



— BUREAU OF —
RECLAMATION

Sumner Dam Modified Flood Operations Plan Environmental Assessment

Carlsbad Project, New Mexico
Upper Colorado Basin Region



Mission Statements

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Sumner Dam Modified Flood Operations Plan Environmental Assessment

**Carlsbad Project, New Mexico
Upper Colorado Basin Region**

prepared by

**Albuquerque Area Office
Environment and Lands Division
Facilities Management Division
Water Management Division**

Cover Photo: Aerial view of spillway and radial gate area of Sumner Dam (Marsha Carra, Ret./Reclamation
6/4/2013)

I. Executive Summary

In compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, the Bureau of Reclamation's (Reclamation) Albuquerque Area Office (AAO) conducted an Environmental Assessment (EA) to determine the potential effects to the human and natural environment of the Sumner Dam Modified Flood Operations Plan (Plan) project.

Deterioration of the dam's radial gates in the service spillway has progressed to the point where the integrity of the gates is in question leading to Reclamation's Safety of Dams (SOD) program to recommend a temporary Modified Flood Operations Plan until such time that the gates can be repaired or replaced. In the 1990's, facility reviews recommended development of a regular schedule of maintenance and repair of the radial gates. Past maintenance and repair activities have not been able to keep up with the radial gate deterioration. In areas where water has been allowed to pool behind the radial gates, the lower half of all gates have extensive corrosion, with some areas rusted through entirely. The wall plates have come loose from the concrete wall in many places and need to be replaced. Due to this continued deterioration, a Sumner Dam Risk Analysis was performed by Reclamation's Technical Service Center (TSC) in August 2019, and reviewed by the Dam Safety Advisory Team (DSAT) in October 2019. The total risk to the facility was found to be above Reclamation's guidelines due to the deteriorated condition of the radial gates. Based on this, SOD recommendation *Sumner Dam Issue Evaluation Risk Analysis 2020* was made, which proposes a Modified Flood Operations Plan until the radial gates can either be repaired or replaced (this will entail future compliance) (Reclamation 2021).

Reclamation has a need to ensure that all dams and appurtenant structures are compliant with the Reclamation Safety of Dams Act of 1978. These requirements demonstrate a need for Reclamation to implement corrective action to temporarily modify flood operations to bring the risk below public protection guidelines.

The purposes of the proposed project are to:

- 1) Implement temporary modified flood control operations;
- 2) Maintain water deliveries to Carlsbad Irrigation District (CID) and others during irrigation season; and
- 3) Minimize impacts to the environment.

II. Summary of the Proposed Action

The Proposed Action is composed of the following elements:

1. The three radial gates shall be maintained and open at a vertical height of three feet. This opening shall be maintained even when the reservoir level is below the control weir elevation of 4,259.0 ft.
2. During flood operations above 4,261 ft, action will be taken to prevent more than 13.2 feet of static water head against the radial gates.
3. If needed, radial gate openings of greater than three feet would be maintained only as long as necessary to release excess flood waters.
4. No winter storage would be allowed in the flood control pool in Sumner Reservoir.

5. Follow the Emergency Action Plan as necessary which may vary from the Modified Flood Operations Plan.
6. Maintain the Modified Flood Operations Plan until the gates are repaired or replaced, or a review of the situation after December 31, 2023, for the final radial gate resolution.

This action will begin as soon as possible after approval of the Environmental Compliance. If unforeseen flows should arise prior to completion of the Environmental Compliance, it will be implemented as needed to reduce the safety risk posed by the current deteriorated state of the radial gates.

III. Summary of Impacts

A total of 11 resources were analyzed and reviewed by Reclamation's resource specialists. Seven resources were eliminated from full consideration: Water Rights, Land Use, Air quality/Sound, Cultural Resources, Vegetation, Recreation, and Environmental Justice. There would be a range of effects to the other four resources as summarized below.

1. Flood Control Operations. At or above 4,261 ft elevation, flood operations would begin. The gates will remain open by three feet upon reaching this elevation, and water would begin flowing over the service spillway weir height of 4,259 ft. Static flood waters against the radial gates would be limited to 13.2 feet. The gate opening would be increased above three feet for the time that is needed to release water from a large inflow event into the reservoir. The gates would be lowered as soon as possible when flood flows begin to subside. The U.S. Army Corps of Engineers (USACE) would work to try and minimize downstream flows as much as possible, although in-channel flows above 8,500 cubic feet per second (cfs) could occur in extreme runoff conditions.
2. Water Quantity. Irrigation storage would not be impacted during most of irrigation season as the reservoir elevation would remain at or below 4,259 ft elevation which is what current operations have been. Winter storage of up to 20,000 acre-feet (ac-ft) would be temporarily ended until there is a resolution for the radial gates. In the past 20-year record, winter storage has occurred less than 9% of the time. This limit to winter storage would be a temporary impact.
3. Threatened and Endangered Species, and Critical Habitat – No effect.
4. Indian Trust Assets – No effect.

V. Finding of No Significant Impact

Based on the analysis presented in the EA, Reclamation finds that there would be no significant impacts associated with the Proposed Action. Reclamation makes this Finding of No Significant Impact (FONSI) pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500-1508). Reclamation has determined that the Proposed Action does not constitute a major Federal action that would significantly affect the human environment. Therefore, no environmental impact statement will be prepared.

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Acronyms and Abbreviations

ac-ft	acre-feet
BO	2017 Biological Opinion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CWA	Clean Water Act
CID	Carlsbad Irrigation District
DM	Departmental Manual
DOI	Department of the Interior
EA	Environmental Assessment
EAP	Emergency Action Plan
EPA	Environmental Protection Agency
EO	Executive Order
ER	Engineer Regulations
ESA	Endangered Species Act of 1973
FONSI	Finding of No Significant Impact
FSID	Fort Sumner Irrigation District
ft	feet
IPaC	Information for Planning and Consultation
ITA	Indian Trust Asset
NAVD 1988	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act of 1969
NGVD 1929	National Geodetic Vertical Datum of 1929
NMSP	New Mexico State Parks
O&M	Operations and Maintenance
PAR	Population at risk
PFM	potential failure modes
Plan	Modified Flood Operations Plan
Project	Carlsbad Project
Reclamation	U.S. Bureau of Reclamation
SOD	Safety of Dams
SOP	Standing Operating Procedures
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCM	Water Control Manual

1 Purpose and Need

1.1 Introduction

In late 1905 Congress authorized Reclamation's Carlsbad Project (Project) in southeast New Mexico. The Project serves irrigation interests near Carlsbad, New Mexico and started with two rehabilitated dams, McMillan and Avalon Dams, and related canal infrastructure. In 1935, Sumner Dam and Lake (originally named Alamogordo Dam and Reservoir) was authorized as part of the Project by Federal Reclamation Laws (Reclamation 2021) (see Figure 1). This became the third dam for the Project, and its largest irrigation storage project at the time (later to be exceeded by Santa Rosa Dam and Brantley Dam). Construction of the dam ended, and operations began in 1937. After considerable flood events in 1937, 1941, and 1942, Reclamation modified the dam structures in 1956 to provide more spillway capacity (Reclamation 2021).

Sumner Dam is in De Baca County about 12 miles northwest of the town of Fort Sumner (see Figure 2). It is located roughly 50 river miles downstream of Santa Rosa Dam, a USACE dam. Sumner is a rock-fill and earthen dam with a controlled outlet works, a concrete ogee-type service spillway controlled by a weir and three radial gates and an emergency spillway in the left abutment consisting of a concrete sill buried underneath four fuse plugs (earthen engineered berms with some concrete walls). Sumner Dam impounds a reservoir (Sumner Reservoir) which contains a total storage capacity of 124,119 ac-ft at elevation 4,282 feet (ft) project datum, which corresponds to the crest of the emergency spillway (Reclamation 2021). The lake is one of four impoundments authorized for irrigation storage for the Project. It is the second major dam along the mainstem of the Pecos River and is used for flood control, irrigation, river regulation and recreation. Sumner Dam is owned and partly maintained by Reclamation, and operated and partly maintained by the Carlsbad Irrigation District.

Sumner Lake is the main attraction for Sumner Lake State Park which is overlain on the Federal Land set aside for Sumner Dam and Lake. The park provides opportunities for boating, swimming, hiking, biking, and playground activities. There are campgrounds below the dam that can be affected by water release actions.

Reclamation's Proposed Action is related to a proposed temporary Modified Flood Operations Plan due to the dam's deteriorated service spillway radial gates. Under Section 7 of the 1944 Flood Control Act, the USACE has flood control authority at Sumner Dam and Lake between elevation 4,261 ft to 4282 ft (project datum). Documented maintenance of the radial gates includes a full recoating of the gates in 1965, and a spot repair in 1978. In 1982, corrosion was noted on the radial gates. In the 1990s, facility reviews recommended a development of a regular schedule of maintenance and repair of the radial gates. Some repairs were performed in 2008 and 2011, including grit blasting and additional coats of primer on portions of the gates. This past activity has not kept pace with the radial gate deterioration. In areas where water has been allowed to pool behind the radial gates, the lower half of all gates have extensive corrosion, with some areas rusted through entirely. The upper portions of the gates appear to be in good condition except for a few rust stains. The wall plates have come loose from the concrete wall in many places and need to be replaced.

Due to this continued deterioration, a Sumner Dam Risk Analysis was performed by Reclamation's TSC in August 2019, and reviewed by the DSAT in October 2019. The total risk to the facility was found to be above Reclamation's guidelines due to the deteriorated condition of the radial gates. Based on this, SOD recommendation *Sumner Dam Issue Evaluation Risk Analysis 2020* was made, which proposes a Modified Flood Operations Plan until the radial gates can either be repaired or replaced (this will entail future compliance) (Reclamation 2021). All elevations used in this document are project datum, which is 0.23 ft higher than NGVD 1929 and 1.88 ft lower than NAVD 1988.

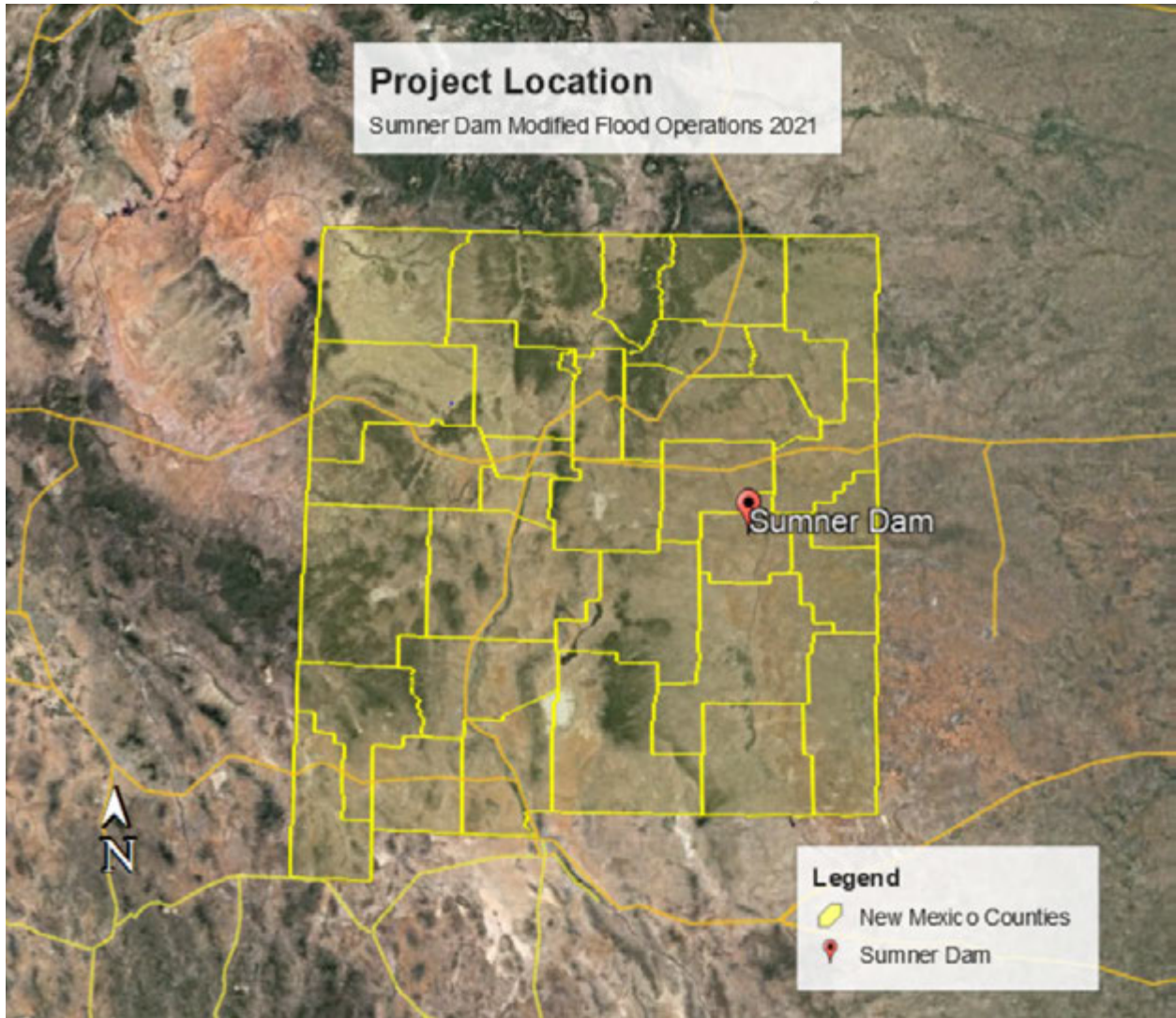


Figure 1: Project location in New Mexico. Google Earth.

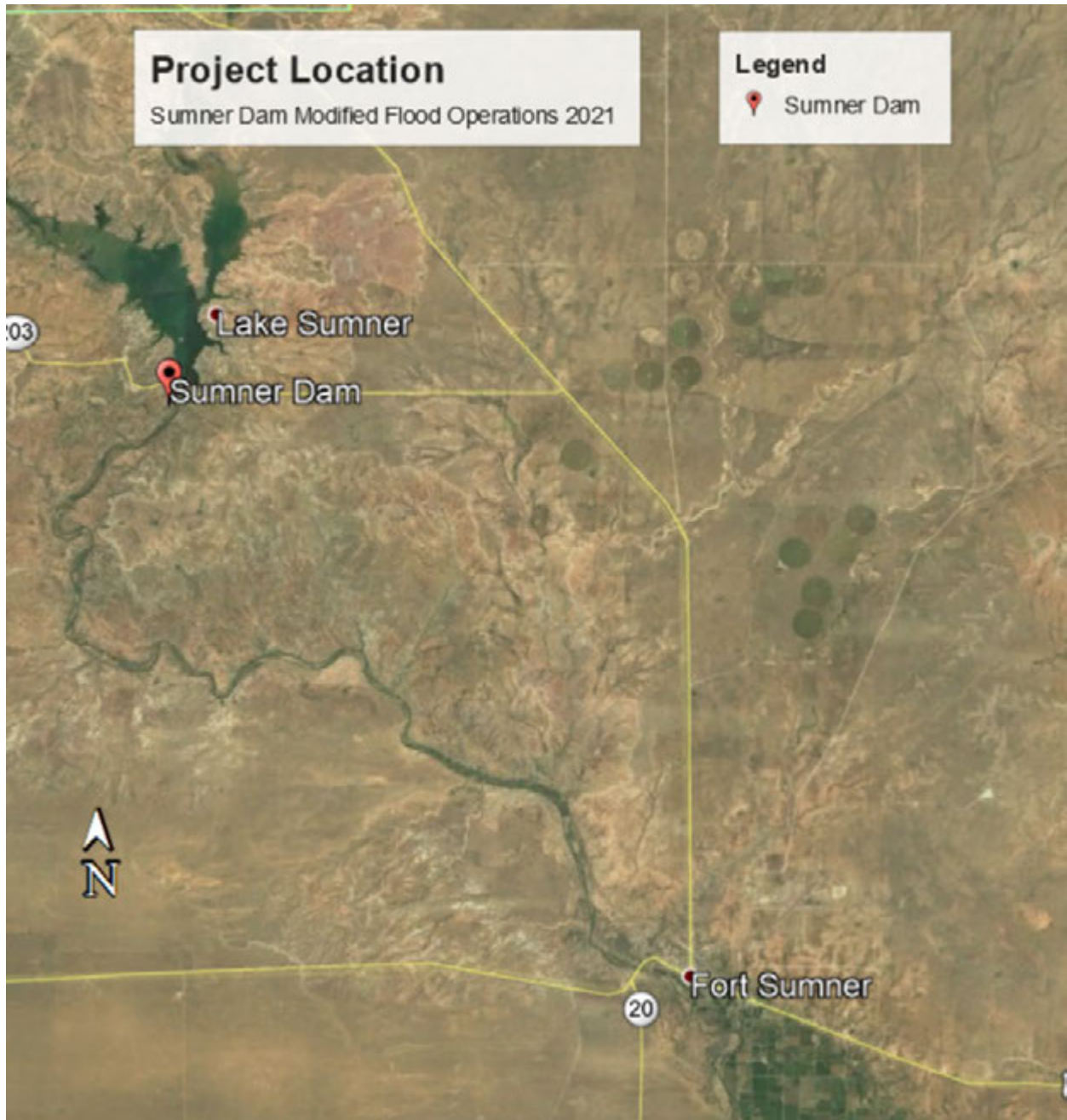


Figure 2: Project location in local area. Google Earth

1.2 The Purpose and Need for Action

The results of the *Sumner Dam Issue Evaluation Risk Analysis 2020* indicated that the risks at Sumner Dam are above Reclamation's Public Protection Guidelines, in the range that justifies action. Reclamation created SOD recommendation 2020-SOD-A as an interim risk reduction measure to manage the risk associated with the potential failure of the radial gates. To reduce the risk of entering flood control operations by USACE at 4,261 ft, the operations restriction will be 4,259 ft (project datum) for the active irrigation/Conservation Pool. USACE will have flood control

operations above 4,261. The recommended reservoir elevation restriction was intended to limit the load on the gates to 13.2 feet of head. When the gates are closed, this would limit reservoir elevation to 4,267.2 (project datum). However, if the gates are opened, the water surface elevation can be raised as long as the load on the gates does not exceed an equivalent of 13.2 feet of head on the gates.

This Modified Flood Operations Plan action to restrict the reservoir elevation for various reservoir and dam operations is a temporary safety measure to reduce the risk of failure of one or more of the radial gates, which in turn could cause health and safety risks downstream of the dam. Those possibly affected are, New Mexico State Parks (NMSP), town of Fort Sumner, and elsewhere. The failure would also negatively impact further flood control operations. The Modified Flood Operations Plan will be a series of reservoir elevation restrictions, reduction of CID winter storage, and other actions that will reduce the potential for radial gate failure until such time as the gates can be repaired or replaced. This Modified Flood Operations Plan action will be implemented **as soon as possible** after project approval.

1.3 Relevant Statutes, Regulations, Permits, and other Plans

1.3.1 National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.)

- Procedures for Implementing NEPA (33 CFR 230; ER 200-2-2)
- Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500 et seq. and 43 CFR 46 et seq.)

1.3.2 Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.) and related Statutes and Orders

- Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661 et seq.)
- Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act

1.3.3 National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.) and related Statutes, Regulations and Orders

- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.)
- Protection and Enhancement of the Cultural Environment (Executive Order 11593)

1.3.4 Clean Water Act (CWA) of 1972, as amended (33 U.S.C. 1251 et seq.) and related Order

- Protection of Wetlands (Executive Order 11990)

1.3.5 Flood Control Acts and other flood authorizations

- Flood Control Act of 1939 Pub.L. 76–396 (ch. 699, §53 Stat. 1417)
- Flood Control Act of 1944 (16 U.S.C. 460d)
- Flood Control Act of 1954 § 203, Pub.L. 83-780

1.3.6 Other Statutes, Regulations and Orders

- Clean Air Act of 1972, as amended (42 U.S.C. 7401 et seq.)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994
- Floodplain Management (Executive Order 1198)
- Wild and Scenic Rivers, 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.)

2 Alternatives

2.1 No Action Alternative

“...It is Reclamation’s practice to include the No Action Alternative because it provides an appropriate basis by which all other alternatives are compared (Reclamation NEPA Handbook, February 2012).” According to the CEQ, if an agency is preparing or updating a plan, the no action alternative is:

...“no change” from current management direction or level of management intensity. To construct an alternative that is based on no management at all would be a useless academic exercise. Therefore, the “no action” alternative may be thought of in terms of continuing with the present course of action until that action is changed (CEQ 1978, Sec. 1502.14[c]).

The no action alternative “sets a baseline of existing impacts continued into the future against which to compare impacts of action alternatives”. Under the no action alternative, no new management actions beyond those available as of the starting point of the EA analysis would be analyzed.

This alternative will continue operations of Sumner Dam, including the radial gates, as has been occurring prior to the issuance of the SOD findings (Reclamation 2020). Continued monitoring of radial gates integrity would occur. Work would commence and continue to plan for the repair or replacement of the radial gates. This alternative will be analyzed for the purposes of disclosing the effects of the Proposed Action to the affected environment from the implementation of the Modified Flood Operations Plan. This alternative would not meet the purpose of, or need for, the Proposed Action. Due to the issuance of the SOD recommendations, this no action alternative could not be implemented.

2.1.1 Routine Operations (Normal Conditions)

Normal irrigation operations shall consist of releases from Sumner Dam to satisfy prior water rights of Fort Sumner Irrigation District (FSID) in compliance with instructions provided by the New Mexico Office of the State Engineer District 2 Watermaster, and release of water stored for CID at times and rates of flow as specified by Reclamation’s Albuquerque Area Office on behalf of CID. Inflow more than these requirements is stored up to elevation 4,259 ft from May 1 through October 31. Winter storage to elevation 4263.97 is allowed between November 1 through April 30, which has a potential limit of approximately 8 ft of water stored on the gates. Releases are also made at Reclamation’s direction to comply with the 2017 Biological Opinion. No water is released from Sumner Reservoir when the reservoir storage is 2,500 ac-ft or less. Water released from Santa Rosa

Lake for use by CID cannot be passed through Sumner Reservoir until Sumner Reservoir's storage is at least 5,000 ac-ft; storage in Sumner Reservoir in excess of 2,500 ac-ft may be released upon the termination of releases from Santa Rosa Lake.

2.1.2 Radial Gate Operations

There is a service spillway located on the right abutment of the dam that consists of a concrete approach structure, a concrete crest structure, three radial gates, a chute, and a stilling basin at the bottom of the dam. The gates rest on the approach structure at elevation 4,254 ft (project datum). The radial gates are operated with cart-mounted electric motors. Normally, an automated radial gate operating system is designed to open all three radial gates to their operational full open setting of 13 ft, once reservoir elevation exceeds 4,275 ft. The gates are operated yearly to test readiness for use during flood control operations. Normally the gates are not used except to provide winter storage.

2.1.3 Flood Operations

Flood control operations at Sumner Dam begin when storage exceeds the irrigation pool elevation of 4,261 ft. If the reservoir elevation is between 4,261.0 ft and 4282.0 ft, USACE has the responsibility of directing operations of the dam in consultation with Reclamation. The AAO shall coordinate with USACE Albuquerque District and CID to continuously monitor conditions at Sumner Dam and reservoir, and adjust the radial gates additionally as needed.

In the period of November 1 through April 30, winter irrigation storage up to a maximum of 20,000 ac-ft is allowed in the flood storage space above elevation 4,261 ft. This additional storage must be evacuated by midnight April 30.

The flood control operations will minimize storage and evacuate flood storage as rapidly as downstream conditions permit within the operating constraints at Santa Rosa Lake and Sumner Reservoir. Releases from Santa Rosa Dam must be passed or re-regulated at Sumner Dam. Flood control storage used in Santa Rosa and Sumner will be proportionally balanced as much as possible to assure that both projects maintain the same relative flood control capacity. Santa Rosa flood storage (ac-ft) should be about 3.6 times the flood storage (ac-ft) in Sumner when both are in flood operations if conditions permit. Flood control releases will limit Pecos River flow to 8,500 cfs at the Acme gage and Artesia gage below Sumner Dam if possible. If flows need to exceed this level due to extreme conditions, the flow will be reduced to this level as soon as possible or when flows subside.

2.1.4 Large Storm Conditions

The radial gates on the service spillway will begin to open when the reservoir elevation reaches elevation 4,275 ft. The radial gates atop the service spillway will be fully open to 13 feet at pool elevations above 4,275.5 ft. However, the Standing Operating Procedures (SOP) states the radial gates will be opened prior to water surface elevation reaching 4,275 ft (project datum), and the automatic system should only be used if the gate hoists are not accessible.

2.2 Proposed Alternative

2.2.1 Modified Flood Operations

To reduce risk at Sumner Dam and in the downstream channel, and to limit the risk of radial gate failure, Reclamation's Albuquerque Area and Upper Colorado Basin Regional offices and the TSC,

together with the USACE Albuquerque District and CID, have identified measures to modify the dam's existing radial gate operations until the work begins to repair or replace the radial gates in the next three years. Risk assessments, recommendations, routing models, existing operations plans, and agency priorities have informed the decision to modify existing radial gate operations (Reclamation 2021).

2.2.2 Radial Gate Operations

Modified operation of the radial gates at Sumner Dam will be implemented as described below and as summarized in Table 1. Some of the conditions described herein overlap or coincide with response level triggers in the Emergency Action Plan (EAP) for Sumner Dam. Procedures set forth in the EAP shall still be followed and take precedence in the event of an incident that activates the EAP. When reservoir elevations are between 4,261 ft and 4,282 ft, USACE takes over flood control operations at the reservoir in collaboration with Reclamation and may decide to take different actions in the interest of public safety.

Normally, an automated radial gate operating system is designed to open all three radial gates to their operational full open setting of 13 ft once reservoir elevation exceeds 4,275 ft. As the status of this system is currently in question, it will be disabled when the Plan is implemented, and the radial gates will be lifted to their modified operating height of three feet.

CID shall not operate the Sumner Dam radial gates in a way that deviates from the Plan except as directed by Reclamation or USACE as discussed above. When CID observes on-the-ground conditions that warrant different action from the Plan, CID shall immediately communicate these conditions to Reclamation.

2.2.3 Modified Operations - Normal Conditions

Modified normal operations shall apply when no significant hydrologic event is forecast or in progress. Under these conditions, all three radial gates shall be maintained open at a vertical height of three feet. This opening shall be maintained even when the reservoir level is below the control weir elevation of 4,259.0 ft. The control weir is a wall across the spill way that sets the height of the reservoir without using the gates to further raise the height of the reservoir pool. Modified operations for normal conditions shall apply when:

- Inflow into Sumner Reservoir is less than 50,000 cfs; and
- Reservoir elevation is below 4,261.0 ft

2.2.4 Modified Operations - Flood Conditions

Modified flood operations shall take effect in the event of inflow into Sumner Reservoir exceeding 50,000 cfs observed or forecasted within 72 hours and/or:

- Hydrologic event greater than the 100-year return period forecast within 72 hours; and/or
- Reservoir elevation at 4,261.0 ft or higher.

If reservoir elevation is expected to rise above 4,261.0 ft and CID cannot contact either Reclamation or USACE, then Table 2 and Figure 3 should be followed to prevent more than 13.2 feet of static water head against the radial gates. The opening heights described in Table 2 and Figure 3 will keep a static water head of 12 feet or less against the gates for reservoir elevations between 4,261.0 ft and 4,279.0 ft. The greater than three-foot opening would only be maintained for as long as it takes to

release the excess flood waters. As soon as possible, the gate would return to three feet when operations allow.

Table 1: Summary of Modified Operating Conditions for Sumner Radial Gates

Event	Normal Conditions	Flood Conditions
Inflow to Sumner Reservoir	Less than 50,000 cfs	Greater than 50,000 cfs
Forecast Storm Return Period	Less than 100-yr	Greater than 100-yr
Reservoir Elevation (Project)	Less than 4,261.0 ft	Greater than 4,261.0 ft
Action	-	-
Radial Gate Open Height	3 ft	As Directed

Note: Any one of the Flood Conditions may initiate Modified Flood Operations as summarized above.

Table 2: Radial Gate Opening per Reservoir Elevation

Reservoir Water Elevation	Gate Opening	Bottom of Gate Elevation
Up to 4,269 ft	3 ft	4,257.0 ft
4,270 ft	4 ft	4,258.0 ft
4,271 ft	5 ft	4,259.0 ft
4,272 ft	6 ft	4,260.0 ft
4,273 ft	7 ft	4,261.0 ft
4,274 ft	13 ft	4,267.0 ft
Greater than 4,274 ft	13 ft	4,267.0 ft

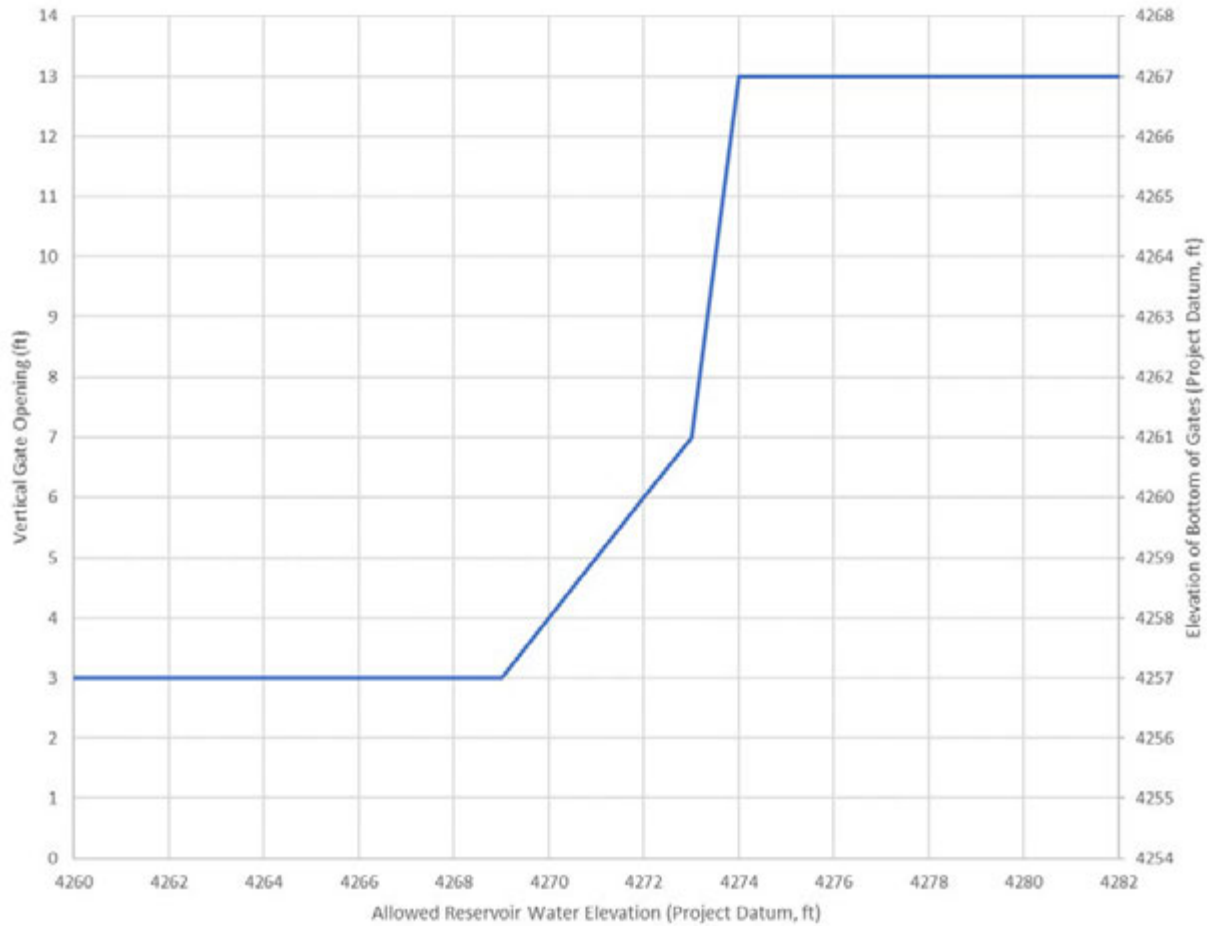


Figure 3: Radial Gate Opening per Reservoir Elevation. The concrete crest structure in the spillway corresponds to the 4,254 ft elevation (This is downstream of the weir whose elevation is 4,259 ft). This is also the bottom of the radial gates when closed.

2.2.5 Extenuating Circumstances

In the event of extenuating circumstances at Sumner Dam or along the Pecos River in which the EAP for Sumner Dam and/or another dam upstream or downstream of Sumner Reservoir is activated, it may be necessary to take different actions than the operations described in the Plan. During such an incident, the decision to depart from the Plan shall be made by Reclamation, in consultation with USACE and any other needed parties. If the reservoir is within the Exclusive Flood Control depth, changes from the Plan will be decided by USACE and coordinated with Reclamation and any other needed parties (Reclamation 2021).

2.2.6 Conclusion

The Modified Flood Operations Plan covered in this EA will remain in place until either the radial gates have been repaired or replaced (to be addressed in separate compliance in the future) or until December 31, 2023, whichever comes first. Once the repaired or replaced radial gate installation has occurred, the radial gates will be evaluated to determine if the current (non-deviation) Sumner Water Control Plan contained within the Water Control Manual (WCM) for Sumner Dam and Sumner Reservoir (USACE, April 1983, revised March 1991) is still applicable. If the completed radial gate installation is significantly different or results in less effective flood risk management, an updated

Water Control Plan will be designed and implemented. If the new radial gates are found to operate within the prior specifications of the existing Sumner Water Control Plan, then the Water Control Plan will govern again. During the construction phase of repairing or replacing the radial gates, additional specific restrictions and plans will be implemented. None of the conditions or operations described within this Plan are intended as a substitute or release from following the notification procedures and required actions designated in the EAP for Sumner Dam or SOP for Sumner Dam or any other EAP maintained by Reclamation or USACE (Reclamation 2021).

3 Affected Environment and Environmental Consequences

3.1 Resources Considered but Eliminated from Further Study

Resource	Rationale for Elimination from Further Study
Water Rights	Existing water rights would not be affected because no changes to those rights are part of the Proposed Action and delivery of water would continue according to priority. CID and the United States have water storage rights in the four reservoirs that are part of the Carlsbad Project. No new water rights are part of the Proposed Action. Therefore, there would be no effect to water rights from the Proposed Action.
Land Use	No changes to land use are part of the Proposed Action. Therefore, there would be no effect to land uses.
Air Quality/Sound	Air quality would not be affected by the Proposed Action as this is a water operation. It is not expected that the reservoir elevation would be significantly affected by the proposed Modified Flood Operations Plan, thus no additional exposures of the reservoir lakebed will be expected beyond normal operations.
Cultural Resources	As this is wholly a water operation, the Proposed Action should have no impacts on cultural resources. The levels that will be utilized for the Modified Flood Operations Plan action are within the normal operating levels. The levels in the reservoir will not be held at or near a new elevation that may increase erosion at that elevation, and thus affect any cultural resources at that elevation.
Vegetation	Reservoir elevations would have no long-term effect on vegetation in and around the reservoir. Any changes to normal elevation and exposure of bare lakebed would be minimal and within normal annual levels and would not contribute to significant changes to vegetation.

Resource	Rationale for Elimination from Further Study
Recreation	<p>As of 2012, CID has limited irrigation storage to the 4,259 ft elevation. The summer conservation storage limit is at elevation 4,259 ft, so there should be no impact to summer recreation. As reservoir levels will remain at 4,259 ft in the winter season, there would only be minor impacts to water recreation due to the loss of any winter pool storage. Winter water recreation is estimated at two boats per weekend in the winter and 30 boats per weekend in the spring. This compares to an estimate of 50 boats per weekend in the summer (NMSP). Over the past 20 years, water levels have only exceeded the 4,259 ft elevation less than 9% percent of the time. Most of the time, elevation above 4,259 ft occurs during the winter, and in spring, only approximately 8.3% percent of the time. This time overlaps with the first two months of irrigation season in March and April. Due to the lower visitation time in the winter, any impact should be minimal due to reduced winter water use on the reservoir.</p>
Environmental Justice	<p>EO 12898 <i>Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations</i> directs all federal agencies to develop strategies for considering environmental justice in their programs, policies, and activities. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations of the execution of federal, state, local, and tribal programs and policies (EPA 2020). The Proposed Action only deals with operations and does not affect disadvantaged populations.</p>

3.2 Flood Control Operations

3.2.1 Affected Environment

USACE controls Sumner Reservoir flood water storage from elevation 4,261.0 ft to 4,282.0 ft. Historically, the highest recorded water surface elevation for Sumner Reservoir is 4,276 ft, recorded in 1958 (Reclamation 2020). Under normal conditions from November 1 through April 30 of every year, 20,000 ac-ft of conservation water may be stored in the flood pool above the 4,261 ft elevation. The full winter storage equates to about six feet of reservoir elevation above the 4,261 ft elevation (Reclamation 2020). The winter storage may be decreased if the space is required for flood control. Flood control operations begin when storage exceeds 4,261 ft.

Flood control releases out of Sumner are limited to a maximum of 8,500 cfs, which is the maximum channel capacity near Acme and Artesia (USACOE 1991). Immediately downstream of Sumner Dam, a slightly lower safe channel capacity of 8,080 cfs has been documented (*Flood Routings for Sumner Dam Based on Conditions With and Without Radial Gates* TM No. SUMN-8130-TM-2003-1, Reclamation TSC, March 2003). Changes in release rates during flood operations will normally be limited to 1,000 cfs per half hour. Unusual conditions that can occur may cause the limiting flow rate change to be exceeded (USACE 1991). Flow rates greater than 300 cfs immediately downstream of the dam trigger responses per the Sumner Dam EAP (Reclamation May 2013), including closing trails and camping at Sumner Lake State Park. This temporarily interrupts the recreation immediately below the dam in the state park.

When the reservoir surface reaches elevation 4,275 ft, the radial gates on the service spillway begin to open automatically at a considerable rate. Therefore, consideration is given to increasing releases based on inflow forecasts before the reservoir elevation reaches 4,275 ft to allow a controlled release and to prevent downstream flooding. The SOP states that the gates should be operated manually unless the gate hoists are inaccessible. Other flood control operations would be like those previously described in Section 2.1.3 Flood Operations for the purposes of this alternative.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

With the No Action Alternative, irrigation water may be stored up to elevation 4,267.2 ft from November 1 through April 30. This winter storage would equate to approximately 98 ft of reservoir water stored on the radial gates.

From the 2018 Comprehensive Review, zero life loss is a likely outcome for a spillway radial gate failure during normal operations. However, fishermen and campers in the area immediately downstream of the campground, if present, could be subjected to life threatening flows and may have to climb to safety quickly. Minimum wintertime flows are less than 35 ft³/s and a sudden increase of flows up to 3,500 ft³/s would result in a rapid rate of rise along the river immediately downstream of the dam.

Reclamation public protection guidelines indicate there is increasing justification to take risk reduction action if the annualized failure probability exceeds 10⁻⁴, or if the annualized life loss exceeds 10⁻³. If the risk values are below these threshold values, there is decreasing justification to take action to reduce risks.

The total mean annualized loss of life for all potential failure modes (PFM) for Sumner Dam is estimated to be 2.27x10⁻³. The total annualized failure probability is 2.19x10⁻³. The total risks are being driven by the static spillway radial gate failure, or PFM – S2 Controlling Members Failure Under Static Loading, within the main body of this document. Per the definition within the Reclamation public protection guidelines, there is increasing justification to take risk reduction action or reduce uncertainty.

3.2.2.2 Proposed Alternative

Initially, impact to the future flood operations from the Proposed Alternative includes a limit to the amount of flood waters that can be stored above the 4,261 ft elevation. According to the WCM, the previous top level that was allowed under normal operations is 4,282 ft (USACE 1991), although as

noted above and at the time of this writing, the historic high elevation during flood operations is 4,276 ft (Reclamation 2020). In an extreme (low likelihood) runoff event emergency, the USACE may have to exceed downstream flow limits as described in the EAP and Modified Flood Operating Plan. If the USACE must utilize this emergency action, they will work with Reclamation and CID to alleviate the operation as soon as practicable to maintain safe reservoir levels in Sumner Lake.

If reservoir elevation is expected to rise above 4,261.0 ft and CID cannot contact either Reclamation or USACE, then Table 2 and Figure 3 must be followed to prevent more than 13.2 feet of static water head against the radial gates. The opening heights described in Table 2 and Figure 3 will keep a static water head of 12 feet or less against the gates for reservoir elevations between 4,261.0 ft and 4,279.0 ft (this corresponds to the bottom of the radial gates at 4,267 ft elevation plus 12 feet of water against the gates). Due to the overall limitation of flood waters from the Proposed Alternative, this will require that USACE spend more time releasing flood flows (should they occur) to keep the overall flood waters from exceeding the 12 feet of static water head against the gates. This in turn will create earlier flood flows to be released from Sumner, as well as increased frequency of lower flood flows (compared to normal operations) to accommodate the reduced ability of the radial gates to hold back more flood waters in the reservoir. The flows would then be released earlier to restrict the flood waters from rising above the Modified Flood Operations Plan's directed levels.

USACE and Reclamation would continue to follow the EAP to minimize impacts and maintain safety at the dam and downstream. Between 2000 and 2020, the average peak flow has been 1,435 cfs with the peak year being 1,840 cfs in 2009 (USGS 2021). The 8,500 cfs would only be reached in an extreme event. As there may be longer duration releases of flood flows with the reservoir unable to hold its full flood allocation, there could be longer impacts to downstream users, including the state park facilities immediately below the dam. Under normal conditions, the USACE would be able to store more flood water and subsequently release it more slowly should high flood flows exist. This effect would be primarily under extreme runoff conditions.

3.3 Water Quantity

3.3.1 Affected Environment

Sumner Lake is one of four impoundments on the mainstem of the Pecos River in New Mexico authorized to store irrigation water for the CID. In addition, CID is the only entity that has irrigation storage on the Pecos River. The entitlement storage allotment (as of 2017) for Sumner is 32,307 ac-ft. Other portions of Sumner's pool include an allotment for the minimum pool at 2,500 ac-ft, and sediment storage at 1,110 ac-ft. The total of these combined allotments is called the Conservation Storage Pool which is 35,917 ac-ft. There is also a flood pool of 88,200 ac-ft which sits on top of the Conservation Pool. The total entitlement storage allotment for the entire CID is 176,500 ac-ft. This amount is divided among the four reservoirs. The allocated amount for Sumner can be above 35,917 ac-ft if the other reservoirs adjust their amount in storage down so total storage does not exceed 176,500 ac-ft for the whole system. Conversely, the allocated amount in the other three project reservoirs can be increased to accommodate any loss of conservation storage in Sumner Lake as long as the overall allocation of 176,500 ac-ft is not exceeded.

In the winter, CID can store an additional 20,000 ac-ft of water from November 1 through April 30. In this instance, the entitlement storage can go above the 32,917 ac-ft until it is released prior to May

1. When the winter storage is full, the reservoir elevation sits at 4,267 ft (USACE Water Control Plan).

3.3.2 Environment Consequences

3.3.2.1 No Action Alternative

Under current operations there would be no effects to CID water and operations would continue as normal. In the winter, if available, winter storage would continue to be stored. As mentioned above, flood operations would continue as normal.

If the radial gates failed or had to be removed or left open, CID water would be affected by a loss of 20,000 ac-ft of potential winter storage in Sumner Reservoir. If Sumner Reservoir were holding its full allocation, exclusive of winter storage limits, the reservoir must be operated as a flow through reservoir with no conservation storage. This loss of storage would impact the Project's overall storage as the allocated amount of 32,917 ac-ft in Sumner Reservoir could not be accommodated by the other three reservoirs. This would impact CID's ability to deliver the Project's water to eligible farmers and other water recipients.

If the dam failed, there would be a total loss of CID storage. This would significantly affect CID's ability to deliver water. The loss of the dam would eliminate its entitled storage. Any flood control would be shifted back to Santa Rosa Reservoir or to other dams in the Project. This would likely limit the amount of CID storage in the other reservoirs, thus reducing the authorized allotment of conservation storage for the Carlsbad Project. The results of this alternative would not meet the Purpose and Need of the Proposed Action.

3.3.2.2 Proposed Alternative

Impacts include loss of 20,000 ac-ft in winter. However, probability is low that CID will miss out on the 20,000 ac-ft over the next 3 to 5 years per review of the past 20-year storage operations history (USGS 2021) and the current drought outlook (<https://droughtmonitor.unl.edu>). Probability is about 15% based on the past 20 years and therefore, a reduced occurrence to store less than 20,000 ac-ft of winter storage. Over the 20-year period from 2000 to 2020, the reservoir has exceeded the 4,259 ft elevation for less than 9% percent of the time. Most of this exceedance (8.3% of the time) of the 4,259 elevation coincides with the winter storage period from November 1 through April 30. The remaining 0.56 % was during the irrigation season, not including March and April which is the overlap of winter storage with early irrigation season. Records from the previous 20 years show that a majority of the winter storage days were in years 2014 and 2015.

Additional impacts described by Reclamation's AAO Water Management Division are that most of the winter inflow to Sumner Reservoir comes from downstream of Santa Rosa. Therefore, CID's winter water must be stored in Brantley Reservoir, located northeast of Carlsbad, New Mexico. Issues with this include increased evaporation impacts. Due to Brantley Lake being wider and shallower (in proportion to Sumner Reservoir), more surface area per volume is exposed to the sun and wind, thus increasing evaporative loss. Another impact to increased storage in Brantley Lake is higher salinity levels within the reservoir due to the local geology. Therefore, storing water at Brantley Reservoir could impact the salinity levels as compared to storing the same water at Sumner Reservoir.

For the past 20 years (8.3% of the time), there has been winter storage in Sumner Reservoir. If winter storage is available in the early spring, this water can be released to help keep the river 'wetter' for the benefit of ESA listed fish species downstream of Sumner Reservoir on the Pecos River. This benefits the fish in the early season by preserving the supplemental water that Reclamation purchases when available from farmers and FSID to be used for beneficial uses for the fish (2017 Biological Opinion [BO]). As winter storage must be released by April 30 of each year, this early water can be used to keep the river wetted and helps keep the river charged for future water deliveries. The supplemental water released in the spring will begin to fill in the water table below the riverbed and in the banks of the river losing reaches. Losing reaches are stretches of the river that do not remain wet in the absence of flows from runoff or summer precipitation events. Without inflow they will begin to dry. Alternatively, winter storage water released in the spring helps to keep the river wet and maintain bank storage. Based on the previous 20-year record, this opportunity would be lost at a rate less than 9% of the time. In addition, current climate outlooks suggest that the waters in future years would likely remain on the dry side (Wehner et al. 2011: 1359).

3.4 Threatened, and Endangered Species, and Critical Habitat

In accordance with Section 7(a)(2) of the ESA as amended, all federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally threatened, endangered and proposed species. The IPaC (USFWS' Information for Planning and Consultations) list of threatened and endangered species was reviewed to determine federally and threatened species that occur between Sumner and Brantley Reservoirs (De Baca, Chavez, and Eddy Counties) (<https://ecos.fws.gov/ipac/>). Critical habitat for each species was assessed between Sumner and Brantley Reservoirs using the USFWS Environmental Conservation Online System (<https://ecos.fws.gov/>). Two species, the Pecos Bluntnose Shiner and the Interior Least Tern were considered for the 2017 BO for the Carlsbad Project (USFWS 2017). These two species were given further consideration in this EA since departures from the baseline established for the Carlsbad Project could have negative outcomes for those species and Reclamation's ability to meet the terms of the Carlsbad Project BO. Table 3 lists the federally listed species that could occur in this area as all but three species in this list were covered in the previous 2017 BO.

Table 3. Federally Listed Species That Could Occur in The Project Area.

Species	Listing Status	Critical Habitat
Pecos Bluntnose Shiner <i>Notropis simus pecosensis</i>	Threatened	Designated Critical Habitat in the Project area
Pecos Gambusia <i>Gambusia nobilis</i>	Endangered	No Critical Habitat Designation
Interior Least Tern <i>Sterna antillarum atbalassos</i>	Recently Delisted	No Critical Habitat Designation
Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i>	Endangered	Experimental Population Non-Essential
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Yellow billed Cuckoo* <i>Coccyzus americanus</i>	Threatened	Proposed Critical Habitat Exist But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Piping plover <i>Charadrius melodus</i>	Threatened	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs

Species	Listing Status	Critical Habitat
Noel's Amphipod <i>Gammarus desperatus</i>	Endangered	Yes – Species is not affiliated with the Pecos Mainstem
Pecos assiminea snail <i>Assiminea pecos</i>	Endangered	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Roswell Springsnail <i>Pyrgulopsis roswellensis</i>	Endangered	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Kosters Springsnail <i>Juturnia kosteri</i>	Endangered	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Texas Hornshell* <i>Popenaias popeii</i>	Endangered	No Critical Habitat Designation
Gypsum wild-buckwheat <i>Eriogonum gypsophilum</i>	Threatened	Critical Habitat Exists But Not Within The Pecos River Corridor Between Sumner and Brantley Reservoirs
Kuenzler hedgehog cactus <i>Echinocereus fendleri var. kuenzleri</i>	Endangered	No Critical Habitat Designation
Sneed's pincushion cactus <i>Coryphantha sneedii var. sneedii</i>	Endangered	No Critical Habitat Designation
Lee's pincushion cactus <i>Coryphantha sneedii var. leei</i>	Threatened	No Critical Habitat Designation

Species	Listing Status	Critical Habitat
Pecos sunflower	Threatened	Designated Critical Habitat in the Project Area
Wright's Marsh Thistle* <i>Cirsium wrightii</i>	Proposed Threatened	Proposed Critical Habitat

*Not previously covered in the 2017 BO

3.4.1 Affected Environment

The riverine environment between Sumner and Brantley Reservoirs is not expected to change due to the Proposed Action. During the last 20 years, winter storage of approximately 20,000 ac-ft (4265.97 ft project datum) behind the Sumner Reservoir radial gates occurred approximately 8.3% of the time. When the radial gates are closed in the winter, storage equates to a reservoir elevation of approximately 4,267 ft. Given the current reservoir level, climatic drought conditions, and the rarity of winter storage at Sumner Reservoir behind the radial gates, it is unlikely that water in Sumner Reservoir would reach this level. If water levels in the reservoir were to rise to the elevation of the spillway weir crest (level where water will spill without the gates 4,259.0 project datum), this water would be released from the spillway into the Pecos River per the guidance in the Modified Flood Operations Plan. Although this water would affect species in the Pecos River, the effect would likely be positive and not considered due to the Proposed Action. The water flowing over the spillway would be considered flood operations, which is a non-discretionary action.

3.4.1.1 Fish

One endangered (Pecos Gambusia) and one threatened fish species (Pecos Bluntnose Shiner) occur in or near the Pecos River between Sumner and Brantley reservoirs. The Pecos Bluntnose Shiner was consulted on and is the species of main concern in the 2017 Final Biological Opinion on the Carlsbad Project Water Operations and Water Supply Conservation (USFWS 2017)

3.4.1.2 Birds

Six bird species of concern are present near or around the Pecos River between Sumner and Brantley Reservoirs. One species was recently delisted (Interior Least Tern) but is included here since it is a species of consideration for the Carlsbad Project Biological Opinion (2017). Two bird species are listed as endangered (Southwestern Willow Flycatcher and Northern Aplomado Falcon), while three species are listed as threatened (Piping Plover, Yellow-billed Cuckoo, and the Mexican Spotted Owl).

3.4.1.3 Invertebrates

Five endangered invertebrates (Noel's Amphipod, Pecos assiminea, Roswell Springsnail, Kusters Springsnail, and Texas Hornshell) are present near or around the Pecos River between Sumner and Brantley Reservoirs. One species is a clam (Texas Hornshell), one species is an amphipod (Noel's Amphipod), and three species are snails (Pecos assiminea, Roswell Springsnail, and Kusters Springsnail).

3.4.1.4 Plants

Six plants are present near or around the Pecos River between Sumner and Brantley Reservoirs. Three are listed as threatened (Gypsum Wild-Buckwheat, Lee’s Pincushion Cactus, and Pecos Sunflower), two are listed as endangered (Kuenzler Hedgehog Cactus, Sneed’s Pincushion Cactus), and one is proposed to be listed as threatened (Wright’s March Thistle)

3.4.2 Environmental Consequences

In accordance with Section 7(a)(2) of the ESA as amended, all federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. The Pecos Bluntnose Shiner occurs in the Pecos River between Sumner and Brantley Reservoirs, and the Interior Least Tern has been observed nesting at Bitter Lakes National Wildlife Refuge and the shoreline of Brantley Reservoir. All other species are either not associated with the mainstem of the Pecos River between Sumner and Brantley Reservoirs, occur incidentally, are only associated with uplands, and/or are not aquatic species. Therefore, the Proposed Action will have no effect on fish and wildlife in the Pecos River between Sumner and Brantley Reservoirs. Potential for effects to these species from the Proposed Action and the No Action Alternative are discussed below. A summary of the effect determinations for these groups of species is presented in Table 4.

Table 4. Effect Determinations for Federally Listed Fish, Bird, Invertebrate, and Plant Species Likely to Occur between Sumner and Brantley Reservoirs.

<i>Species</i>	<i>Effect Determination</i>	<i>Critical Habitat Determination</i>
Pecos Gambusia, Pecos Bluntnose Shiner	<i>No Effect</i>	<i>No Effect</i>
Mexican Spotted Owl, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, Interior Least Tern, and Piping Plover	<i>No Effect</i>	<i>No Effect</i>
Noel’s Amphipod, Pecos assimineae, Roswell Springsnail, Kusters Springsnail, and Texas Hornshell	<i>No Effect</i>	<i>No Effect</i>
Gypsum Wild-Buckwheat, Kuenzler Hedgehog Cactus, Sneed’s and Lee’s Pincushion Cactus, Pecos Sunflower and Wright’s Marsh Thistle	<i>No Effect</i>	<i>No Effect</i>

3.4.3 No Action Alternative

3.4.3.1 Fish

Under the No Action Alternative, there would no direct impact to the fishes in the Pecos River. The Pecos Gambusia is not affiliated with the mainstem of the Pecos River and is not directly affected by flows in the Pecos River. The Pecos Bluntnose Shiner occurs in the Pecos River downstream of Sumner Reservoir; however, this species would not be further affected by using the radial gates as has been done in the past at Sumner Reservoir.

3.4.3.2 Birds

Under the No Action Alternative, there would no direct impact to the birds found on and around the Pecos River. The Mexican Spotted Owl is an upland associated species and not affected by flow management of the Pecos River. Three of the bird species (Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Piping Plover) are considered transient to the Pecos River and not affected by flow management. One bird species, the Northern Aplomado Falcon is transient and considered an experimental population along the Pecos River between Sumner and Brantley reservoirs, and therefore, not affected by flow management of the river. Since the Interior Least Tern does not nest during the winter, this species would not be affected by the Proposed Action.

3.4.3.3 Invertebrates

Under the No Action Alternative, there would be no direct impact to the invertebrates found on and around the Pecos River. These species occur in springs and seeps and are not affiliated with the mainstem of the Pecos River.

3.4.3.4 Plants

Under the No Action Alternative, there would no direct impact to the plants found on and around the Pecos River. Four of these species are upland species (Gypsum Wild-Buckwheat, Kuenzler Hedgehog Cactus, Sneed's Pincushion Cactus, and Lee's Pincushion Cactus) and not associated with the Pecos River. The last two species (Pecos Sunflower and Wright's Marsh Thistle) are found closer to the Pecos River but not associated with the mainstem of the river.

3.4.4 Proposed Alternative

3.4.4.1 Fish

Under the Proposed Alternative, there would be no impact to fish of the Pecos River. The Pecos Gambusia is not affiliated with the mainstem of the Pecos River and is not directly affected by flows in the Pecos River; therefore, this species would not be affected by the Proposed Action.

In the unlikely event that reservoir levels rise to an elevation where water spilled out from Sumner Reservoir to the Pecos River, the Pecos Bluntnose Shiner and other Pecos River fishes would likely experience increased flows and may benefit from increase habitat area resulting from increased flows. This effect would not be considered due to this action since the water flowing over the spillway would be considered flood control operations which are non-discretionary actions.

3.4.4.2 Birds

Under the No Action Alternative, there would no direct impact to the birds found on and around the Pecos River. The Mexican Spotted Owl is an upland associated species and not affected by flow

management of the Pecos River. Three of the bird species (Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Piping Plover) are considered transient to the Pecos River and not affected by flow management. One bird species, the Northern Aplomado Falcon is transient, considered an experimental population along the Pecos River between Sumner and Brantley Reservoirs and not affected by flow management of the river. Since the Interior Least Tern does not nest during the winter, this species would not be affected by the Proposed Action.

3.4.4.3 Invertebrates

Under the Proposed Action, there would no direct impact to the invertebrates found on and around the Pecos River. These species occur in springs and seeps and are not affiliated with the mainstem of the Pecos River.

3.4.4.4 Plants

Under the Proposed Alternative, there would no direct impact to the plants found on and around the Pecos River. Four of these species are upland species (Gypsum Wild-Buck Wheat, Kuenzler Hedgehog Cactus, Sneed's Pincushion Cactus, and Lee's Pincushion Cactus) and not associated with the Pecos River. The last two species (Pecos Sunflower and Wright's Marsh Thistle) are found closer to the Pecos River but not associated with the mainstem of the river.

3.5 Indian Trust Assets

3.5.1 Affected Environment

Indian Trust Assets (ITA) are legal interests in property held in trust by the United States for Indian tribes or individuals. DOI policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety (see Departmental Manual, 512 DM 2). Under this policy, as well as Reclamation's ITA policy, Reclamation is committed to carrying out its activities in a manner which avoids adverse impacts to ITAs when possible, and to mitigate or compensate for such impacts when it cannot. All impacts to ITAs, even those considered nonsignificant, must be discussed in the trust analyses in NEPA compliance documents and appropriate compensation or mitigation must be implemented.

Trust assets may include lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. Impacts to ITAs are evaluated by assessing how the action affects the use and quality of ITAs. Any action that adversely affects the use, value, quality, or enjoyment of an ITA is considered to have an adverse impact to the resources.

3.5.2 Environment Consequences

3.5.2.1 No Action Alternative

The No Action Alternative would have no effects to ITAs. As the action is within past reservoir and flow levels, there will be no impacts to ITAs. While Sumner Reservoir and Dam are in an area historically occupied by Native Americans, presently no tribes are located directly on the Pecos River. If tribes in the region have Traditional Cultural Properties on the Pecos River, they will not be affected by maintaining current water operations.

3.5.2.2 Proposed Alternative

The Proposed Alternative would have no effects to ITAs. The action is primarily within past reservoir and flow levels with only minor impacts to this function during any future flood flows for the duration of this project. While Sumner Reservoir and Dam are in an area historically occupied by Native Americans, presently no tribes are located directly on the Pecos River. If tribes in the region have Traditional Cultural Properties on the Pecos River, they will not be affected by this slight modification in water operations.

4 Environmental Commitments

Although the Proposed Action will have limited or no effects to the environment, Reclamation will still follow the commitments and measures laid out in the 2017 Final Biological Opinion on the Carlsbad Project Water Operations and Water Supply Conservation (2016-2026).

5 Consultation and Coordination

Carlsbad Irrigation District, Carlsbad New Mexico

New Mexico State Parks, Santa Fe New Mexico

U.S. Army Corps of Engineers, Albuquerque District, Albuquerque New Mexico

U.S. Fish and Wildlife Service, Albuquerque Ecological Services Office, Albuquerque New Mexico

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