Grande Rift. The Rio Grande Rift created a series of north-south trending faults that resulted in uplifted mountains, widespread volcanism, and large sediment filled basins. The Española Basin is bounded by the Sangre de Cristo Mountains to the east, the Jemez Volcanic Field to the west, the San Luis Valley and Chama basins to the north, and the Albuquerque Basin to the south-southwest (USACE 2017).

The Rio Chama flows through a narrow canyon (~350 feet deep), varying in width from about 300 feet at the bottom to about 1,500 feet at the top (USACE 1987). The upper rim of the canyon is the Poleo Sandstone (Triassic age) underlain by the Abo formation (Permian age). Poleo Sandstone is dominantly white to buff colored, medium to coarse grained, quartzitic, well cemented, and highly jointed. Locally, there are thin seams and zones of conglomerate with cobbles up to four inches in diameter. All sand and gravel size material are well rounded. The upper Abo formation is a

massive, red to brown mudstone with irregular lenses and masses of gray green sandy mudstone. The remainder of the Abo formation exposed at the dam site is a series of intermingled lenses of silty mudstone and silty sandstone. The dominant color is red-brown, but some units are purple to green.

3.2.2 Air Quality

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts to air quality. The area is an attainment area for all criteria air pollutants. Non-criteria pollutants, such as those associated with Los Alamos National Laboratory and tailpipe emissions from increasing traffic will continue to be air quality issues. Bandelier National Monument is a Class I Federal air quality area. Future actions within the action area must account for and avoid potential degradation of the air quality at Bandelier. There are no documented air quality non-attainment issues in Rio Arriba County, NM.

3.2.3 Noise

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts to noise. The action area is located in Rio Arriba County, NM. The action area is generally quiet, rural settings, with only limited background noise from major highways, aircraft flyovers, sirens, or other urban noise. Background noise levels would not change under the no action conditions.

The lands adjacent to the reservoir and river are relatively undeveloped. Dominant sounds in the action area originate from natural sources: water, wind, and wildlife. Local traffic noise is generated by various highway crossings. Noise levels and patterns at developed recreation areas and frequently-used informal use areas are localized and typical of campground and day use recreational areas. Beyond these formal and informal recreation areas, the most conspicuous noise producers are power boats and jet skis on the reservoirs that allow these activities. Noise levels above 85 decibels (dB) will harm hearing over time. Noise levels above 140 dB can cause damage to hearing after just one exposure.

3.2.4 Floodplains and Wetlands

Waters of the U.S. (i.e., wetlands and other surface waters) provide important and beneficial functions, including protecting and improving water quality, providing fish and wildlife habitat, and storing floodwaters. Because they provide these important functions, this resource is protected via two Acts: section 10 of the Rivers and Harbors Act of 1899 and section 404 of the Clean Water Act (CWA) of 1972, as amended. These Acts require avoidance of adverse impacts, minimization of adverse impacts, and offsetting of unavoidable adverse impacts to existing aquatic resources; and for wetlands, striving to achieve a goal of no overall net loss of values and functions.

Executive Order 11988 (Floodplain Management) provides Federal guidance for activities within the floodplains of inland and coastal waters. Federal agencies are required to “ensure that its planning programs and budget requests reflect consideration of flood hazards and floodplain management.” Preservation of the natural values of floodplains is of critical importance to the nation and the State of New Mexico. These natural values include preservation of wetlands.

Wetlands are lands transitional between terrestrial and aquatic ecosystems where the water table is at or near the surface or the land is covered by shallow water (Cowardin et al. 1979). Saturation

with water determines the nature of soil development and, in turn, the types of plant and animals inhabiting these areas. Scurlock (1998) has summarized trends for historic Rio Grande riparian communities over the last 150 years. The riparian ecosystem has changed with the decline of cottonwood gallery forest, encroachment of upland junipers, and invasion of salt cedar (*Tamarix ramosissima*), Russian olive, and Siberian Elm (*Ulmus pumila*).

The flood control pool at Abiquiu Reservoir consists of upland vegetation described in Section 3.5. The fluctuating water surface elevation doesn't support development of wetlands in the flood control pool.

3.2.5 Noxious Weeds and Invasive Species

The majority of non-native species within the action area are plants. Though some non-native fish and other wildlife may exist, they are not of major concern. The invasive tree species of concern include salt cedar, Russian olive, and Siberian elm.

Executive Order 13112 directs Federal agencies to prevent the introduction of invasive (exotic) species and provides for their control to minimize the economic, ecological, and human health impacts that invasive species cause.

In addition, the New Mexico 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 impact 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.

3.2.6 Land Use

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts on land use and agriculture. The flood control space in the Abiquiu Reservoir action area is unmanaged terrestrial habitat. Public lands on both sides of the Rio Chama immediately downstream of Abiquiu Reservoir are managed by USACE, the Bureau of Land Management (BLM), the US Forest Service (USFS), and the New Mexico Land Office (NMLO). Immediately downstream of these public lands are private agricultural lands on one or both sides of the Rio Chama. These agricultural lands use acequias that divert irrigation water from the river. Sixteen irrigation diversion structures exist on the Rio Chama between Abiquiu Dam and the confluence with the Rio Grande (USACE 1996).

3.2.7 Aesthetics

The NEPA and Council on Environmental Quality (CEQ) regulations identify aesthetics as one of the elements that must be considered in determining the effects of an action. Aesthetics include the presence and appearance of landforms, water surfaces, vegetation, and human created features relative to the surroundings and settings of the area. These features are primary characteristics of an area or action that determine visual character and the manner in which people view the setting. Aesthetics analysis considers the existing and future appearance, or perception of views, of the

project site and areas surrounding the site, as well as viewer sensitivity. The existing condition for the aesthetics of the Rio Chama and adjacent riparian areas ranges from fair to good.

3.2.8 Socioeconomics

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts to socioeconomics. The leading employment sectors in Rio Arriba County (USACE 2017) are education, health care, and social services (20.9 percent), and public administration (16.4 percent). Agriculture employs about four percent of the county's workers, while hospitality services and construction each employs more than ten percent of the workforce. Implementation of the proposed deviation action would not adversely impact the socioeconomics of the action area. Increased recreational use may contribute to the local economy.

3.2.9 Demographics

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts to demographics. The action area and affected populations is in Rio Arriba County, NM. The population of Rio Arriba County has decreased slightly from 41,190 in 2000 (U.S. Census Bureau 2018). The majority of the surrounding project population is Hispanic/Latino followed by White (not Hispanic), Native American, Black, and Asian (Table 2). New Mexico population projections were developed (Table 3) for the recently approved New Mexico State Water Plan to support regional water planning efforts (USACE 2006).

Table 2 Demographic parameters by heritage and age for the action area (2018).

	Total Population	**White, not Hispanic**	**Hispanic / Latino**	**Native American**	**African American**	**Asian**
New Mexico	2,088,070	37.5%	48.8%	10.9%	2.5%	1.7%
Santa Fe County	148,750	43.0%	51.0%	4.3%	1.2%	1.6%
Los Alamos County	18,738	72.0%	17.8%	1.4%	1.2%	6.4%
Rio Arriba County	39,159	12.9%	71.3%	19.0%	0.8%	0.6%
United States	325,719,178	60.7%	18.1%	1.3%	13.4%	5.8%
	Total Population	**0-17 years**	**18-64 years**	**65 and over**	**Below poverty level**	
New Mexico	2,088,070	23.4%	59.7%	16.9%	19.7%	
Santa Fe County	148,750	18.4%	58.4%	23.2%	14.0%	
Los Alamos County	18,738	22.7%	59.9%	17.4%	4.0%	
Rio Arriba County	39,159	23.7%	57.6%	18.7%	22.5%	
United States	325,719,178	22.6%	61.8%	15.6%	12.3%	

Table 3 Projected County Population and Annual Average Growth Rate

2000 to 2040									
Counties/Key Municipalities	**Total County Population by Projection Year (5 year increments)**								
	2000	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
New Mexico Counties									
Rio Arriba	41,307	43,694	46,030	48,196	50,027	51,451	52,519	53,269	53,676
Los Alamos	18,359	18,722	19,122	19,122	20,099	20,565	20,866	21,034	21,224
Santa Fe	129,936	143,987	158,624	174,400	191,403	208,801	226,112	244,751	264,778

3.2.10 Environmental Justice

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (11 February 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 deviation action. The 1995 Environmental Protection Agency (EPA) guidance document, Environmental Justice Strategy: Executive Order 12898, 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. These goals are designed to:

- Focus the attention of Federal agencies on human health and general environmental conditions in minority and low-income communities with the goal of achieving environmental justice;
- Foster nondiscrimination in Federal programs that could substantially affect human health or the environment; and
- Give minority and low-income communities greater opportunities for public participation on matters relating to human health and safety.

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts for Environmental Justice. Environmental justice addresses the issue of disproportionate impacts on minority and/or low-income populations. Therefore, the locations of these populations must be known in order to evaluate potential environmental justice issues. For this analysis, populations with a high percentage of people of Hispanic origin, a high percentage of Native Americans, and a high percentage of low-income households or high poverty rates are identified. The locations of these identified populations are used to evaluate Environmental Justice concerns. The Reservoir is not known to be utilized disproportionately by the groups described above. Additionally, implementation of the Proposed Action would not involve population relocation, health hazards, or property takings. For the reasons described, the Proposed Action would have no adverse human health or environmental effects on minority and low-income populations, nor Indian tribes.

3.2.11 Hazardous, Toxic, and Radioactive Waste (HTRW)

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding impacts from hazardous, toxic, or radioactive waste (HTRW) in the action area.

3.3 Climate

This section provides information on the existing climate in the action area, and on projected changes in future climate conditions. A detailed discussion of regional climate and climate change, along with an assessment of climate impacts to regional hydrology, riparian and aquatic ecosystems can be found in the Española Valley, Rio Grande and Tributaries, New Mexico Final Integrated Feasibility Report and Environmental Assessment (USACE 2017, Appendix G).

Recent overviews of climate change in the Southwestern United States have been provided (Garfin et al. 2013;, Melillo et al. 2014), with important syntheses of climate change impacts to New Mexico (NM OSE 2006; USBR et al. 2013). These sources indicate that observed trends are likely to continue. Models project substantial warming over the 21st Century of 5-7°F by 2100 as compared to late 20th Century averages; warming may reach as much as 8.5 to 10°F by 2100 under plausible high emissions (large radiative forcing) scenarios. Even with no net changes in total precipitation, warming will affect regional hydrology through changes in the snowpack (Elias et al. 2015). Higher temperatures will delay the date at which precipitation falls as snow in the fall and cause a 4-6 week earlier shift in the date at which precipitation reverts to rain in the spring. The altitude at which a winter snowpack will develop is anticipated to rise. The combination of these trends is an overall reduction in snowpack volume to support ecologically-essential spring runoff flows, as well as reductions in baseflows during the remainder of the year. For the Rio Grande basin above Elephant Butte, declines in snow water equivalence, annual runoff, December-March runoff, and April-July runoff are all anticipated (USBR 2011). Increases in the frequency, intensity, and duration of both droughts and floods are expected (USBR et al. 2013).

Riparian and aquatic ecosystems along the Rio Chama are likely to be affected by changes in stream flow that alter water quantity, seasonal water availability, water quality, and increases in riparian evaporation. Projected reductions in annual maximum monthly flows are likely to reduce the spring runoff hydrograph, and, therefore, reduce the average amount and extent of spring runoff flooding of restoration measures on the floodplain. However, the amount of this projected reduction is small relative to the interannual variability, adding considerable uncertainty to estimates of ecological impacts. Projected impacts to the Middle Rio Grande riparian areas (Friggens et al. 2013) that are likely to be broadly applicable to northern New Mexico riparian areas include:

- Reduced riparian habitat due to decreased stream flows and longer drought;
- Decline in cottonwood gallery forests due to lower flows, more frequent wildfires, and disease;
- Loss/reduction of native vegetation and replacement by invasive tree and grass species due to fire and lower water tables, and changes in spring runoff timing/volumes;
- Increasingly arid conditions would favor replacement of grassland and woodland habitats with scrubland, accompanied by reductions in vegetation cover; and

- Increased duration of drought, with increases in droughts lasting 5 years or more and increases in drought intensity.

3.3.1 Existing Climate

The climate of the Española Valley ranges from semi-arid (approximately 10" of precipitation/year) along the Rio Grande to alpine (approximately 40" of precipitation/year) at the highest elevations of the surrounding mountain peaks. Mountain areas retain snow during the winter months and melting of the snowpack in spring contributes significantly to spring runoff flows on the Rio Grande and Rio Chama.

A National Oceanic and Atmospheric Administration (NOAA) National Weather Service Cooperative Observer station with a relatively complete record is located at Alcalde (Station 290245), along the Rio Grande northeast of Ohkay Owingeh. The period of record for this station is 1953 through October 2012. The climate at Alcalde is arid continental with large daily and seasonal temperature differences (USACE 2017). Summers tend to be hot and dry; winters tend towards cool and humid. Peak precipitation occurs during the late summer/early fall (July, August, September) during the peak of the North American Monsoon (monsoon), with a secondary peak in winter. Spring and fall tend towards warm and dry.

The monthly period of record temperature summary at Alcalde (USACE 2017, Appendix G) shows that monthly average daytime maximum temperatures (Tmax) are above freezing in all months. Winter Tmax averages 47.7°F, with few winter days with Tmax <=32°F. Monthly overnight minimum temperatures (Tmin) average 17.1°F in winter, but can reach as low as -34°F. In summer, Tmax averages 87.4°F. July is the hottest month, with an average of 16 days with temperatures above 90°F and occasional days where temperatures peak as high as 102°F. Monthly overnight low temperatures average 69.9°F in summer.

At Alcalde, precipitation averages 10.01” per year (USACE 2017, Appendix G). In most months, precipitation is 0.75” or less, but is higher during the monsoon season: July receives an average of 1.37”, August 1.89”, September 1.26”, and October 1.04”. Precipitation may fall as snow from October through April, with average monthly snowfall peaking in December at 2.8”.

Floods occur from April through October and are usually the result of rain alone, rain-augmenting snowmelt runoff, or in some rare cases, extremely high snowmelt runoff events. Local rain events caused by convective storms create flash floods on the tributaries, which accumulate in the Rio Grande’s channel. Many of the flood-producing storms on the main stem Rio Grande occur during the transitional periods between spring and summer and between summer and fall. During these periods, the strong intrusion of cool northern air interacts with the moist tropical air to produce the widespread storms over the watershed.

Topography significantly influences local climate in winter and summer. In winter, the dominant pattern is for storms to move into the region from the west or northwest; much of the precipitation falls over the western and central portions of the Jemez Mountains, and the amount declines rapidly moving east of the Sierra de los Valles and down slope to the Rio Grande. During the monsoon season, thunderstorm development is encouraged by daytime surface heating over the Pajarito Plateau and Sierra de los Valles. Daytime surface heating causes air to rise, initiating convection that can pull in air from lower areas to the southeast (Bowen 1996). This convection leads to the formation of thunderstorms over the plateau. Westerly winds in the upper atmosphere can push

these storms east towards the Rio Grande as well as advect precipitation into the area. The Sangre de Cristo Mountains prevent moisture from the Plains from entering the region. The region effectively lies in the rainshadow of the Sangre de Cristo Mountains with respect to moisture transported northwestward from the Gulf of Mexico.

Wind direction is generally from the southeast in summer and from the west in winter but varies greatly because of local topography and mountain and valley breezes. Los Alamos National Laboratory researchers have deduced a diurnal pattern of wind movement from observations in the various Pajarito Plateau Canyon systems. During the day, the winds tend to blow up-canyon from the east; at night, the winds tend to blow down-canyon from the west. Shear winds have also been noted across the canyons (Bowen 1996).

In recent decades, temperature increases have been observed regionally (USACE 2017, Appendix G). Annual temperatures in New Mexico warmed at an average rate of 0.219°F (0.10°C) per decade from 1912 to 2011 but at the faster rate of 0.678°F (0.34°C) per decade since 1970 (Tebaldi et al. 2012). The same pattern of faster recent warming was also observed in annual average daytime maximum high temperature (Tmax) and annual average nighttime minimum temperature (Tmin). Higher rates of warming have been observed in high elevation areas, particularly in winter. There has been no detectable trend in precipitation.

In the vicinity of the action area, statistically-significant increases in temperature have been observed over the period 1971-2012, particularly in the months of January and March, and in the summer months from May through September. Daytime high temperatures have risen at about 1°F/decade from May through November in the Middle Rio Grande, and at approximately half that rate along the Rio Chama and Jemez River. Rates of warming have been slower in the Jemez Mountain stations. Only in March is there a significant, region-wide warming trend of approximately 1°F/decade.

Nighttime low temperatures have also risen significantly in many months, particularly in the period April through September when a warming trend of approximately 0.5°F/decade was observed. Increases in Tmin were particularly evident in the Jemez Mountains, with significant rates of increase in excess of >0.59°F/decade in all months except February and December. As a result of this warming, there has been a trend towards increasing numbers of late spring days with night-time temperatures warmer than 32°F. Historic precipitation trends in the action area show little in the way of statistically significant trends. Implementation of the proposed deviation action would not affect climate in the action area. There would be no change to the regional climate in the future with the no-action alternative.

3.4 Water Resources

3.4.1 Hydrology

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding hydrology. Water operations along the Rio Chama have four general purposes: flood control, irrigation supply, municipal and industrial supply, and environmental operations (USACE, USBR, NMISC 2007). Water operations also include downstream monitoring to ensure that desired flows are achieved. Little Rio Grande flow is actually captured and stored in the major reservoirs in this system. On average, only 100,000 AF of Rio Grande water (less than 10% of annual average flow at Otowi gage), is historically stored in El Vado Reservoir. Except for temporarily detained flows due to flood regulation, all of the water stored in Abiquiu Reservoir is imported SJC Project water. When Pub. L. No. 86-645 is triggered, Abiquiu Reservoir is required to retain carryover flood storage because no Rio Grande water may be withdrawn from storage after July 1 (exclusive of water from upstream storage) when the natural flow at the Otowi gage is less than 1,500 cfs. Rio Grande water that is locked into storage is not permanent: it must be released at the end of the irrigation season (November 1) and must be fully evacuated by March 31 of the following year.

Along the Rio Chama, Heron Reservoir manages imported SJC Project waters, passing all Rio Grande flows (USACE, USBR, NMISC 2007). El Vado Reservoir regulates Rio Grande waters for Prior and Paramount (P&P) water needs and retains Rio Grande water when allowed by the Rio Grande Compact for use by the Middle Rio Grande Conservancy District (MRGCD). When space is available, El Vado can also store SJC Project waters. Abiquiu Reservoir is Congressionally authorized for flood control, sediment control, and water supply storage of both SJC Project and Rio Grande waters. However, Abiquiu Reservoir does not currently store Rio Grande water except for flood control purposes.

Flood control operations adjust the rate of releases at Abiquiu Reservoir (USACE, USBR, NMISC 2007). Flood control operations are typically in effect during snowmelt runoff, when mountain snowpack is heavier than normal, and during unusually heavy summer monsoon seasons. Releases from Abiquiu Reservoir is adjusted to take into account flow from Cochiti, Galisteo, and Jemez Canyon reservoirs along the Rio Grande main stem and its tributaries. These four reservoirs are operated as a system to ensure that flows at critical downstream points are not exceeded.

The Rio Grande Compact, in effect, limits the amount of surface water than can be depleted in the Middle Rio Grande based upon the natural flow of the river measured at the Otowi gage downstream of the action area (Rio Grande Compact, 1939). In addition, the NM OSE has determined the Middle Rio Grande to be fully appropriated. Therefore, any increase in water use in one area of the river must be offset by a reduced use in another area of the river.

The future with the no action alternative would result in water normally retained during spring runoff passing through Abiquiu Reservoir earlier in the year. This increase in spring flow may result in an increased hydrograph or a longer duration of flow at channel capacity. These variations in spring flow are within the normal range of flow for the period of record. The no action alternative would not retain relinquishment credit water for release and use during the irrigation season, or P&P water for use by the Six Middle Rio Grande Basin Pueblos.

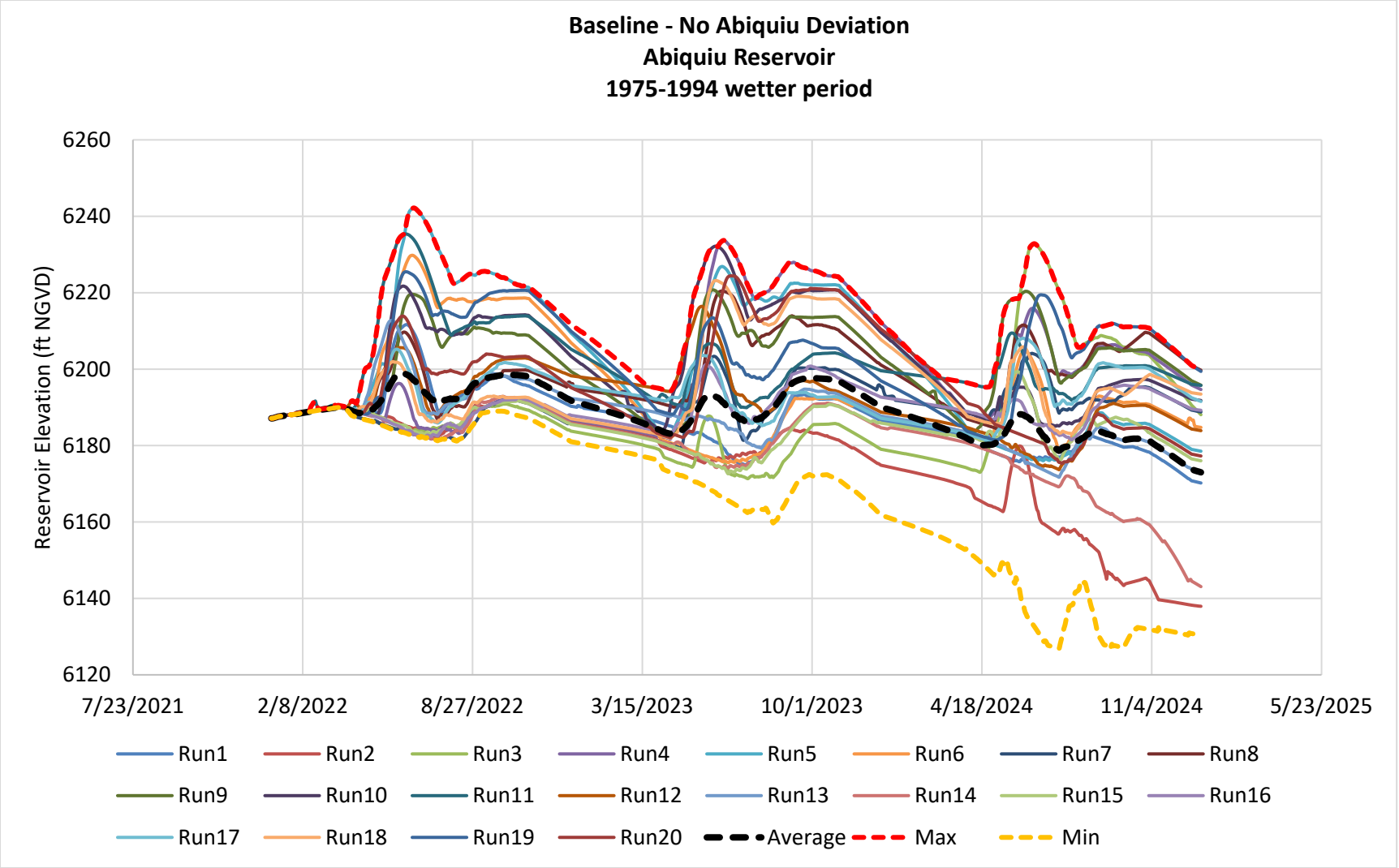

Figure 2 Upper Rio Grande Water Operations Model (URGWOM) runs without a deviation for the wetter 1975-1994 period of record. Labels identify each simulated three-year sequence. The average, maximum, and minimum hydrographs span the 40-year simulation.

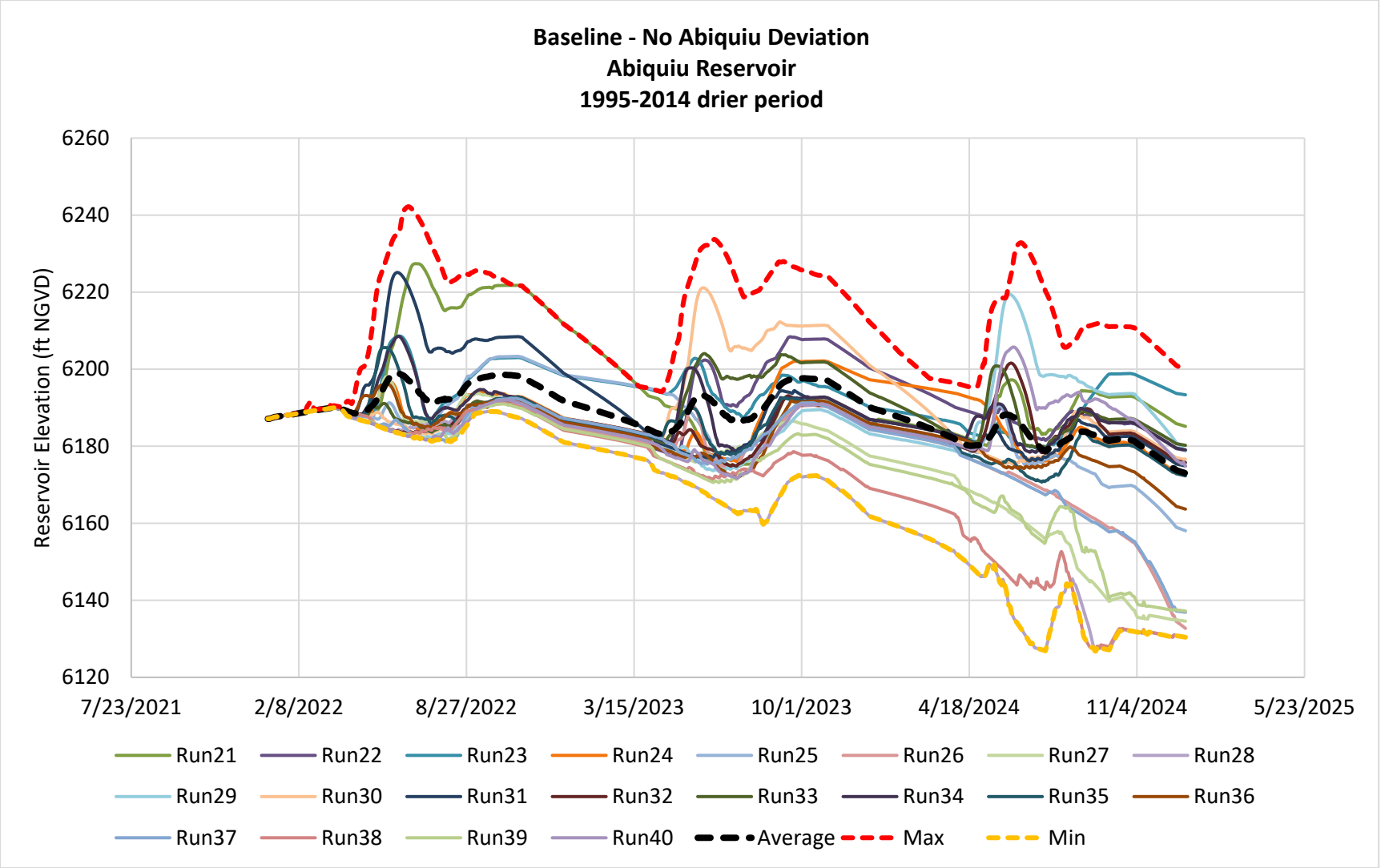

Figure 3 Upper Rio Grande Water Operations Model (URGWOM) runs without a deviation for the drier 1995-2014 period of record. Labels identify each simulated three-year sequence. The average, maximum, and minimum hydrographs span the 40-year simulation.

The Riverware-based reservoir-routing model developed by the Upper Rio Grande Water Operations Modeling (URGWOM) Team was used to project three-year baseline Abiquiu Reservoir water surface elevations using historical hydrologic data from 1975-2014. Each three-year sequence is labeled with the first year of the sequence. The 40-year average, maximum, and minimum hydrographs are included on the figures for comparison. Figure 2 illustrates the baseline conditions (no deviation) for the wetter period of record (1975-1994) while Figure 3 illustrates the drier baseline conditions (1995-2015). Water surface elevations with the deviation are presented in Chapter 4 - FORESEEABLE EFFECTS OF THE PROPOSED ACTION .

Normal operation would continue at Abiquiu Reservoir with regards to flood and sediment control. USACE may evacuate the described temporary pool or any portion thereof as necessary for flood control purposes, in accordance with authorized project purposes. The USACE further reserves the right to take such measures as may be necessary to preserve life and property, including being able to meet emergency situations or to permit maintenance or repair of the dams or appurtenant structures. Regulation and releases will be accomplished with the USACE service gates, and the USACE will not be liable or responsible for any loss of the retained waters resulting from releases made to accomplish Abiquiu Dam and Reservoir's flood control purpose or due to any malfunction of the service gates or inspection and maintenance of the gates that may be necessary to assure the proper and safe operation of Abiquiu Dam and Reservoir. If the proposed deviation request is implemented, the responsible agencies will make release decisions for water delivery.

3.4.2 Water Quality

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding water quality for the Rio Chama and Abiquiu Reservoir.

New Mexico Environment Department (NMED) periodically monitors water quality within the state's waterbodies (i.e., lakes rivers, and streams) to determine whether attainment of water quality standards and supporting designated uses is occurring. The results of this assessment are used for reporting through the 303(d)/305(b) Integrated List and the development of total maximum daily load (TMDL) documents for each waterbody not meeting standards. The designated uses for Abiquiu Reservoir and the reaches of the Rio Chama upstream and downstream include irrigation, livestock watering, wildlife habitat, cold water fishery, and warmwater fishery (NMWQCC 2017). The most recent survey of the reservoir and river reaches occurred between 2012 and 2014 (NMED 2015). From this assessment, it was determined that river reaches fully support the designated uses (NMED 2018). While the reservoir supported all designated uses except for the cold and warmwater fisheries. The impairment is a result of fish consumption advisory listings for PCBs (polychlorinated biphenyls) and mercury. Per USEPA guidance, these advisories demonstrate non-attainment of CWA goals stating that all waters should be fishable. Therefore, the impaired designated use is the associated aquatic life even though human consumption of the fish is the actual concern.

The construction of Heron, El Vado, and Abiquiu dams, and the importation of Colorado River Basin water via the SJC Project has had numerous effects on water quality in the Rio Chama watershed (Langman and Anderholm 2004). The coordinated storage and releases from the dams and the additional flows from the SJC Project decreased specific conductance and suspended-sediment concentration and increased pH (Langman and Anderholm 2004). The hypolimnetic release from Abiquiu Reservoir can also influence the dissolved oxygen (DO) regime on the Rio

Chama. For example, exceedances of the water quality standard for DO (6 mg L^{-1}; NMWQCC 2017) occurred once during the summer and twice in the fall of 1999 (NMED 2004). The exceedances were attributed to documented summer stratification and formation of anoxic water within the hypolimnion (Davis and Joseph 1999, Davis 2007) that was subsequently released from the reservoir (NMED 2004). The hypolimnetic release, which dampens thermal regime downstream of the dam, may also facilitate elevated DO concentrations due to physical controls of the solubility of oxygen in water (Wetzel 2001).

It is unclear how the flow-through hydropower facility, which is operated during high- and low-flow by Los Alamos County, impacts water quality on the Rio Chama downstream of Abiquiu Dam. However, it can be assumed the impacts are less severe than a typical hydroelectric peaking operation, where water is stored at night when electrical demand is relatively low and released through turbines during the day to satisfy demand, with considerable ecological effects downstream (Cushman 1985, Moog 1993, Friedl and Wüest 2002).

Nevertheless, water quality could be impacted under the no action alternative due to a changing climate (Langman and Nolan 2005, Vörösmarty et al. 2000, Murdoch et al. 2000, Whitehead et al. 2009, and van Vliet et al. 2013). Lakes and reservoirs are considered sentinels, integrators, and regulators of a changing climate (Williamson et al. 2009). For example, the El Niño Southern Oscillation, reservoir inflows, and reservoir oxygen content series oscillated in common periods and decreasing inflows reduced the oxygen content by 20% in a Mediterranean reservoir (Marcè et al. 2010). Stefan et al. (2001) quantified the potential reduction of habitat for cold and cool water fishes that is likely to become drastically reduced under conditions of atmospheric CO_2 concentration doubling in greater than 200 North American lakes. Other climate-mediated disturbances such as wildfire activity, which has increased in each of the last two decades in the southwestern U.S. (Westerling et. al. 2006), and impacted water quality of streams and rivers within the Rio Grande basin (Dahm et al. 2015, Reale et al. 2015, Sherson et al. 2015). Wildfires can also impact the physical, biological, and chemical processes in lake ecosystems, but has been less studied than flowing waters (McCullough et al. 2019). However, the hypolimnetic release may dampen the impacts of a wildfire on water quality immediately downstream of the dam (Dahm et al. 2015).

The future with the no action alternative would not change the existing water quality in the action area and have no effect on Waters of the United States.

3.5 Vegetation Communities

The area surrounding Abiquiu Reservoir supports upland vegetation typical of the Great Basin Conifer Woodland and Desert Scrub biotic communities (USACE 2017). One-seed juniper is prominent on the steeper slopes of dissected terraces or plateaus. Juniper and piñon pine are both prominent on the shallow, sandy soils found on outcroppings and foothills.

The area has been mapped to classify vegetation, primarily through photo-interpretation from Abiquiu Dam to the confluence with the Rio Grande (USACE 2007). Classification of Rio Grande basin riparian vegetation relies on plant community designations developed by Hink and Ohmart (1984). The river corridor previously supported cottonwoods, willows, New Mexico olives, shrubs, and wetlands. The vegetation surrounding Abiquiu Reservoir would remain unchanged from the existing upland trees and plants.

3.6 Fish and Wildlife

The fish and wildlife species by taxa that potentially occur in Rio Arriba County (BISON-M, NMDGF accessed December 7, 2021) are fish (33), amphibians (12), reptiles (28), birds (251), and mammals (89). The list of all wildlife species is provided in Appendix A.

Mammals associated with the upland areas surrounding Abiquiu Reservoir include mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), Ord's kangaroo rat (*Dipodomys ordii*), piñon mouse (*Peromyscus truei*), rock squirrel (*Otospermophilus variegatus*), and white-throated wood rat (*Neotoma albigula*). The riparian corridors support beaver *(Castor canadensis*), muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Botta's pocket gopher (*Thomomys bottae*). Bobcat (*Lynx rufus*) and other large carnivores occur infrequently in the area due to disturbances by humans.

Avifauna that may be found in the Abiquiu Reservoir area include the American Kestrel (*Falco sparverius*), Prairie Falcon (*Falco mexicanus)*, Mourning Dove (*Zenaida macroura*), Great Horned Owl (*Bubo virginianus*), Common Nighthawk (*Chordeiles minor*), Cordilleran Flycatcher (*Empidonax occidentalis*), Horned Lark (*Eremophila alpestris*), Cliff Swallows (*Petrochelidon pyrrhonota*), Rock Wren (*Salpinctes obsoletus*), Canyon Towhee (*Melozone fusca*), House Finch (*Haemorhous mexicanus*), and Western Meadowlark (*Sturnella neglecta*). Flocks of cormorants and wintering Bald Eagles (*Haliaeetus leucocephalus*) utilize the shallow waters, and lands at lower elevations along portions of the northern shoreline. Bald Eagle winter roosting sites have been noted along the Rio Chama drainage, although not in the immediate vicinity of the dam or reservoir. Western Grebe (*Aechmophorus occidentalis*), Great Blue Heron (*Ardea herodias*), Common Merganser (*Mergus merganser*), and Mallard (*Anas platyrhynchos*) are among the most frequently observed waterfowl utilizing the river area.

The Rio Grande is a major migratory flyway for avian species (Yong and Finch, 2002). The peak nesting season for birds is April 15 through August 15. The Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703 *et seq.*) is the primary legislation in the United States established to conserve migratory birds (USFWS 2004). The list of the species protected by the MBTA appears in Title 50, Section 10.13, of the Code of Federal Regulations (50 C.F.R. § 10.13). The MBTA prohibits taking, killing, or possessing of migratory birds unless permitted by regulations promulgated by the Secretary of the Interior. The USFWS and the Department of Justice are the Federal agencies responsible for administering and enforcing the statute.

More than 160 bird species, which are Federally protected under the Migratory Bird Treaty Act, may be found in the Rio Chama valley. Since 2001, 152 bird species have been observed at the Los Luceros Important Bird Area (IBA, Audubon Society) on the Rio Grande. Hink and Ohmart (1984) recorded 277 species of birds in the bosque ecosystem. Highest bird densities and species diversity were found in edge habitat vegetation with a cottonwood overstory and an understory of Russian olive (*Elaeagnus angustifolia*) (Hink and Ohmart 1984). Emergent marsh and other wetland habitats also had relatively high bird density and species richness. Thirty of the forty-six species of breeding birds found in the bosque used cottonwood forest habitat. No bird species showed a strong preference for Russian olive stands (Hink and Ohmart 1984).

Most reptiles are found in areas adjacent to the reservoir, while amphibious species generally inhabit marginal lakeside habitats. Amphibian and reptilian species which may occur in the area

include the Spadefoot Toads (*Spea multiplicata* and *S. bombifrons*), Northern Sagebrush Lizard (*Sceloporus graciosus*), and Plateau Fence Lizard (*Sceloporus tristichus*). Herptile abundance and diversity was found to be greatest in habitats that lacked dense canopy cover and that were characterized by sandy soils and sparse ground cover (Hink and Ohmart 1984). Many of the species found in the bosque were representative of drier upland habitats. Hink and Ohmart (1984) did describe a distinct assemblage of species associated with denser vegetation cover in mesic or hydric habitats. Common species included tiger salamander (*Ambystoma mavortium*), boreal chorus frog (*Pseudacris maculate*), bullfrog (*Lithobates catesbeianus*), northern leopard frog (*Lithobates pipiens*), many-lined skink (*Plestiodon multivirgatus*), black-necked garter snake (*Thamnophis cyrtopsis*), and western painted turtle (*Chrysemys picta*).

This EA incorporates by reference the URGWOPS FEIS (USACE, USBR, ISC 2007) regarding fish in the Rio Chama and Abiquiu Reservoir. Common fish species in the Abiquiu Reservoir (Sublette et al. 1990) include Rainbow Trout (*Oncorhynchus mykiss*), Brown Trout (*Salmo trutta*), Kokanee Salmon (*Oncorhynchus nerka*), Common Carp (*Cyprinus carpio*), Rio Grande Chub (*Gila pandora*), Fathead Minnow (*Pimephales promelas*), Flathead Chub (*Platygobio gracilis*), White Sucker (*Catostomus commersoni*), Channel Catfish (*Ictalurus punctaus*), Green Sunfish (*Lepomis cyanellus*), Bluegill (*Lepomis macrochirus*), Smallmouth Bass (*Micropterus dolomieui*), and Walleye (*Stizostedion vitreum*).

There would be no changes to fisheries or terrestrial wildlife or their habitat in the action area from the existing conditions with the no action alternative.

3.6.1 Special Status Species

Three agencies have a primary responsibility for the conservation of animal and plant species in New Mexico: the USFWS, under the authority of the Endangered Species Act of 1973, as amended; the NMDGF, under the authority of the Wildlife Conservation Act of 1974; and the New Mexico Energy, Minerals and Natural Resources Department, under authority of the New Mexico Endangered Plant Species Act and 19.21.2 NMAC. Each agency maintains a list of animal and/or plant species that have been classified or are candidates for classification as endangered or threatened based on present status and potential threat to future survival and recruitment.

There are several Federal and State listed threatened or endangered species, species of concern, and rare plants that occur, or could potentially occur, in Rio Arriba County (BISON-M, NMDGF accessed December 7, 2021); however, critical habitat is not present within the action area for these species. Seven Federally listed species potentially may be present in or near the Abiquiu Reservoir and are listed in Table 6. See Appendix A for additional information on wildlife species of concern. There are no special status species that would be affected by the no action alternative at this time.

Table 4 Federally listed Threatened or Endangered Species that occur near the action area (USFWS iPaC accessed February 3, 2022. Additional information in Appendix A).

Common Name	Scientific Name	Status	Present	Critical Habitat
Canada Lynx	*Lynx candensis*	E	N	N
New Mexico Meadow Jumping Mouse	*Zapus hudsonius luteus*	E	N	N
Mexican Spotted Owl	*Strix occidentalis lucida*	T	N	N
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E	N	N
Western Yellow-Billed Cuckoo	*Coccyzus americanus*	T	N	N
Rio Grande Cutthroat Trout	*Oncorhynchus clarki virginalis*	C	N	N
Monarch Butterfly	*Danaus plexippus*	C	unknown	N

3.7 Recreation

Abiquiu Reservoir offers fishing for cold, cool, and warmwater species, with trout fishing below Abiquiu Dam on 2.7 miles of river through lands managed by USACE, BLM, USFS, and the NMLO. Other recreational activities may include camping, walking, biking, hiking, wildlife viewing, and picnicking. These activities are anticipated to continue at recent levels with the no action alternative.

3.8 Indian Trust Assets

Indian Trust Assets are legal interests in property held in trust by the United States for Indian tribes or individuals. Examples of trust assets include, but are not limited, to land, minerals, hunting and fishing rights, and water rights. The United States, as part of its Indian Trust Responsibility, must protect and maintain rights reserved by or granted to Indian tribes or individuals by treaties, statues, executive orders, and rights further interpreted by the courts. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect such trust assets. The no action alternative would potentially adversely affect the water rights and traditional agricultural practices of the Six Middle Rio Grande Basin Pueblos if it is not possible to retain P&P water to be released when requested by the Six Middle Rio Grande Basin Pueblos.

3.9 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) [54 U.S.C. § 300101 *et seq.*] and its implementing regulations (36 C.F.R. Part 800) require Federal agencies to take into account the effects of their undertakings (e.g., projects or permits) on historic properties.

Historic properties are legally considered to be those properties (cultural resources) eligible for listing on the National Register of Historic Places (NRHP). To be eligible for listing, a property must have "the quality of significance in American history, architecture, archeology, engineering, and culture" that can be "present in districts, sites, buildings, structures, and objects," must "possess integrity of location, design, setting, materials, workmanship, feeling, and association," and must meet at least one of a set of four criteria relating to (A) association with historical events; (B) historically significant people; (C) distinctive characteristics of a period or style; and/or (D) are likely to yield information important to prehistory or history. There are many possible examples of historic properties, including archaeological sites, historic buildings, traditional cultural properties (TCPs), and historic districts. As such, the identification and evaluation of

historic properties (including archaeological sites, historic buildings, and other features constructed or modified by humans in the past) is an important component of this action.

The Section 106 process includes the identification of historic properties that might be affected by an action, the evaluation of those properties, determinations of effect on those properties, consultation with various parties (including the New Mexico State Historic Preservation Officer (NMSHPO), Tribes, local governments, and the public) about those effects, and resolution of any adverse effect on historic properties.

There is a long history of human occupation in the Chama Valley, extending from more than 10,000 years ago to the present day. The prehistory and history of the Chama are divided by archaeologists into the following periods, with associated dates:

- Paleoindian: c. 12,500-5500 BC
- Archaic: 5500 BC – AD 400/600
- Developmental Period: AD 400/600-1200
- Coalition Period: AD 1200-1325
- Classic Period: AD 1325-1540
- Historic Period: AD 1540-Present

Each of these periods is characterized by different lifeways, subsistence strategies, and technologies. These periods can be grouped into two major divisions: Prehistoric (dating before contact with Europeans), and Historic (dating after contact with Europeans). Many archaeological surveys have been conducted in and near Abiquiu Reservoir, including Klager 1980; Schaafsma 1975a, 1975b, 1976, 1977, 1978a, 1978b, 1979; O'Leary 1988; USACE n.d.; Van Hoose 2021.

3.9.1 Area of Potential Effect

The area of potential effect (APE) for the proposed undertaking is defined as the geographic area within which the proposed undertaking could potentially cause direct or indirect effects to historic properties. For the purposes of the current analysis, the Corps determines that the APE consists of the areas where changing lake elevations may affect archaeological sites through inundation, exposure, or wave action, within an elevation range of approximately 6,150 ft to 6,250. As will be described below, URGWOM modeling suggests that the elevation range most likely to experience inundation are elevations at and below 6,220 feet, with a much smaller likelihood of having maximum elevations up to 6,250 ft (Figure 4). In addition, changes in flow regimes could have the potential to affect properties located within the channel downstream of Abiquiu Dam.

Based on an examination of the New Mexico Cultural Resources Information System (NMCRIS) database, as well as USACE records, a total of 148 archaeological sites have been documented within this APE, and these sites represent human use of the landscape ranging from the Archaic to Historic periods. Of these 148 sites, 45 are located above the 6,220 ft level.

In addition, there are numerous historic properties documented near the Rio Chama river channel downstream of Abiquiu Dam, including a wide range of prehistoric and historic resources, including active acequia systems.

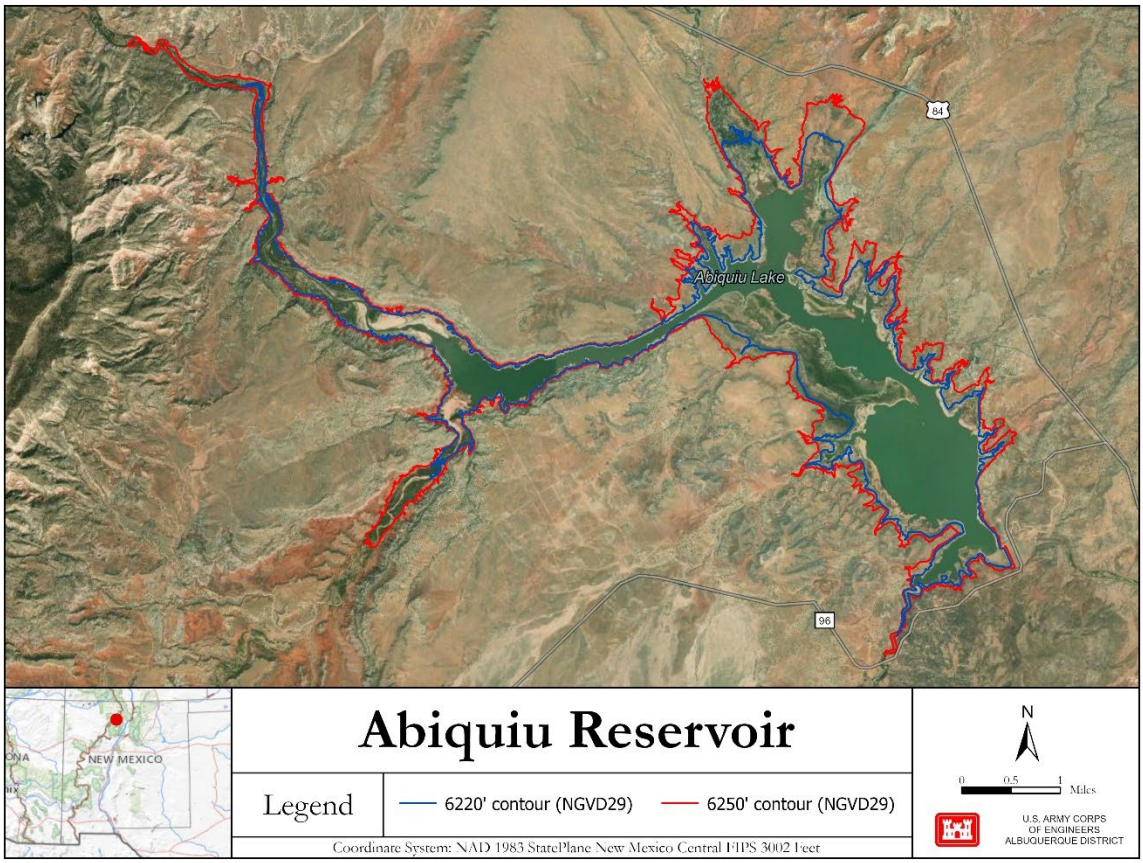

Figure 4 Area of Potential Effect (APE) at Abiquiu Reservoir, showing contour intervals at 6,220 ft and 6,250 ft elevations.

3.9.2 Evaluation of the No Action Alternative

The no action alternative would involve passing all inflows from El Vado and Abiquiu dams downstream, with the exception of SJC Project water. Evaluation of the effects of this alternative requires a consideration of effects on reservoir elevation and on downstream flow regime.

3.9.2.1 Reservoir Elevation

Reservoir elevation can affect archaeological sites by subjecting them to a number of processes, including inundation and wave action. Wave action in particular has been shown to have a significant impact on archaeological sites (e.g., Dunn 1996; Ebert et al. 1989; Lenihan et al. 1977a, 1977b; Phillips and Rozen 1982; and Van Hoose and Lundquist 2019).

The URGWOM model runs presented in Figure 2 and Figure 3 present expectations for reservoir elevations for the duration of the period under consideration based on historic conditions during wetter years (Figure 2) and drier years (Figure 3). The model shows that, while there is a wide range of possible elevations for any given year, the average reservoir elevation over all model runs would be expected to range from approximately 6,170 ft to 6,200 ft.

Figure 5 shows daily reservoir elevations throughout the history of the reservoir. Between the years of 1963 and 1987, reservoir elevations increased from a starting point of around 6,060 ft NGVD to an all-time maximum of approximately 6,260 ft in August 1987. Since late 1987, elevations have remained largely between 6,170 ft and 6,220 ft, spiking above 6,220 only five times. The figure shows that the predicted average range of elevations for the no action alternative is very similar to the elevation range characteristic of the years since 1987. The no action alternative would be unlikely to inundate sites that have not been inundated over the last three decades.

On the question of wave action, Figure 5 shows that the range of elevation in any given year over the last decades has been relatively small (within 20 ft), and the URGWOM modeling shows average potential swings of a similar range. Given that the expected range of fluctuation is expected to remain at a similar scale, and the fact that the average predicted range of water levels for the no action alternative has been subjected to substantial wave zone action over the last several decades, the no action alternative would not be expected to create new impacts to resources in the APE below 6,220 feet at Abiquiu Reservoir over baseline.

In general, reservoir elevations above 6,220 feet have been rare over the last three decades, so large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. The URGWOM model shows that there is the possibility of such spikes occurring under the no action alternative. However, such spikes would be rare and generally unlikely; Figure 3, which shows the model runs for drier years that better reflect the current drought conditions, shows only two runs which exceeded 6,220 ft., and these spikes were both brief and relatively small, exceeding 6,220 ft by less than 10 feet. As such, we do not expect the no action alternative to introduce substantial or new effects to sites above 6,220 ft.

3.9.2.2 Downstream Flow Regime

Because the no action alternative would pass flows from El Vado and Abiquiu Reservoir downstream, this alternative would see the potential for more days of flow at channel capacity (1800 cfs) than the proposed deviation action alternative. However, these flows would still be within the historic range of releases as part of normal water operations, and as such would not be expected to introduce new effects to resources downstream.

Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs.

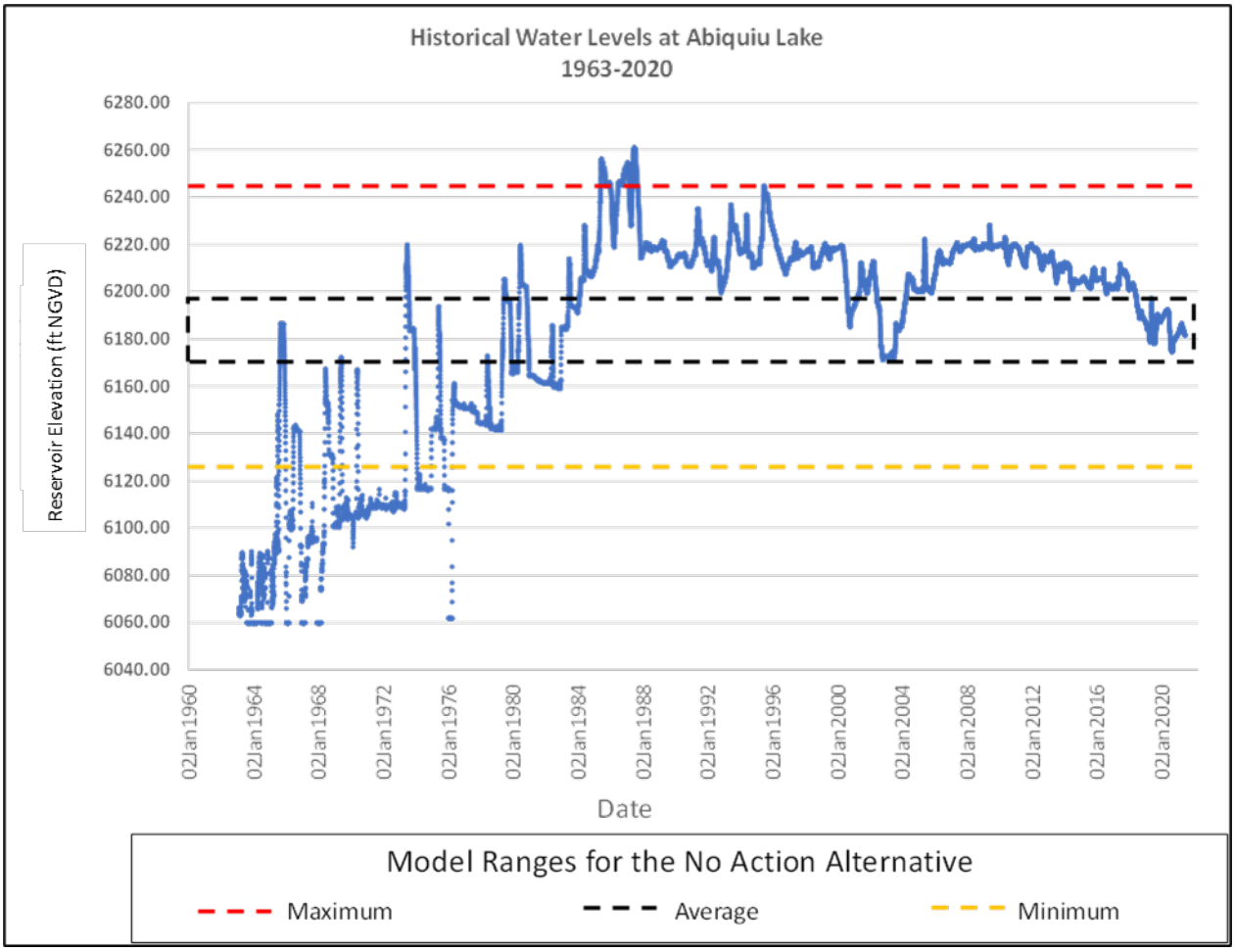

Figure 5 Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs.

4 FORESEEABLE EFFECTS OF THE PROPOSED ACTION

The foreseeable effects of the proposed action would likely be little to no effect on regional geology, air quality, ambient noise, floodplains, wetlands, noxious weed, invasive species, land use, aesthetics, socioeconomics, demographics, environmental justice, and hazardous waste.

4.1 Climate

The proposed deviation action would have no effect on the future regional climate.

4.2 Water Resources

4.2.1 Hydrology

Future with the proposed deviation action would change water management activities at the Abiquiu Dam by retaining limited amount of water during the spring runoff period, which would result in a reduction of the potential number of days with flow at channel capacity below the dam, i.e., the time frame of flood control operations at the dam would be reduced. Specifically, the proposed action would retain relinquishment credit water for release and use during the irrigation season and would retain P&P water for release and use by the Six Middle Rio Grande Basin Pueblos, similar to water management at El Vado Dam. The flow regime later in the year for the proposed action when the retained water is released would be moderately higher than for the no action condition. The effects to hydrology would be insignificant and within the normally variable hydrograph illustrated by the recent period of record (1975-2015).

4.2.2 Water Quality

There would be no effect to long-term water quality within the reach if the proposed deviation action is implemented. Climate-mediated impacts to water quality (Section 3.3) would remain if the proposed deviation action is implemented.

4.3 Vegetation Communities

The vegetation in the action area would remain unchanged from the sparse riparian and upland trees and plants. The proposed deviation action would have no effect on vegetation communities.

4.4 Fish and Wildlife

Under the proposed deviation action alternative, retention of water may occur from April through November. Migratory birds and other wildlife using the area would be able to move away from inundated areas. The effects of retention of water would be similar to the current management and result in no effects for fisheries and terrestrial wildlife.

4.4.1 Special Status Species

There are no special status wildlife species that would be affected by the proposed deviation action.

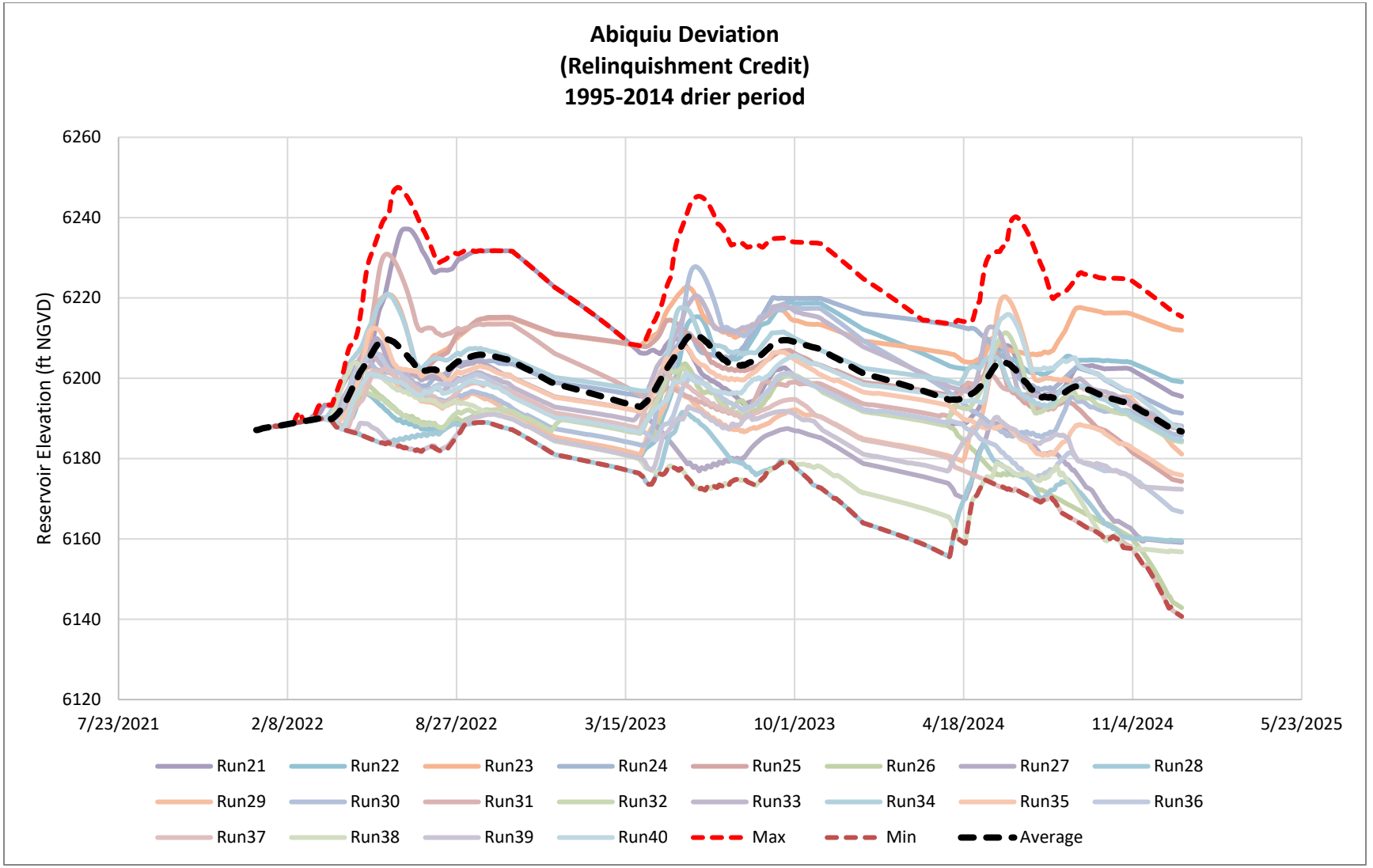

Figure 6 Upper Rio Grande Water Operations Model (URGWOM) runs with a deviation (relinquishment credit) for the drier 1995-2014 period of record. Labels identify each simulated three-year sequence. The average, maximum, and minimum hydrographs span the 40-year simulation.

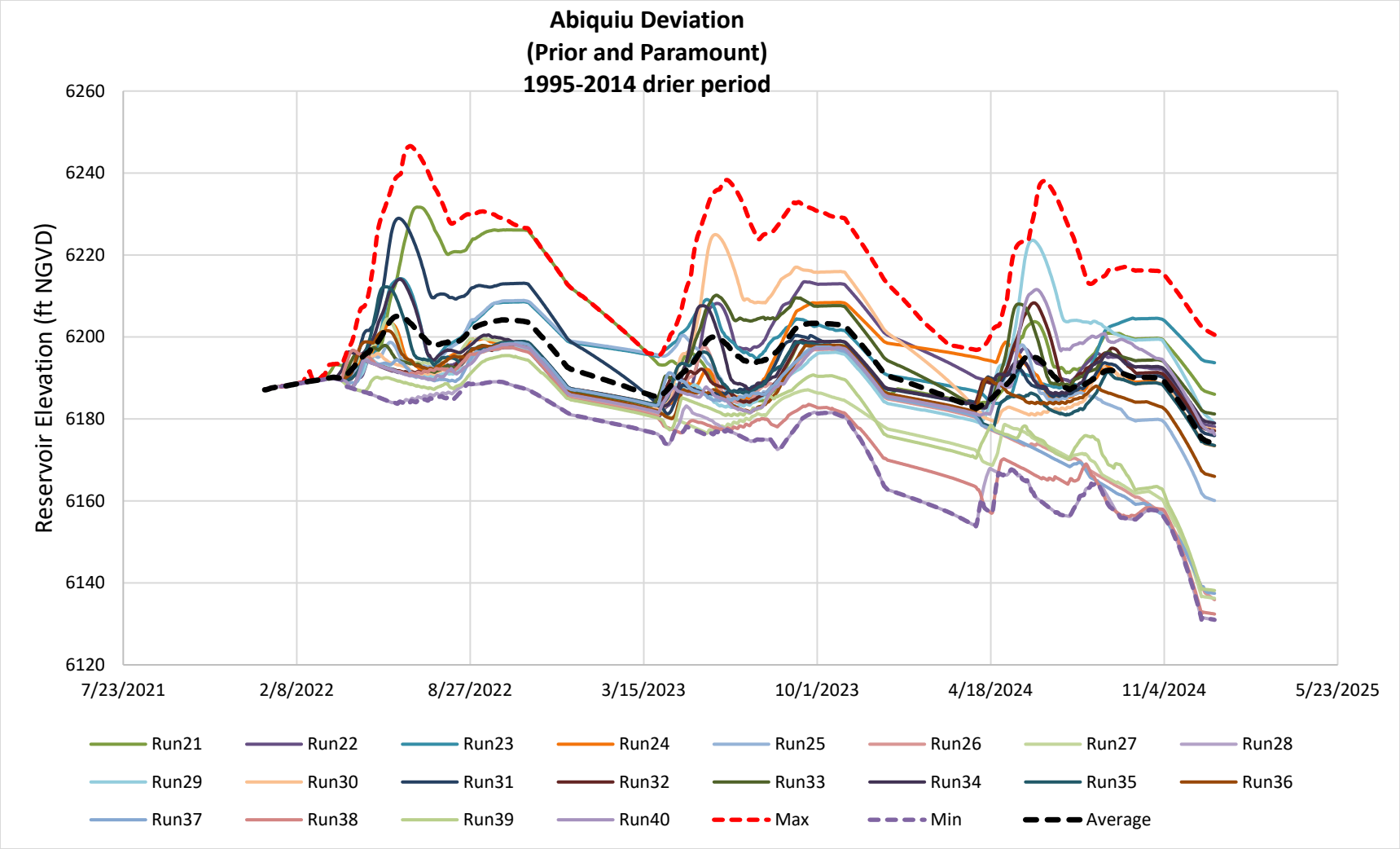

Figure 7 Upper Rio Grande Water Operations Model (URGWOM) runs with a deviation (Prior and Paramount) for the drier 1995-2014 period of record. Labels identify each simulated three-year sequence. The average, maximum, and minimum hydrographs span the 40-year simulation.

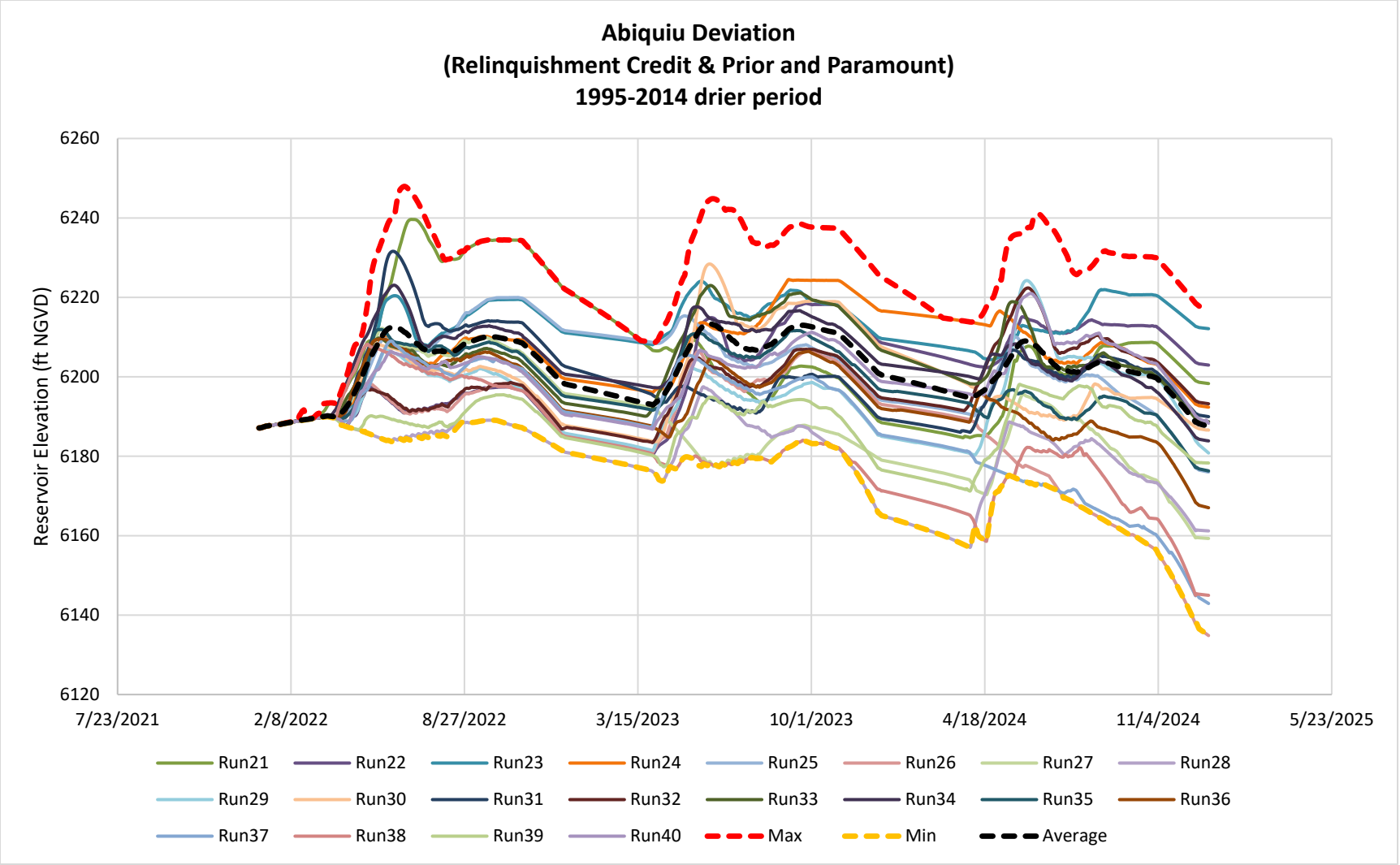

Figure 8 Upper Rio Grande Water Operations Model (URGWOM) runs with a combined deviation (relinquishment credit and Prior and Paramount) for the drier 1995-2014 period of record. Labels identify each simulated three-year sequence. The average, maximum, and minimum hydrographs span the 40-year simulation.

4.5 Recreation

The effects of the proposed deviation action are expected to temporarily increase reservoir water elevations. These changes may increase visits for camping, walking, biking, hiking, wildlife viewing, water sports, and picnicking. The effects to recreation are insignificant.

4.6 Indian Trust Assets

The proposed deviation action has been coordinated with the Six Middle Rio Grande Basin Pueblos, and other tribal nations. The proposed deviation action would not adversely affect Indian Trust Assets. The proposed action would retain P&P water for use by the Six Middle Rio Grande Basin Pueblos. The effects of the proposed action are insignificant and protect Indian Trust Assets.

4.7 Cultural Resources

The proposed deviation action results in three different scenarios. Three primary sources of potential impacts to these resources have been considered: direct impacts from retention of water; indirect impacts from potential changes in flow regime; and potential impacts from increased recreational use of the area. These are each discussed below.

4.7.1 Water Retention

As noted above, reservoir elevation can affect archaeological sites by subjecting them to a number of processes including inundation and wave action. Under the proposed deviation action alternative, water surface elevations at Abiquiu Reservoir are expected to increase in comparison with the no action alternative. Figure 6, Figure 7, and Figure 8 above show URGWOM model runs for predicted ranges of reservoir elevations for three deviation scenarios: relinquishment credit, Prior and Paramount, and a combination of the two (i.e., relinquishment credit and Prior and Paramount). Each of these does show some increase in overall expected water levels over the no action alternative. In order to assess potential effects of these increases on historic properties, it is necessary to compare these predicted elevations to those expected for the no action alternative (see Figure 5).

As with the no action alternative, the average predicted reservoir elevations for each of the deviation scenarios are within the range of reservoir elevations characteristic of the years since 1987, but there are differences. For the relinquishment credit scenario, the average predicted water level ranges from approximately 6,185 ft to 6,210 ft (Figure 9). For the Prior and Paramount scenario, the average level ranges between approximately 6,185 ft and 6,205 ft (Figure 10). For the combined relinquishment credit and Prior and Paramount alternative, average water levels range slightly higher, from approximately 6,190 ft to 6,215 ft (Figure 11).

While slightly higher than the figures for the no action alternative (Figure 5), these predicted average ranges are still similar to the elevation range characteristic of the years since 1987, and in particular still fall below the 6,220 ft level. As such, averages for these alternatives make it unlikely that sites would be inundated that have not been inundated for substantial periods during the last three decades. No new effects would be expected for sites below 6,220 ft.

Because reservoir elevations above 6,220 feet have been rare over the last three decades, large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. As with the no action alternative, the

URGWOM model shows that there is the possibility of such spikes occurring under the various scenarios. Under these alternatives, the likelihood of exceeding this elevation is slightly higher than for the no action alternative, but would still be generally rare. As with the no action alternative, Figure 6 and Figure 7 show only two runs exceeding 6,220 ft during the drier years (which better approximate current drought conditions), and Figure 8 shows only three runs with brief periods exceeding this elevation. While brief, these simulated peaks do reach slightly higher elevations than the no action alternative. Figure 12 shows average exceedance curves for the URGWOM simulations for each of the alternatives (no action, and each of the three deviation scenarios), showing the percentage likelihood that each of the scenarios will exceed water level ranges. For the no action alternative, the relinquishment credit alternative, and the Prior and Paramount alternative, likelihood of exceeding 6,220 ft in elevation is less than two percent. For the combined relinquishment credit and Prior and Paramount alternative, likelihood of exceeding 6,220 ft increases to approximately nine percent; however, likelihood of exceeding 6,225 ft drops to less than two percent. In other words, while the combined alternative does raise the likelihood of exceeding 6,220 ft, such exceedance would still be rare, and the magnitude of increases more than five feet above this level are even less likely. As such, any of the three deviation scenarios are unlikely to introduce substantial or new effects from inundation or wave action to sites above 6,220 ft.

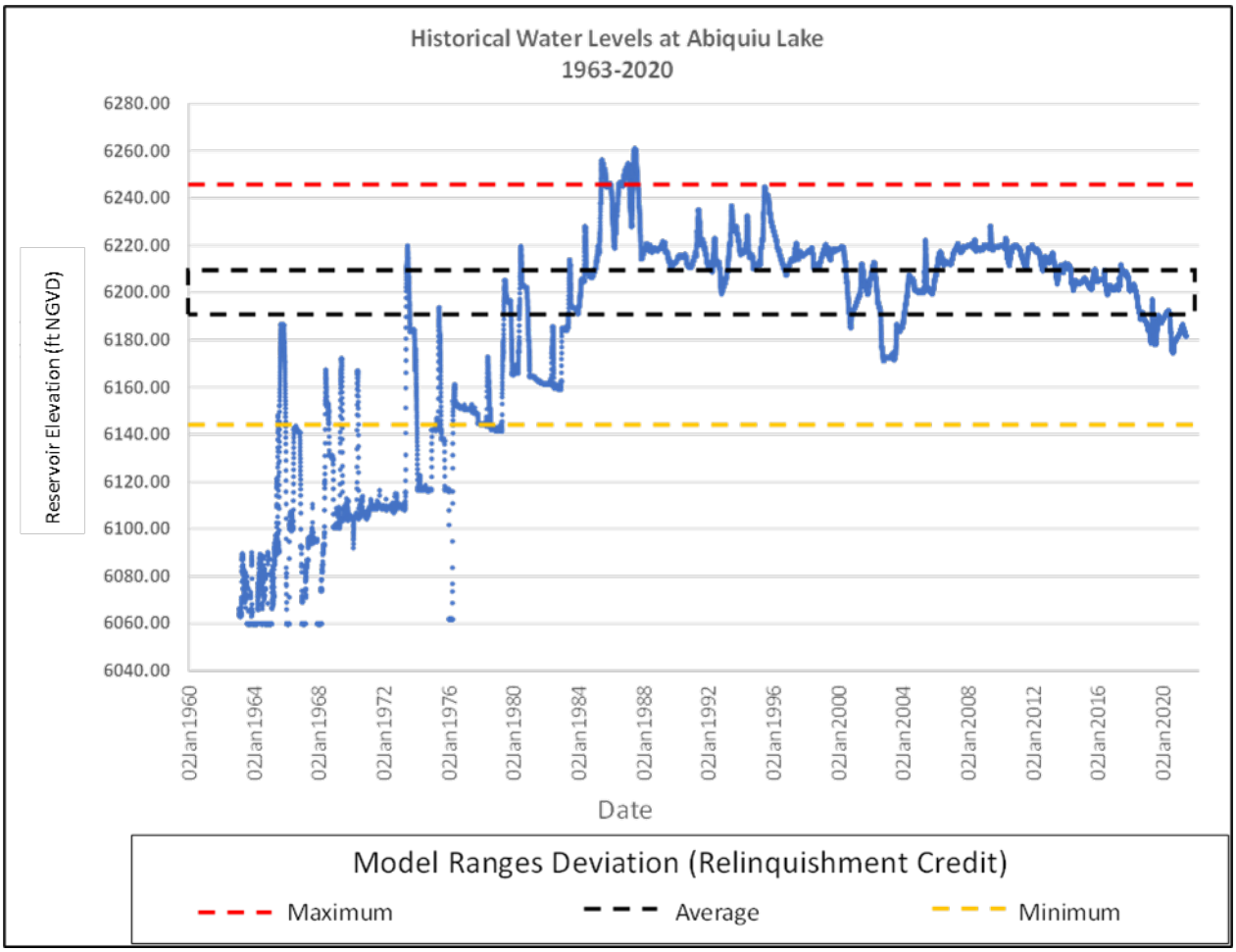

Figure 9 Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (relinquishment credit).

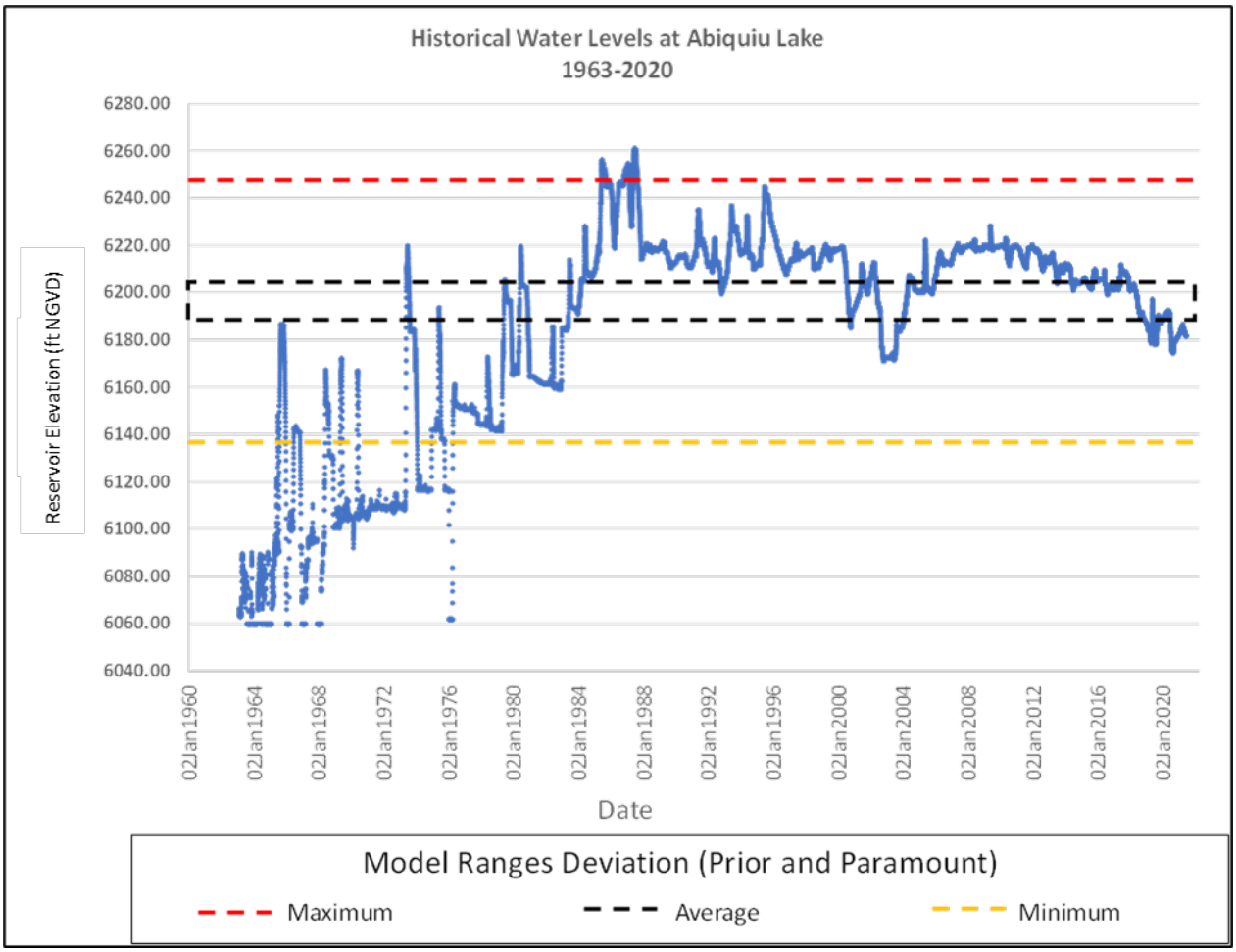

Figure 10 Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (Prior and Paramount).

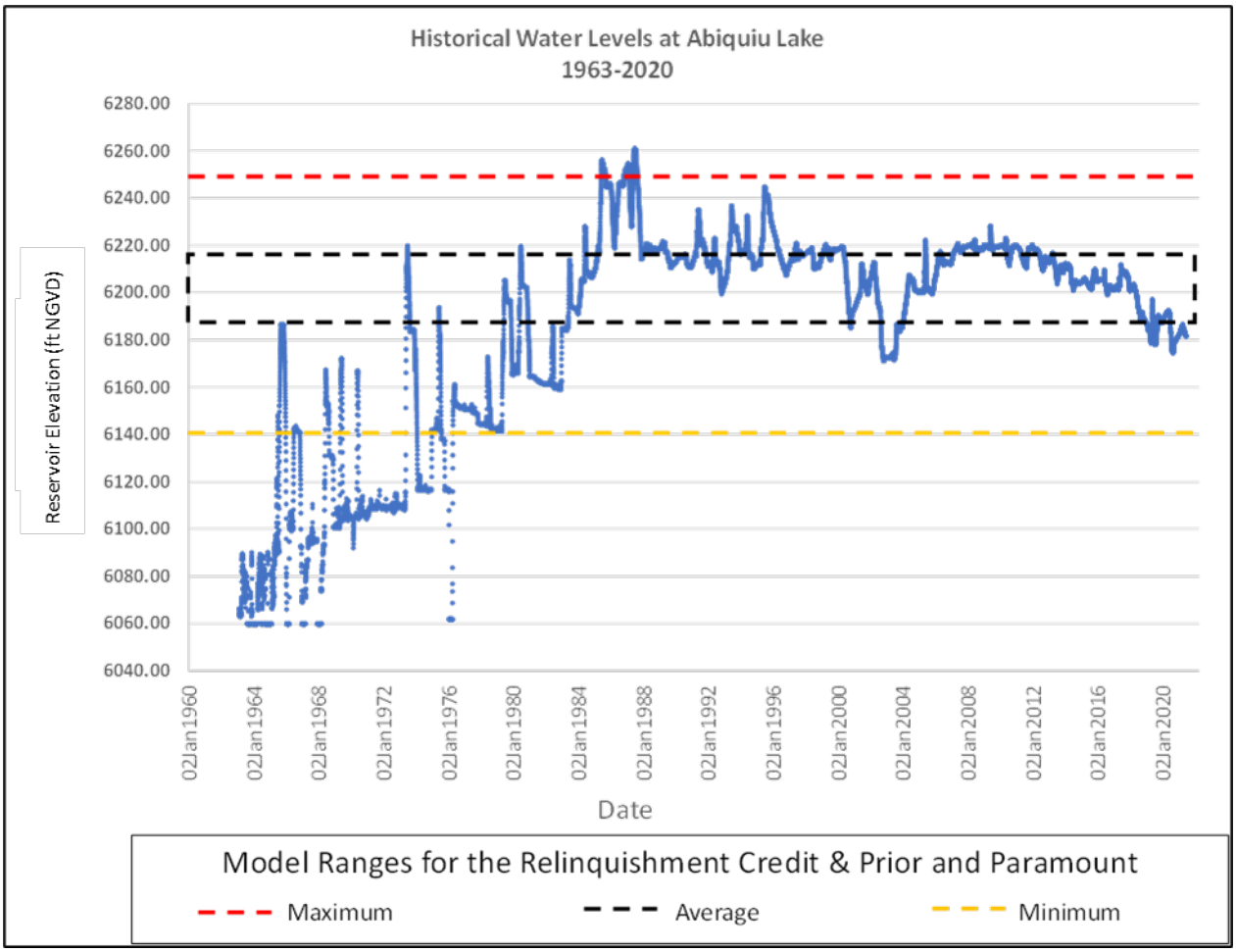

Figure 11 Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (combined relinquishment credit and Prior and Paramount).

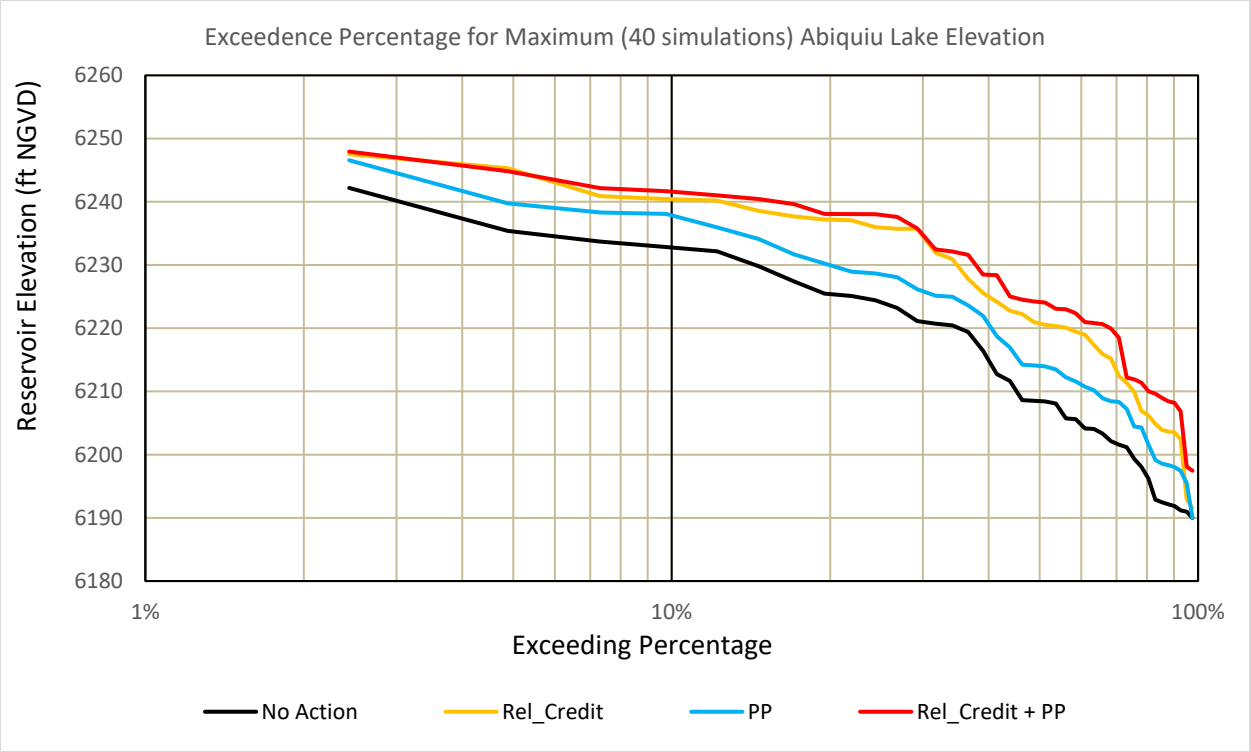

Figure 12 Graph showing percentage of URGWOM runs for each alternative exceeding reservoir elevation levels.

4.7.2 Downstream Flow Regime

As noted above, the fact that the no action alternative passes all Rio Grande inflows downstream of the dam, that alternative would have the potential for a greater number of days of flow at channel capacity (1800 cfs) over baseline. Because the proposed action under consideration would allow retention of Rio Grande water in Abiquiu Reservoir, these scenarios would reduce the number of days of flow at channel capacity downstream of Abiquiu by approximately 25 percent. As with the no action alternative, these flows would be within the historic range of releases as part of normal water operations, and as such would not be expected to introduce new effects to resources downstream.

4.7.3 Recreation

While slightly higher water levels may result in some increases in recreation, the ranges of water levels (and therefore the expected variation in coincident recreation activities) are within historical ranges. As such, we expect potential temporary increases in recreation to be negligible relative to the no action alternative.

4.7.4 Summary of Cultural Resources Analysis for Future With Proposed Action Alternative

Given the above information, USACE has determined that the proposed deviation action would have **no adverse effect** to historic properties. Section 106 consultation is ongoing; this determination was submitted to NMSHPO for review and concurrence on March 8, 2022, and NMSHPO concurred with this determination on March 17, 2022 (HPD Log # 116868). NMSHPO

further made the recommendation that if lake elevations do exceed 6,220-6,225 ft elevation for unusually extended periods of time, USACE might visit a small sample of sites to evaluate any effects that may have resulted from such inundation. The Rio Chama Acequia Association concurred that the proposed action would have no adverse affect to the historic aspects of acequia systems via email on March 18, 2022, and requested that USACE coordinate planning pertaining to Prior and Paramount water releases to avoid damage to acequia system infrastructure. Consultation letters regarding this effect determination were sent to Tribes with interests in the area, and no concerns were received.

5 CONCLUSIONS AND SUMMARY

The proposed deviation action would not affect regional geology, air quality, noise, floodplains, wetlands, noxious weeds, invasive species, land use, aesthetics, socioeconomics, local demographics, environmental justice, and HTRW. The proposed deviation action would not affect climate, hydrology, water management, vegetation communities, fish and wildlife resources, recreation, or Indian Trust Assets. Cultural resources would not be adversely affected by the proposed deviation action.

All releases from Abiquiu Dam will be within the typical historical range of releases as part of normal water operations. Under the No Action Alternative, all Rio Grande water inflow into El Vado and Abiquiu dams will be released downstream. The No Action Alternative has the potential for more days of flow at channel capacity (1800 cfs) below Abiquiu Dam than the proposed deviation action alternative. With the proposed deviation action alternative, retention of Rio Grande water in Abiquiu Reservoir would reduce the number of days of flow at channel capacity downstream of Abiquiu by approximately 25 percent. The retention and release of SJC Project water would be unaffected by either the no action or the proposed deviation action alternative.

6 PREPARATION, CONSULTATION, AND COORDINATION

6.1 Preparation

This EA was prepared by the USACE, Albuquerque District. Personnel primarily responsible for preparation include:

- Michael D. Porter, Fishery Biologist
- Jonathan Van Hoose, Archaeologist
- Justin Reale, Supervisory Hydrologist

6.2 Quality Control

This Final EA has been reviewed for quality control purposes. Reviewers include:

- Danielle Galloway, Biologist
- Nabil Shafike, Chief Water Management Section
- Reynalden Delgarito, Rio Grande Basin Manager

6.3 Consultation and Coordination

USACE has coordinated with NMSHPO on cultural resources.

6.4 Public Involvement

6.4.1 Scoping Letter

Letters were sent to the organizations and agencies below on February 8, 2022. Responses to the Scoping Letter are included in Appendix C.

Federal Agencies
U.S. Bureau of Indian Affairs
U.S. Bureau of Reclamation
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service

Rio Grande Compact Commission
Federal Chair
Commissioner for Colorado
Commissioner for New Mexico
Commissioner for Texas

Non-Governmental Organizations
Audubon Southwest
Rio Chama Acequia Association

New Mexico Agencies
New Mexico Interstate Stream Commission
New Mexico Office of State Engineer
New Mexico Office of the Governor
New Mexico Department of Game and Fish
Albuquerque Bernalillo County Water Utility Authority
Middle Rio Grande Conservancy District
Elephant Butte Irrigation District

Texas Agencies
Texas Water Development Board
El Paso County Water Improvement District No. 1

Colorado Agencies
Colorado State Engineer Office

Tribal Governments	
Jicarilla Apache Nation	Pueblo of Pojoaque
Kewa Pueblo	Pueblo of San Felipe
Navajo Nation	Pueblo of San Ildefonso
Ohkay Owingeh	Pueblo of Sandia
Pueblo de Cochiti	Pueblo of Santa Ana
Pueblo of Isleta	Pueblo of Santa Clara
Pueblo of Jemez	Pueblo of Taos
Pueblo of Laguna	Pueblo of Tesuque
Pueblo of Nambe	Pueblo of Zia
Pueblo of Picuris	

6.4.2 Summary of the Public Review and Comments

The Notice of Availability was sent to agencies and stakeholders for a 21-day public review starting 14 March 2022 by publication of the Notice of Availability in the Albuquerque Journal and the Santa Fe New Mexican. Comments received from the public review of the Final EA are included in Appendix C.

The Draft EA was made available online at: http://www.spa.usace.army.mil/Missions/Environmental/EnvironmentalComplianceDocuments/EnvironmentalAssessmentsFONSI.aspx.

The public can also request a copy of the Draft EA from Michael Porter at: Abiquiu.Deviation.2022@usace.army.mil or 505-342-3264.

Audubon Southwest is supportive of the proposed action for farming on Pueblos and MRGCD lands and maintaining river flows in the Middle Rio Grande. The City of Santa Fe is also supportive of the proposed action.

The Rio de Chama Acequia Association requested continued communication regarding Prior and Paramount water releases at the end of the year outside irrigation season. The purpose is to support planning the acequias to prevent damage to their infrastructure from increased flow.

The New Mexico Interstate Stream Commission provided comments on terminology used in the Draft Environmental Assessment, and suggested revisions for consistency with the Rio Grande Compact. The Albuquerque Bernalillo County Water Utility Authority provided comments on existing easements and conditions for storage at Abiquiu Reservoir. The Final EA has been revised to incorporate these comments as appropriate.

USACE had several meetings with Pueblos to discuss retention of Prior and Paramount water in Abiquiu Reservoir. USACE met with the Pueblo of Isleta on 29 March 2022, the Pueblo de Cochiti on 6 April 2022, and the Coalition of Six Middle Rio Grande Basin Pueblos on 7 April 2022. The discussions were productive and the Pueblos were supportive of the proposed action.

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Appendix A - Rio Arriba County Wildlife Species

All Species
Rio Arriba

Taxonomic Group	# Species	Taxonomic Group	# Species
Amphibians	12	Birds	256
Coleoptera; beetles	19	Crustaceans	4
Ephemeroptera; mayfiles	19	Fish	33
Lepidoptera; moths and butterflies	156	Mammals	89
Misc. Arachnids	7	Molluscs	22
Odonata; dragonflies	56	Orthoptera; grasshoppers & crickets	63
Reptiles	29	Spiders	9

TOTAL SPECIES: 774

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Snowshoe Hare	Lepus americanus					View
Black-tailed Jackrabbit	Lepus californicus					View
White-tailed Jackrabbit	Lepus townsendii					No Photo
Desert Cottontail Rabbit	Sylvilagus audubonii					View
Nuttall's Cottontail Rabbit	Sylvilagus nuttallii					No Photo
American Pika	Ochotona princeps incana; saxatilis				Y	View
Masked Shrew	Sorex cinereus					No Photo
Merriam's Shrew	Sorex merriami					No Photo
Dusky Shrew	Sorex monticola					No Photo
Dwarf Shrew	Sorex nanus					View
Western Water Shrew	Sorex navigator					No Photo
Big Free-tailed Bat	Nyctinomops macrotis					No Photo
Brazilian Free-tailed Bat	Tadarida brasiliensis					View
Hoary Bat	Aeorestes cinereus					No Photo
Pallid Bat	Antrozous pallidus					View
Pale Townsend's Big-eared Bat	Corynorhinus townsendii				Y	View
Big Brown Bat	Eptesicus fuscus					No Photo
Spotted Bat	Euderma maculatum	T			Y	View
Silver-haired Bat	Lasionycteris noctivagans					No Photo
California Myotis	Myotis californicus					No Photo
Western Small-footed Myotis	Myotis ciliolabrum					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Long-eared Myotis	Myotis evotis					No Photo
Fringed Myotis	Myotis thysanodes					View
Long-legged Myotis	Myotis volans					View
Yuma Myotis	Myotis yumanensis					View
Canyon Bat	Parastrellus hesperus					View
Coyote	Canis latrans					View
Common Gray Fox	Urocyon cinereoargenteus					View
Kit Fox	Vulpes macrotis					View
Red Fox	Vulpes vulpes					View
Canada Lynx	Lynx canadensis		T			No Photo
Bobcat	Lynx rufus					View
Mountain Lion	Puma concolor					View
Striped Skunk	Mephitis mephitis					View
Western Spotted Skunk	Spilogale gracilis					View
North American River Otter	Lontra canadensis				Y	View
Pacific Marten	Martes caurina	T			Y	View
Ermine Weasel	Mustela richardsonii					No Photo
Long-tailed Weasel	Neogale frenata					View
American Badger	Taxidea taxus					View
Ringtail	Bassariscus astutus					View
Common Raccoon	Procyon lotor					View
Black Bear	Ursus americanus					View
Feral Horse	Equus caballus					No Photo
Pronghorn	Antilocapra americana americana					View
Rocky Mtn. Bighorn Sheep	Ovis canadensis canadensis					View
Moose	Alces alces					View
Elk	Cervus canadensis nelsoni					View
Mule Deer	Odocoileus hemionus					View
White-tailed Deer (Texas)	Odocoileus virginianus texana					View
American Beaver	Castor canadensis					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Long-tailed Vole	Microtus longicaudus longicaudus; alticola; baileyi; mordax					No Photo
Montane Vole	Microtus montanus fusus					No Photo
Southern Red-backed Vole	Myodes gapperi					No Photo
White-throated Woodrat	Neotoma albigula					View
Bushy-tailed Woodrat	Neotoma cinerea					No Photo
Mexican Woodrat	Neotoma mexicana mexicana; inopinata; pinetorum; scopulorum					No Photo
Southern Plains Woodrat	Neotoma micropus canescens					No Photo
Stephen's Woodrat	Neotoma stephensi					No Photo
Common Muskrat	Ondatra zibethicus pallidus; osoyooensis; cinnamominus					View
Northern Grasshopper Mouse	Onychomys leucogaster					No Photo
Brush Mouse	Peromyscus boylii					No Photo
Canyon Mouse	Peromyscus crinitus					No Photo
White-footed Mouse	Peromyscus leucopus					View
Deer Mouse	Peromyscus maniculatus					No Photo
Northern Rock Mouse	Peromyscus nasutus					No Photo
Pinyon Mouse	Peromyscus truei					No Photo
Heather Vole	Phenacomys intermedius					No Photo
Western Harvest Mouse	Reithrodontomys megalotis megalotis; aztecus					No Photo
Meadow Jumping Mouse	Zapus luteus luteus	E	E	Y	Y	View
Western Jumping Mouse	Zapus princeps					No Photo
Common Porcupine	Erethizon dorsatum					View
Botta's Pocket Gopher	Thomomys bottae actuosus; alienus; aureus; collis; connectens; cultellus; fulvus; guadalupensis; lachuguilla; mearnsi; morulus; opulentus; paguatae; pectoralis; peramplus; pervagus; planorum; rufidulus; ruidosae; tol					No Photo
Northern Pocket Gopher	Thomomys talpoides fossor; kaibabensis					View
Ord's Kangaroo Rat	Dipodomys ordii					View
Plains Pocket Mouse	Perognathus flavescens					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Silky Pocket Mouse	Perognathus flavus flavus; hopiensis					No Photo
House Mouse	Mus musculus					View
Golden-mantled Ground Squirrel	Callospermophilus lateralis					View
Gunnison's prairie dog	Cynomys gunnisoni				Y	View
Thirteen-lined Ground Squirrel	Ictidomys tridecemlineatus arenicola; blanca; hollisteri					View
Yellow-bellied Marmot	Marmota flaviventris					View
Rock Squirrel	Otospermophilus variegatus grammurus					View
Abert's Squirrel	Sciurus aberti aberti; chuscensis; ferreus					View
Least Chipmunk	Neotamias minimus atristriatus; operarius; chuskaensis					View
Colorado Chipmunk	Neotamias quadrivittatus quadrivittatus; australis; oscuraensis					View
Red Squirrel	Tamiasciurus fremonti					No Photo
Red Squirrel	Tamiasciurus hudsonicus lychnuchus; mogollonensis					View
Spotted Ground Squirrel	Xerospermophilus spilosoma					No Photo
Canada Goose	Branta canadensis					View
Wood Duck	Aix sponsa					View
Northern Shoveler Duck	Spatula clypeata					View
Cinnamon Teal Duck	Spatula cyanoptera					View
Blue-winged Teal Duck	Spatula discors					View
American Wigeon Duck	Mareca americana					View
Gadwall Duck	Mareca strepera					View
Mallard Duck	Anas platyrhynchos					View
Mexican Duck	Anas diazi					No Photo
Northern Pintail	Anas acuta					View
Green-winged Teal Duck	Anas crecca					View
Canvasback Duck	Aythya valisineria					View
Redhead Duck	Aythya americana					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Ring-necked Duck	Aythya collaris					View
Lesser Scaup Duck	Aythya affinis					View
Bufflehead Duck	Bucephala albeola					View
Common Goldeneye Duck	Bucephala clangula					View
Barrow's Goldeneye Duck	Bucephala islandica					View
Hooded Merganser Duck	Lophodytes cucullatus					View
Common Merganser Duck	Mergus merganser					View
Ruddy Duck	Oxyura jamaicensis					View
Scaled Quail	Callipepla squamata					View
Gambel's Quail	Callipepla gambelii					View
Wild Turkey	Meleagris gallopavo merriami; intermedia; silvestris					View
White-tailed Ptarmigan	Lagopus leucura	E			Y	View
Dusky Grouse	Dendragapus obscurus					View
Pied-billed Grebe	Podilymbus podiceps					View
Horned Grebe	Podiceps auritus					No Photo
Eared Grebe	Podiceps nigricollis				Y	View
Western Grebe	Aechmophorus occidentalis					View
Clark's Grebe	Aechmophorus clarkii				Y	View
Band-tailed Pigeon	Patagioenas fasciata					View
Mourning Dove	Zenaida macroura					View
Greater Roadrunner	Geococcyx californianus					View
Yellow-billed Cuckoo (western pop)	Coccyzus americanus occidentalis		T	Y	Y	View
Common Nighthawk	Chordeiles minor				Y	View
Common Poorwill	Phalaenoptilus nuttalli					No Photo
Eastern Whip-poor-will	Antrostomus vociferus					No Photo
Mexican Whip-poor-will	Antrostomus arizonae				Y	View
Black Swift	Cypseloides niger				Y	View
Chimney Swift	Chaetura pelagica					No Photo
White-throated Swift	Aeronautes saxatalis					View
Rivoli's Hummingbird	Eugenes fulgens					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Black-chinned Hummingbird	Archilochus alexandri					View
Rufous Hummingbird	Selasphorus rufus					View
Broad-tailed Hummingbird	Selasphorus platycercus					View
Virginia Rail	Rallus limicola					View
Sora	Porzana carolina					View
American Coot	Fulica americana					View
Sandhill Crane	Antigone canadensis					View
American Avocet	Recurvirostra americana					View
Killdeer	Charadrius vociferus					View
Mountain Plover	Charadrius montanus				Y	View
Upland Sandpiper	Bartramia longicauda					No Photo
Long-billed Curlew	Numenius americanus				Y	View
Least Sandpiper	Calidris minutilla					View
White-rumped Sandpiper	Calidris fuscicollis					No Photo
Western Sandpiper	Calidris mauri					View
Wilson's Snipe	Gallinago delicata					View
Spotted Sandpiper	Actitis macularius					View
Wilson's Phalarope	Phalaropus tricolor					View
Bonaparte's Gull	Choricocephalus philadelphia					View
Ring-billed Gull	Larus delawarensis					View
California Gull	Larus californicus					View
Least Tern	Sternula antillarum	E			Y	View
Black Tern	Chlidonias niger					View
Red-throated Loon	Gavia stellata					No Photo
Common Loon	Gavia immer					No Photo
Double-crested Cormorant	Phalacrocorax auritus					View
American White Pelican	Pelecanus erythrorhynchos					View
Brown Pelican	Pelecanus occidentalis	E				View
American Bittern	Botaurus lentiginosus				Y	View
Least Bittern	Ixobrychus exilis exilis					View
Great Blue Heron	Ardea herodias					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Snowy Egret	Egretta thula					View
Black-crowned Night-Heron	Nycticorax nycticorax					View
White-faced Ibis	Plegadis chihi					View
Turkey Vulture	Cathartes aura					View
Osprey	Pandion haliaetus					View
Golden Eagle	Aquila chrysaetos					View
Northern Harrier	Circus hudsonius					View
Sharp-shinned Hawk	Accipiter striatus					View
Cooper's Hawk	Accipiter cooperii					View
Northern Goshawk	Accipiter gentilis					View
Bald Eagle	Haliaeetus leucocephalus	T			Y	View
Mississippi Kite	Ictinia mississippiensis					View
Common Black Hawk	Buteogallus anthracinus	T			Y	View
Harris's Hawk	Parabuteo unicinctus					View
Broad-winged Hawk	Buteo platypterus					View
Swainson's Hawk	Buteo swainsoni					View
Zone-tailed Hawk	Buteo albonotatus					View
Red-tailed Hawk	Buteo jamaicensis					View
Rough-legged Hawk	Buteo lagopus					View
Ferruginous Hawk	Buteo regalis					View
Flammulated Owl	Psiloscops flammeolus				Y	View
Western Screech-Owl	Megascops kennicottii					View
Great Horned Owl	Bubo virginianus					View
Northern Pygmy Owl	Glaucidium gnoma					View
Burrowing Owl	Athene cunicularia				Y	View
Mexican Spotted Owl	Strix occidentalis lucida		T	Y	Y	View
Long-eared Owl	Asio otus					View
Boreal Owl	Aegolius funereus	T			Y	View
Belted Kingfisher	Megaceryle alcyon					View
Lewis's Woodpecker	Melanerpes lewis				Y	View
Red-headed Woodpecker	Melanerpes erythrocephalus				Y	View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Williamson's Sapsucker	Sphyrapicus thyroideus				Y	View
Yellow-bellied Sapsucker	Sphyrapicus varius					View
Red-naped Sapsucker	Sphyrapicus nuchalis					View
American Three-toed Woodpecker	Picoides dorsalis					No Photo
Downy Woodpecker	Dryobates pubescens					View
Ladder-backed Woodpecker	Dryobates scalaris					View
Hairy Woodpecker	Dryobates villosus					View
Northern Flicker	Colaptes auratus					View
American Kestrel	Falco sparverius					View
Peregrine Falcon	Falco peregrinus	T			Y	View
Arctic Peregrine Falcon	Falco peregrinus tundrius					No Photo
Prairie Falcon	Falco mexicanus					View
Ash-throated Flycatcher	Myiarchus cinerascens					View
Cassin's Kingbird	Tyrannus vociferans					View
Western Kingbird	Tyrannus verticalis					View
Eastern Kingbird	Tyrannus tyrannus					View
Olive-sided Flycatcher	Contopus cooperi				Y	View
Western Wood Pewee	Contopus sordidulus					View
Willow Flycatcher	Empidonax traillii brewsteri; adastus					View
Southwestern Willow Flycatcher	Empidonax traillii extimus	E	E	Y	Y	View
Hammond's Flycatcher	Empidonax hammondii					View
Gray Flycatcher	Empidonax wrightii					View
Dusky Flycatcher	Empidonax oberholseri					View
Cordilleran Flycatcher	Empidonax occidentalis					View
Black Phoebe	Sayornis nigricans					View
Eastern Phoebe	Sayornis phoebe					View
Say's Phoebe	Sayornis saya					View
Loggerhead Shrike	Lanius ludovicianus				Y	View
Northern Shrike	Lanius borealis					No Photo
Gray Vireo	Vireo vicinior	T			Y	View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Cassin's Vireo	Vireo cassinii					View
Blue-headed Vireo	Vireo solitarius					View
Plumbeous Vireo	Vireo plumbeus					View
Warbling Vireo	Vireo gilvus					View
Red-eyed Vireo	Vireo olivaceus					View
Canada Jay	Perisoreus canadensis					View
Pinyon Jay	Gymnorhinus cyanocephalus				Y	View
Steller's Jay	Cyanocitta stelleri					View
Blue Jay	Cyanocitta cristata					View
Woodhouse's Scrub Jay	Aphelocoma woodhouseii					View
Clark's Nutcracker	Nucifraga columbiana				Y	View
Black-billed Magpie	Pica hudsonia					View
American Crow	Corvus brachyrhynchos					View
Common Raven	Corvus corax					View
Horned Lark	Eremophila alpestris					View
Bank Swallow	Riparia riparia				Y	View
Tree Swallow	Tachycineta bicolor					View
Violet-green Swallow	Tachycineta thalassina					View
Northern Rough-winged Swallow	Stelgidopteryx serripennis					View
Purple Martin	Progne subis					View
Barn Swallow	Hirundo rustica					View
Cliff Swallow	Petrochelidon pyrrhonota					View
Black-capped Chickadee	Poecile atricapillus					View
Mountain Chickadee	Poecile gambeli					View
Juniper Titmouse	Baeolophus ridgwayi				Y	View
Bushtit	Psaltriparus minimus					View
Red-breasted Nuthatch	Sitta canadensis					View
White-breasted Nuthatch	Sitta carolinensis					View
Pygmy Nuthatch	Sitta pygmaea				Y	View
Brown Creeper	Certhia americana					View
Rock Wren	Salpinctes obsoletus					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Canyon Wren	Catherpes mexicanus					View
House Wren	Troglodytes aedon					View
Winter Wren	Troglodytes hiemalis					No Photo
Marsh Wren	Cistothorus palustris					View
Bewick's Wren	Thryomanes bewickii					View
Blue-gray Gnatcatcher	Polioptila caerulea					View
American Dipper	Cinclus mexicanus					View
Golden-crowned Kinglet	Regulus satrapa					No Photo
Ruby-crowned Kinglet	Regulus calendula					View
Eastern Bluebird	Sialia sialis					View
Western Bluebird	Sialia mexicana				Y	View
Mountain Bluebird	Sialia currucoides				Y	View
Townsend's Solitaire	Myadestes townsendi					View
Swainson's Thrush	Catharus ustulatus					View
Hermit Thrush	Catharus guttatus					View
American Robin	Turdus migratorius					View
Gray Catbird	Dumetella carolinensis					View
Brown Thrasher	Toxostoma rufum					View
Bendire's Thrasher	Toxostoma bendirei				Y	View
Sage Thrasher	Oreoscoptes montanus					View
Northern Mockingbird	Mimus polyglottos					View
European Starling	Sturnus vulgaris					View
Bohemian Waxwing	Bombycilla garrulus					No Photo
Cedar Waxwing	Bombycilla cedrorum					View
House Sparrow	Passer domesticus					View
American Pipit	Anthus rubescens					View
Evening Grosbeak	Coccothraustes vespertinus				Y	View
Pine Grosbeak	Pinicola enucleator					No Photo
Black Rosy-Finch	Leucosticte atrata					View
Brown-capped Rosy-Finch	Leucosticte australis				Y	View
House Finch	Haemorhous mexicanus					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Cassin's Finch	Haemorhous cassinii				Y	View
Red Crossbill	Loxia curvirostra					View
Pine Siskin	Spinus pinus					View
Lesser Goldfinch	Spinus psaltria					View
American Goldfinch	Spinus tristis					View
Black-throated Sparrow	Amphispiza bilineata					View
Lark Sparrow	Chondestes grammacus					View
Lark Bunting	Calamospiza melanocorys					View
Chipping Sparrow	Spizella passerina					View
Brewer's Sparrow	Spizella breweri					View
Dark-eyed Junco	Junco hyemalis					View
White-crowned Sparrow	Zonotrichia leucophrys					View
Sagebrush Sparrow	Artemisiospiza nevadensis				Y	View
Vesper Sparrow	Pooecetes gramineus				Y	View
Baird's Sparrow	Centronyx bairdii	T			Y	View
Savannah Sparrow	Passerculus sandwichensis nevadensis; anthinus					View
Song Sparrow	Melospiza melodia					View
Lincoln's Sparrow	Melospiza lincolnii					View
Swamp Sparrow	Melospiza georgiana					View
Canyon Towhee	Melozone fusca					View
Green-tailed Towhee	Pipilo chlorurus					View
Spotted Towhee	Pipilo maculatus					View
Yellow-breasted Chat	Icteria virens					View
Yellow-headed Blackbird	Xanthocephalus xanthocephalus					View
Bobolink	Dolichonyx oryzivorus					No Photo
Western Meadowlark	Sturnella neglecta					View
Bullock's Oriole	Icterus bullockii					View
Baltimore Oriole	Icterus galbula					View
Scott's Oriole	Icterus parisorum					View
Red-winged Blackbird	Agelaius phoeniceus					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Brown-headed Cowbird	Molothrus ater					View
Rusty Blackbird	Euphagus carolinus					View
Brewer's Blackbird	Euphagus cyanocephalus					View
Common Grackle	Quiscalus quiscula					View
Great-tailed Grackle	Quiscalus mexicanus					View
Ovenbird	Seiurus aurocapilla					No Photo
Northern Waterthrush	Parkesia noveboracensis					View
Orange-crowned Warbler	Leiothlypis celata					View
Virginia's Warbler	Leiothlypis virginiae				Y	View
Macgillivray's Warbler	Geothlypis tolmiei					View
Common Yellowthroat	Geothlypis trichas					View
Hooded Warbler	Setophaga citrina					View
Northern Parula	Setophaga americana					No Photo
Yellow Warbler	Setophaga petechia					View
Palm Warbler	Setophaga palmarum					View
Pine Warbler	Setophaga pinus					View
Yellow-rumped Warbler	Setophaga coronata					View
Grace's Warbler	Setophaga graciae				Y	View
Black-throated Gray Warbler	Setophaga nigrescens				Y	View
Black-throated Green Warbler	Setophaga virens					View
Wilson's Warbler	Cardellina pusilla					View
Hepatic Tanager	Piranga flava					View
Summer Tanager	Piranga rubra					View
Western Tanager	Piranga ludoviciana					View
Black-headed Grosbeak	Pheucticus melanocephalus					View
Blue Grosbeak	Passerina caerulea					View
Lazuli Bunting	Passerina amoena					View
Indigo Bunting	Passerina cyanea					View
Dickcissel	Spiza americana					View
Western Painted Turtle	Chrysemys picta					View
Ornate Box Turtle	Terrapene ornata					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Eastern Collared Lizard	Crotaphytus collaris					View
Common Lesser Earless Lizard	Holbrookia maculata maculata; bunkeri; ruthveni					View
Hernandez's Short-horned Lizard	Phrynosoma hernandesi					View
Round-tailed Horned Lizard	Phrynosoma modestum					View
Northern Sagebrush Lizard	Sceloporus graciosus					View
Plateau Fence Lizard	Sceloporus tristichus					View
Northern Tree Lizard	Urosaurus ornatus					View
Common Side-blotched Lizard	Uta stansburiana					View
Chihuahuan Spotted Whiptail	Aspidoscelis exsanguis					View
New Mexico Whiptail	Aspidoscelis neomexicana					View
Plateau Striped Whiptail	Aspidoscelis velox					View
Many-lined Skink	Plestiodon multivirgatus					View
Texas Blind Snake	Rena dissecta					View
Glossy Snake	Arizona elegans					View
Coachwhip	Coluber flagellum					View
Desert Striped Whipsnake	Coluber taeniatus					View
Plains Hog-nosed Snake	Heterodon nasicus					View
Milk Snake	Lampropeltis gentilis					View
Smooth Greensnake	Opheodrys vernalis					View
Great Plains Rat Snake	Pantherophis emoryi					View
Gophersnake	Pituophis catenifer					View
Mountain Patchnose Snake	Salvadora grahamiae					View
Black-necked Gartersnake	Thamnophis cyrtopsis					View
Wandering Gartersnake	Thamnophis elegans					View
New Mexico Gartersnake	Thamnophis sirtalis					View
Western Diamond-backed Rattlesnake	Crotalus atrox					View
Prairie Rattlesnake	Crotalus viridis					View
Tiger Salamander	Ambystoma mavortium mavortium; nebulosum					View
Jemez Mountains Salamander	Plethodon neomexicanus	E	E	Y	Y	View
Plains Spadefoot	Spea bombifrons					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
New Mexico Spadefoot	Spea multiplicata					View
Boreal Toad	Anaxyrus boreas boreas	E			Y	View
Great Plains Toad	Anaxyrus cognatus					View
Red-spotted Toad	Anaxyrus punctatus					View
Woodhouse's Toad	Anaxyrus woodhousii					View
Boreal Chorus Frog	Pseudacris maculata				Y	View
Plains Leopard Frog	Lithobates blairi				Y	View
Bullfrog	Lithobates catesbeianus					View
Northern Leopard Frog	Lithobates pipiens				Y	View
Red Shiner	Cyprinella lutrensis					View
Common Carp	Cyprinus carpio					View
Rio Grande Chub	Gila pandora				Y	View
Roundtail Chub (upper basin populations)	Gila robusta	E			Y	No Photo
Fathead Minnow	Pimephales promelas					View
Flathead Chub	Platygobio gracilis					View
Longnose Dace	Rhinichthys cataractae					View
Speckled Dace (Non-Gila pop.)	Rhinichthys osculus					No Photo
River Carpsucker	Carpiodes carpio					View
White Sucker	Catostomus commersoni					View
Bluehead Sucker	Catostomus discobolus discobolus					No Photo
Flannelmouth Sucker	Catostomus latipinnis					No Photo
Rio Grande Sucker	Catostomus plebeius				Y	View
Black Bullhead	Ameiurus melas					View
Channel Catfish	Ictalurus punctatus					View
Cutthroat Trout	Oncorhynchus clarkii					No Photo
Rio Grande Cutthroat Trout	Oncorhynchus clarkii virginalis					View
Rainbow Trout	Oncorhynchus mykiss					View
Kokanee Salmon	Oncorhynchus nerka					View
Brown Trout	Salmo trutta					View
Brook Trout	Salvelinus fontinalis					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Lake Trout	Salvelinus namaycush					View
Northern Pike	Esox lucius					View
Plains Killifish	Fundulus zebrinus					No Photo
Western mosquitofish	Gambusia affinis					No Photo
Mottled Sculpin	Cottus bairdi					No Photo
Green Sunfish	Lepomis cyanellus					View
Bluegill	Lepomis macrochirus					View
Smallmouth Bass	Micropterus dolomieui					View
Largemouth Bass	Micropterus salmoides					View
White Crappie	Pomoxis annularis					View
Yellow Perch	Perca flavescens					View
Walleye	Sander vitreus					View
Forest Disc Snail	Discus whitneyi					No Photo
Mexican Coil Snail	Helicodiscus eigenmani					No Photo
Socorro Mountainsnail	Oreohelix neomexicana					No Photo
Rocky Mountainsnail	Oreohelix strigosa					View
Suboval Ambersnail	Catinella vermeta					No Photo
Montane Snaggletooth Snail	Gastrocopta pilsbryana					No Photo
Widespread Column Snail	Pupilla muscorum					No Photo
Ribbed Dagger Snail	Pupoides hordaceus					No Photo
Rocky Mtn. Column Snail	Pupilla blandi					No Photo
Vertigo Snail	Vertigo arizonensis					No Photo
Vertigo Snail	Vertigo concinnula					No Photo
Glossy Pillar Snail	Cionella lubrica					No Photo
Silky Vallonia Snail	Vallonia cyclophorella					No Photo
Multirib Vallonia Snail	Vallonia gracilicosta					No Photo
Meadow Slug Snail	Deroceras laeve					No Photo
Western Glass Snail	Vitrina pellucida					No Photo
Minute Gem Snail	Hawaiia minuscula					No Photo
Amber Glass Snail	Nesovitrea hammonis					No Photo
Quick Gloss Snail	Zonitoides arboreus					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Brown Hive Snail	Euconulus fulvus					No Photo
Jemez Woodlandsnail	Ashmunella ashmuni				Y	No Photo
Spruce Snail	Microphysula ingersolli					No Photo
Colorado Fairy Shrimp	Branchinecta coloradensis				Y	View
Versatile Fairy Shrimp	Branchinecta lindahli				Y	View
Tiger Beetle	Cicindela fulgida fulgida; pseudowillistoni					No Photo
Tiger Beetle	Cicindela hirticollis					No Photo
Tiger Beetle	Cicindela lengi lengi; jordai					No Photo
Dainty Tiger Beetle	Cicindela lepida					No Photo
Tiger Beetle	Cicindela longilabris laurentii					No Photo
Tiger Beetle	Cicindela marutha					No Photo
Tiger Beetle	Cicindela nigrocoerula					No Photo
Tiger Beetle	Cicindela obsoleta obsoleta; santaclarae					No Photo
Tiger Beetle	Cicindela oregona					No Photo
Tiger Beetle	Cicindela pulchra					No Photo
Tiger Beetle	Cicindela punctulata					No Photo
Tiger Beetle	Cicindela purpurea					No Photo
Tiger Beetle	Cicindela repanda					View
Tiger Beetle	Cicindela sedecimpunctata					No Photo
Tiger Beetle	Cicindela sperata					No Photo
Variable Tiger Beetle	Cicindela terricola					No Photo
Tiger Beetle	Cicindela tranquebarica					No Photo
Nevada Tiger Beetle	Ellipsoptera nevadica tubensis					No Photo
Rove Beetle	Anotylus alpicola					No Photo
Moth	Hemileuca nuttalli					No Photo
Twin-spot Sphinx Moth	Smerinthus jamaicensis					No Photo
White-lined Sphinx Moth	Hyles lineata					View
Silver-Spotted Skipper	Epargyreus clarus clarus					View
Afranius Duskywing Skipper	Erynnis afranius					No Photo
Sleepy Duskywing Skipper	Erynnis brizo					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Horace's Duskywing Skipper	Erynnis horatius					No Photo
Dreamy Duskywing Skipper	Erynnis icelus					View
Pacuvius Duskywing Skipper	Erynnis pacuvius					No Photo
Persius Duskywing Skipper	Erynnis persius					No Photo
Rocky Mtn Duskywing Skipper	Erynnis telemachus					View
Northern White Skipper	Heliopetes ericetorum					No Photo
Saltbush Sootywing Skipper	Hesperopsis alpheus					No Photo
Loki Grizzled Skipper	Pyrgus centaureae					No Photo
Common Checkered Skipper	Pyrgus communis					View
Mountain Checkered Skipper	Pyrgus xanthus					No Photo
Mexican Cloudwing Skipper	Thorybes mexicanus					No Photo
Northern Cloudywing Skipper	Thorybes pylades					View
Short-Tailed Skipper	Zestusa dorus					No Photo
Russet Skipperling Skipper	Piruna pirus					View
Bronze Roadside Skipper	Amblyscirtes aenus					No Photo
Cassus Roadside Skipper	Amblyscirtes cassus					No Photo
Oslar's Roadside Skipper	Amblyscirtes oslari					No Photo
Orange-headed Roadside Skipper	Amblyscirtes phylace					No Photo
Simius Roadside Skipper	Amblyscirtes simius					No Photo
Roadside Skipper	Amblyscirtes vialis					No Photo
Python Skipper	Atrytonopsis python					No Photo
Viereck's Skipper	Atrytonopsis vierecki					No Photo
Kiowa Dun Skipper	Euphyes vestris					View
Colorado Branded Skipper	Hesperia comma colorado					No Photo
Juba Skipper	Hesperia juba					No Photo
Nevada Skipper	Hesperia nevada					No Photo
Pahaska Skipper	Hesperia pahaska pahaska					No Photo
Uncas Skipper	Hesperia uncas uncas					No Photo
Green Skipper	Hesperia viridis					View
Apache Skipper	Hesperia woodgatei					No Photo
Garita Skipperling Skipper	Oarisma garita					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Napa Woodland Skipper	Ochlodes sylvanoides					No Photo
Taxiles Skipper	Poanes taxiles					View
Draco Skipper	Polites draco					View
Sandhill Skipper	Polites sabuleti					No Photo
Tawny-Edged Skipper	Polites themistocles					View
Morrison's Skipper	Stinga morrisoni					No Photo
Colorado Giant Skipper	Megathymus coloradensis coloradensis					No Photo
Strecker's Giant Skipper	Megathymus streckeri streckeri					View
Roger's False Parnassian Butterfly	Parnassius phoebus					View
Rhesus Skipper	Yvretta rhesus					No Photo
Baird's Swallowtail Butterfly	Papilio bairdii					No Photo
Black Swallowtail Butterfly	Papilio polyxenes asterius					View
Nitra Swallowtail Butterfly	Papilio zelicaon nitra					No Photo
Anise Swallowtail Butterfly	Papilio zelicaon zelicaon					View
Western Tiger Swallowtail Butterfly	Pterourus rutulus rutulus					View
Ingham's Orangetip Butterfly	Anthocharis sara					View
Two-Tailed Swallowtail Butterfly	Pterourus multicaudatus					View
Pale Swallowtail Butterfly	Pterourus eurymedon					No Photo
Colorado Marble Butterfly	Euchloe ausonides					No Photo
Southern Marble Butterfly	Euchloe hyantis					No Photo
Pine White Butterfly	Neophasia menapia					View
McDunnough's White Butterfly	Pieris napi mcdunnoughi					No Photo
Cabbage White Butterfly	Pieris rapae					View
Becker's White Butterfly	Pontia beckerii					No Photo
Western White Butterfly	Pontia occidentalis					View
Checkered White Butterfly	Pontia protodice					View
Spring White Butterfly	Pontia sisymbrii elivata					No Photo
Queen Alexandra's Sulphur Butterfly	Colias alexandra alexandra					View
Orange Sulphur Butterfly	Colias eurytheme					View
Mead's Sulphur Butterfly	Colias meadii					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Western Common Sulphur Butterfly	Colias philodice					View
Scudder's Willow Sulphur Butterfly	Colias scudderii					No Photo
Mexican Yellow Butterfly	Eurema mexicanum					No Photo
Sleepy Orange Butterfly	Eurema nicippe					View
Dainty Sulphur Butterfly	Nathalis iole					View
Southern Dogface Butterfly	Zerene cesonia					View
Colorado Hairstreak Butterfly	Hypaurotis crysalus					View
Great Purple Hairstreak Butterfly	Atlides halesus					View
Rocky Mountain Green Hairstreak Butterfly	Callophrys affinis homoperplexa					No Photo
Sheridan's Hairstreak Butterfly	Callophrys sheridanii sheridanii					No Photo
Western Elfin Butterfly	Incisalia augustinus iroides					No Photo
Western Pine Elfin Butterfly	Incisalia eryphon					No Photo
Obscure Elfin Butterfly	Incisalia polia					No Photo
Juniper Hairstreak Butterfly	Mitoura siva					View
Thicket Hairstreak Butterfly	Mitoura spinetorum					No Photo
Cross's Hairstreak Butterfly	Satyrium behrii					No Photo
Godart's Hairstreak Butterfly	Satyrium calanus					No Photo
Itys Hairstreak Butterfly	Satyrium sylvinum					No Photo
Immaculate Hairstreak Butterfly	Satyrium titus immaculosus					No Photo
Frank's Common Hairstreak Butterfly	Strymon melinus					View
Rustic Blue Butterfly	Agriades rusticus					View
Arizona Blue Butterfly	Celastrina ladon cinerea					No Photo
Square-spotted Blue Butterfly	Euphilotes battoides centralis					View
Spalding's Blue Butterfly	Euphilotes spaldingi					View
Western Tailed Blue Butterfly	Everes amyntula					View
Silvery Blue Butterfly	Glaucopsyche lygdamus oro					View
Reakirt's Blue Butterfly	Hemiargus isola					View
Marine Blue Butterfly	Leptotes marina					View
Melissa Blue Butterfly	Lycaeides melissa					View
Texas Blue Butterfly	Plebejus acmon					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Lycea Blue Butterfly	Plebejus icarioides lycea					View
Whitmer's Blue Butterfly	Plebejus saepiolus whitmeri					View
Sirius Copper Butterfly	Chalceria rubida					No Photo
Blue Copper Butterfly	Chalceria heteronea					No Photo
Mormon Metalmark Butterfly	Apodemia mormo mormo					No Photo
Purplish Copper Butterfly	Epidemia helloides					View
Shellbach's Copper Butterfly	Tharsalea arota					View
Nais Metalmark Butterfly	Apodemia nais					No Photo
Leda Hairstreak Butterfly	Ministrymon leda					No Photo
Western Pygmy Blue Butterfly	Brephidum exile					View
Southern Snout Butterfly	Libytheana bachmanii					No Photo
Milbert's Tortoise Shell Butterfly	Aglais milberti					View
Buckeye Butterfly	Junonia coenia					View
Mourning Cloak Butterfly	Nymphalis antiopa					View
California Tortoise Shell Butterfly	Nymphalis californica					View
Green Comma Butterfly	Polygonia faunus					View
Hoary Comma Butterfly	Polygonia gracilis					View
Satyr Anglewing Butterfly	Polygonia satyrus					No Photo
West Coast Lady Butterfly	Vanessa annabella					View
Red Admiral Butterfly	Vanessa atalanta					View
Painted Lady Butterfly	Vanessa cardui					View
American Lady Butterfly	Vanessa virginiensis					View
Variegated Fritillary Butterfly	Euptoieta claudia					View
Great Spangled Fritillary Butterfly	Speyeria cybele					No Photo
Edwards' Fritillary Butterfly	Speyeria edwardsii					No Photo
Electa Fritillary Butterfly	Speyeria hesperis electa					View
Nikias Fritillary Butterfly	Speyeria hesperis nikias					View
Eurynome Silverspot Butterfly	Speyeria mormonia					View
Carlota Checkerspot Butterfly	Chlosyne gorgone					No Photo
Chuska Mountains Checkerspot Butterfly	Euphydryas anicia chuskae					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Mylitta Crescent Butterfly	Phyciodes mylitta					View
Painted Crescent Butterfly	Phyciodes pictus					View
Camillus Crescent Butterfly	Phyciodes pulchella					View
Pearl Crescent Butterfly	Phyciodes tharos Type B					No Photo
Montane Penstemon Checkerspot Butterfly	Poladryas minuta arachne					No Photo
Fulvia Checkerspot Butterfly	Thessalia fulvia					View
Arizona Sister Butterfly	Adelpha bredowii					View
Mead's Wood Nymph Butterfly	Cercyonis meadii meadii					View
Charon Satyr Butterfly	Cercyonis oetus					View
Common Wood-Nymph Butterfly	Cercyonis pegala					View
Ochre Ringlet Butterfly	Coenonympha ochracea ochracea					View
Canyonland Satyr Butterfly	Cyllopsis pertepida dorothea					View
Common Alpine Butterfly	Erebia epipsodea					View
Ridings' Satyr Butterfly	Neominois ridingsii ridingsii					No Photo
Chryxus Arctic Butterfly	Oeneis chryxus chryxus					View
CO Melissa Arctic Butterfly	Oeneis melissa					No Photo
Bruce's Arctic Butterfly	Oeneis polixenes					No Photo
Uhler's Arctic Butterfly	Oeneis uhleri					No Photo
Striated Queen Butterfly	Danaus gilippus					View
Monarch Butterfly	Danaus plexippus		C			View
Tolland Fritillary Butterfly	Clossiana selene					No Photo
Brown's Fritillary Butterfly	Clossiana freija					No Photo
Helena Fritillary Butterfly	Clossiana titania					View
Drusius Checkerspot Butterfly	Charidryas nycteis					View
Pearly Checkerspot Butterfly	Charidryas acastus acastus					No Photo
Alena Checkerspot Butterfly	Occidryas anicia alena					No Photo
Mead's Checkerspot Butterfly	Occidryas anicia eurytion					No Photo
Viceroy Butterfly	Limenitis archippus archippus					No Photo
Weidemeyer's Admiral Butterfly	Limenitis weidemeyerii weidemeyerii					View
Great Spreadwing	Archilestes grandis					View

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Plateau Spreadwing	Lestes alacer					View
Southern Spreadwing	Lestes australis					No Photo
Spotted Spreadwing	Lestes congener					View
Northern Spreadwing	Lestes disjunctus					No Photo
Emerald Spreadwing	Lestes dryas					No Photo
American Rubyspot	Hetaerina americana					View
Western Red Damsel	Amphiagrion abbreviatum					View
Blue-fronted Dancer	Argia apicalis					View
Sooty Dancer	Argia lugens					View
Springwater Dancer	Argia plana					View
Vivid Dancer	Argia vivida					View
Taiga Bluet	Coenagrion resolutum					View
Northern Bluet	Enallagma annexum					View
Double-striped Bluet	Enallagma basidens					No Photo
Boreal Bluet	Enallagma boreale					No Photo
Tule Bluet	Enallagma carunculatum					View
Familiar Bluet	Enallagma civile					View
Arroyo Bluet	Enallagma praevarum					No Photo
Plains Forktail	Ischnura damula					View
Mexican Forktail	Ischnura demorsa					View
Variable Darner	Aeshna ierrupta					No Photo
Paddle-tailed Darner	Aeshna palmata					View
Shadow Darner	Aeshna umbrosa					No Photo
Common Green Darner	Anax junius					View
Riffle Darner	Oplonaeschna armata					No Photo
Blue-eyed Darner	Rhionaeschna multicolor					View
White-belted Ringtail	Erpetogomphus compositus					View
Pale Snaketail	Ophiogomphus severus					View
Sulphur-tipped Clubtail	Phanogomphus militaris					No Photo
Brimstone Clubtail	Stylurus intricatus					View
Pacific Spiketail	Cordulegaster dorsalis					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Mountain Emerald	Somatochlora semicircularis					No Photo
Pale-faced Clubskimmer	Brechmorhoga mendax					View
Checkered Setwing	Dythemis fugax					View
Western Pondhawk	Erythemis collocata					No Photo
Eastern Pondhawk	Erythemis simplicicollis					View
Boreal Whiteface	Leucorrhinia borealis					View
Widow skimmer	Libellula luctuosa					View
Twelve-spotted Skimmer	Libellula pulchella					View
Four-spotted Skimmer	Libellula quadrimaculata					View
Flame Skimmer	Libellula saturata					View
Roseate Skimmer	Orthemis ferruginea					View
Blue Dasher	Pachydiplax longipennis					View
Red Rock Skimmer	Paltothemis lineatipes					No Photo
Wandering Glider	Pantala flavescens					View
Eastern Amberwing	Perithemis tenera					View
Common Whitetail	Plathemis lydia					View
Variegated meadowhawk	Sympetrum corruptum					View
Black Meadowhawk	Sympetrum danae					View
Cardinal Meadowhawk	Sympetrum illotum					No Photo
Cherry-faced Meadowhawk	Sympetrum internum					View
Striped Meadowhawk	Sympetrum pallipes					View
Band-winged Meadowhawk	Sympetrum semicinctum					View
Black Saddlebags	Tramea lacerata					View
Red Saddlebags	Tramea onusta					View
Club-Horned Grasshopper	Aeropedellus clavatus					No Photo
White Whiskers Grasshopper	Ageneotettix deorum					No Photo
Striped Slant-Faced Grasshopper	Amphitornus coloradus					No Photo
Elliott Grasshopper	Aulocara elliotti					No Photo
White Cross Grasshopper	Aulocara femoratum					No Photo
Cream Grasshopper	Cibolacris parviceps					No Photo
Spotted Wing Grasshopper	Cordillacris occipitalis					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Velvet-Striped Grasshopper	Eritettix simplex					No Photo
Rufous Grasshopper	Heliaula rufa					No Photo
Grasshopper	Mermiria texana					No Photo
Obscure Grasshopper	Opeia obscura					No Photo
Brown Spotted Range Grasshopper	Psoloessa delicatula					No Photo
Grasshopper	Psoloessa texana					No Photo
Speckled Rangeland Grasshopper	Arphia conspera					No Photo
Red-Winged Grasshopper	Arphia pseudonietana					No Photo
Clear-Winged Grasshopper	Camnula pellucida					No Photo
Northern Green-Striped Locust Grasshopper	Chortophaga viridifasciata					No Photo
Wrangler Grasshopper	Circotettix rabula					View
Groove-Headed Grasshopper	Conozoa sulcifrons					No Photo
Grasshopper	Conozoa texana					No Photo
Pronotal Range Grasshopper	Cratypedes neglectus					No Photo
Carolina Grasshopper	Dissosteira carolina					No Photo
Dusky Grasshopper	Encoptolophus costalis					No Photo
Arroyo Grasshopper	Heliastus benjamini					No Photo
Grasshopper	Hippopedon capito					No Photo
Blue-Winged Grasshopper	Leprus intermedius					No Photo
Campestral Grasshopper	Spharagemon campestris					No Photo
Mottled Sand Grasshopper	Spharagemon collare					No Photo
Kiowa Range Grasshopper	Trachyrhachys kiowa					No Photo
Grasshopper	Trimerotropis barnumi					No Photo
Strenuous Grasshopper	Trimerotropis californica					No Photo
Grasshopper	Trimerotropis fratercula					No Photo
Thomas' Slender Grasshopper	Trimerotropis gracilis					No Photo
Grasshopper	Trimerotropis inconspicua					No Photo
Grasshopper	Trimerotropis modesta					No Photo
Barren Land Grasshopper	Trimerotropis pristrinaria					No Photo
Crackling Forest Grasshopper	Trimerotropis verruculata					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Red Shanks Grasshopper	Xanthippus corallipes					No Photo
Grasshopper	Xanthippus montanus					No Photo
Green Bird Grasshopper	Schistocerca alutacea shoshone					No Photo
Grasshopper	Hesperotettix speciosus					No Photo
Green Streak Grasshopper	Hesperotettix viridis					No Photo
Narrow-Winged Spur-Throat Grasshopper	Melanoplus angustipennis					No Photo
Two-Striped Grasshopper	Melanoplus bivittatus					No Photo
Grasshopper	Melanoplus bohemani					No Photo
Northern Spur-Throat Grasshopper	Melanoplus borealis					No Photo
Bowditch's Spur-Throat Grasshopper	Melanoplus bowditchi					No Photo
Bruner's Spur-Throat Grasshopper	Melanoplus bruneri					No Photo
Little Pasture Spur-Throat Grasshopper	Melanoplus confusus					No Photo
Grasshopper	Melanoplus cumbres					No Photo
Differential Grasshopper	Melanoplus differentialis					No Photo
Red-Legged Grasshopper	Melanoplus femurrubrum					No Photo
Grasshopper	Melanoplus foedus					No Photo
Gladston's Spur-Throat Grasshopper	Melanoplus gladstoni					No Photo
Glaucous-Legged Grasshopper	Melanoplus glaucipes					No Photo
Tiny Spur-Throat Grasshopper	Melanoplus infantilis					No Photo
Kennicott's Spur-Throat Grasshopper	Melanoplus kennicott's					No Photo
Grasshopper	Melanoplus lakinus					No Photo
Flabellate Grasshopper	Melanoplus occidentalis					No Photo
Packard's Grasshopper	Melanoplus packardi					No Photo
Grasshopper	Melanoplus splendidus					No Photo
Platte Range Grasshopper	Mestobregna plattei					No Photo
Grasshopper	Mestobregna terricolor					No Photo
False Ameletus Mayfly	Ameletus falsus					No Photo
Mayfly	Acentrella insignificans					No Photo
Mayfly	Baetis tricaudatus					No Photo
Mayfly	Callibaetis pictus					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Mayfly	Ephemera simulans					No Photo
Mayfly	Epeorus albertae					No Photo
Mayfly	Epeorus longimanus					No Photo
Mayfly	Epeorus margarita					No Photo
Mayfly	Nixe criddlei					No Photo
Mayfly	Nixe simplicioides					No Photo
Mayfly	Rhithrogena undulata					No Photo
Mayfly	Paraleptophlebia heteronea					No Photo
Mayfly	Paraleptophlebia memorialis					No Photo
Mayfly	Drunella doddsi					No Photo
Mayfly	Ephemerella inermis					No Photo
Mayfly	Serratella micheneri					No Photo
Mayfly	Timpanoga hecuba					No Photo
Mayfly	Leptohyphes apache					No Photo
Mayfly	Tricorythodes explicatus					No Photo
Comb-Footed Spider	Theridion neomexicanum					No Photo
Comb-Footed Spider	Theridion ohlerti					No Photo
Orb Weaver Spider	Araneus bicentenarius					No Photo
Thin-legged Wolf Spider	Pardosa coloradensis					No Photo
Thin-legged Wolf Spider	Pardosa distincta					No Photo
Thin-legged Wolf Spider	Pardosa fuscula					No Photo
Thin-legged Wolf Spider	Pardosa ourayensis					No Photo
Thin-legged Wolf Spider	Pardosa sternalis					No Photo
Spider	Varacosa gosiuta					No Photo
Pseudoscorpion	Parachelifer persimilis					No Photo
Pseudoscorpion	Hesperochernes utahensis					No Photo
Pseudoscorpion	Dinocheirus athleticus					No Photo
Pseudoscorpion	Chitrella transversa					No Photo
Pseudoscorpion	Mundochthonius montanus					No Photo
Pseudoscorpion	Lechytia pacifica					No Photo
Pseudoscorpion	Syarinus obscurus					No Photo

All Species
Rio Arriba

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Scud	Hyalella azteca					No Photo
Northern Crayfish	Faxonius virilis					View

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: February 03, 2022
Project Code: 2022-0002917
Project Name: Abiquiu Temporary Deviation

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

If you determine that your proposed action may affect federally-listed species, consultation with the Service will be necessary. Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)

(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

The scope of federally listed species compliance not only includes direct effects, but also any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects that may occur in the action area. The action area includes all areas to be affected, not merely the immediate area involved in the action. Large projects may have effects outside the immediate area to species not listed here that should be addressed. If your action area has suitable habitat for any of the attached species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Project Summary

Project Code: 2022-0002917
Event Code: None
Project Name: Abiquiu Temporary Deviation
Project Type: Dam - Operations
Project Description: Temporary deviation from the Water Control Manual for storage of water for the Bureau of Reclamation, the Middle Rio Grande Conservancy District, and Pueblo Prior and Paramount Water.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.2632725,-106.45274050046282,14z

Counties: Rio Arriba County, New Mexico

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Rio Grande Cutthroat Trout *Oncorhynchus clarkii virginalis*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/920

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31

NAME	BREEDING SEASON
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12

(0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

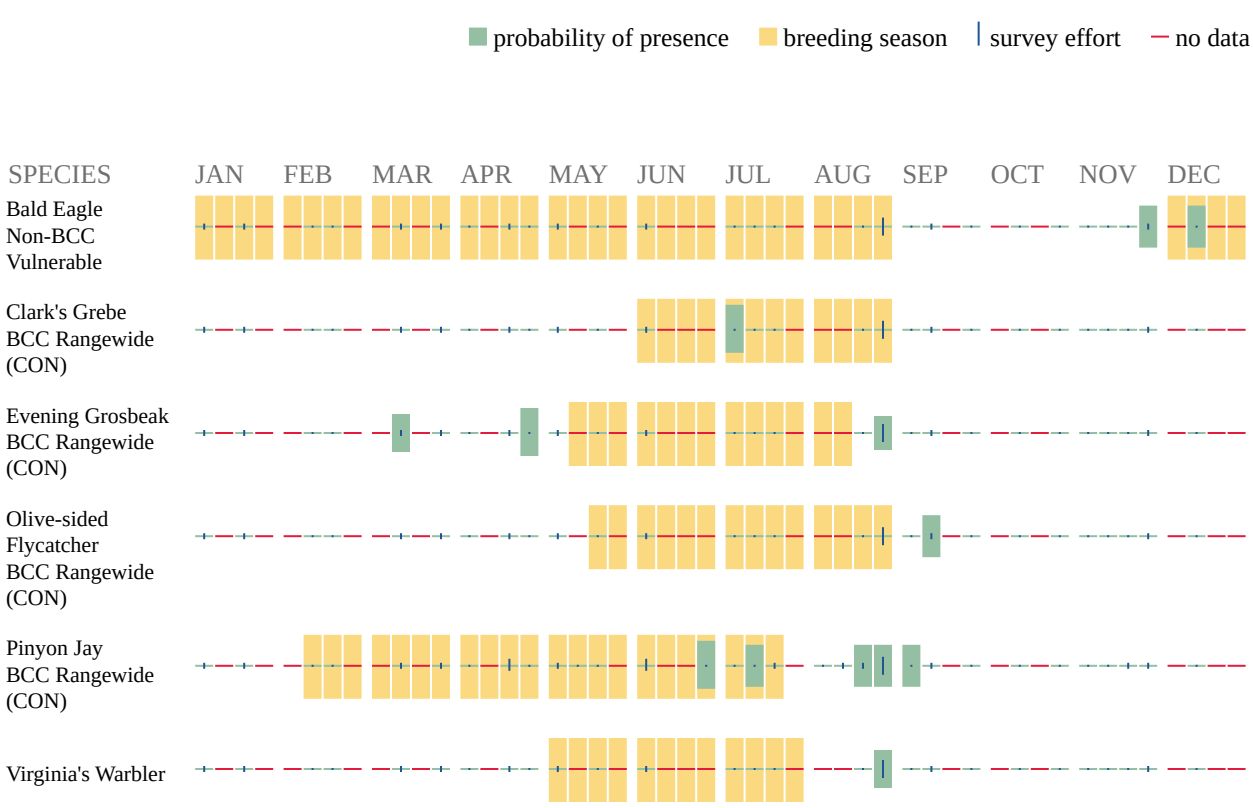
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



BCC Rangewide
(CON)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Appendix B – CULTURAL RESOURCES CONSULTATION CORRESPONDENCE

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

March 9, 2022

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Honorable Randall Vicente
Governor, Pueblo of Acoma
Post Office Box 309
Acoma, New Mexico 87034

Dear Governor Vicente:

Pursuant to 36 CFR Part 800, the U.S. Army Corps of Engineers (Corps), Albuquerque District, is seeking your concurrence in our determination of **no adverse effect to historic properties** for the proposed deviation from the Water Control Plan (WCP) at Abiquiu Dam and Reservoir, in the context of planned repairs of El Vado Dam by the U.S Bureau of Reclamation (USBR). Abiquiu Dam was constructed in the late 1950s and early 1960s as a flood control project on the Rio Chama about 32 miles upstream from the confluence of the Rio Chama and the Rio Grande and became operational in 1963. The project is located on the Cañones, New Mexico (36106-B4) 7.5' USGS Quad map, on unplatted lands of the Piedra Lumbre land grant (Enclosure 1).

The U.S. Army Corps of Engineers (Corps), Albuquerque District is proposing a temporary deviation from the current WCP at the Abiquiu Dam and Reservoir Project, Rio Arriba County, New Mexico. Corps received a request from the New Mexico Interstate Stream Commission (NMISC) requesting Corps to deviate from its normal operation schedule at Abiquiu Dam to allow retention of native Rio Grande water in Abiquiu Reservoir while El Vado Dam and Spillway are under repair by the USBR. Retained Rio Grande water may be released to meet middle Rio Grande irrigation demand, and/or the Coalition of Six Middle Rio Grande Basin Pueblos' direct flow right.

The El Vado Dam and Lake are located on the Rio Chama 32 miles upstream of Abiquiu Reservoir, and 30 miles downstream from Chama, NM. The dam was completed in 1935 to supplement irrigation water for the Middle Rio Grande Conservancy District (MRGCD) with a capacity of 198,000 acre-ft. for a 3,200-acre lake. USBR will begin conducting repairs and construction on El Vado Dam in spring 2022 for up to three years. During the repairs and construction, El Vado will not be able to retain any Rio Grande water.

The purpose of the proposed deviation action is to implement a temporary deviation from the WCP for Abiquiu Dam, which will allow other responsible agencies to retain and release Rio Grande water at Abiquiu Reservoir that would normally be retained at El Vado Reservoir while the El Vado Dam is undergoing repair. The request is for three (3) years until the completion of the El Vado Dam repairs, which are expected to start by the end of May 2022 and continue until December 2024. The water may be retained as Relinquishment Credit to meet middle Rio Grande water users' demand, and/or as Prior and Paramount (P&P) water for the Coalition.

The retained water will serve two purposes: the first purpose will allow NMISC to retain Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand. The water will be retained in the SJC Project conservation pool below elevation 6,220 ft. The total amount that will be retained during

the deviation period is 90,000 acre-feet, with a maximum annual amount of 45,000 acre-feet. Unused water will be carried over to the following year.

The second purpose will allow USBR to retain Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet/year to meet the Coalition's direct flow right. The water will be retained in the SJC Project conservation pool below elevation 6,220 ft. Unused water will be released between 01 November and 15 December of each year.

Under the no action alternative, El Vado Dam, upstream of Abiquiu Dam, will be under repair and therefore not available to retain its typical amount of water starting in May 2022. Without a deviation at Abiquiu Dam, all water would pass through El Vado and Abiquiu dams during the El Vado Dam repairs. Therefore, the proposed no action (baseline scenario) is to pass all inflow to the downstream channel capacity, except SJC Project water, which will follow normal operation at Abiquiu Dam.

In summary: The proposed action would involve retaining water as described above, with the following possible scenarios:

- Retain water as relinquishment credit
- Retain water as Prior and Paramount (P&P) water
- Both relinquishment credit and P&P

Area of Potential Effect

The Corps determines that the APE consists of the areas where changing lake elevations may affect archaeological sites through inundation, exposure, or wave action, within an elevation range of approximately 6,150 ft to 6,250 ft. As will be described below, hydrologic modeling suggests that the elevation range most likely to experience inundation are elevations at and below 6,220 ft, with a much smaller likelihood of having maximum elevations up to 6,250 ft (Enclosure 2). In addition, changes in flow regimes could have the potential to affect properties located within the channel downstream of Abiquiu Dam.

Based on an examination of the NMCRIS database, as well as Corps records, a total of 148 archaeological sites have been documented within this APE, and these sites represent human use of the landscape ranging from the Archaic to Historic periods. Of these 148 sites, 45 are located above the 6,220 ft level (Enclosure 3).

In addition, there are numerous historic properties documented near the Rio Chama channel downstream of Abiquiu Dam, including a wide range of prehistoric and historic resources, including active acequia systems.

All of the historic properties within the APE at the lake have been inundated or periodically inundated by normal lake operations since the 1960s.

Hydrologic Modeling

In order to determine whether the proposed deviation from the WCP would introduce new adverse effects to historic properties within the APE, we compare the expected behavior of lake elevations and downstream flows with the deviation to the expected behavior of lake elevations and downstream flows without the deviation. In addition, we examine how these conditions compare to past conditions within the APE.

The Corps performed hydrologic modeling of likely lake elevations for four scenarios:

- No deviation
- Deviation (relinquishment credit)
- Deviation (P&P)
- Deviation (combined relinquishment credit + P&P)

This modeling used existing hydrological data from the years 1975-2014, and predicted the range of what lake elevations at Abiquiu Reservoir would look like for the next three years under those conditions. As such, the resulting graphs (Enclosures 4, 5, 7, 8, and 9) each represent 40

different runs of the model, for each of the historical conditions. They also include the average, maximum, and minimum lake levels.

Expected Conditions Without Proposed Deviation

Reservoir elevation can affect archaeological sites by subjecting them to a number of processes, including inundation and wave action. Wave action in particular has been shown to have a significant impact on archaeological sites.

The model runs presented in Enclosures 4 and 5 present expectations for reservoir elevations for the duration of the period under consideration based on historic conditions during wetter years (Enclosure 4) and drier years (Enclosure 5). The model shows that, while there is a wide range of possible elevations for any given year, the average reservoir elevation over all model runs would be expected to range from approximately 6,170 ft to 6,200 ft. The drier years are much more representative of current New Mexico drought conditions, and are expected to more accurately represent likely outcomes.

Enclosure 6 shows daily reservoir elevations throughout the history of the reservoir. Between the years of 1963 and 1987, reservoir elevations increased from a starting point of around 6,060 ft to an all-time maximum of approximately 6,260 ft in August 1987. Since late 1987, elevations have remained largely between 6,170 ft and 6,220 ft, spiking above 6,220 only five times. The figure shows that the predicted average range of elevations for the no action alternative is very similar to the elevation range characteristic of the years since 1987. The no action alternative would be unlikely to inundate sites that have not been inundated over the last three decades.

On the question of wave action, Enclosure 6 shows that the range of elevation in any given year over the last decades has been relatively small (within 20 ft), and the modeling shows average potential swings of a similar range. Given that the expected range of fluctuation is expected to remain at a similar scale, and the fact that the average predicted range of water levels for the no action alternative has been subjected to substantial wave zone action over the last several decades, the no action alternative would not be expected to see new impacts to resources in the APE below 6,220 feet at Abiquiu Reservoir over baseline.

In general, reservoir elevations above 6,220 feet have been rare over the last three decades, so large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. The model shows that there is the possibility of such spikes occurring under the no action alternative. However, such spikes would be rare and generally unlikely; Figure 3, which shows the model runs for drier years that better reflect the current drought conditions, shows only two runs which exceeded 6,220 ft., and these spikes were both brief and relatively small, exceeding 6,220 ft by less than 10 feet. As such, we do not expect the no action alternative to introduce substantial or new effects to sites above 6,220 ft.

Regarding the downstream flow regime: because the no action alternative would pass flows from El Vado and Abiquiu Reservoir downstream, this alternative would see the potential for more days of flow at channel capacity (1800 cfs) than the proposed deviation action alternative. However, these flows would still be within the historic range of releases as part of normal water operations, and as such would not be expected to see new effects to resources downstream.

Expected Conditions With Proposed Deviation

The proposed deviation action result in three different scenarios. Three primary sources of potential impacts to these resources have been considered: direct impacts from retention of water; indirect impacts from potential changes in flow regime; and potential impacts from possible increased recreational use of the area. These are each discussed below.

Water Retention

As noted above, reservoir elevation can affect archaeological sites by subjecting them to a number of processes including inundation and wave action. Under the proposed deviation action alternative, water surface elevations at Abiquiu Reservoir are expected to increase in comparison with the no action alternative. Enclosures 7, 8, and 9 show model runs for predicted ranges of reservoir elevations for three deviation scenarios: relinquishment credit, Prior and Paramount, and a combination of the two (relinquishment credit and Prior and Paramount). Each of these does show some increase in overall expected water levels over the no action alternative. In order to assess potential effects of these increases on historic properties, it is necessary to compare these predicted elevations to those expected for the no action alternative.

As with the no action alternative, the average predicted reservoir elevations for each of the deviation scenarios are within the range of reservoir elevations characteristic of the years since 1987, but there are differences. For the relinquishment credit scenario, the average predicted water level ranges from approximately 6,185 ft to 6,210 ft (Enclosure 10). For the Prior and Paramount scenario, the average level ranges between approximately 6,185 ft and 6,205 ft (Enclosure 11). For the combined relinquishment credit and Prior and Paramount alternative, average water levels range slightly higher, from approximately 6,190 ft to 6,215 ft (Enclosure 12).

While slightly higher than the figures for the no action alternative (Enclosure 5), these predicted average ranges are still similar to the elevation range characteristic of the years since 1987, and in particular still fall below the 6,220 ft level. As such, averages for these alternatives make it unlikely that sites would be inundated that have not been inundated for substantial periods during the last three decades. No new effects would be expected for sites below 6,220 ft.

Because reservoir elevations above 6,220 feet have been rare over the last three decades, large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. Under these alternatives, the likelihood of exceeding this elevation is slightly higher than for the no action alternative, but would still be rare. As with the no action alternative, Enclosures 7 and 8 show only two runs exceeding 6,220 ft during the drier years (which better approximate current drought conditions), and Enclosure 9 shows only three runs with brief periods exceeding this elevation. While brief, these simulated peaks do reach slightly higher elevations than the no action alternative. Enclosure 13 shows average exceedance curves for the simulations for each of the alternatives (no action, and each of the three deviation scenarios), showing the percentage likelihood that each of the scenarios will exceed water level ranges. For the no action alternative, the relinquishment credit alternative, and the Prior and Paramount alternative, likelihood of exceeding 6,220 ft in elevation is less than two percent. For the combined relinquishment credit and Prior and Paramount alternative, likelihood of exceeding 6,220 ft increases to approximately nine percent; however, likelihood of exceeding 6,225 ft drops to less than two percent. In other words, while the combined alternative does raise the likelihood of exceeding 6,220 ft, such exceedance would still be rare, and the magnitude of increases more than five feet above this level are even less likely. As such, any of the three deviation scenarios are unlikely to introduce substantial or new effects from inundation or wave action to sites above 6,220 ft.

Downstream Flow Regime

As noted above, the fact that the no action alternative passes all Rio Grande inflows downstream of the dam, that alternative would have the potential for a greater number of days of flow at channel capacity (1800 cfs) over baseline. Because the proposed action under consideration would allow retention of Rio Grande water in Abiquiu Reservoir, these scenarios would reduce the number of days of flow at channel capacity downstream of Abiquiu by

approximately 25 percent. As with the no action alternative, these flows would be within the historic range of releases as part of normal water operations, and as such would not be expected to introduce new effects to resources downstream.

Recreation

While slightly higher water levels may result in some increases in recreation, the ranges of water levels (and therefore the expected variation in coincident recreation activities) are within historical ranges. As such, we expect potential temporary increases in recreation to be negligible relative to the no action alternative.

Summary and Determination of Effect

In sum, the proposed deviation is expected to slightly change the elevation of the lake, as well as some aspects of downstream flow. Lake levels are expected to be slightly higher with the deviation than without the deviation, but expected lake levels would be within the historic range of lake elevations from normal lake operations. In addition, without the deviation, downstream flow is likely to be at channel capacity longer than with the deviation (in other words, the deviation would somewhat reduce the number of days that downstream flow would be at channel capacity). Regardless, downstream flow will be within the historic range for normal dam operations.

The Corps concludes that the proposed deviation would not substantially alter the current and historical conditions for historic properties at Abiquiu Reservoir or downstream, and as such determines that the proposed work would have **no adverse effect** to historic properties. We invite your comment on this determination, and any additional information you wish to provide regarding the potential for this action to affect historic properties.

If you have any questions or require additional information concerning the Abiquiu Temporary Deviation, please contact Jonathan Van Hoose at (505) 342-3687 or by email at jonathan.e.vanhoose@usace.army.mil; or me at (505) 342-3661 or by email at danielle.a.galloway@usace.army.mil. You may also provide comments to the above address.

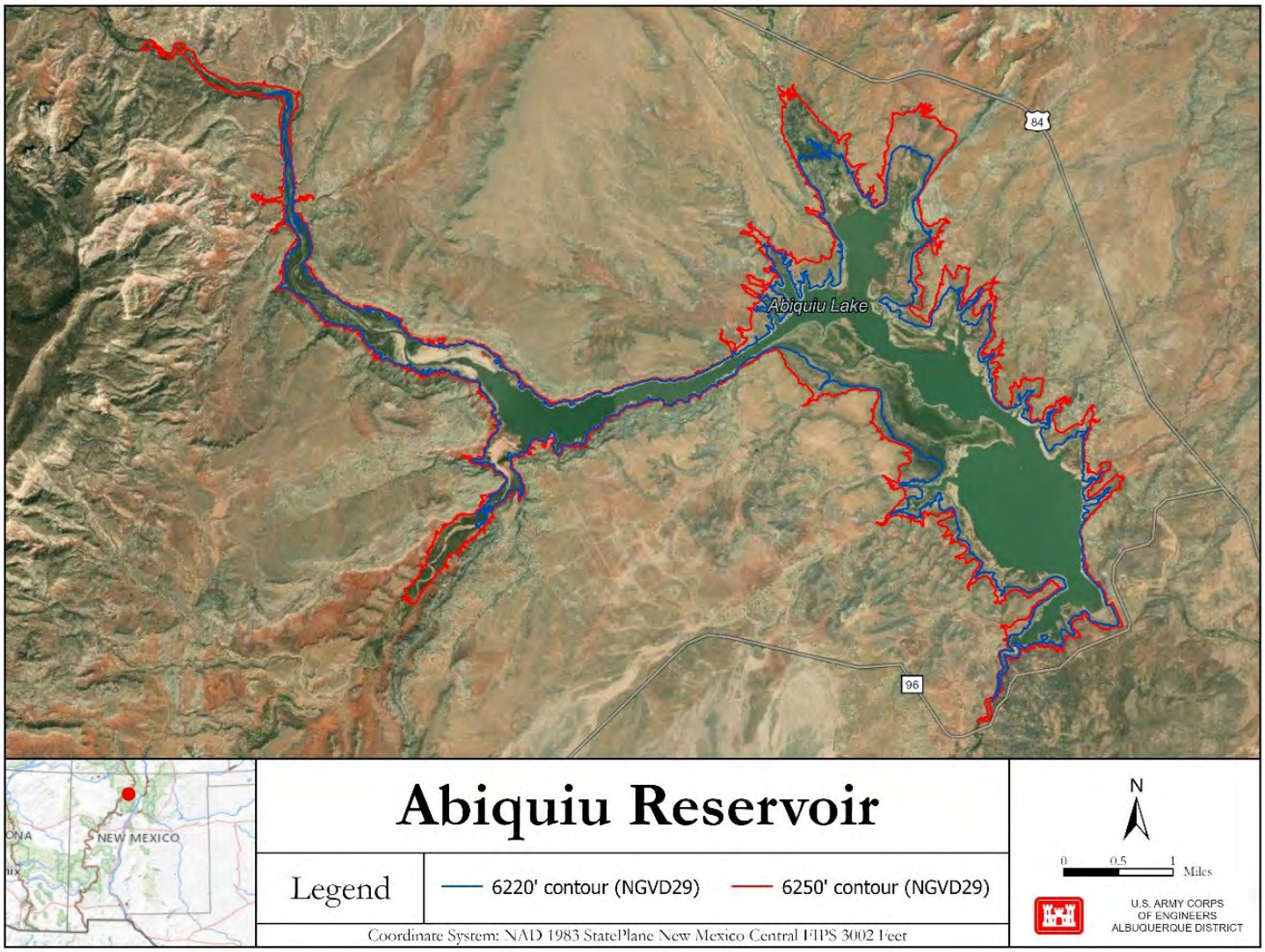
Sincerely,

Danielle Galloway

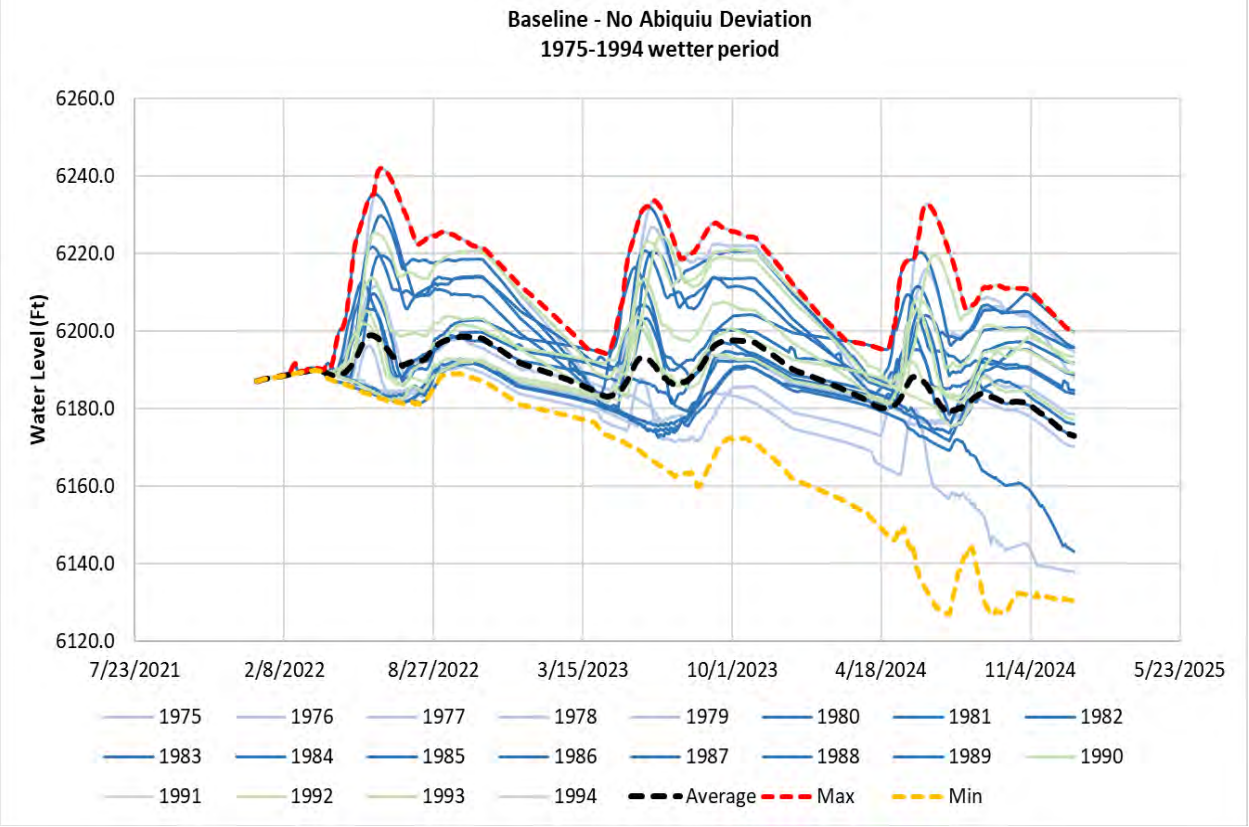
Danielle A. Galloway
Acting Chief, Environmental Resources Section

Enclosures

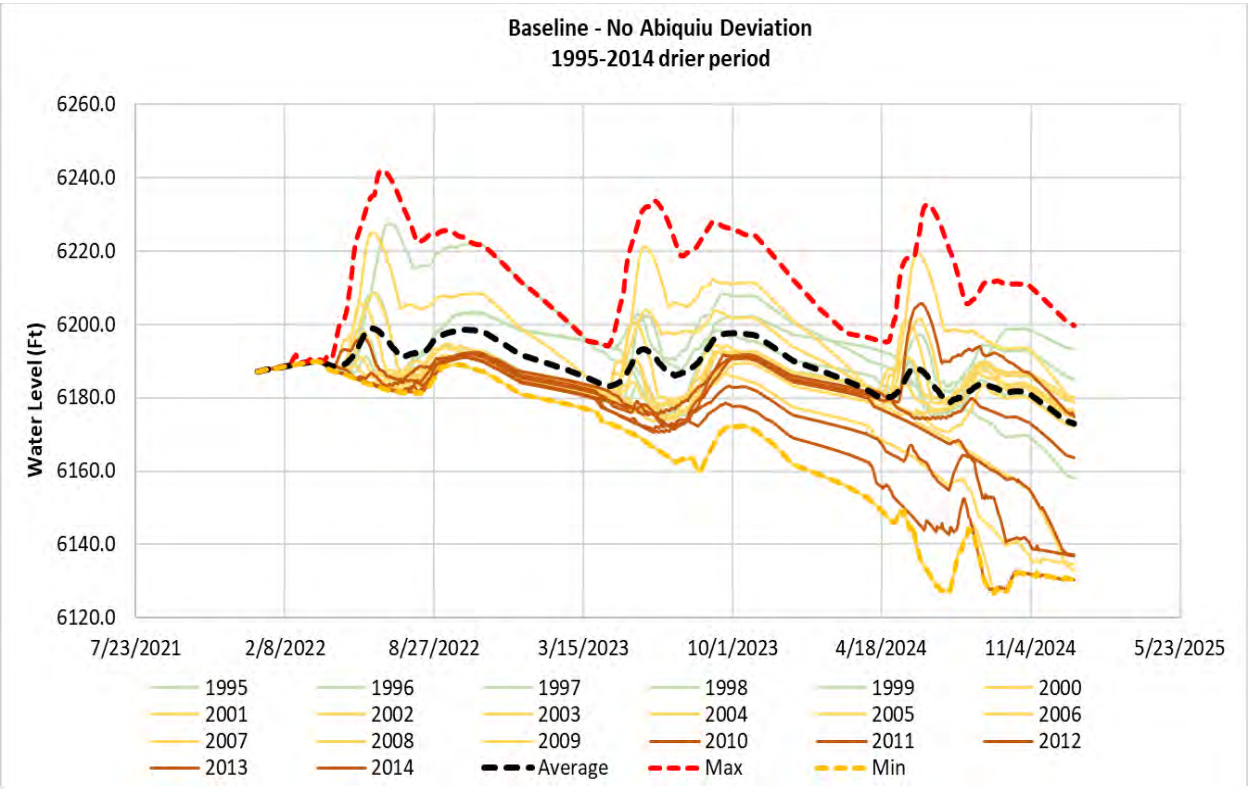
Enclosure 1. Location of Abiquiu Dam.



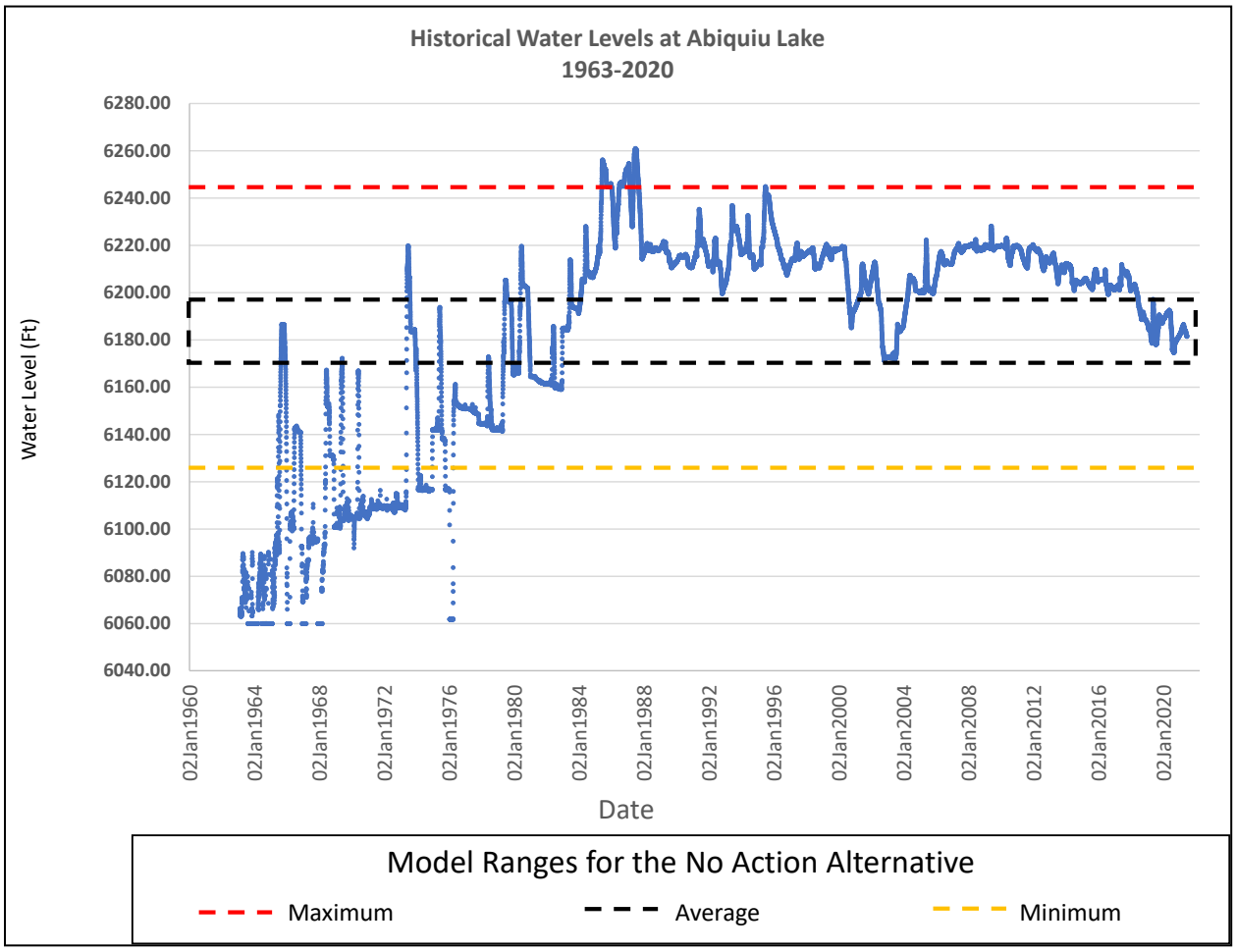
Enclosure 2. Area of Potential Effect (APE) at Abiquiu Reservoir.



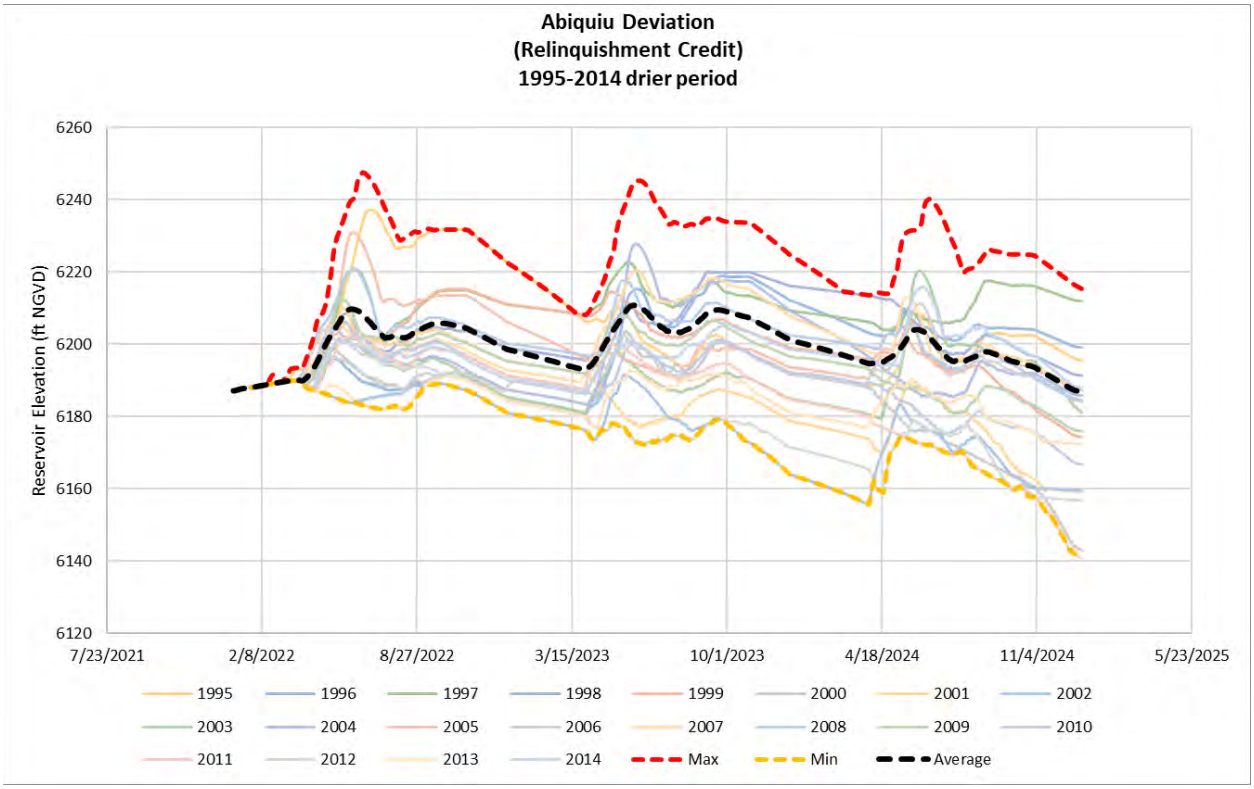
Enclosure 4. Upper Rio Grande Water Operations Model (URGWOM) runs without a deviation for the wetter 1975-1994 period of record. The average, maximum, and minimum hydrographs are from the entire period of record. These years are generally associated with higher lake elevations, and are *not* characteristic of current drought conditions.



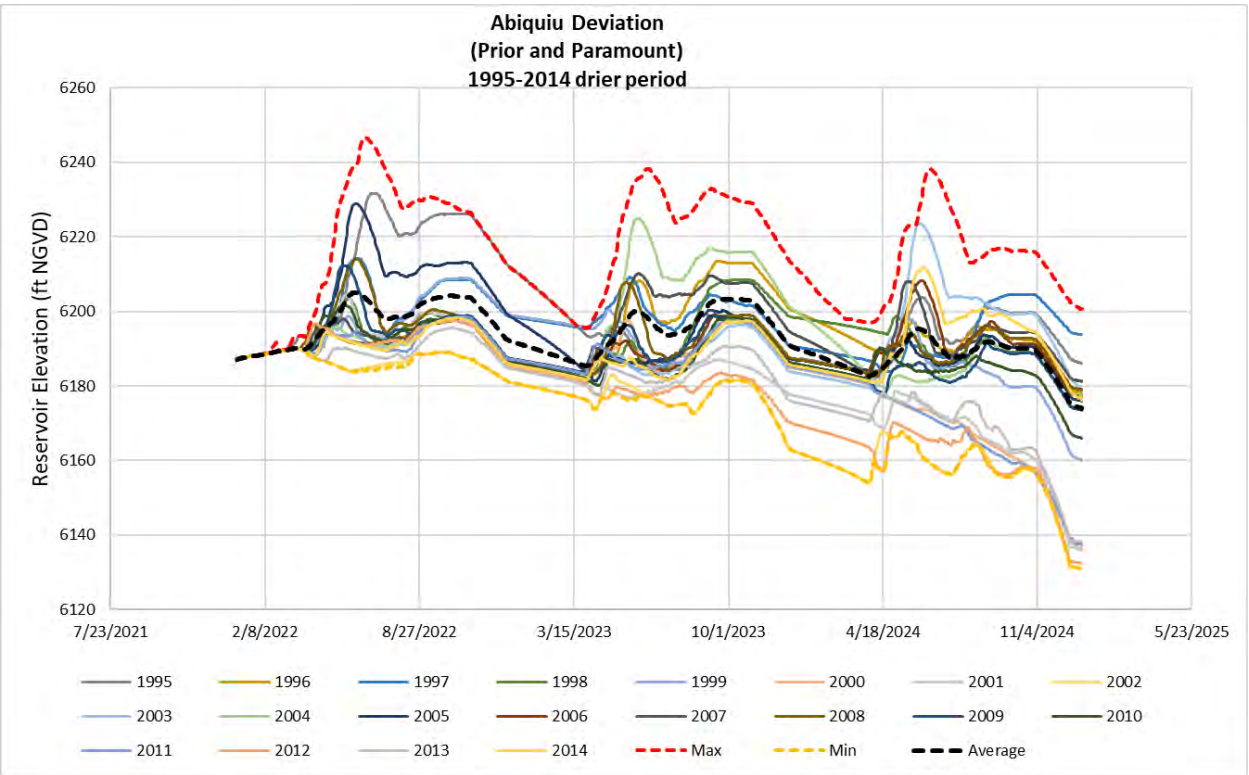
Enclosure 5. Upper Rio Grande Water Operations Model (URGWOM) runs without a deviation for the drier 1995-2014 period of record. The average, maximum, and minimum hydrographs are from the entire period of record. These years generally have lower lake levels, and are more representative of current drought conditions.



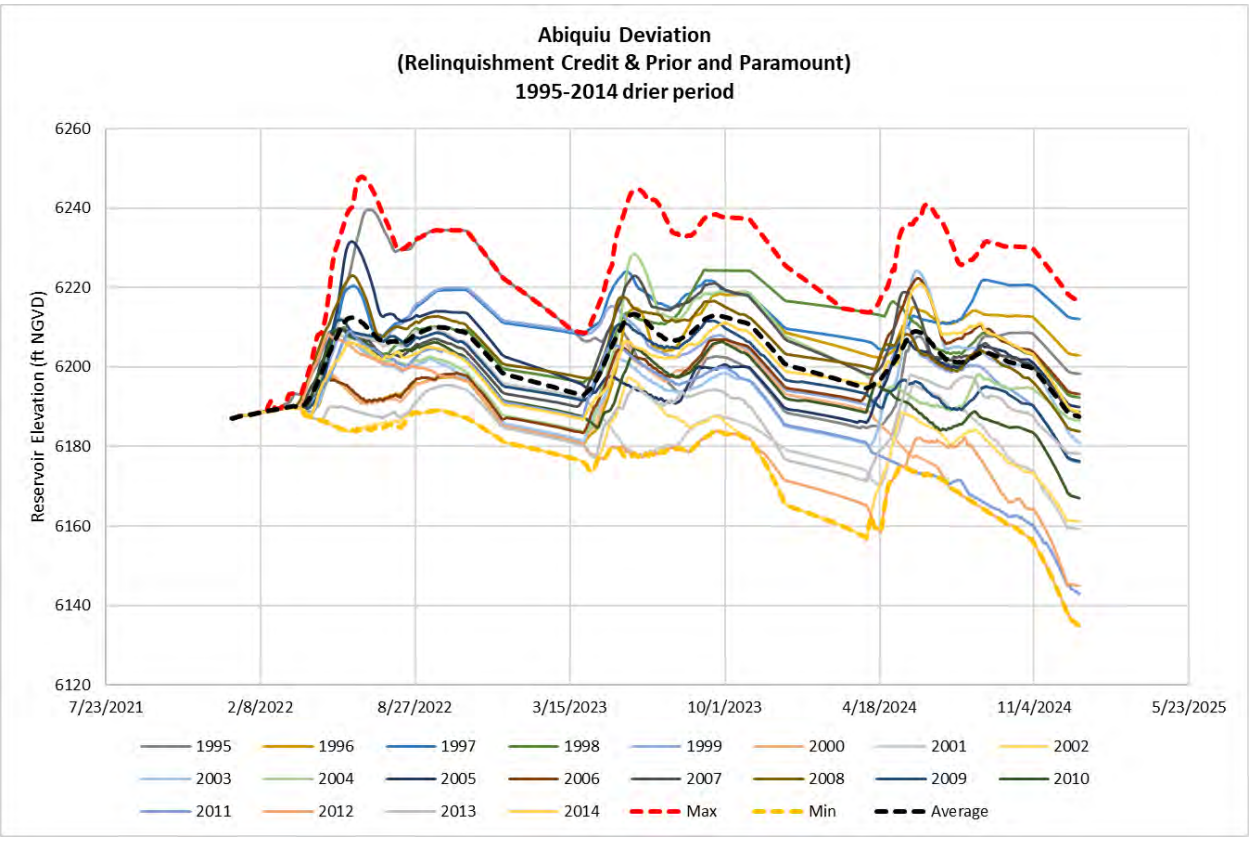
Enclosure 6. Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs.



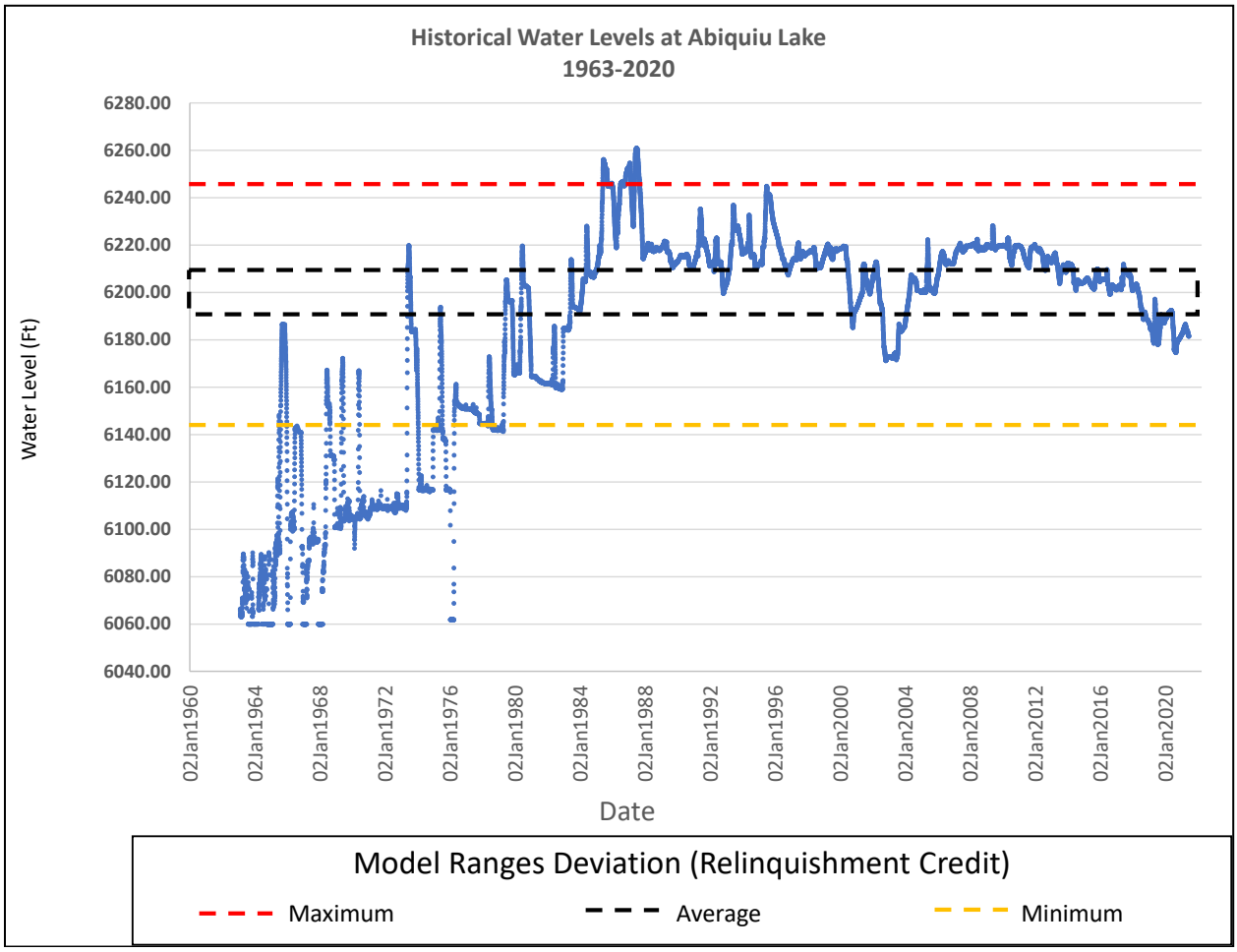
Enclosure 7. Upper Rio Grande Water Operations Model (URGWOM) runs with a deviation (relinquishment credit) for the drier 1995-2014 period of record. The average, maximum, and minimum hydrographs are from the entire period of record.



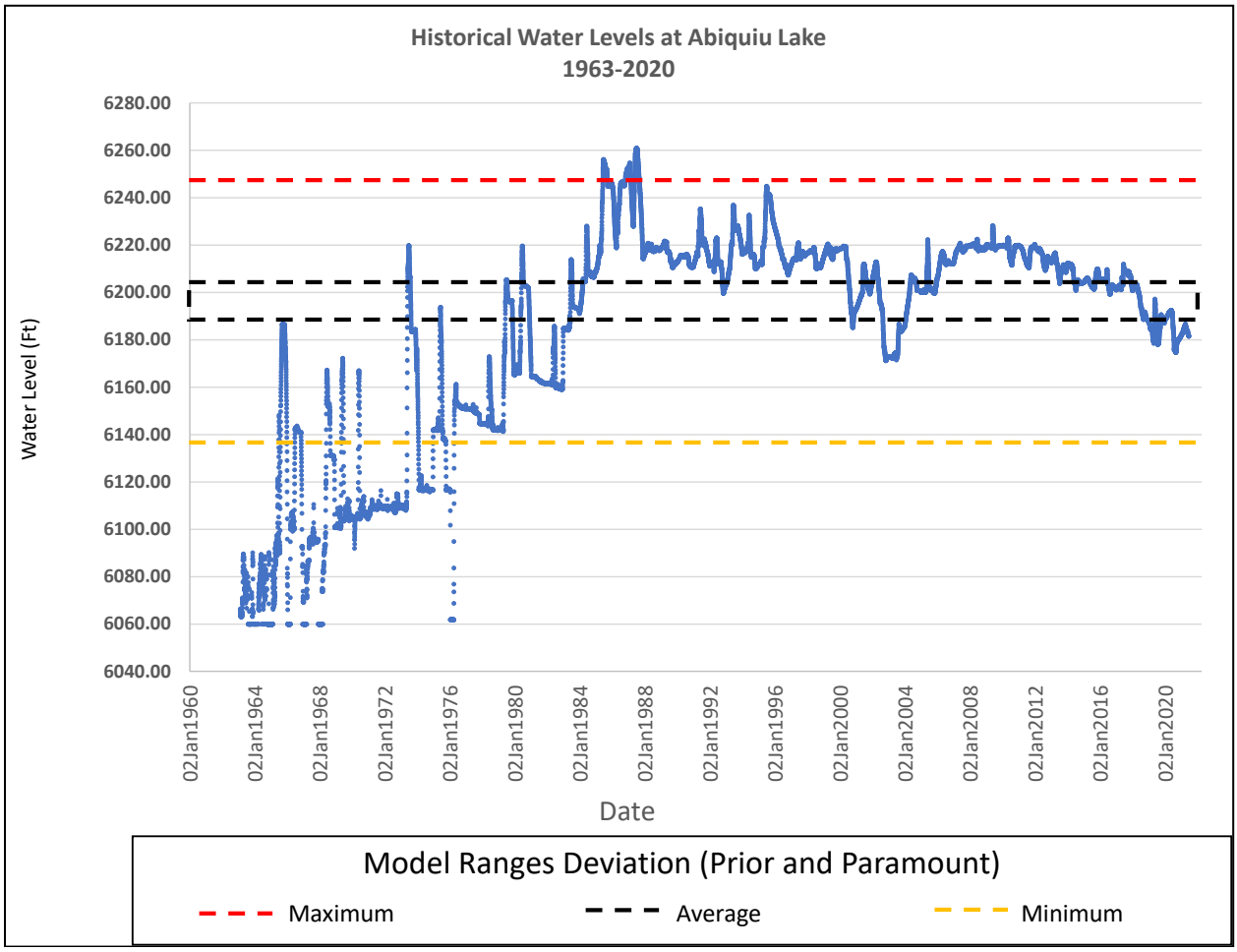
Enclosure 8. Upper Rio Grande Water Operations Model (URGWOM) runs with a deviation (Prior and Paramount) for the drier 1995-2014 period of record. The average, maximum, and minimum hydrographs are from the entire period of record.



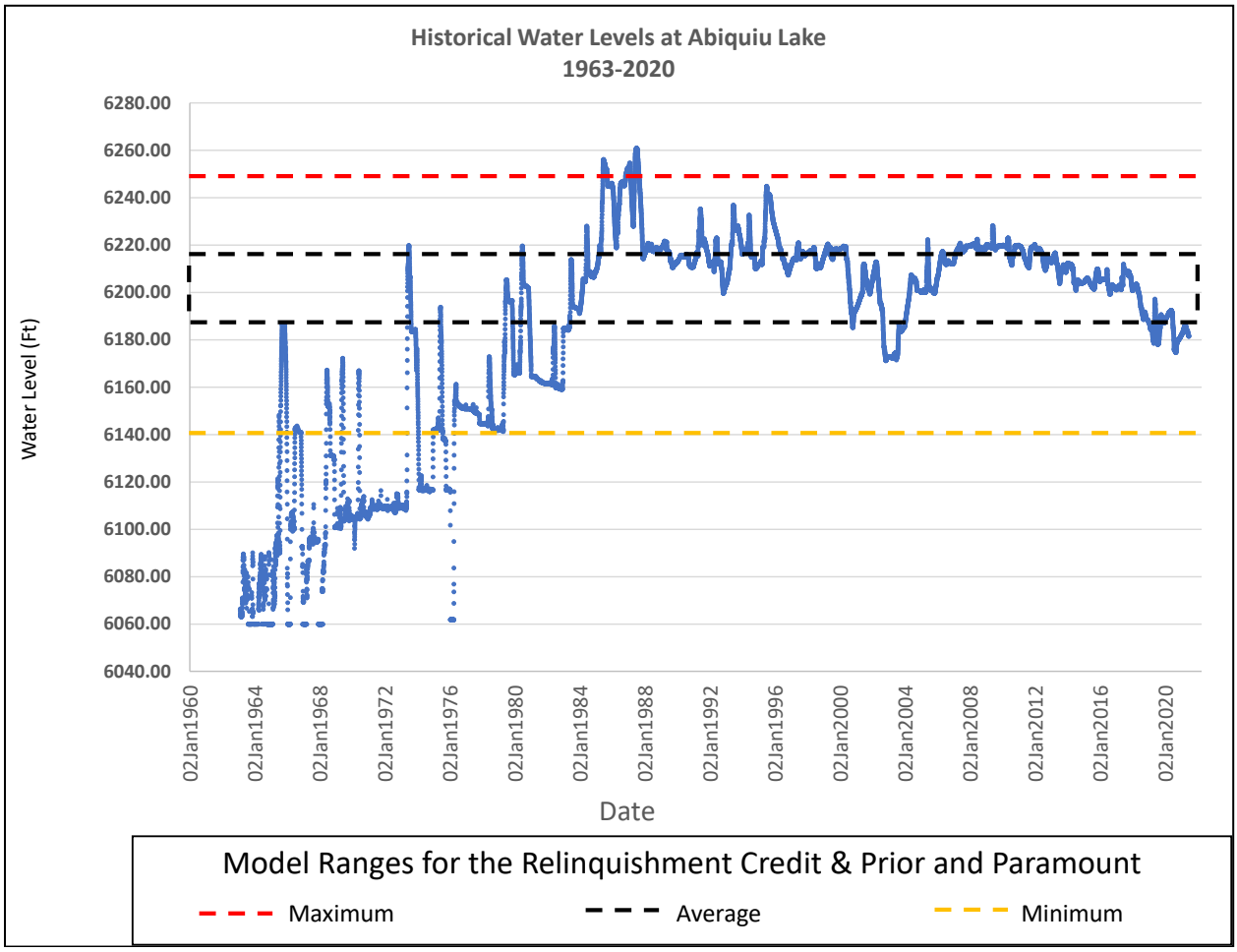
Enclosure 9. Upper Rio Grande Water Operations Model (URGWOM) runs with a combined deviation (relinquishment credit and Prior and Paramount) for the drier 1995-2014 period of record. The average, maximum, and minimum hydrographs are from the entire period of record.



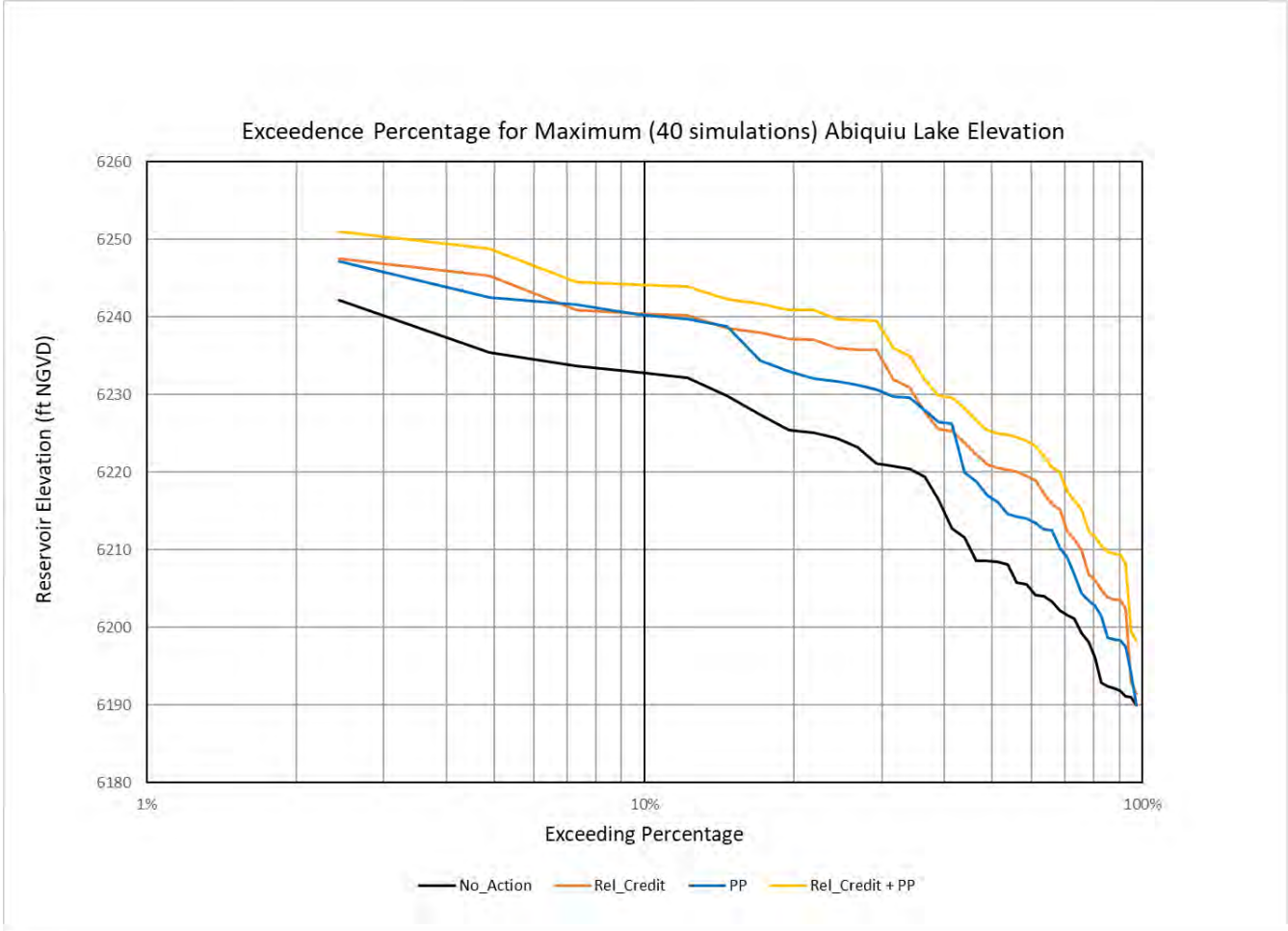
Enclosure 10. Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (relinquishment credit).



Enclosure 11. Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (Prior and Paramount).



Enclosure 12. Historic water levels at Abiquiu Reservoir, with predicted average, maximum, and minimum ranges based on URGWOM model runs for a deviation (combined relinquishment credit and Prior and Paramount).



Enclosure 13. Graph showing percentage of URGWOM runs for each alternative exceeding reservoir elevation levels, representing the likelihoods of exceeding elevations for each scenario.

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

March 9, 2022

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Via Email

Mr. Darel Madrid
darel@rcaainc.org
Rio Chama Acequia Association

Dear Mr. Madrid,

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The model runs presented in Enclosures 4 and 5 present expectations for reservoir elevations for the duration of the period under consideration based on historic conditions during wetter years (Enclosure 4) and drier years (Enclosure 5). The model shows that, while there is a wide range of possible elevations for any given year, the average reservoir elevation over all model runs would be expected to range from approximately 6,170 ft to 6,200 ft. The drier years are much more representative of current New Mexico drought conditions, and are expected to more accurately represent likely outcomes.

Enclosure 6 shows daily reservoir elevations throughout the history of the reservoir. Between the years of 1963 and 1987, reservoir elevations increased from a starting point of around 6,060 ft to an all-time maximum of approximately 6,260 ft in August 1987. Since late 1987, elevations have remained largely between 6,170 ft and 6,220 ft, spiking above 6,220 only five times. The figure shows that the predicted average range of elevations for the no action alternative is very similar to the elevation range characteristic of the years since 1987. The no action alternative would be unlikely to inundate sites that have not been inundated over the last three decades.

On the question of wave action, Enclosure 6 shows that the range of elevation in any given year over the last decades has been relatively small (within 20 ft), and the modeling shows average potential swings of a similar range. Given that the expected range of fluctuation is expected to remain at a similar scale, and the fact that the average predicted range of water levels for the no action alternative has been subjected to substantial wave zone action over the last several decades, the no action alternative would not be expected to see new impacts to resources in the APE below 6,220 feet at Abiquiu Reservoir over baseline.

In general, reservoir elevations above 6,220 feet have been rare over the last three decades, so large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. The model shows that there is the possibility of such spikes occurring under the no action alternative. However, such spikes would be rare and generally unlikely; Figure 3, which shows the model runs for drier years that better reflect the current drought conditions, shows only two runs which exceeded 6,220 ft., and these spikes were both brief and relatively small, exceeding 6,220 ft by less than 10 feet. As such, we do not expect the no action alternative to introduce substantial or new effects to sites above 6,220 ft.

Regarding the downstream flow regime: because the no action alternative would pass flows from El Vado and Abiquiu Reservoir downstream, this alternative would see the potential for more days of flow at channel capacity (1800 cfs) than the proposed deviation action alternative. However, these flows would still be within the historic range of releases as part of normal water operations, and as such would not be expected to see new effects to resources downstream.

Expected Conditions With Proposed Deviation

The proposed deviation action result in three different scenarios. Three primary sources of potential impacts to these resources have been considered: direct impacts from retention of water; indirect impacts from potential changes in flow regime; and potential impacts from possible increased recreational use of the area. These are each discussed below.

Water Retention

As noted above, reservoir elevation can affect archaeological sites by subjecting them to a number of processes including inundation and wave action. Under the proposed deviation action alternative, water surface elevations at Abiquiu Reservoir are expected to increase in comparison with the no action alternative. Enclosures 7, 8, and 9 show model runs for predicted ranges of reservoir elevations for three deviation scenarios: relinquishment credit, Prior and Paramount, and a combination of the two (relinquishment credit and Prior and Paramount). Each of these does show some increase in overall expected water levels over the no action alternative. In order to assess potential effects of these increases on historic properties, it is necessary to compare these predicted elevations to those expected for the no action alternative.

As with the no action alternative, the average predicted reservoir elevations for each of the deviation scenarios are within the range of reservoir elevations characteristic of the years since 1987, but there are differences. For the relinquishment credit scenario, the average predicted water level ranges from approximately 6,185 ft to 6,210 ft (Enclosure 10). For the Prior and Paramount scenario, the average level ranges between approximately 6,185 ft and 6,205 ft (Enclosure 11). For the combined relinquishment credit and Prior and Paramount alternative, average water levels range slightly higher, from approximately 6,190 ft to 6,215 ft (Enclosure 12).

While slightly higher than the figures for the no action alternative (Enclosure 5), these predicted average ranges are still similar to the elevation range characteristic of the years since 1987, and in particular still fall below the 6,220 ft level. As such, averages for these alternatives make it unlikely that sites would be inundated that have not been inundated for substantial periods during the last three decades. No new effects would be expected for sites below 6,220 ft.

Because reservoir elevations above 6,220 feet have been rare over the last three decades, large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. Under these alternatives, the likelihood of exceeding this elevation is slightly higher than for the no action alternative, but would still be rare. As with the no action alternative, Enclosures 7 and 8 show only two runs exceeding 6,220 ft during the drier years (which better approximate current drought conditions), and Enclosure 9 shows only three runs with brief periods exceeding this elevation. While brief, these simulated peaks do reach slightly higher elevations than the no action alternative. Enclosure 13 shows average exceedance curves for the simulations for each of the alternatives (no action, and each of the three deviation scenarios), showing the percentage likelihood that each of the scenarios will exceed water level ranges. For the no action alternative, the relinquishment credit alternative, and the Prior and Paramount alternative, likelihood of exceeding 6,220 ft in elevation is less than two percent. For the combined relinquishment credit and Prior and Paramount alternative, likelihood of exceeding 6,220 ft increases to approximately nine percent; however, likelihood of exceeding 6,225 ft drops to less than two percent. In other words, while the combined alternative does raise the likelihood of exceeding 6,220 ft, such exceedance would still be rare, and the magnitude of increases more than five feet above this level are even less likely. As such, any of the three deviation scenarios are unlikely to introduce substantial or new effects from inundation or wave action to sites above 6,220 ft.

Downstream Flow Regime

As noted above, the fact that the no action alternative passes all Rio Grande inflows downstream of the dam, that alternative would have the potential for a greater number of days of flow at channel capacity (1800 cfs) over baseline. Because the proposed action under consideration would allow retention of Rio Grande water in Abiquiu Reservoir, these scenarios

would reduce the number of days of flow at channel capacity downstream of Abiquiu by approximately 25 percent. As with the no action alternative, these flows would be within the historic range of releases as part of normal water operations, and as such would not be expected to introduce new effects to resources downstream.

Recreation

While slightly higher water levels may result in some increases in recreation, the ranges of water levels (and therefore the expected variation in coincident recreation activities) are within historical ranges. As such, we expect potential temporary increases in recreation to be negligible relative to the no action alternative.

Summary and Determination of Effect

In sum, the proposed deviation is expected to slightly change the elevation of the lake, as well as some aspects of downstream flow. Lake levels are expected to be slightly higher with the deviation than without the deviation, but expected lake levels would be within the historic range of lake elevations from normal lake operations. In addition, without the deviation, downstream flow is likely to be at channel capacity longer than with the deviation (in other words, the deviation would somewhat reduce the number of days that downstream flow would be at channel capacity). Regardless, downstream flow will be within the historic range for normal dam operations.

The Corps concludes that the proposed deviation would not substantially alter the current and historical conditions for historic properties at Abiquiu Reservoir or downstream, and as such determines that the proposed work would have **no adverse effect** to historic properties. We invite your comment on this determination, and any additional information you wish to provide regarding the potential for this action to affect historic properties.

If you have any questions or require additional information concerning the Abiquiu Temporary Deviation, please contact Jonathan Van Hoose at (505) 342-3687 or by email at jonathan.e.vanhoose@usace.army.mil; or me at (505) 342-3661 or by email at danielle.a.galloway@usace.army.mil. You may also provide comments to the above address.

Sincerely,

Danielle Galloway

Danielle A. Galloway
Acting Chief, Environmental Resources Section

Enclosures

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
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March 8, 2022

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

HPD Log 116868

Dr. Jeff Pappas
State Historic Preservation Officer
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, New Mexico 87501

Dear Dr. Pappas:

Pursuant to 36 CFR Part 800, the U.S. Army Corps of Engineers (Corps), Albuquerque District, is seeking your concurrence in our determination of **no adverse effect to historic properties** for the proposed deviation from the Water Control Plan (WCP) at Abiquiu Dam and Reservoir, in the context of planned repairs of El Vado Dam by the U.S Bureau of Reclamation (USBR). Abiquiu Dam was constructed in the late 1950s and early 1960s as a flood control project on the Rio Chama about 32 miles upstream from the confluence of the Rio Chama and the Rio Grande and became operational in 1963. The project is located on the Cañones, New Mexico (36106-B4) 7.5' USGS Quad map, on unplatted lands of the Piedra Lumbre land grant (Enclosure 1).

The U.S. Army Corps of Engineers (Corps), Albuquerque District is proposing a temporary deviation from the current WCP at the Abiquiu Dam and Reservoir Project, Rio Arriba County, New Mexico. Corps received a request from the New Mexico Interstate Stream Commission (NMISC) requesting Corps to deviate from its normal operation schedule at Abiquiu Dam to allow retention of native Rio Grande water in Abiquiu Reservoir while El Vado Dam and Spillway are under repair by the USBR. Retained Rio Grande water may be released to meet middle Rio Grande irrigation demand, and/or the Coalition of Six Middle Rio Grande Basin Pueblos' direct flow right.

The El Vado Dam and Lake are located on the Rio Chama 32 miles upstream of Abiquiu Reservoir, and 30 miles downstream from Chama, NM. The dam was completed in 1935 to supplement irrigation water for the Middle Rio Grande Conservancy District (MRGCD) with a capacity of 198,000 acre-ft. for a 3,200-acre lake. USBR will begin conducting repairs and construction on El Vado Dam in spring 2022 for up to three years. During the repairs and construction, El Vado will not be able to retain any Rio Grande water.

The purpose of the proposed deviation action is to implement a temporary deviation from the WCP for Abiquiu Dam, which will allow other responsible agencies to retain and release Rio Grande water at Abiquiu Reservoir that would normally be retained at El Vado Reservoir while the El Vado Dam is undergoing repair. The request is for three (3) years until the completion of the El Vado Dam repairs, which are expected to start by the end of May 2022 and continue until December 2024. The water may be retained as Relinquishment Credit to meet middle Rio Grande water users' demand, and/or as Prior and Paramount (P&P) water for the Coalition.

The retained water will serve two purposes: the first purpose will allow NMISC to retain Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand. The water will be retained in the SJC

Project conservation pool below elevation 6,220 ft. The total amount that will be retained during the deviation period is 90,000 acre-feet, with a maximum annual amount of 45,000 acre-feet. Unused water will be carried over to the following year.

The second purpose will allow USBR to retain Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet/year to meet the Coalition's direct flow right. The water will be retained in the SJC Project conservation pool below elevation 6,220 ft. Unused water will be released between 01 November and 15 December of each year.

Under the no action alternative, El Vado Dam, upstream of Abiquiu Dam, will be under repair and therefore not available to retain its typical amount of water starting in May 2022. Absent a deviation at Abiquiu Dam, all water will pass through El Vado and Abiquiu dams during the El Vado Dam repairs. Therefore, the proposed no action (baseline scenario) is to pass all inflow to the downstream channel capacity, except SJC Project water, which will follow normal operation at Abiquiu Dam.

In summary: The proposed action will involve retaining water as described above, with the following possible scenarios:

- Retain water as relinquishment credit
- Retain water as Prior and Paramount (P&P) water
- Both relinquishment credit and P&P

Area of Potential Effect

The Corps determines that the APE consists of the areas where changing lake elevations may affect archaeological sites through inundation, exposure, or wave action, within an elevation range of approximately 6,150 ft to 6,250 ft. As will be described below, hydrologic modeling suggests that the elevation range most likely to experience inundation are elevations at and below 6,220 ft, with a much smaller likelihood of having maximum elevations up to 6,250 ft (Enclosure 2). In addition, changes in flow regimes could have the potential to affect properties located within the channel downstream of Abiquiu Dam.

Based on an examination of the NMCRIS database, as well as Corps records, a total of 148 archaeological sites have been documented within this APE, and these sites represent human use of the landscape ranging from the Archaic to Historic periods. Of these 148 sites, 45 are located above the 6,220 ft level (Enclosure 3).

In addition, there are numerous historic properties documented near the Rio Chama channel downstream of Abiquiu Dam, including a wide range of prehistoric and historic resources, including active acequia systems.

All of the historic properties within the APE at the lake have been inundated or periodically inundated by normal lake operations since the 1960s.

Hydrologic Modeling

In order to determine whether the proposed deviation from the WCP would introduce new adverse effects to historic properties within the APE, we compare the expected behavior of lake elevations and downstream flows with the deviation to the expected behavior of lake elevations and downstream flows without the deviation. In addition, we examine how these conditions compare to past conditions within the APE.

The Corps performed hydrologic modeling of likely lake elevations for four scenarios:

- No deviation
- Deviation (relinquishment credit)
- Deviation (P&P)
- Deviation (combined relinquishment credit + P&P)

This modeling used existing hydrological data from the years 1975-2014, and predicted the range of what lake elevations at Abiquiu Reservoir would look like for the next three years under

those conditions. As such, the resulting graphs (Enclosures 4, 5, 7, 8, and 9) each represent 40 different runs of the model, for each of the historical conditions. They also include the average, maximum, and minimum lake levels.

Expected Conditions Without Proposed Deviation

Reservoir elevation can affect archaeological sites by subjecting them to a number of processes, including inundation and wave action. Wave action in particular has been shown to have a significant impact on archaeological sites.

The model runs presented in Enclosures 4 and 5 present expectations for reservoir elevations for the duration of the period under consideration based on historic conditions during wetter years (Enclosure 4) and drier years (Enclosure 5). The model shows that, while there is a wide range of possible elevations for any given year, the average reservoir elevation over all model runs would be expected to range from approximately 6,170 ft to 6,200 ft. The drier years are much more representative of current New Mexico drought conditions, and are expected to more accurately represent likely outcomes.

Enclosure 6 shows daily reservoir elevations throughout the history of the reservoir. Between the years of 1963 and 1987, reservoir elevations increased from a starting point of around 6,060 ft to an all-time maximum of approximately 6,260 ft in August 1987. Since late 1987, elevations have remained largely between 6,170 ft and 6,220 ft, spiking above 6,220 only five times. The figure shows that the predicted average range of elevations for the no action alternative is very similar to the elevation range characteristic of the years since 1987. The no action alternative would be unlikely to inundate sites that have not been inundated over the last three decades.

On the question of wave action, Enclosure 6 shows that the range of elevation in any given year over the last decades has been relatively small (within 20 ft), and the modeling shows average potential swings of a similar range. Given that the expected range of fluctuation is expected to remain at a similar scale, and the fact that the average predicted range of water levels for the no action alternative has been subjected to substantial wave zone action over the last several decades, the no action alternative would not be expected to see new impacts to resources in the APE below 6,220 feet at Abiquiu Reservoir over baseline.

In general, reservoir elevations above 6,220 feet have been rare over the last three decades, so large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. The model shows that there is the possibility of such spikes occurring under the no action alternative. However, such spikes would be rare and generally unlikely; Figure 3, which shows the model runs for drier years that better reflect the current drought conditions, shows only two runs which exceeded 6,220 ft., and these spikes were both brief and relatively small, exceeding 6,220 ft by less than 10 feet. As such, we do not expect the no action alternative to introduce substantial or new effects to sites above 6,220 ft.

Regarding the downstream flow regime: because the no action alternative would pass flows from El Vado and Abiquiu Reservoir downstream, this alternative would see the potential for more days of flow at channel capacity (1800 cfs) than the proposed deviation action alternative. However, these flows would still be within the historic range of releases as part of normal water operations, and as such would not be expected to see new effects to resources downstream.

Expected Conditions With Proposed Deviation

The proposed deviation action result in three different scenarios. Three primary sources of potential impacts to these resources have been considered: direct impacts from retention of water; indirect impacts from potential changes in flow regime; and potential impacts from possible increased recreational use of the area. These are each discussed below.

Water Retention

As noted above, reservoir elevation can affect archaeological sites by subjecting them to a number of processes including inundation and wave action. Under the proposed deviation action alternative, water surface elevations at Abiquiu Reservoir are expected to increase in comparison with the no action alternative. Enclosures 7, 8, and 9 show model runs for predicted ranges of reservoir elevations for three deviation scenarios: relinquishment credit, Prior and Paramount, and a combination of the two (relinquishment credit and Prior and Paramount). Each of these does show some increase in overall expected water levels over the no action alternative. In order to assess potential effects of these increases on historic properties, it is necessary to compare these predicted elevations to those expected for the no action alternative.

As with the no action alternative, the average predicted reservoir elevations for each of the deviation scenarios are within the range of reservoir elevations characteristic of the years since 1987, but there are differences. For the relinquishment credit scenario, the average predicted water level ranges from approximately 6,185 ft to 6,210 ft (Enclosure 10). For the Prior and Paramount scenario, the average level ranges between approximately 6,185 ft and 6,205 ft (Enclosure 11). For the combined relinquishment credit and Prior and Paramount alternative, average water levels range slightly higher, from approximately 6,190 ft to 6,215 ft (Enclosure 12).

While slightly higher than the figures for the no action alternative (Enclosure 5), these predicted average ranges are still similar to the elevation range characteristic of the years since 1987, and in particular still fall below the 6,220 ft level. As such, averages for these alternatives make it unlikely that sites would be inundated that have not been inundated for substantial periods during the last three decades. No new effects would be expected for sites below 6,220 ft.

Because reservoir elevations above 6,220 feet have been rare over the last three decades, large or sustained spikes above this level would have the potential to introduce effects from wave actions that sites at those elevations have not often experienced. Under these alternatives, the likelihood of exceeding this elevation is slightly higher than for the no action alternative, but would still be rare. As with the no action alternative, Enclosures 7 and 8 show only two runs exceeding 6,220 ft during the drier years (which better approximate current drought conditions), and Enclosure 9 shows only three runs with brief periods exceeding this elevation. While brief, these simulated peaks do reach slightly higher elevations than the no action alternative. Enclosure 13 shows average exceedance curves for the simulations for each of the alternatives (no action, and each of the three deviation scenarios), showing the percentage likelihood that each of the scenarios will exceed water level ranges. For the no action alternative, the relinquishment credit alternative, and the Prior and Paramount alternative, likelihood of exceeding 6,220 ft in elevation is less than two percent. For the combined relinquishment credit and Prior and Paramount alternative, likelihood of exceeding 6,220 ft increases to approximately nine percent; however, likelihood of exceeding 6,225 ft drops to less than two percent. In other words, while the combined alternative does raise the likelihood of exceeding 6,220 ft, such exceedance would still be rare, and the magnitude of increases more than five feet above this level are even less likely. As such, any of the three deviation scenarios are unlikely to introduce substantial or new effects from inundation or wave action to sites above 6,220 ft.

Downstream Flow Regime

As noted above, the fact that the no action alternative passes all Rio Grande inflows downstream of the dam, that alternative would have the potential for a greater number of days of flow at channel capacity (1800 cfs) over baseline. Because the proposed action under consideration would allow retention of Rio Grande water in Abiquiu Reservoir, these scenarios would reduce the number of days of flow at channel capacity downstream of Abiquiu by

approximately 25 percent. As with the no action alternative, these flows would be within the historic range of releases as part of normal water operations, and as such would not be expected to introduce new effects to resources downstream.

Recreation

While slightly higher water levels may result in some increases in recreation, the ranges of water levels (and therefore the expected variation in coincident recreation activities) are within historical ranges. As such, we expect potential temporary increases in recreation to be negligible relative to the no action alternative.

Summary and Determination of Effect

In sum, the proposed deviation is expected to slightly change the elevation of the lake, as well as some aspects of downstream flow. Lake levels are expected to be slightly higher with the deviation than without the deviation, but expected lake levels would be within the historic range of lake elevations from normal lake operations. In addition, without the deviation, downstream flow is likely to be at channel capacity longer than with the deviation (in other words, the deviation would somewhat reduce the number of days that downstream flow would be at channel capacity). Regardless, downstream flow will be within the historic range for normal dam operations.

The Corps concludes that the proposed deviation would not substantially alter the current and historical conditions for historic properties at Abiquiu Reservoir or downstream, and as such determines that the proposed work would have **no adverse effect** to historic properties. We seek your concurrence with this determination.

If you have any questions or require additional information concerning the Abiquiu Temporary Deviation, please contact Jonathan Van Hoose at (505) 342-3687 or by email at jonathan.e.vanhoose@usace.army.mil; or me at (505) 342-3661 or by email at danielle.a.galloway@usace.army.mil. You may also provide comments to the above address.

Sincerely,

Danielle Galloway

Danielle A. Galloway
Acting Chief, Environmental Resources Section

3/17/2022
Date

I CONCUR _____

For: JEFF PAPPAS
NEW MEXICO STATE HISTORIC
PRESERVATION OFFICER

Enclosures

Comment: If the proposed deviations do result in reservoir levels exceeding historic ranges (6220-6225 ft.+) for an abnormal extended period of time, SHPO recommends the COE revisit a small sample of the of the NR eligible sites at this elevation to evaluate what effects, if any, sustained lake levels above the 6220+ ft. level incur.

From: Tim Seaman
To: Van Hoose, Jonathan E CIV USARMY CESPA (USA)
Cc: Darel Madrid
Subject: [Non-DoD Source] Re: Section 106 Consultation: Abiquiu Dam Deviation
Date: Friday, March 18, 2022 5:48:18 PM

Dear Jonathan,

The Rio de Chama Acequia Association agrees with the determination of no adverse effect to historic resources for the proposed changes to the Abiquiu Dam and Reservoir Water Control Plan. Historic resources in our reach of the Rio Chama relating to acequia infrastructure are unlikely to be affected by any of the three water retention scenarios. However, we do need to be included in planning pertaining to Prior and Paramount water releases at the end of the year. In the past, releases outside of the irrigation season have caused some serious damage, owing to the fact that our gates are closed and our mayordomos on vacation.

Call if you have questions or concerns.

Tim Seaman
RCAA Vice President

On Wed, Mar 9, 2022 at 8:19 PM Van Hoose, Jonathan E CIV USARMY CESPA (USA) <Jonathan.E.VanHoose@usace.army.mil> wrote:

> Good evening Darel and Tim,
>
> The US Army Corps of Engineers is considering a proposed deviation from the Water Control Plan at Abiquiu Dam and Reservoir, related to the upcoming work being performed by the Bureau of Reclamation at El Vado Dam. Attached is our consultation letter under Section 106 of the National Historic Preservation Act (NHPA) for your review and comment.
>
> Please feel free to contact me with any questions or comments regarding the proposed action.
>
> Thank you,
>
> Jon
>
> Jonathan E. Van Hoose, Ph.D.
>
> Archaeologist, Environmental Resources Section

U.S. Army Corps of Engineers, Albuquerque District

4101 Jefferson Plaza NE

Albuquerque, NM 87109

(505) 342-3687

(505) 342-3668 Fax

jonathan.e.vanhoose@usace.army.mil

Appendix C - PUBLIC INVOLVEMENT

Mailing List for Draft EA

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Mr. Nathaniel S. Porter Pueblo of Nambe 15A Bay Poe Nambe Pueblo, NM 87506	Mr. Gabriel Galvan governor@ziapueblo.org Pueblo of Zia 135 Capitol Square Drive Zia Pueblo, New Mexico 87053

LETTERS RECEIVED REGARDING A DEVIATION AT ABIQUIU RESERVOIR

USACE received letters from the following agencies related to a deviation in the Water Control Plan (WCP) at Abiquiu Reservoir:

United States Department of the Interior dated November 22, 2019, signed by Timothy R. Petty, Assistant Secretary for Water and Science.

Albuquerque Bernalillo County Water Utility Authority dated February 4, 2021, signed by Mark S. Sanchez, Executive Director.

Bureau of Reclamation, received on August 18, 2020, signed by Jennifer Faler, Albuquerque Area Manager.

New Mexico Interstate Stream Commission dated December 15, 2021, signed by Hannah Riseley-White, Deputy Director.

Middle Rio Grande Conservancy District dated December 28, 2021, signed by Mike A. Hamman, Chief Engineer/CEO.

New Mexico Interstate Stream Commission dated January 20, 2022, signed by Rolf Schmidt-Petersen, Director.

Coalition of Six Middle Rio Grande Basin Pueblos dated January 28, 2022, signed by Stuart Paisano, Chairman.

NEW MEXICO INTERSTATE STREAM COMMISSION

BATAAN MEMORIAL BUILDING
ROOM 101
P.O. BOX 25102
SANTA FE, NEW MEXICO 87504-5102
(505) 827-6160
FAX: (505) 827-6188

January 20, 2022

VIA EMAIL: Patrick.m.stevens@usace.army.mil; john.romero2@state.nm.us

John Romero, PE
Acting New Mexico State Engineer
Concha Ortiz y Pino Building
130 South Capitol
Santa Fe, NM 87504

LTC Patrick Stevens V, PE, PMP,
Albuquerque District Commander
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, NM 87109

RE: New Mexico Interstate Stream Commission support of Middle Rio Grande Conservancy District Request for Emergency Storage Permit at Abiquiu Reservoir Under SP-1690

Dear Mr. Romero and LTC Stevens,

The NM Interstate Stream Commission (NMISC) believes the need to temporarily store native Rio Grande water (Rio Grande water) at an alternate reservoir while the El Vado Dam and Spillway are under repair and unusable is urgent. The NMISC is working with a number of water management partners to explore options allowing such storage.

Throughout the 2021 fall and winter, the NMISC coordinated with its water management partners including, but not limited to, the Middle Rio Grande Conservancy District (MRGCD), the Albuquerque Bernalillo County Water Utility Authority (Water Authority), the U.S. Army Corps of Engineers (USACE), and the U.S. Bureau of Reclamation (Reclamation). This coordination has multiple goals: the first, is to allow for an amount of Rio Grande water storage in Abiquiu Reservoir in 2022 to reduce the potential for significant irrigation losses in the middle Rio Grande valley during the summer and second, is to deliver water into Elephant Butte Reservoir in 2022 to reduce New Mexico's accrued debit under the Rio Grande Compact. These goals will also benefit endangered species and provide support for Endangered Species Act (ESA) commitments under the 2016 Biological Opinion for Middle Rio Grande Water Operations.

As part of the effort, the NMISC Deputy Director, Hannah Riseley-White made a formal request to the USACE Albuquerque District Office in December 2021 to initiate USACE efforts requesting a deviation from normal operations of Abiquiu Reservoir (See Attached). In addition, in late December, the MRGCD filed a request to the Office of the State Engineer for an emergency storage permit at Abiquiu Reservoir under SP-1690 during the period El Vado Dam is under repair (Also Attached).

I'm writing to inform you that the NMISC and MRGCD requests are coordinated and related and seek similar if not the same outcome. The primary difference between the requests is that the MRGCD's Emergency Permit request seeks to allow all operations that would normally occur at El Vado Reservoir under State Permit SP-1690 to occur at Abiquiu Reservoir, while the NMISC request to the USACE is specific to storage and release of New Mexico's Rio Grande Compact relinquishment credit water at Abiquiu Reservoir.

The NMISC supports the MRGCD's Emergency Permit request and would like to expand the scope of its deviation request to the USACE to encompass the MRGCD's Emergency Permit request by allowing the storage of any native Rio Grande water in Abiquiu, up to a specific limit. If the MRGCD's Emergency Permit is granted and the USACE agrees to a deviation from normal Abiquiu Reservoir operations, the MRGCD, Reclamation, and the NMISC would coordinate with the USACE, Water Authority, Bureau of Indian Affairs, Rio Chama Acequia Association, the Coalition of Six Middle Rio Grande Pueblos, and the States of Colorado and Texas to negotiate specific operations for 2022 critical to reduce the likelihood of severe economic losses for irrigators, improve/increase Compact deliveries into Elephant Butte Reservoir, aid endangered species, and help meet biological opinion commitments.

Pursuant to the Flood Control Act of 1960 (P.L. 86-645), any deviation from the operating criteria specified therein (excepting emergencies) requires the advice and consent of the Rio Grande Compact Commission. The coordination and approvals outlined above would form the basis of the USACE deviation advice and consent request to the Rio Grande Compact Commission.

NMISC staff and I are collaborating with the Water Authority and request their authorization to utilize a portion of its Abiquiu Reservoir storage space for this effort.

The NMISC's support of storage of Rio Grande water at Abiquiu Reservoir is based on the following conditions: first, all water exchanged, acquired and or stored and released shall be subject to the laws of the State of New Mexico, including but not limited to, Office of the State Engineer permitting requirements; and second, that storage and release of water from Abiquiu Reservoir is subject to the provisions of the Rio Grande Compact and the resolutions of the Rio Grande Compact Commission.

Should you have any questions or concerns on this matter, please contact Hannah Riseley-White at hannah.riseley-white@state.nm.us, Page Pegram at page.pegram@state.nm.us, or myself at rolf.schmidt@state.nm.us, and we will be happy to answer any questions or meet with you.

Respectfully,

Rolf Schmidt-Petersen, Director
New Mexico Interstate Stream Commission

cc: Mike Connor, Assistant Secretary of the Army for Civil Works, Dept. of Defense
Nabil Shafike, USACE Albuquerque
Hal Simpson, RGCC Federal Chair
Robert S. Skov, RGCC Commissioner for Texas
Kevin Rein, RGCC Commissioner for Colorado
Camille Touton, Commissioner U.S. Bureau of Reclamation,
Katrina Grants, Deputy Regional Director, Bureau of Reclamation
Jennifer Faler, Albuquerque Area Manager, Bureau of Reclamation
Patricia Mattingly, Southwest Regional Director, Bureau of Indian affairs
Stuart Paisano, Chairman, Coalition of Six Middle Rio Grande Pueblos
Larry Phillips, Ohkay Owingeh Pueblo
Mike Hamman, Senior Water Advisor, Office of the Governor
Liz Anderson, Chief Planning Officer, Albuquerque Bernalillo County Water Utility Authority
Nat Chakeres, General Counsel, OSE
Myron Armijo, Tribal Liaison, OSE
Darel Madrid, Rio Chama Acequia Association

Enclosures: December 15, 2021 Letter Temporary Storage of native Water in Abiquiu Reservoir
December 28, 2021 letter Request for Emergency Storage permit at Abiquiu Reservoir under SP-1690 while El Vado Dam is repaired.

Coalition of Six Middle Rio Grande Basin Pueblos
c/o Stuart Paisano, Chairman
Pueblo of Sandia, 481 Sandia Loop, Bernalillo, New Mexico 87004
(505) 867-3317, Fax (505) 867-9235

Via First-Class Mail and E-Mail

January 28, 2022

The Honorable Mr. Michael Connor
Assistant Secretary of the Army for Civil Works
108 Army Pentagon, Room 3E446
Washington, DC 20310-0108

Re: Storage of Pueblo Prior and Paramount Water at Abiquiu Reservoir

Dear Assistant Secretary Connor:

On behalf of the Governors of the Coalition of the Six Middle Rio Grande Basin Pueblos (Isleta, Sandia, Santa Ana, San Felipe, Santo Domingo and Cochiti — collectively the "Coalition Pueblos"), we first want to congratulate you on your new position as Assistant Secretary of the Army for Civil Works. We look forward to working with you as we collectively grapple with the on-going drought plaguing our region.

As you are probably aware, because of much needed repairs to El Vado Dam, the Coalition Pueblos have been told that there will be no water storage in El Vado Reservoir for the 2022 or 2023 irrigation season. Thus, we write to respectfully request that the United States Army Corps of Engineers (Corps) store the Coalition Pueblos' Prior and Paramount (P&P) water in Abiquiu Reservoir beginning in 2022, and to continue this temporary arrangement until Bureau of Reclamation (Reclamation) completes the El Vado Dam repairs. We note that recently enacted Public Law 116-260 (2020) removes restrictions on the storage of native Rio Grande water in Abiquiu Reservoir thereby providing an alternate storage space for P&P water while El Vado is under repair.

For decades native Rio Grande water has been stored for the Coalition Pueblos each year in accordance with the 1981 Storage Agreement between the Bureau of Indian Affairs and Reclamation to ensure a sufficient supply for the Pueblos' P&P water rights. Under the Agreement, a calculated quantity of P&P water is stored in El Vado beginning as early as January each year. However, with El Vado effectively out of commission, this storage needs to occur in another reservoir and there is capacity in Abiquiu Reservoir.

However, on October 7, 2021, during the Coalition's monthly meeting, representatives from the Corps' Albuquerque District informed the Coalition that it would not consider our request to temporarily store water sufficient to ensure that our P&P water needs are met. The Corps cited to Public Law 86-645 (1960), which it maintains requires the "advice and consent of the Rio Grande Compact Commission" for any deviations from normal operations. But Article XVI of the Rio Grande Compact explicitly provides that "Nothing in this Compact shall be construed as affecting the obligation of the United States of America..., or to the Indian Tribes, or as impairing the rights of the Indian Tribes." Moreover, in its March 26, 2021, letter to the Compact Commissioners, Reclamation affirmatively stated that the storage of native Rio Grande water in Abiquiu Reservoir "will comply with all Compact provisions." Additionally, Public Law 86-645 provides that the Corps may deviate from normal operations when "an emergency exists affecting the safety of major structures." An April 2020 El Vado Final Environmental Assessment report states that El Vado is "no longer safe to operate" and the issues associated with El Vado "have been estimated to pose risks above Reclamation's public protection guidelines." Thus, we submit that this is an emergency giving the Corps the justification and authority to deviate from normal operations.

Compounding our frustrations with the Corps, we recently learned that on December 1, 2021, the Corps' Albuquerque District hosted a meeting with Reclamation, the State of New Mexico, the Middle Rio Grande Conservancy District, and the Albuquerque-Bernalillo County Water Utility Authority to discuss storage of native water in Abiquiu Reservoir, but it chose not to invite any representative from the Coalition Pueblos or from the Bureau of Indian Affairs. We were frankly dismayed by the Corps' decision to exclude the Pueblos from these discussions.

We are facing another warm and dry winter and the very real likelihood of a significant surface water shortage this coming summer. It is therefore imperative that the United States take the necessary actions to ensure the storage of water sufficient to meet the Coalition Pueblos' P&P needs. We respectfully request your leadership on this and for the opportunity to meet with you, in person or virtually, in the coming weeks to discuss this issue. Additionally, we request that you direct the Albuquerque District to include the Coalition Pueblos in all future stakeholder meetings and future discussions concerning native water storage in Abiquiu Reservoir, and in water planning discussions generally for the Middle Rio Grande.

Thank you in advance for your consideration of our requests and if you have any questions or would like to discuss it further, please contact me at govspaisano@sandiapueblo.nsn.us.

Sincerely,

Stuart Paisano, Chairman
Coalition of Six Middle Rio Grande Basin Pueblos

cc:

Lt. Col. Patrick Stevens, US Army Corps
Ryan Gronewold, Planning Branch Chief, US Army Corps
Maureen Rudolph, Attorney, US Army Corps

NEW MEXICO INTERSTATE STREAM COMMISSION

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December 15, 2021

Lt. Colonel Patrick Stevens V, PE, PMP
Albuquerque District Commander
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, NM

VIA EMAIL: patrick.m.stevens@usace.army.mil

RE: Temporary Storage of Native Water in Abiquiu Reservoir

Dear Lt. Colonel Stevens:

The New Mexico Interstate Stream Commission (NMISC), U.S. Bureau of Reclamation (Reclamation), U.S. Army Corps of Engineers (Corps) and several other parties have been exploring options allowing the temporary storage of native water upstream of Elephant Butte Dam during the period El Vado Dam and Spillway are under repair. The NMISC believes the ability to temporarily replace the native water storage operation that would have occurred at El Vado Reservoir during this period is urgent.

The NMISC seeks to have the ability to store native Rio Grande Compact Relinquishment water in Abiquiu Reservoir for Compact management purposes. The NMISC understands that it is the Corps' position that the storage of Compact Relinquishment water in Abiquiu will require a deviation from the operating criteria specified in the Abiquiu Dam Water Control Manual (excepting emergencies). By this letter, the NMISC is requesting that the Corps begin the process for obtaining that deviation. The NMISC also understands that such a deviation will require the advice and consent of the Rio Grande Compact Commission (RGCC). We are ready to work with the Corps, Reclamation, and the RGCC to seek and hopefully obtain that advice and consent. Further, we have been speaking with the Albuquerque Bernalillo County Water Utility Authority (Water Authority) about this potential operation, as the Water Authority will need to authorize a portion of its storage space in Abiquiu Reservoir for the storage of Compact Relinquishment water.

The NMISC, the Corps, and Reclamation have also discussed storage options for Reclamation and the Bureau of Indian Affairs to provide water for the Coalition of Six Middle Rio Grande Pueblos' direct flow right to irrigate 8,847 acres of Pueblo land within the Middle Rio Grande Conservancy District during the period El Vado Reservoir is unavailable for that operation. At present, Reclamation is seeking to address that obligation by exploring an operation that would exchange San Juan Chama water within Heron Reservoir with native Rio Grande water in Abiquiu. If, for whatever reason, the Heron exchange operation is not available, then the NMISC would like to have further conversations with the Corps and Reclamation regarding options for protecting the Pueblos' direct flow rights using one of the Corps' reservoirs in the middle Rio Grande.

We appreciate your efforts in support of the deviation requested here, including your cooperation in seeking the advice and consent of the Rio Grande Compact Commission. The NMISC remains committed to working with the Corps to achieve lasting solutions for New Mexico water users while maintaining Compact compliance. Because the proposed storage and exchange operations outlined herein will not occur until mid-May 2022, we hope there is adequate time to obtain the required regulatory approvals and seek the advice and consent of the Rio Grande Compact Commission.

If you have any questions or need additional information, please contact me at (505) 695-5592 or Hannah.Riseley-White@state.nm.us.

Respectfully,

Hannah Riseley-White
Deputy Director New Mexico Interstate Stream Commission

cc:

Matt Garcia, Office of the Governor
Caroline Buerkle, Office of the Governor
Jennifer Faler, Albuquerque Area Manager, Bureau of Reclamation
Nabil Shafike, Water Management Section Chief, U.S. Army Corps of Engineers
Stuart Paisano, Chairman, Coalition of Six Middle Rio Grande Pueblos
Robert S. Skov, Commissioner for Texas
Kevin Rein, Commissioner for Colorado
Hal Simpson, Commissioner for the U.S.
Mike Hamman, Chief Engineer, Middle Rio Grande Conservancy District
Liz Anderson, Chief Planning Officer, Albuquerque Bernalillo County Water Utility
John R. D' Antonio, Jr., State Engineer and New Mexico Rio Grande Compact Commissioner
Rolf Schmidt-Petersen, NMISC Director
Mark Sanchez, Chair, NMISC
Nat Chakeres, Deputy General Counsel, OSE
Arianne Singer, General Counsel, NMISC
Myron Armijo, Tribal Liaison, OSE/NMISC
John Romero, Director Water Resource Allocation Program, OSE
Patricia Mattingly, Bureau of Indian Affairs

December 28, 2021

Mr. John D'Antonio, PE
New Mexico State Engineer
PO Box 25102
Santa Fe, NM 87504-5102

Re: Request for Emergency Storage Permit at Abiquiu Reservoir Under SP-1690 While El Vado Dam is Repaired

Dear Mr. D'Antonio:

The Middle Rio Grande Conservancy District (MRGCD) has been working cooperatively with a number of agencies for years for the US Army Corps of Engineers (USACE) to store native Rio Grande water in Abiquiu Reservoir in addition to the storage of imported San Juan-Chama Project water. A new federal (Congressional) authorization was achieved in 2020 for Abiquiu Reservoir with the passage of the Water Resources Development Act, and it was hoped that when El Vado Dam rehabilitation construction began in 2022 under the US Bureau of Reclamation's Dam Safety program, Rio Grande water usually stored in El Vado would be allowed to be moved to Abiquiu Reservoir under the USACE's new authority without an ACE "deviation" being required. However, the USACE's Albuquerque District Office has taken the position that WRDA 2020 does not apply at this time and, consequently, a "deviation" with the advice and consent of the full Rio Grande Compact Commission is required. The MRGCD respectfully disagrees with this interpretation and has requested a review at the Assistant Secretary for Civil Works Office.

The MRGCD, in consultation with the New Mexico Interstate Stream Commission, has determined that moving forward with a formal request to the USACE to store native Rio Grande basin water in Abiquiu Reservoir for the benefit of the six Middle Rio Grande Pueblos' prior and paramount lands and for relinquishment credit water allowed for under the Rio Grande Compact for middle valley uses is in the best interests of MRGCD and the state. Under this approach, we request approval by the State Engineer for emergency permit under State Statute §72.5.25 for storage of Rio Grande water in Abiquiu Reservoir under OSE Permit No. SP-1690 when storage is not available during the construction at El Vado Dam. The upper limit may be capped, but we suggest that an option to store up to 60,000 acre-feet, depending upon conditions applied and basin hydrology, would be appropriate to address irrigation demand, Rio Grande Compact compliance operations and endangered species commitments under the 2016 Biological Opinion.

Please contact me at your earliest convenience if you wish to discuss in more detail.

Sincerely,

Mike A. Hamman, PE
Chief Engineer/CEO

Cc: Rolf Schmitt-Peterson, Director
New Mexico Interstate Stream Commission

MIDDLE RIO GRANDE CONSERVANCY DISTRICT
P.O. Box 581
87103-0581
1931 Second St. SW
Albuquerque, NM
87102-4515
505.247.0234
Fax # 505.243.7308

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

NOV 2 2 2019

The Honorable R.D. James
Assistant Secretary of the Army - Civil Works
Office of the Assistant Secretary of the Army
108 Army Pentagon
Washington, DC 20310-0108

Dear Assistant Secretary James:

The Bureau of Reclamation has an obligation to ensure that all federal Reclamation dams and appurtenant structures are compliant with the Safety of Dams Act of 1978 (Pub. L. 95-578, as amended). Its legal obligations and responsibility for sound asset management requires that Reclamation address deterioration and seepage issues associated with El Vado Dam's steel faceplate and rockfill embankment as well as deterioration of the steel liner on the service spillway.

El Vado Dam is located 60 miles upstream of the United States Army Corp of Engineers' (USACE) Abiquiu Dam and Reservoir on the Rio Chama in the Rio Grande Basin. El Vado Reservoir has a total capacity of 196,500 acre-feet. In addition to its responsibility to preserve the structural safety of El Vado Dam, Reclamation has obligations to continue water management operations for authorized purposes pursuant to the Flood Control Acts of 1948 and 1950. Reclamation stores the flow of the Rio Chama as requested by the Middle Rio Grande Conservancy District (MRGCD) in El Vado Dam to ensure stable water deliveries to its stakeholders. Deliveries also include the six Middle Rio Grande Pueblos.

Construction on El Vado dam and spillway is expected to begin in 2022 and last about three years. During construction, Abiquiu dam, which currently stores transbasin San Juan Chama water, could serve as a vital backstop for storage of potential flood waters and assist Reclamation's construction project on El Vado Dam by storing native water which originates in the Rio Grande Basin.

The availability of Abiquiu Reservoir to store native water under a temporary permit from the New Mexico Office of the State Engineer and in consultation with the Rio Grande Compact Commission is essential for Reclamation to continue to meet its water management mission during the rehabilitation of El Vado Dam. Reclamation staff in Albuquerque have discussed its proposal with the local USACE's Albuquerque District staff, who suggested elevating its proposal to the Washington level.

Reclamation would appreciate the assistance of the USACE to help make native storage in Abiquiu available during the corrective action process at El Vado, improving the safety of aging infrastructure in the Rio Grande basin and facilitating this construction work. If you have any questions, please contact Jennifer Faler at (505) 462-3541 or email jfaler@usbr.gov.

Sincerely,

Timothy R. Petty, Ph.D
Assistant Secretary
for Water and Science

cc.

Lt. Col. Larry (Dale) Caswell, Jr.
Albuquerque District Commander
4101 Jefferson Plaza NE
Albuquerque, NM 87109

Major General Scott A. Spellmon
Assistant Secretary of the Army - Civil Works
Office of the Assistant Secretary of the Army
108 Army Pentagon
Washington, DC 20310-0108

Brenda Burman, Commissioner
Bureau of Reclamation
1849 C Street NW, Room 7069
Washington, DC 20240-001

United States Department of the Interior

BUREAU OF RECLAMATION
Albuquerque Area Office
555 Broadway NE, Suite 100
Albuquerque, NM 87102-2352

IN REPLY REFER TO
ALB-100
2.1.1.04

VIA ELECTRONIC MAIL ONLY

Patrick M. Stevens V, P.E., P.M.P.
Lieutenant Colonel, U.S. Army
Albuquerque District Commander
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, NM 87109
Patrick.M.Stevens@usace.army.mil

Subject: Request for Temporary Deviation from the United States Army Corps of Engineers' (USACE) Abiquiu Reservoir Water Control Plan (WCP)

Dear LTC Stevens:

The Bureau of Reclamation has an obligation to ensure that all federal Reclamation dams and appurtenant structures are compliant with the Safety of Dams Act of 1978 (Pub. L. 95-578, as amended). Our legal obligations and responsibility for sound asset management require that Reclamation address deterioration and seepage issues associated with El Vado Dam, a facility owned and operated by Reclamation.

El Vado Dam is located approximately 30 miles upstream from the USACE's Abiquiu Dam and Reservoir on the Rio Chama within the Rio Grande Basin. El Vado Reservoir has a total capacity of 196,500 acre-feet. The unique steel faceplate dam was constructed in the early 1930s by the Middle Rio Grande Conservancy District (MRGCD) and was rehabilitated by Reclamation in the mid-1950s. Further decline of the faceplate, increased seepage through the dam, and deterioration of the steel liner on the service spillway have necessitated the repairs currently planned.

In addition to its responsibility to preserve the structural safety of El Vado Dam, Reclamation seeks to continue water management operations for authorized purposes pursuant to the Flood Control Acts of 1948 and 1950. Reclamation stores the flow of the Rio Chama in El Vado Reservoir as requested by the MRGCD to ensure stable water deliveries to its stakeholders. Water is also delivered, in coordination with the Bureau of Indian Affairs (BIA), to lands of the six Middle Rio Grande Pueblos.

Construction on El Vado Dam and spillway is expected to begin in May or June of 2021 and last about three years. From the start of construction until about December of 2021, El Vado Reservoir will retain a small surge pool but will have no storage for MRGCD. During that time, Abiquiu Dam and Reservoir, which currently stores transbasin San Juan – Chama Project (SJCP) water, could be key to ensuring water delivery to MRGCD irrigators.

The availability of Abiquiu Reservoir to store native water under a temporary permit from the New Mexico Office of the State Engineer and in consultation with the Rio Grande Compact Commission is essential for Reclamation to continue to meet its water management mission for irrigation and flood

control during the rehabilitation of El Vado Dam. In addition, Reclamation supports a change to Abiquiu Dam's authorizing legislation to permanently allow native storage in the Reservoir.

Reclamation formally requests a temporary deviation from the WCP at Abiquiu Reservoir to store up to 60,000 ac-ft of native Rio Grande water during this rehabilitation effort. This storage volume would be limited by stored transbasin SJCP water as well as maximum allowable storage, currently limited by elevation 6,220 feet (current storage of 186,820 ac-ft). The water would be used for irrigation within the MRGCD, including for the six Middle Rio Grande Pueblos. Reclamation requests that this temporary deviation extend through December 2023, although it is most urgent that this temporary storage be available beginning in April of 2021.

Reclamation would greatly appreciate the assistance of the USACE to make storage space in Abiquiu available during construction at El Vado through a temporary deviation from the current Abiquiu WCP. Granting this request would allow Reclamation and BIA to meet obligations to water users in the Middle Rio Grande, and specifically federal trust obligations related to the six Middle Rio Grande Pueblos' Prior and Paramount water rights.

To begin the process, Reclamation requests a meeting with appropriate USACE staff and key stakeholders. To set up this meeting, and/or if you have any questions, please contact Carolyn Donnelly at (505) 462-3607 or email cdonnelly@usbr.gov. For Text Telephone Relay Service access, call the Federal Relay System Text Telephone (TTY) number (800) 877-8339.

Sincerely,

Jennifer Faler, P.E.
Albuquerque Area Manager

Enclosure

cc: Nabil Shafike, PE
Chief, Water Management Section
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, NM 87109
Nabil.g.shafike@usace.army.mil

John M. Stomp III
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Patricia Mattingly
Regional Director
Bureau of Indian Affairs Southwest Regional Office
1001 Indian School Road, NW
Albuquerque, NM 87104-2303
patricia.mattingly@bia.gov

Albuquerque Bernalillo County
Water Utility Authority

PO Box 568
Albuquerque, NM 87103-0568
505-289-3000
www.abcwua.org

February 4, 2021

LTC Patrick M. Stevens V
Commander
4101 Jefferson Plaza
Albuquerque, NM 87109

Re: Water Authority Contract Amendment for Native Water Storage in Abiquiu Reservoir (DACW47-86-C-0009)

Dear Lieutenant Colonel Stevens:

The Albuquerque Bernalillo County Water Utility Authority (Water Authority) would like to thank the Corps of Engineers for their hard work and cooperation in supporting the Congressional Authorized language in the 2020 Water Resources Development Act (WRDA). The 2020 WRDA provides the ability to concurrently store both San Juan-Chama and native Rio Grande system ("native water") up to elevation 6230.00 NGVD29 and sets aside 29,100 acre-feet of space for other San Juan-Chama contractors to store San Juan-Chama, native water or both.

In addition to the Corps assistance, we received support from other entities that we expect will benefit from storing native water in Abiquiu including, but not limited to, the New Mexico Interstate Stream Commission (ISC), Rio Chama Acequia Association (RCAA), Ohkay Owingeh Pueblo, the City and County of Santa Fe, Bureau of Reclamation, Fish and Wildlife Service, Middle Rio Grande Conservancy District (MRGCD) and several environmental groups. The Water Authority views Abiquiu Reservoir as an important water resources management tool that can provide operational flexibility and to potentially assist in managing New Mexico's delivery obligation under the Rio Grande Compact. We intend to continue to work cooperatively with interested parties as this effort moves forward.

As you know, the Water Authority has been discussing the steps necessary to allow for native water storage in Abiquiu for many years. These steps include, but are not limited to, amending the Water Authority's existing storage contract, acquisition of the necessary property interests up to elevation 6230.00 NGVD29, a storage permit from the State Engineer, NEPA compliance and modification of the Corps Water Control Manual. The WUA would like to begin the discussions regarding the five steps listed and recommends they be addressed in the order they are listed.

Amending the Water Authority's Existing Storage Contract

We believe that the first step in the process is to amend the existing storage contract to allow for native water storage and to provide for the increase in storage for both native and San Juan-Chama water. This will also allow the establishment of the permanent

29,100 acre-feet set aside for other San Juan-Chama contractors allowing for their contracts to be initiated or amended. We understand that amending the contract would be considered a federal action subject to NEPA but given the nature of the existing contract and the Congressional authorizing language it should be at most an Environmental Assessment. There are several good arguments regarding why the contract amendment should proceed prior to initiation of the State Engineer permitting and NEPA compliance which are presented in detail on the following pages.

First, amending the Water Authority's existing contract along with the other San Juan-Chama contracts is consistent with the language in the Congressional authorizing language. The language states that the "Secretary shall" amend the contract up to elevation 6230.00 NGVD29 and shall retain or enter into new storage agreements with entities for a proportional allocation of 29,100 acre-feet. There are limitations in the authorizing language, but other than the need to obtain the necessary ownership and storage rights the limitations will continue in perpetuity whether the contract is amended first or last. In other words, storage of native water will always be subject to the provisions of the Rio Grande Compact and cannot interfere with the authorized purposes of Abiquiu Reservoir and each user will always be responsible for paying for the costs attributable to storage of that user's water.

Second, the Water Authority has been cooperating with the Middle Rio Grande Conservancy District (MRGCD), the Bureau of Reclamation (Reclamation) and the Corps to temporarily store native water in Abiquiu during the rehabilitation of El Vado reservoir. Reclamation has requested that the Water Authority enter into an agreement for temporary storage of native water while the construction work in El Vado proceeds. We realize the importance of the project and more particularly the safety of dams concerns and want to cooperate with all the parties to allow this to move forward. However, the Corps has consistently stated that there is no legal authority to store native water under our existing storage contract without an amendment. Amending the Water Authority's contract now will provide the legal authority to store native water and allow for Reclamation to store the water during the construction.

Third, the Water Authority will be seeking a native water storage permit from the State Engineer and it is likely that this action will be protested. We are concerned that a protestant could seek to administratively prevent the action from moving forward on the grounds that the Water Authority does not have the legal right to store native water so an application to the State Engineer is premature. Amending the contract now will allow for the permitting process to proceed without this potential legal impediment and the potential for significant delays in the process. When the Water Authority proceeded to obtain permit SP-4830 for diversion of our San Juan-Chama water, the State Engineer required that we provide evidence that we had a contract for storage of San Juan-Chama water in Abiquiu and required that a specified amount be stored in advance of beginning operation. We anticipate that the State Engineer would require that the Water Authority

provide evidence that we can store native water during the administrative process. Amending the contract in advance of the application to the State Engineer would provide the necessary proof of our ability to proceed.

Fourth, the Water Authority has expended millions of rate payer dollars to obtain the permanent right to store native and San Juan-Chama water up to elevation 6230.00 NGVD29. To date, we have about 97% of the permanent easements secured and the Water Authority should be allowed to store in the additional 30,000 acre-feet or so of additional space immediately upon securing the easement following review and approval by the Corps. The additional space would be advantageous and provide maximum flexibility during the rehabilitation of El Vado. We understand that the Water Control Manual along with the storage of native or San Juan-Chama water in the additional space is contingent on finalizing the acquisition of the real property interests.

Finally, having the ability to store native water in Abiquiu is consistent with the Water Authority's 100-year water plan (Water 2120) and is vitally important for the Middle Rio Grande. The State is embarking on the development and implementation of a 50-year Water Plan and Reclamation along with MRGCD and the Water Authority are leading the Rio Grande Basin Study. We understand that the Corps may be aiding the State Engineer for the 50-year water plan. Having the flexibility operationally to store native water will be important as both planning efforts consider the future of the Rio Grande. An important example of one alternative is the storage and release of native water by the Interstate Stream Commission to manage Rio Grande Compact deliveries to Elephant Butte. The Water Authority and the ISC have been discussing how important this could be for New Mexico. Amending the contract immediately will legitimize the alternative analysis for both studies.

Acquisition of Permanent Easements

As stated above, the Water Authority has been actively acquiring permanent easements to allow for storage of water (native or San Juan-Chama) up to elevation 6230.00 NGVD29. Currently, we are about 97% complete with the program and are anticipating completion by the end of 2021. We will transmit all the real estate information that we have obtained for the Corps review by the end of March 2021. Upon completion of the remaining easements, we will submit a complete package to the Corps for review and approval.

State Engineer's Permit

The Water Authority will be applying to the State Engineer for storage of native water. The application is being developed and will include the ability to store native water in all the Water Authority's space and we anticipate agreements for storage of native water by others. As with our existing contract, this would require review and approval by the

Corps which we would anticipate a request to the Corps for the existing sub allotment agreements already approved for Reclamation, City and County of Santa Fe, Ohkay Owingeh Pueblo, County of Los Alamos, City of Espanola, and others.

As stated above, we anticipate that there will be protests filed against the Water Authority's application for storage of native water and this process most likely will take several years. Amending the Water Authority's existing agreement along with the other agreements would allow consideration of native water storage for the above-mentioned entities in the State Engineer's permitting process and NEPA Compliance. It would also provide assurance that native water storage would be allowed upon completion of the permitting process without the risks mentioned above.

NEPA Compliance

We are proposing a two phased approach for NEPA compliance. The first phase would be the completion of an Environmental Assessment to amend the Water Authority's contract consistent with the Congressional Authorizing language. As mentioned above, this would provide the legal authority for the deviation necessary for storage of native water in Abiquiu during the rehabilitation of El Vado Dam which we understand is anticipated to start construction in Fall 2021.

The second phase would require the development of an Environmental Impact Statement (EIS) that will consist of the analysis of the impacts and mitigation measures for several storage alternatives. This process is complicated and will most likely take a couple of years to complete. This phase will allow for the modification of the Water Control Manual.

Water Control Manual

Modifying or revising the Water Control Manual would be necessary when the actions that the Corps feel have been completed which would provide for permanent storage of either native water or San Juan-Chama water by the Water Authority and others. We understand that all the necessary property interests would be required prior to finalizing the modification and physical storage of native water other than the deviation discussed above.

Summary

In summary, the Congressional legislation to concurrently storing native and San Juan-Cham water in Abiquiu reservoir has taken ten years. The Water Authority believes that the recently approved Congressional authorization provides for the existing storage contract to be amended immediately for the reasons set out in this letter. While we understand that amending the contract immediately will require language making the

storage contingent on approval of the State Engineers permit along with NEPA compliance and securing the property interests, we feel that having the certainty up front is important to our rate payers given the amount of time and expenditures that will be required. Having contingencies in the amended contract is consistent with the original storage agreement which also had several contingencies but has worked well for more than thirty years.

In discussions with your staff, the Corps is awaiting implementation guidance on the Congressional authorizing language. It is our understanding that there will be an opportunity to comment on the legislation prior to the development of implementation guidance. We will be submitting comments on that guidance consistent with the discussion in this letter during the public comment period. We would appreciate if the Corps would notify us when the request for comment has been published in the Federal Register so that we can make sure we meet the deadline. More importantly, we would appreciate your feedback on this letter so that the Water Authority and others can address any concerns you may have with moving forward.

The Water Authority has a great relationship with our federal partners including the Corps and native water storage is important to all of us. We would appreciate the opportunity to meet and discuss your response to this letter and moving forward with a Cooperative Agreement to provide the funding as required to start this process.

I can be reached at (505) 289-3101 or msanchez@abcwua.org to schedule a time to talk.

Sincerely,

Mark S. Sanchez
Executive Director

cc: Peter Auh, General Counsel
Elizabeth Anderson, Chief Planning Officer
Mark Kelly, Water Resources Manager
Rick Shean, Water Rights Manager
Jay Stein and John Stomp, Stein and Brockman

LETTERS RECEIVED IN RESPONSE TO THE SCOPING LETTER

FOR A DEVIATION AT ABIQUIU RESERVOIR

USACE received letters from the following agencies responding to the scoping letter that was emailed on February 8, 2022:

El Paso County Water Improvement District No. 1 dated February 17, 2022, signed by Jesus Reyes, General Manager.

El Paso County Water Improvement District No. 1, enclosure dated May 7, 2021, signed by Jesus Reyes, General Manager.

Coalition of Six Middle Rio Grande Basin Pueblos dated February 18, 2022, signed by Stuart Paisano, Chairman.

Albuquerque Bernalillo County Water Utility Authority dated February 18, 2022, signed by Elizabeth Anderson, Chief Planning Officer.

Rio Grande Compact Commission, dated February 21, 2022, signed by Robert S. Skov, Texas Rio Grande Compact Commissioner.

New Mexico Interstate Stream Commission dated February 21, 2022, signed by Page Pegram, Rio Grande Basin Manager.

Colorado Division of Water Resources date March 1, 2022, signed by Kevin G. Rein, Colorado Rio Grande Compact Commissioner.

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

February 07, 2022

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Mr. Mark Sanchez
New Mexico Interstate Stream Commission
P.O. Box 25102
Santa Fe, NM 87504-5102

Dear Mr. Mark Sanchez,

The U.S. Army Corps of Engineers (USACE), Albuquerque District, is seeking comments on a request from the New Mexico Interstate Stream Commission (NMISC) to deviate from the current water control plan (WCP) at the Abiquiu Dam and Reservoir to retain and release native Rio Grande water that would normally be retained at El Vado Reservoir. The Bureau of Reclamation (Reclamation) is also asking to retain prior and paramount (P&P) water in Abiquiu. The request is for three (3) years until the completion of the El Vado Dam repairs, which are expected to start by the end of May 2022 and continue until December 2024. The water will be used to meet middle Rio Grande water users' demand.

Background

El Vado Dam is located on the Rio Chama and is managed by Reclamation to retain Rio Grande water for the Middle Rio Grande Conservancy District (MRGCD) and the six middle Rio Grande Pueblos for prior and paramount use. Reclamation will be conducting repairs and construction on El Vado Dam for up to three years. During the repairs and construction, El Vado will not be able to retain the amount of water that it normally would.

What is Being Proposed?

USACE is evaluating the pending deviation request from the Abiquiu WCP that may include one (1) or both of the following two (2) proposed actions.

The first proposed action is to retain native Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand. The water will be stored in the San Juan-Chama conservation pool below elevation 6,220 ft NGVD. The total amount that will be retained during the deviation period is 90,000 acre-feet,

with a maximum annual amount of 45,000 acre-feet. Unused stored water will be carried over to the following year.

The second proposed action is to retain native Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet/year to meet the six middle Rio Grande Pueblos' demand. The water will be retained in the San Juan-Chama conservation pool below elevation 6,220 ft NGVD. Unused water will be released between 01 November and 15 December of each year.

Why Have I Received this Letter?

The purpose of this scoping letter is to inform you about the pending deviation request, and provide the opportunity to communicate any issues, concerns, problems, and suggestions. We request any information you may have that may overlap with the pending deviation request, such as existing conditions, studies, Environmental Assessments, and Environmental Impact Statements. This information will assist USACE with determining the scope of issues to be discussed in the Environmental Assessment (EA) for the pending deviation request. Comments received, including contact information, such as names and addresses, will be part of the public record and available for public inspection.

Comment Submittal

Please send written comments and questions to Dr. Michael Porter, U.S. Army Corps of Engineers.

Dr. Michael Porter
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109
abiquiu.deviation.2022@usace.army.mil

Please include "Abiquiu Pending Deviation Request" in the subject line of the email or letter. Indicate whether or not you would like to receive further correspondence from USACE electronically. Please provide initial comments for the pending deviation request by February 21, 2022.

Sincerely,

Danielle Galloway, Acting Chief
Environmental Resources Section

EL PASO COUNTY WATER IMPROVEMENT DISTRICT No. 1

P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749
(915) 872-4000 | Fax (915) 851-0091| www.epcwid1.org

February 17, 2022

Dr. Michael Porter
U.S. Army Corps of Engineers, Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109

Via: abiquiu.deviation.2022@usace.army.mil

Re: Abiquiu Pending Deviation Request

Dear Dr. Porter:

I submit this letter on behalf of the El Paso County Water Improvement District No. 1 (District) in response to the February 7, 2022, request for comments concerning two requests for deviation from the current water control plan (WCP) for Abiquiu Dam and Reservoir, both occasioned by upcoming repairs to El Vado Dam. The New Mexico Interstate Stream Commission (NMISC) has requested that the Abiquiu WCP be altered to allow retention and release of native Rio Grande Water at Abiquiu Reservoir. The Bureau of Reclamation's request concerns retention of prior and paramount water in Abiquiu. The District directs its comments and concerns only to the NMISC request.

If the Corps of Engineers allows the WCP deviation that the NMISC requests, up to 45,000 acre-feet a year of native Rio Grande water, but no more than 90,000 acre-feet in all, would be retained in Abiquiu Reservoir over a three-year period. The purpose of the storage would be to hold the native water for release to meet Middle Rio Grande irrigation demand. Both El Vado and Abiquiu are upstream of Elephant Butte Reservoir.

The District has significant problems with the proposed NMISC WCP deviation. As presented, the proposal disregards the relationship between the proposed action on the one hand and the Rio Grande Compact (a federal law) and the Rio Grande Project (a federal reclamation project) on the other. As you are aware, the District, a Texas political subdivision, is one of two districts—the other being the Elephant Butte Irrigation District in southern New Mexico—forming the Rio Grande Project. Relatedly, the Rio Grande Compact includes provisions in Articles VI, VI, and VIII that specifically tie upstream storage and releases to Project storage in Elephant Butte.

As long as the present situation persists—in which New Mexico has an accrued debit to Texas—Texas (and with it, the Rio Grande Project) may claim the water New Mexico owes, plus the water New Mexico currently is obligated to deliver to it, before New Mexico users upstream of the San Marcial gauge are allowed access to Rio Grande water. The Compact, in the fourth paragraph of Article VI, allows for some flexibility in management of upstream storage issues by permitting a unanimous vote of the three-member Rio Grande Compact Commission to "authorize the release from" upstream storage of New Mexico Compact-debit water, as long as it is promptly replaced.

As summarized in your February 7th request, the NMISC request fails to take these legal requirements into account. Nothing is mentioned about conditioning the proposed WCP deviation on approval by the Rio Grande Compact Commissioners despite the fact that, absent such approval, NMISC's proposal would clash with Compact requirements.

In a previous letter to the Corps, the District provided a detailed analysis of the legal interaction of Section 337 of the Water Resources Development Act of 2020 (WRDA) with the Compact and preexisting statutory provisions concerning Abiquiu. See Comments by El Paso County Water Improvement District No. 1 on Water Resources Development Act of 2020 (May 7, 2021). A copy of that letter is attached, and I refer you to it for more detailed legal analysis, which I will just summarize here.

An unbroken line of congressional instructions to the Corps, starting with the 1948 authorization for Abiquiu and running through the 2020 WRDA's passage, requires that the Corps' operation of Abiquiu is subject to the Compact and the Rio Grande Compact Commission insofar as they interact or overlap. Under subsection (f)(1) of Section 337 of the WRDA, storage of Rio Grande system water in Abiquiu "shall be subject to the provisions of the Rio Grande Compact and the resolutions o the Rio Grande Compact Commission." (emphasis added).

As a result of these congressional directives, as long as New Mexico is in debit to Texas under the Compact, the proposed WCP deviation for Abiquiu is not allowed unless unanimously approved beforehand by the Rio Grande Compact Commission. This means that, at least as characterized so far, the Corps cannot approve NMISC's deviation request in the absence of the Rio Grande Compact Commission's unanimous adoption of a resolution approving it.

Summing up, the Corps must make clear that any approval by it of NMISC's proposed WCP deviation for Abiquiu is conditioned on, and ineffective until, the Compact Commission's unanimous adoption of a resolution approving the deviation.

Sincerely,

Jesus Reyes by (A.B)

Jesus Reyes, General Manager

Enclosed: May 7, 2021 Letter fro Jesus Reyes to Corps Regarding WRDA Act of 1920

Cc: Texas Rio Grande Compact Commissioner for Texas, Bobby Skov
District Board of Directors
District Engineer, Dr. A.W. Blair
Attorneys for the District, Renea Hicks and Maria O'Brien

EL PASO COUNTY WATER IMPROVEMENT DISTRICT No. 1
P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749
(915) 872-4000 | Fax (915) 851-0091| www.epcwid1.org
TAX OFFICE (915) 872-4009 | DISPATCHER (915) 872-4029

COMMENTS BY EL PASO COUNTY WATER IMPROVEMENT DISTRICT NO. 1 ON WATER RESOURCES DEVELOPMENT ACT OF 2020

The El Paso County Water Improvement District No. 1 ("District") submits these comments in response to the request for comments issued by the United States Department of the Army's Corps of Engineers ("COE"). 86 Fed. Reg. 13346 (March 8, 2021). The COE asked stakeholders and other interested parties to provide "input and recommendations" on provisions of the Water Resources Development Act of 2020 ("WRDA"), which the COE will consider in developing "implementation guidance" for the WRDA. The WRDA is Division AA of Pub. L. No. 116-260 (Dec. 27, 2020), an omnibus appropriations act.

Comment Focus is Section 3337 of WRDA

These comments are directed at Section 337 of WRDA and its interaction with preexisting statutory provisions concerning Abiquiu Reservoir in New Mexico. Guidance issued by COE in response to Section 337's enactment must take into account the totality of these provisions, including the Rio Grande Compact of 1938, Pub. L. No. 76-96 (May 31, 1939) ("Compact"), which equitably apportions the waters of the Rio Grande among New Mexico, Texas, and Colorado.

Special Interest of District

The District is a Texas political subdivision situated in El Paso County. Along with the Elephant Butte Irrigation District in New Mexico, it is one of the two districts that form the federal reclamation project known as the Rio Grande Project.

History of Restrictions on Abiquiu Operation and Storage

The Abiquiu Dam and Reservoir were first authorized in Section 203 of the Flood Control Act of 1948, Pub. L. No. 81-828, as part of the Middle Rio Grande project. (*The dam was not completed until 1963.*) The 1948 Act was specially crafted to "supplement . . . Federal reclamation laws," not to supplant them. Even more significantly, Congress directed the COE that "all project works shall be operated in conformity with" the Compact as "administered by the Rio Grande Compact Commission." Flood Control Act of 1948, § 203(d).

This Congressional restriction has remained operative ever since. Section 203 of the Flood Control Act of 1960, Pub. L. No. 86-645 (July 14, 1960), provided that Abiquiu Reservoir (along with other Middle Rio Grande project) is to be operated "solely for flood control and sediment control." Then, in subsection (d), the 1960 Act continues with the original instruction to COE that the operations of Abiquiu Reservoir are subject to the Compact and the Rio Grande Compact Commission, by providing that Abiquiu is to be operated "at all times in conformity" with the Compact and further that:

> no departure . . . will be made except with the advice and consent of the Rio Grande compact, and no departure . . . will be made *except with the advice and consent of the Rio Grande Compact Commission*[.]

(emphasis added).

In 1988, Congress enacted Pub. L. No. 100-522 (Oct. 24, 1988), which in Section 1 contained the first authorization for the COE to store "Rio Grande system water" in Abiquiu Reservoir. But this authorization was strictly limited in Section 2 of the 1988 Act. The latter provision provided that the Section 1 storage authorization is "subject to the provisions of the Rio Grande Compact and the resolutions of the Rio Grande Compact Commission."

This unbroken line of congressional instructions to COE that its operation of Abiquiu reservoir is subject to the Rio Grande Compact and the Rio Grande Compact Commission continues with WRDA's enactment. Even as subsection (b) of Section 337 modifies somewhat earlier statutory provisions for Abiquiu storage, the earlier limitations are kept in place. Specifically, subsection (f)(1) provides that storage of native Rio Grande system water in Abiquiu "shall be subject to the provisions of the Rio Grande Compact and the resolutions of the Rio Grande Compact Commission."

Abiquiu Storage and Operation of Rio Grande Water is Subject to the Rio Grande Compact and the Rio Grande Compact Commission

The necessary conclusion to be drawn from this history about congressional restrictions on COE operation of Abiquiu, including the congressional direction in December 2020, is that such operation must not only be consistent with the Compact, but also may only be made in conjunction with resolutions adopted by the Compact Commission.

COE operation of Abiquiu Reservoir remains subject to approval by the Rio Grande Compact Commission. Section 337(f)(1) of WRDA expressly continues the congressional direction that Abiquiu storage and operations are "subject to . . . the resolutions of the Rio Grande Compact Commission." (*The phrase "subject to" means "subordinate" to and "governed or affected by." Black's Law Dictionary (6th ed.)*) This means that any change in Abiquiu storage or operation with respect to native Rio Grande system water requires advance approval by adoption of a resolution by the Rio Grande Compact Commission acting pursuant to Article XII of the Compact.

The history of the relation of the Compact Commission to Abiquiu operations bears out this point. In April 2001, the Compact Commission acted through a formal resolution to "favorably advise [] and consent [] to the departure from normal operations" of COE operation of Middle Rio Grande project reservoirs in order to authorize operation of the Middle Rio Grande Endangered Species Act Conservation Pool. This is just a concrete demonstration of the fact that the foregoing discussion of congressional restrictions on Abiquiu operations matches historical practice and procedure, as well as relations between the COE and the Compact Commission.

Under current circumstances, New Mexico is in debit on its Compact obligations, with accrued debits approaching 100,000 acre-feet. The usable water stored in Elephant Butte Reservoir is well below 400,000 acre-feet. As a result, storage in Abiquiu (a post-1929 reservoir) cannot be increased at this point because doing so would violate Article VII of the Compact. This provision prohibits increasing storage in Abiquiu "whenever there is less than 400,000-acre feet of usable water" in Project storage. As the last sentence of Article VII makes clear, it would take a unanimous vote of the Compact Commission to lift or modify this Compact restriction on Abiquiu operations.

Conclusion

Any guidance that the COE provides for Abiquiu operations and storage in light of WRDA's enactment should include the following:

> No changes in storage and operation of native Rio Grande water in the Abiquiu Dam and Reservoir shall be made without the passage of a unanimous resolution of the Rio Grande Compact Commission.

El Paso County Water Improvement District No. 1

May 7, 2021

Jesus Reyes,
General Manager
jreyes@epcwid1.org

P.O. Box 749
Clint, Texas 79836

Coalition of Six Middle Rio Grande Basin Pueblos
c/o Stuart Paisano, Chairman
Pueblo of Sandia, 481 Sandia Loop, Bernalillo, New Mexico 87004
(505) 867-3317, Fax (505) 867-9235

Via First-Class Mail and E-Mail

February 18, 2022

Michael Porter, Ph.D.
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, New Mexico 97109

Re: Abiquiu Reservoir Deviation Request

Dear Dr. Porter:

On behalf of the Governors of the Coalition of the Six Middle Rio Grande Basin Pueblos (Isleta, Sandia, Santa Ana, San Felipe, Santo Domingo and Cochiti — collectively the "Coalition Pueblos"), I write in response to the "scoping letter" letter from Danielle Galloway, Acting Chief, Environmental Resources Section, U.S. Army Corps of Engineers, Albuquerque District (USACE), dated February 7, 2022 (Letter). The Letter seeks our comments and questions on the requests from the New Mexico Interstate Stream Commission and the Bureau of Reclamation to deviate from the Abiquiu water control plan to store native Rio Grande water in Abiquiu Dam. As you know, water storage in Abiquiu Dam is necessary because of critically needed repairs to El Vado Dam — repairs that will preclude storage in El Vado Reservoir for upwards of 3 years.

We are pleased that the Corps is moving forward to complete any necessary NEPA compliance for storage of native water in Abiquiu Reservoir, particularly storage for our Prior and Paramount ("P&P") lands. Thus, the Coalition Pueblos fully support the proposed storage of up to 20,000 acre-feet/year to meet the Coalition Pueblos' needs. **So long as storage of P & P water is prioritized over any other native water storage**, the Coalition is also supportive of the proposed first alternative to store up to 45,000 acre feet of native Rio Grande water in Abiquiu. However, the Coalition is concerned that it may not be possible for the USACE to complete the Environmental Assessment (EA) in time to accomplish needed storage. Can the USACE confirm that it will be able to do so? Alternatively, is it possible for the USACE to proceed with the requested deviation under a Categorical Exclusion? The Coalition does not believe that water storage in Abiquiu, rather than the usual upstream in El Vado, would "have significant effects on the quality of the human environment" under 33 C.F.R. § 230.9.

Given current severe drought conditions and the likelihood of continued unusually warm and dry weather in the coming months, it is imperative that the United States take the necessary actions to store water sufficient to meet the Coalition Pueblos' needs. As requested in the February 10, 2022, letter to Lt. Colonel Stevens, we would appreciate a meeting, in person or virtually, concerning the status of the effort to store native water in Abiquiu Reservoir and related issues.

Thank you for the opportunity to provide the Coalition Pueblos' comments and questions and again our appreciation for the USACE's efforts to ensure storage this coming irrigation season for the 6 Pueblos.

Sincerely,

Stuart Paisano, Chairman
Coalition of Six Middle Rio Grande Basin Pueblos

Albuquerque Bernalillo County
Water Utility Authority

PO Box 568
Albuquerque, NM 87103
www.abcwua.org

February 18, 2022

Dr. Michael Porter
U.S. Army Corps of Engineers, Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109
abiquiu.deviation.2022@usace.army.mil

Re: **Abiquiu Pending Deviation Request**

Dear Dr. Porter:

This letter is in response to your office's request for Water Authority comments on proposals by the New Mexico Interstate Stream Commission and the U.S. Bureau of Reclamation to deviate from the current Abiquiu Dam and Reservoir water control plan. Under these proposals, the U.S. Army Corps of Engineers would use Abiquiu Reservoir for retention and release of native Rio Grande water during the repair of El Vado Dam between May of 2022 and December of 2024.

Our understanding is that the proposals contemplate: (1) storage of up to 45,000 acre-feet of native Rio Grande water per year but not more than 90,000 acre-feet total over the three-year period for use by the six Middle Rio Grande Pueblos and the Middle Rio Grande Conservancy District (MRGCD); and/or (2) storage of up to 20,000 acre-feet per year of Prior & Paramount (P&P) water for the Pueblos only.

In both scenarios, the native Rio Grande water would be stored within the San Juan-Chama conservation pool below elevation 6220.00 ft. NGVD, and unused water would be released by December 15th of the calendar year,

In short, the Water Authority supports a deviation to allow for native water storage, at least during the 2022 irrigation season. We do, however, have some concerns and suggestions:

1. Amendment of the Water Authority's Storage Contract

We believe that either proposal will legally require the amendment of the Water Authority's storage contract, since the existing contract does not allow for native water storage in space allotted to the Water Authority. Such an amendment is permissible within the provisions of Public Law 116-260 (2020 WRDA), which allows for concurrent storage of native and San Juan-Chama water "up to elevation 6230.00 NGVD29." Furthermore, the Water Authority must have a temporary storage contract with the Bureau of Reclamation for storing native Rio Grande water for the six MRG Pueblos and for the MRGCD in Water Authority space. Working with the Corps and other stakeholders, we believe the appropriate contract documents can be expeditiously prepared.

2. Revision to Water Control Manual

The proposals in question are deviations from historical reservoir operations but they are consistent with the uses of Abiquiu Reservoir currently authorized by Congress. Therefore, the Water Authority supports the proposed deviation request as an interim measure to fully use the authorized storage space in Abiquiu Reservoir while the Water Control Manual is revised to conform to the expanded authority provided by Congress.

The Water Authority believes that the most efficient way to move the deviation forward is to execute the requirements of 2020 WRDA, which directs the Corps "to amend or revise any existing operations documents, including the Water Control Manual or operations plan for Abiquiu Reservoir..." to facilitate native water storage.

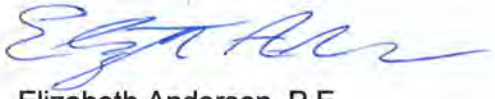
3. NEPA

The Water Authority suggests that the NEPA analysis be conducted to allow for the future permanent arrangement of concurrent storage (native Rio Grande water and San Juan-Chama water) up to elevation 6230.00 NGVD29. The NEPA analysis completed by the Corps for the pending deviation request need only consider storing native Rio Grande water within the allowable pool under elevation 6220.00 ft. NGVD, but should be completed in a way that allows the NEPA process to address the expansion of the pool once the deviation is complete.

The Water Authority offers these suggestions in an effort to secure both the short-term and long-term benefits of concurrent storage up to elevation 6230.00 NGVD29 in accordance the 2020 WRDA.

I am interested in receiving further correspondence on this topic in electronic format at eanderson@abcwua.org and would be glad to meet with you to discuss the Water Authority's concerns and suggestions. As always, you can contact me at (505) 289-3004.

Sincerely,



Elizabeth Anderson, P.E.
Chief Planning Officer

cc: Jennifer Faler, Area Manager, Bureau of Reclamation
Mike Hamman, P.E., New Mexico State Engineer
Rolf Schmidt-Peterson, Director, Interstate Stream Commission

RIO GRANDE COMPACT COMMISSION

ROBERT S. SKOV
TEXAS COMMISSIONER

4695 NORTH MESA STREET
EL PASO, TEXAS 79912
TELEPHONE: (915) 764-0014
FAX: (915) 526-2869

February 21, 2022

By email: abiquiu.deviation.2022@usace.army.mil

Dr. Michael Porter
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109

Re: Abiquiu Pending Deviation Request

Dear Dr. Porter:

This letter is in response to your letter of February 7, 2022, seeking comments on the requests to the U.S. Army Corps of Engineers (Corps) from the New Mexico Interstate Stream Commission (NMISC) and the U.S. Bureau of Reclamation (Reclamation) to deviate from the current water control plan (WCP) for Abiquiu Dam and Reservoir to retain and release native Rio Grande water that would normally be retained in El Vado Reservoir. Your letter provided information about the pending deviation requests and an opportunity to communicate any issues, concerns, problems, and suggestions regarding the proposed actions.

Addressing the second proposal and request by Reclamation for Abiquiu Reservoir storage to meet the Prior and Paramount (P&P) demands of the six Middle Rio Grande (MRG) Pueblos, based on the requirements of Article XVI of the Rio Grande Compact of 1938 (Compact), Texas has no objections. We have coordinated with Reclamation to ensure that this action is in accordance with the Compact and will be limited to 20,000 acre-feet per year. Any

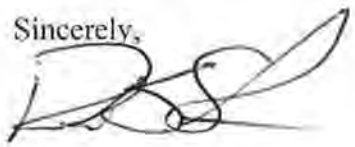
unused water will be released after irrigation season so it can be delivered to Elephant Butte Reservoir (EBR) in November and December of each year.

Regarding the NMISC request to store water in Abiquiu Reservoir for release to MRG water users during the El Vado Dam repairs, the Rio Grande Compact Commission of Texas (RGCC-Texas) opposes this action. Currently, the State of New Mexico has accrued a large Compact debit to Texas and has been unable to provide the water owed, as required by the provisions of Article VI and Article VIII of the Compact. Compounding this problem, at New Mexico's request, Texas approved the release of a portion of their stored debit water for MRG irrigation use in 2020, and New Mexico has not replaced this water as required by Article VI of the Compact. In January, the RGCC-Texas, pursuant to Article VIII of the Compact, formally demanded release of debit water retained in storage as was required under Articles VI and VIII of the Compact. New Mexico has been and is unable to satisfy this demand. Simply stated, storing native Rio Grande water for use in New Mexico for non-P&P water uses before the debit water owed to Texas is replaced violates the 1938 Rio Grande Compact. The Rio Grande Compact is federal law which binds absolutely the actions of the Corps of Engineers.

In any event, it is my understanding that, pursuant to the Water Resources Development Act of 2020, the Corps is required to obtain formal approval from the Rio Grande Compact Commission in order to undertake the proposed actions. Formal action by the Rio Grande Commission requires unanimous consent from the Rio Grande Compact Commission. As long as New Mexico is in an accrued debit condition, Texas will not approve the proposed deviation for Abiquiu Reservoir for storage and release to non-P&P MRG water users.

If you have questions or would like to discuss these issues, please contact me.

Sincerely,



Robert S. Skov
Texas Rio Grande Compact Commissioner

cc: LTC Patrick Stevens V, U.S. Army Corps of Engineers
Jennifer Faler, U.S. Bureau of Reclamation
Mike Hamman, New Mexico Commissioner
Kevin Rein, Colorado Commissioner
Rolf Schmidt-Peterson, New Mexico Interstate Stream Commission
Suzy Valentine, Rio Grande Compact Commission
Priscilla Hubenak, Office of the Attorney General for Texas

Jesus Reyes, El Paso County Water Improvement District No. 1
Gary Esslinger, Elephant Butte Irrigation District
Craig Cotton, Colorado Department of Water Resources
Chad Wallace, Colorado Office of the Attorney General
Page Pegram, New Mexico Interstate Stream Commission
Chris Shaw, New Mexico Interstate Stream Commission

NEW MEXICO INTERSTATE STREAM COMMISSION

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FAX: (505) 827-6188

February 21, 2022

Submitted Electronically to: abiquiu.deviation.2022@usace.army.mil

Dr. Michael Porter
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109

Re: New Mexico Interstate Stream Commission Comment on Scoping for the Pending Abiquiu Deviation Request

The New Mexico Interstate Stream Commission (NMISC) hereby submit comments (Comments) pursuant to the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370h (NEPA). These Comments address the scoping request by the U.S. Army Corps of Engineers (USACE) for comments on a pending deviation from the current water control plan (WCP) at the Abiquiu Dam and Reservoir to store and release native Rio Grande water that would normally be stored at El Vado Reservoir (Temporary Deviation). The NMISC requested in a letter dated December 15, 2021, that the USACE begin the process for obtaining the Temporary Deviation. The NMISC supports the Temporary Deviation and believes the ability to replace the native storage operation that would have occurred at El Vado Reservoir during this repair period is urgent.

The NMISC is charged with administration of all interstate water compacts for New Mexico, as well as protecting, conserving, and developing the waters and stream systems of the State. NMSA 1978, § 72-14-3 (1943). In the Rio Grande basin, the NMISC performs numerous activities which may be affected by a Temporary Deviation, including monitoring water operations of the U.S. Bureau of Reclamation (Reclamation) and the USACE, conducting annual accounting of native Rio Grande and San Juan Chama Project water (SJCP), and assessing and determining Rio Grande Compact (Compact) compliance.

It is our hope that these comments will assist USACE in evaluating the effects of a Temporary Deviation of the WCP for Abiquiu Reservoir.

The following are the main Temporary Deviation issues that the NMISC would like the USACE to address: (1) the potential for the storage of native water in Abiquiu to impact Compact administration, accounting, and deliveries; (2) the potential for the storage of native water in

Abiquiu to impact administration of State water law; and (3) the potential for the storage of native water in Abiquiu to cumulatively impact water management on the Rio Chama and Rio Grande systems. The NMISC also offers additional information from the 2007 Upper Rio Grande Water Operation Review.

Potential Impact to Rio Grande Compact Administration

First and foremost, the USACE must address any impacts to the administration of the Rio Grande Compact (Compact). See Act of May 31, 1939, ch. 155, 53 Stat. 785 (the full text of the Compact). As outlined herein, the NMISC request the USACE address the effects a Temporary Deviation may have on Compact administration. Pursuant to the Compact, the storage of native water in Abiquiu Reservoir must not negatively affect the timing of Art. VII, and any additional depletions resulting from the storage of native water in Abiquiu should be offset. The NMISC request the USACE consider these Compact administration effects and coordinate with NMISC staff to address them.

The NMISC requests the USACE consider whether the Temporary Deviation will require USACE to determine the maximum space available for native water in combination with SJCP water. The Upper Rio Grande Water Operations Model (URGWOM) should be used to account for native and SJCP water separately and to quantify evaporation of native water separately from evaporation of SJCP water. The USACE should consider how native water is treated in the reservoir during flood control operations. The USACE should collaborate with both NMISC and Reclamation to ensure accurate accounting and administration of the Rio Grande Compact during the proposed deviation.

The NMISC requests that the USACE report the details of the temporary storage of native water in Abiquiu Reservoir operation to the Engineer Advisers and the Rio Grande Compact Commission at the annual Compact Commission meeting.

Potential Impact to State Water Law Administration

The NMISC request that the USACE coordinate with NM Office of the State Engineer (NMOSE) staff to ensure that the Temporary Deviation to store native water in Abiquiu Reservoir while El Vado is under repair does not impair State water rights administration, the direct flow needs of State water users, the efficient release of native water stored in Abiquiu Reservoir, that reservoir operations be conducted to minimize depletions in the Middle Rio Grande and that water is conserved to the greatest extent practicable.

Please note, that storage of native water in Abiquiu is subject to the State of New Mexico's administration of senior native surface water rights on the Rio Chama below Abiquiu Reservoir. Due to the complexity of the administration process the NMISC requests that the USACE coordinate with NMOSE staff. Also note that an NMOSE storage permit is required to store native water in Abiquiu, and that the Middle Rio Grande Conservancy District has submitted an application for such a permit.

Potential Impact to Overall Water Management

The NMISC notes that a Temporary Deviation might affect water management activities undertaken by the NMOSE. Therefore, the NMISC request that the USACE coordinate native water storage and release operations with NMOSE staff, including the Lower Chama River master. In addition to coordination, the NMISC request that the USACE continue to adhere to all current reservoir operation requirements for maintaining minimum bypass flows and flow target triggers for protection of irrigation rights and other acequia infrastructure downstream of Abiquiu.

The NMISC requests that any modification of the WCP and the storage and release of native water not impair Endangered Species Act (ESA) critical habitat needs for listed species, including for the Rio Grande silvery minnow.

Upper Rio Grande Water Operation Environmental Impact Statement

The NMISC suggests that the 2007 Environmental Impact Statement (EIS) and Record of Decision (ROD) for the Upper Rio Grande Water Operation Review has information relevant to the pending deviation request and should be used to analyze the issues considered in the planned Environmental Assessment. As a reminder, the NMISC repeats relevant information and conclusions from that EIS here.

The focus of the EIS was to evaluate then current water operations of the Upper Rio Grande basin, identifying operational flexibilities and developing an integrated operational plan. The EIS analyzed a range of native Rio Grande basin storage volumes in Abiquiu Reservoir to evaluate the reservoir's capability. The EIS served the purpose of allowing tiering for any subsequent required NEPA compliance related to implementing specific actions stemming from the actions and alternatives analyzed in the EIS.

Based on the evaluation, the USACE determined that the programmatic-level analysis was not sufficient to implement native storage. In the future the USACE agreed that it would evaluate the specific proposals for such storage. Any decision to implement native storage will be based, in part, on the following: determination of available space in lieu of San Juan-Chama contractors' needs; storage permit from the New Mexico State Engineer; coordination and negotiation regarding storage easements with the Albuquerque Bernalillo County Water Utility Authority; proposal-specific impact analysis; re-allocation of storage space and revision of the Abiquiu Dam and Reservoir water control plan; and specific compliance with environmental laws and regulations. Each joint agency issued its own record of Decision regarding its actions.

The NMISC supported implementation of preferred alternative E-3. Preferred Alternative E-3 included among other actions, that the NMISC would work with the USACE, Reclamation and other agencies or entities to implement native water storage in Abiquiu for Rio Grande Compact management purposes and environmental and other benefits in the middle valley (see NMISC Record of Decision, July 2007 Estevan Lopez, Director)

The Reclamation decision was to implement the elements of Preferred Alternative E-3 associated with extending the waiver date of San Juan-Chama project water at Heron Reservoir and to continue operating the Low Flow Conveyance Channel (LFCC) without diversions from the Rio Grande. Reclamation agreed to also refine and implement improved communication and coordination of water operations at other federal facilities. (See Reclamation Record of Decision, 2007)

The USACE decision was to not change current operations at facilities under its jurisdiction. However, the USACE would support future operational changes, contingent on the results of additional NEPA analysis and documentation. The safe channel capacities downstream from Abiquiu and Cochiti Dams would remain at 1,800 cfs and 7,000 cfs, respectively. Storage of native flows in Abiquiu would not be implemented until additional analyses are completed and NEPA documentation conducted tiered from the Final EIS in accordance with NEPA and Council on Environmental Quality regulations. (See June 29, 2007 Record of Decision, Lieutenant Colonel B.A. Estok)

Conclusion

We thank you for this opportunity to provide scoping comments for the EA on the pending deviation request. The NMISC looks forward to working with the USACE to ensure the deviation complies with the Rio Grande Compact and State water law rules and regulations. I am also interested in receiving further correspondence on this topic in electronic format at page.pegram@state.nm.us. If you have any further questions regarding this matter, please do not hesitate to contact me by email or at 505-695-5622.

Sincerely,

Page Pegram

Page Pegram, Rio Grande Basin Manager
New Mexico Rio Grande Compact Engineer Adviser

cc: Mike A. Hamman, P.E., N.M. State Engineer, RG Compact Commissioner
Rolf Schmidt-Petersen, Director, NMISC
Ramona Martinez, NMOSE District 6 Manager
Chris Shaw, Rio Grande Basin Attorney, NMISC
Nat Chakeres, NMOSE General Counsel
NMISC files

COLORADO
Division of Water Resources
Department of Natural Resources

March 1, 2022

Dr. Michael Porter
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109
abiquiu.deviation.2022@usace.army.mil

Dear Dr. Porter,

The State of Colorado has received your letter dated February 7, 2022 requesting comment regarding two proposed actions for Abiquiu Reservoir. Deviations in operations for Abiquiu Reservoir require unanimous approval from the Rio Grande Compact Commission. The two actions are summarized as follows:

> The first proposed action is to retain native Rio Grande water in Abiquiu Reservoir up to 45,000 acre-feet per year and release it later in the season to meet middle Rio Grande irrigation demand. The water will be stored in the San Juan-Chama conservation pool below elevation 6,220 ft NGVD. The total amount that will be retained during the deviation period is 90,000 acre-feet, with a maximum annual amount of 45,000 acre-feet. Unused stored water will be carried over to the following year.
>
> The second proposed action is to retain native Rio Grande water in Abiquiu Reservoir up to 20,000 acre-feet/year to meet the six middle Rio Grande Pueblos' demand. The water will be retained in the San Juan-Chama conservation pool below elevation 6,220 ft NGVD. Unused water will be released between 01 November and 15 December of each year.

Regarding the first proposed action, it is Colorado's understanding from a New Mexico Interstate Stream Commission letter of December 15, 2021, that it intends to store this water against its relinquishment credit. The Texas compact commissioner, in a letter dated February 21, 2022, denied consent for the first proposed action. Because consent by the Rio Grande Compact Commission must be unanimous for a deviation of reservoir operations by the United States Army Corps of Engineers, Texas' denial will prevent this action.

The water in the second proposed action may be stored in Abiquiu Reservoir to the extent it is consistent with New Mexico law. The Rio Grande Compact Commission has passed a resolution requesting federal agencies to comply with state water laws. Resolution of the Rio Grande Compact Commission Regarding the Need for Federal Agencies to Apply for State Permits in Compliance with State Water Law and Regulations, April 11, 2001. As this is a

matter for determination using New Mexico law, Colorado consents to the second proposed action.

In responding to this request for comment. Colorado is not waiving any rights under the Rio Grande Compact by not asserting them in this letter.

Kevin G. Rein
Director, Colorado Division of Water Resources
Colorado Rio Grande Compact Commissioner

cc: Michael Hammon, New Mexico Rio Grande Compact Commissioner
Robert Skov, Texas Rio Grande Compact Commissioner
Jennifer Faler, U.S. Bureau of Reclamation
Rolf Schmidt-Peterson, New Mexico Interstate Stream Commission
Craig Cotten, Engineer Advisor for Colorado
Suzy Valentine, Engineer Advisor for Texas
Page Pegram, Engineer Advisor for New Mexico
Priscilla Hubenak, Office of the Attorney General for Texas
Chris Shaw, New Mexico Interstate Stream Commission
Chad Wallace, Office of the Attorney General for Colorado
Preston Hartmann, Office of the Attorney General for Colorado

COMMENTS RECEIVED DURING PUBLIC REVIEW OF THE

DRAFT ENVIRONMENTAL ASSESSMENT FOR A TEMPORARY DEVIATION IN THE OPERATION OF ABIQUIU DAM, RIO ARRIBA COUNTY, NEW MEXICO

Audubon Southwest dated March 18, 2022, signed by Paul Tashjian, Director of Freshwater Conservation.

Rio de Chama Acequia Association dated March 18, 2022, signed by Tim Seaman, RCAA Vice President.

City of Santa Fe dated March 31, 2022, signed by Jesse Roach, Director City of Santa Fe Water.

New Mexico Interstate Stream Commission dated April 4, 2022, signed by Page Pegram, Rio Grande Basin Manager.

Albuquerque Bernalillo County Water Utility Authority dated April 4, 2022, signed by Elizabeth K. Anderson, Chief Planning Officer.

The Coalition of Six Middle Rio Grande Basin Pueblos met with the U.S. Army Corps of Engineers on April 7, 2022. The meeting was led by Chairman Stuart Paisano.

Email from Audubon Southwest

Dear US Army Corps of Engineers,

Southwest Audubon has reviewed the March 2022 "Draft Environmental Assessment and Finding of No Significant Impact for a Temporary Deviation in the Operation of Abiquiu Dam, Rio Arriba County, New Mexico". We are supportive of this action since it will provide storage space for the Middle Rio Grande Pueblos and the Middle Rio Grande Conservancy District (if article 7 permits) during the next 3 years when El Vado Reservoir is receiving essential infrastructure improvements. Storage space for the Pueblos and District is essential for productive farming on Pueblo and MRGCD lands. Having water in the system for farming is also essential for maintaining river flows in the Middle Rio Grande since modern river flows are dependent on agricultural water for efficient and effective delivery.

Feel free to contact me with any questions about Audubon's support of this action.

Many thanks, Paul Tashjian

Email from the Rio de Chama Acequia Association

The Rio de Chama Acequia Association agrees with the determination of no adverse effect to historic resources for the proposed changes to the Abiquiu Dam and Reservoir Water Control Plan. Historic resources in our reach of the Rio Chama relating to acequia infrastructure are unlikely to be affected by any of the three water retention scenarios. However, we do need to be included in planning pertaining to Prior and Paramount water releases at the end of the year. In the past, releases outside of the irrigation season have caused some serious damage, owing to the fact that our gates are closed and our mayordomos on vacation.

Call if you have questions or concerns. Tim Seaman

Coalition of Six Middle Rio Grande Basin Pueblos Meeting

On Thursday April 7 Albuquerque District Commander, Lt. Col. Pat Stevens, presented at the Coalition of Six Middle Rio Grande Basin Pueblos monthly meeting. Lt. Col. Stevens briefed Governors from each of the six Pueblos (Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Isleta, Pueblo of San Felipe, Pueblo of Santo Domingo, and Pueblo de Cochiti) on the status of the proposed deviation from the water control plan at Abiquiu Lake to store prior and paramount water at the lake while the Bureau of Reclamation completes repairs to El Vado Dam upstream. The presentation was received well by all in attendance. The Albuquerque District is in the process of completing the environmental assessment for the project and will continue to accept comments from the Coalition Pueblos until the process is complete in late April.

City of Santa Fe, New Mexico

200 Lincoln Avenue, P.O. Box 909, Santa Fe, N.M. 87504-0909
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Alan Webber, Mayor

Councilors:
Signe I. Lindell, Mayor Pro Tem, District 1
Renee Villarreal, District 1
Michael J. Garcia, District 2
Carol Romero-Wirth, District 2
Lee Garcia, District 3
Chris Rivera, District 3
Jamie Cassutt, District 4
Amanda Chavez, District 4

March 30, 2022

U.S. Army Corps of Engineers Albuquerque District Environmental Resources Section

Attn: CESPA-PM-LE (Michael Porter)

4101 Jefferson Plaza NE

Albuquerque, New Mexico 87109-3435

Dear Mr. Porter,

City of Santa Fe Water has reviewed the Draft Environmental Assessment and Finding of No Significant Impact for a Temporary Deviation in the Operation of Abiquiu Dam, Rio Arriba County, New Mexico (March 2022). City of Santa Fe Water supports the proposed action that will enable retention of up to 45,000 ac-ft per year of Rio Grande water in Abiquiu Reservior and up to 20,000 ac-ft per year of prior and paramount water for the 6 middle Rio Grande Pueblos. The Environmental Assessment (EA) is well written, and the alternatives and analyses are sufficiently vetted to support the findings in the report. The proposed deviation action will provide for increased operational flexibility and improved hydrologic and environmental conditions to sustain flows and support compliance with Rio Grande Compact requirements. The deviation is consistent with the Congressionally Authorized language in the 2020 Water Resources Development Act (WRDA) which City of Santa Fe Water views as a key basis for regulatory authority to implement the proposed measures. The operational flexibility as afforded by storage of Rio Grande water in Abiquiu Reservoir will help managed dry conditions currently being experienced along the Rio Grande.

Sincerely,

Jesse Roach, PE PhD

Director City of Santa Fe Water

NEW MEXICO INTERSTATE STREAM COMMISSION

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April 4, 2022

Submitted Electronically to: abiquiu.deviation.2022@usace.army.mil

Dr. Michael Porter
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109

Re: New Mexico Interstate Stream Commission Comment on Draft Environmental Assessment and Finding of No Significant Impact for Temporary Deviation in the Operation of Abiquiu Dam

The New Mexico Interstate Stream Commission (NMISC) hereby submits comments (Comments) pursuant to the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370h (NEPA) to the U.S. Army Corps of Engineers (USACE) Draft Environmental Assessment (DEA) and Finding of No Significant Impact (FONSI) for a temporary deviation from the current water control plan (WCP) at Abiquiu Dam and Reservoir to store and release native Rio Grande water (Rio Grande Water) that would normally be stored at El Vado Reservoir (Temporary Deviation). The NMISC requested in a letter dated December 15, 2021, that the USACE begin the process for obtaining the Temporary Deviation. The NMISC supports the Temporary Deviation because the ability to replace the Rio Grande Water storage operation that would have occurred at El Vado Reservoir is urgent.

The NMISC is interested in the DEA and FONSI because of the potential effects the proposed action and proposed alternatives will have on Rio Grande Compact (Compact) administration and accounting. The NMISC is charged with administration of all interstate water compacts for New Mexico, as well as protecting, conserving, and developing the waters and stream systems of the State. NMSA 1978, § 72-14-3 (1943). In the Rio Grande basin, the NMISC provides support to the New Mexico Rio Grande Compact Commissioner and performs numerous activities which may be affected by a Temporary Deviation, including but not limited to, monitoring water operations of the U.S. Bureau of Reclamation (Reclamation) and the USACE, supporting Rio Chama Active Water Resource Management, conducting annual accounting of Rio Grande Water and San Juan Chama Project water (SJCP), and assessing and determining Compact compliance. On February 21, 2022, the NMISC submitted comments to USACE on scoping for the pending Abiquiu Deviation. These DEA/FONSI comments are intended to supplement the NMISC's scoping comments and to help USACE in refining its evaluation of the effects of a Temporary Deviation of the WCP for Abiquiu Reservoir.

NMISC identifies the following concerns in the DEA/FONSI: 1) the terminology used to describe the action differs from that used in the Rio Grande Compact, and 2) the storage of Rio Grande Water is incorrectly attributed to the NMISC. Specifically, the DEA/FONSI utilizes the terminology "retain" in referring to Rio

Grande Water storage in Abiquiu Reservoir. NMISC's definition of the word "retain" in the context of Rio Grande Water storage in a post-1929 reservoir is specific to Article VI of the Compact and differs from its use in the DEA/FONSI. In order to avoid confusion, NMISC requests that references to "retain" or "retention" in the DEA/FONSI be changed to "store" or "storage," unless specifically describing the retention of debit water as described in Article VI of the Compact.

All storage of Rio Grande Water in Abiquiu Reservoir analyzed in this DEA/FONSI is pursuant to State Engineer Permit SP-1690-T which is the Emergency Authorization granted by the State Engineer on February 22, 2022, to temporarily change the point of diversion for SP-1690 from El Vado Reservoir to Abiquiu Reservoir. In the DEA/FONSI analysis, storage is attributed to the NMISC in the description of the proposed action as well as in the evaluation of the effects. For the reason described above, please delete reference to NMISC storing water in Abiquiu Reservoir in the DEA/FONSI and subsequent NEPA documents.

The NMISC also believes that Rio Grande Water storage at Abiquiu Reservoir when and if Article VII restrictions are lifted could be important during the time the Temporary Deviation is in effect. Given the possibility of Article VII restrictions being lifted, NMISC believes it is important for the USACE to clarify that its analysis includes Rio Grande Water storage at times when the Article VII restriction is not in effect. Given New Mexico's current Compact Accrued Debit Status, Rio Grande water stored under permit SP-1690-T outside of Article VII restrictions would have to be retained in storage, up to the amount of New Mexico's Accrued Debit, in accordance with Article VI of the Compact. This water would be retained until called for by the Texas Compact Commissioner in January of any year or at the direction of the Compact Commission and then released and routed to Elephant Butte Reservoir.

We thank you for this opportunity to provide comments for the DEA/FONSI on the proposed Temporary Deviation in operation of Abiquiu Dam. The NMISC looks forward to working with the USACE to implement the proposed deviation. If you have any further questions regarding this matter, please do not hesitate to contact me by email or at 505-695-5622.

Sincerely,

Page Pegram

Page Pegram, Rio Grande Basin Manager
New Mexico Rio Grande Compact Engineer Adviser

cc: Mike A. Hamman, P.E., N.M. State Engineer, RG Compact Commissioner
Rolf Schmidt-Petersen, Director, NMISC
Hannah Riseley-White, Deputy Director, NMISC
Ramona Martinez, NMOSE District 6 Manager
Chris Shaw, Rio Grande Compact Legal Adviser, NMISC
Nat Chakeres, NMOSE General Counsel
NMISC files

Albuquerque Bernalillo County
Water Utility Authority

PO Box 568
Albuquerque, NM 87103
www.abcwua.org

April 4, 2022

U.S. Army Corps of Engineers
Albuquerque District
Environmental Resources Section
Attn: CESPA-PM-LE (Michael Porter)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

Emailed to Abiquiu.Deviation.2022@usace.army.mil

The Albuquerque Bernalillo County Water Utility Authority (Water Authority) submits the following comments on the Draft Environmental Assessment (DEA) and the Finding of No Significant Impact (FONSI) for the Temporary Deviation in the Operation of Abiquiu Dam.

Page 6 of the DEA correctly notes that the Water Authority has obtained easements from private landholders along the Abiquiu Reservoir shoreline. Currently, the Water Authority storage easements enable the Water Authority to retain water up to elevation 6220' and the Water Authority has nearly completed its effort to expand its shoreline easements up to elevation 6230'. The proposed action on Page 8 notes the fact that "responsible agencies must secure the required real property interest for the retention of water in Abiquiu Reservoir". The Water Authority has spent a considerable amount of time and money to acquire easements for the storage of water in Abiquiu. For any entity to store water within the easements acquired by the Water Authority, an agreement is required.

The Water Authority's current contract with the Corps to store water in Abiquiu stipulates that only San Juan Chama water can be stored. We understand that this deviation will not amend that contract. The Water Authority's existing use of storage space in Abiquiu Reservoir including the ability to release, store and manage our and other San Juan-Chama contractors' water must not be impinged by the native water storage proposed in the DEA. We anticipate working with the Corps to ensure San Juan Chama operations are not affected by the proposed deviation.

In sum, the Water Authority is supportive of the DEA and looks forward to working with the Corps and other partners to make native water storage in Abiquiu happen. I can be reached at (505) 289-3004 or eanderson@abcwua.org to schedule a time to talk.

Sincerely,

Elizabeth K. Anderson, P.E.
Chief Planning Officer