

RECLAMATION

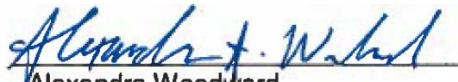
Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT

Boca Dam Safety of Dams Modification Project


Mid-Pacific Regional Office, Sacramento, California
FONSI No. 15-03-MP

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

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.

Background

The Bureau of Reclamation (Reclamation) has determined that dam safety deficiencies exist at Boca Dam. Extensive engineering investigations conducted under Reclamation's Safety of Dams Program determined that during an earthquake event the risk from potential failure due to the presence of liquefiable alluvium, such as loose sand and gravel, within the dam's foundation exceed Reclamation's 2011 Interim Dam Safety Public Protection Guidelines. During an earthquake, the alluvium may displace and the dam could slump or crack (seismic induced liquefaction) leading to overtopping or a breach. Failure of Boca Dam would result in the probable loss of life, downstream property damage, loss of stored water for the Truckee Storage Project, and loss of flexibility of operations under the Truckee River Operating Agreement (TROA). In accordance with the Safety of Dams Act, Reclamation is reducing the risk of Boca Dam to within acceptable levels, and proposes to implement the Boca Dam Safety of Dams Modification Project (Project).

Boca Dam is a zoned earthfill embankment dam on the Little Truckee River, east of the Town of Truckee and north of Interstate-80 in Nevada County, California. Boca Dam and Reservoir are components of the Truckee Storage Project, constructed in accordance with the Truckee River Agreement, and completed in 1937 by Reclamation. Boca Reservoir is used to regulate the Truckee and Little Truckee rivers and provide water for irrigation, municipal and industrial uses, recreation, fish and wildlife benefits, and power generation as required by the TROA and the Orr Ditch Decree. The Washoe County Water Conservation District (WCWCD) maintains and operates Boca Dam and Reservoir.

Reclamation prepared an Environmental Assessment/Initial Study (EA/IS) (EA Number 15-03-MP) in accordance with the National Environmental Policy Act of 1969, Council on Environmental Quality regulations (40 CFR 1500-1508), and Department of the Interior regulations (43 CFR Part 46) to consider potential impacts of implementing the Project. Additionally, this EA/IS was prepared for use by the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board), as the state lead agency pursuant to the California Environmental Quality Act (CEQA). This Finding of No Significant Impact is supported by EA Number 15-03-MP, which is hereby attached and incorporated by reference. The EA/IS was available for public review from January 3, 2018 to February 1, 2018. A public meeting on the EA/IS was held in Reno, Nevada on January 16, 2018. Four comment letters were received regarding analysis in the EA/IS, which are discussed further below.

Alternatives Including Proposed Action

Reclamation considered several alternatives to reduce seismic risks to Boca Dam. Three reasonable alternatives were considered in the EA/IS: 1) No Action Alternative; 2) Proposed Action Alternative – Shear Key and Stability Berm; and 3) Reservoir Restriction Alternative.

No Action Alternative

Under the No Action Alternative, Reclamation would continue to operate Boca Dam with no modifications to operations or dam features for risk reduction. The elevated risk to the

downstream population from dam failure during a seismic event would not meet Reclamation's current Public Protection Guidelines. Reclamation considers this action to be unacceptable for the long-term safety of Boca Dam and the areas downstream. The No Action Alternative is included to serve as the baseline for comparative analysis purposes.

Proposed Action Alternative – Shear Key and Stability Berm

Under the Proposed Action Alternative, Reclamation would undertake actions to correct safety deficiencies at Boca Dam by constructing modifications that would allow Boca Dam to continue existing operations without failing from a seismic event. The Proposed Action Alternative at Boca Dam involves construction of a shear key and a stability berm and modifying the spillway crest structure, in order to protect against cracking failure during a seismic event, which could lead to overtopping. A shear key will be excavated through the liquefiable alluvium and basal sand layer, and a stability berm will be constructed on the downstream side of the main embankment and dike. The construction would include a pervious zone of coarser material known as a "chimney filter" and new toe drain to collect internal seepage. Material for the stability berm would be obtained from a 50-acre exposed bench within Boca Reservoir, known as the in-reservoir borrow area (IRBA). A portion of the stability berm width will be extended to the top of the dam increasing the crest width.

During the first season of work there would be a temporary reservoir drawdown to elevation 5,581 feet (NAVD88) in accordance with Section 1.F.2(a) of the TROA, which will allow the spillway to be modified and will expose the IRBA. The drawdown period could start as early as April 10 to draw the reservoir down by June 15. The drawdown period would be from June 15 to November 15, with no reservoir drawdown planned for the second construction season. This alternative would reduce the seismic risks and meet Reclamation's Interim Public Protection Guidelines.

A new gravel parking lot would be constructed to temporarily house administrative contractor buildings on-site during construction, and also which would be left permanently for recreationists near Boca Dam, off of Stampede Meadows Road.

Reservoir Restriction Alternative

Under the Reservoir Restriction Alternative, Reclamation would draw down and restrict the Boca Reservoir surface level to a maximum elevation of 5,579 feet (NAVD88) on a permanent basis, compared to the current maximum elevation of 5,609 feet from April through September. The reservoir surface elevation of 5,579 feet corresponds to approximately 17,000 acre-feet of remaining storage. Operation of the reservoir would change to where the highest water level would not be able to exceed elevation 5,579 feet except during a major flood event after the maximum outlet works capacity has been reached. The spillway gates will be left in place, and will be opened if the inflow is large enough that the outlet works capacity is exceeded and there is risk of overtopping the dam. Following the flood event, the reservoir would be returned to elevation 5,579 feet as quickly as possible with the outlet works at full capacity. If reservoir inflows exceed the outlet works releases, and the restriction is exceeded and encroaches on the 8,000 acre feet of flood control space, the USACE would direct normal WCM operations to evacuate the flood control space as quickly as safely feasible. At no other time is water to be stored in Boca Reservoir for flood control beyond these requirements. The risk of overtopping or

dam failure from a seismic event would be reduced to meet the Reclamation's Interim Public Protection Guidelines by increasing the freeboard between Boca Reservoir and the spillway.

A permanent reservoir restriction would also result in a reduction of available space for water storage by TROA participants. The flexibility of TROA allows participants to move storage to other reservoirs as Credit/Exchange Water and could make up for a part of the storage lost in Boca Reservoir. Reclamation anticipates operational adjustments can be made to manage for higher flows and avoid some effects to timing of water deliveries, but Orr Ditch Decree water right holders could be affected. However, WCWCD holds a water right for storing water in Boca Reservoir and is operated in conjunction with Lake Tahoe water to maintain Floriston Rates. Reclamation believes this water right, Orr Ditch Decree water right holders, and other water rights allowing the TROA Credit/Exchange Water process, such as the 2012 Decision 1641 issued by the State Water Resources Control Board authorizing use of the Boca Reservoir storage in accordance with the relevant TROA provision, would be impacted.

Comments on the EA

Comment letters were received from the County of Nevada, California Department of Transportation (CalTrans), the Truckee Meadows Water Authority (TMWA), and the Truckee-Carson Irrigation District (TCID). Each of these letters presented comments regarding analysis in the EA/IS. The County of Nevada's letter requested that a mitigation measure to chip seal Prosser Dam Road and Boca Road along the detour route be added to further minimize dust impacts. The CalTrans letter expressed interest in seeing more details on the drainage system and reservoir operations during construction, and designs for the new river channel through the dam site for the Dam Breach Alternative. TMWA's letter expressed support of the Proposed Action Alternative, but comments focused on specific concerns with the water supply analysis for the Reservoir Restriction Alternative, indicating there would be adverse impacts to downstream water right holders and the implementation of TROA. TCID submitted comments pertaining to water supply analyses of both the Proposed Action Alternative and Reservoir Restriction Alternative. For both alternatives, TCID requested to be coordinated with along with the Water Master's office for any reductions in releases, impacts to water supply, and strategies to minimize potential impacts, prior to initiating a drawdown or restriction. TCID's letter also claims that the EA/IS fails to address potential impacts to the farming operations of the Truckee and Carson divisions in the Newlands Project from shifts in water delivery timing, caused by the temporary reservoir drawdown.

Reclamation considered each comment in approving the Proposed Action Alternative. A discussion of the substantive issues raised regarding the analysis, and how they were addressed in the EA/IS and considered in Reclamation's decision is provided below. All substantive issues raised in the comment letters have been addressed in the final EA/IS. Reclamation's decision is the selection of the Shear Key and Stability Berm Proposed Action Alternative, and is independent of the state lead agency's decision under CEQA.

Proposed Action Alternative – Fugitive Dust Impacts

The County of Nevada commented that re-routing recreation traffic to Prosser Dam Road and Boca Road during construction of the Proposed Action Alternative would increase fugitive dust

impacts. They requested that a mitigation measure to chip seal the approximately seven-mile portions of these roads be added prior to the detour taking effect. Reclamation further explained in the EA/IS how it does not anticipate an increase in fugitive dust emissions from re-routed traffic to these roads, and the already proposed dust abatement measures are expected to sufficiently minimize fugitive dust emissions. An explanation of reduced recreation traffic on the detour route to the west side of Boca Reservoir was added to the *III.(a, b)* analysis in Section 3.1.3 – Air Quality and *XVI.(b)* analysis in Section 3.1.16 – Transportation/Traffic of the EA/IS.

Proposed Action Alternative – Temporary Reservoir Drawdown Impacts to Water Right Holders

TCID requested a means to account for water supply in the first year of construction when the reservoir drawdown period occurs, and impacts to downstream water right holders. TCID also requested to be coordinated with for proposed strategies to maintain Floriston Rates prior to them being implemented. Reclamation clarified that it will coordinate with the Water Master's office and downstream water right holders prior to implementation of the drawdown regarding the actual water supply for the first year of construction, anticipated reductions in releases, and any proposed strategies to minimize impacts to water supply. This clarification, and that TROA water right entitlements and deliveries will be accounted for within the existing system used by the Water Master, was made in Section 2.2.2 – Reservoir Operations During Construction, and Section 2.2.11 – Obtaining Permits and Other Approvals of the EA/IS, which did not change the anticipated effects of the Proposed Action Alternative on downstream water right holders.

TCID's letter also claims that impacts to farming operations for the Truckee and Carson divisions of the Newlands Project caused by the temporary reservoir drawdown were not addressed in the EA/IS. However, the simulation results show the maximum probability of reductions in water delivered to each downstream water right holder is a 37% probability, for an estimated reduction of 8,600 acre feet in a year, which would be negligible, less than 2% of the forecasted averages. Reclamation clarified in the *IX.(d, i)* analysis of Section 3.1.9 – Hydrology and Water Quality and *II.(e)* analysis of Section 3.1.2 – Agriculture and Forestry Resources, that potential impacts of the temporary reservoir drawdown to all downstream water right holders, including the Newlands Project, are detailed in Appendix A of the EA/IS, and would be negligible. The model results for potential impacts to timing in water deliveries to the Newlands Project are in Table 11 of Appendix A, which have an even lower probability of occurring (29%). This clarification changed the anticipated effects determination for *II.(e)* of Section 3.1.2 – Agriculture and Forestry Resources from “no impact” to “less than significant impact”.

Dam Breach Alternative

The letter from CalTrans suggested that detailed plans for the process and sequences of the Boca Dam drainage system, reservoir operations, and new river path be disclosed if the Dam Breach Alternative was selected as the proposed action for the dam modification. In Section 2.4 – Dam Breach Alternative of the EA/IS, Reclamation determined the Dam Breach Alternative is not a reasonable alternative, and explained the reasons why. Considering the Dam Breach Alternative was determined to not be a reasonable alternative, further details of plans and analysis of environmental impacts of this alternative are not necessary.

Reservoir Restriction Alternative – Impacts to Downstream Water Right Holders and Implementation of TROA

TMWA commented the EA/IS incorrectly stated the Reservoir Restriction Alternative could cause an increase in water deliveries to the Pyramid Lake Paiute Tribe under its 1859 water right, when this water is actually an increase of inflows to Pyramid Lake (Truckee River flows at Nixon) due to the limited Boca storage. Reclamation agrees and corrected this language in the *Reservoir Restriction Alternative Considerations for Water Supply* subsection of Section 3.19 – Hydrology and Water Quality, and Section 4.2 – Indian Trust Assets of the EA/IS, which did not change any effects analyses.

TCID’s letter also requested they be coordinated with prior to approval of actions involving the movement of water between reservoirs impacting Truckee Division and Carson Division water rights of the Newlands Project. Reclamation clarified in the EA/IS that all downstream water right holders will be coordinated with, along with the Water Master, regarding water supply, potential impacts, and any proposed strategies to minimize impacts to downstream water right holders. All TROA water entitlements and deliveries would still be accounted for in the system currently used by the Water Master. These clarifications did not change any effect determinations; therefore, circulating the EA/IS for additional public review is not warranted.

TMWA made the following requests for clarification in the EA/IS:

1. State the full purpose of the Truckee Storage Project;
2. Clarify if Boca Reservoir would be maintained at or limited to maximum capacity at elevation 5,579 feet at all times under the Reservoir Restriction Alternative;
3. Clarify whether effects to TMWA’s first priority to 40 cubic-feet per second of water for municipal purposes in drought periods, a right under Articles V and VII of the Truckee River Agreement as provided in Section 5.A.6 of TROA, were considered.

Reclamation made clarifications per these requests in Section 1.4.11 – Cultural Resources, and the *I.(a, c)* analysis of Section 3.1.1 – Aesthetics of the EA/IS, and in footnote 12, respectively, which did not change any effects analyses.

TMWA and TCID also claim that the Reservoir Restriction Alternative could adversely affect downstream water right holders, and raised several concerns about the analysis of potential effects regarding a reduction in Boca storage, such as the following:

1. Inaccurate or incomplete determination of effects on downstream water right holders;
2. Inaccurate or incomplete explanation of how this alternative could affect the full implementation of TROA;
3. Confusing explanation of effects to storage of “TROA water”;
4. Analysis focused on impacts to Floriston Rate Water and did not include other downstream water right holders;
5. Limiting Boca storage could undermine TROA’s ability to rectify water supply problems for downstream water right holders;
6. The flexibility of TROA allowing TROA stakeholders to move storage to other reservoirs as Credit/Exchange Water would not fully make up for the storage lost in Boca Reservoir, and would change the category and priority of water spilling; and
7. Not all persons holding Orr Ditch Decree water rights are parties to TROA and have the option to accrue Credit/Exchange Water to make up for lost storage.

Reclamation acknowledges these concerns, and clarified the analysis in the *Effects to Storage* subsection to the *Reservoir Restriction Alternative Considerations for Water Supply* of Section 3.19 – Hydrology and Water Quality of the EA/IS. Reclamation more clearly stated the Reservoir Restriction Alternative could have adverse impacts to some storage for downstream water right holders and the full implementation of TROA. The *Boca Reservoir Potential Reservoir Restriction Analysis* was appended to the EA/IS as Appendix B to support the analysis. The Reservoir Restriction Alternative is not the Proposed Action Alternative, but if Reclamation selects this alternative instead, further modeling and detailed analysis of these effects may be necessary. Data clarifications were also made in the *Effects to Deliveries to Downstream Water Right Holders* subsection, which did not change the analysis.

Findings

In accordance with NEPA, Reclamation determined that the approval of the Proposed Action Alternative – Shear Key and Stability Berm is not a major federal action that will significantly affect the quality of the human environment; consequently, an Environmental Impact Statement is not required.

The following reasons are why the impacts from the Proposed Action are not significant:

1. The proposed action will not significantly affect public health or safety (40 CFR 1508.27(b)(2)).
2. The proposed action will not significantly affect natural resources and unique geographical characteristics such as proximity to historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order (EO) 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (40 CFR 1508.27(b)(3) and 43 CFR 46.215(b)).
3. There is no potential for the effects to be considered highly controversial (40 CFR 1508.27(b)(4)).
4. The proposed action will not have possible effects on the human environment that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
5. The proposed action will neither establish a precedent for future actions with significant effects nor represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
6. The proposed action will not have cumulatively significant impacts (40 CFR 1508.27(b)(7)).
7. The proposed action will not significantly affect historic properties (40 CFR 1508.27(b)(8)).

8. The proposed action will not significantly affect listed or proposed threatened or endangered species, or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (40 CFR 1508.27(b)(9)).
9. The proposed action will not threaten a violation of Federal, State, tribal or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).
10. The proposed action will not affect any Indian Trust Assets (512 DM 2, Policy Memorandum dated December 15, 1993).
11. Implementing the proposed action will not disproportionately affect minorities or low-income populations and communities (EO 12898).
12. The proposed action will not limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or adversely affect the physical integrity of such sacred sites (EO 13007 and 512 DM 3).