KATIE M. HOBBS
Governor

THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES
1110 West Washington Street, Suite 310
Phoenix, Arizona 85007
602.771.8500
azwater.gov

August 15, 2023

Amanda Erath
Colorado River Post-2026 Program Coordinator
Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
Denver, CO 80225
CRBpost2026@usbr.gov

Dear Ms. Erath,

The Arizona Department of Water Resources (ADWR) respectfully submits the following response on behalf of the State of Arizona to the Notice of Intent to Prepare an Environmental Impact Statement and Notice to Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Mead. *See 88 FR 39457 (June 16, 2023).* We appreciate this opportunity to provide comments on the scope of issues that should be considered in the upcoming environmental impact statement for post-2026 operations for Lake Powell and Lake Mead (EIS or Post-2026 EIS).

ADWR is statutorily authorized "to consult, advise and cooperate with" the Secretary of the Interior on behalf of the State of Arizona regarding Colorado River matters. A.R.S. § 45-107(A). The State of Arizona has an interest in the management of Colorado River system reservoirs, including Lake Powell and Lake Mead, and a particular interest in avoiding potential negative impacts from the Post-2026 Operational Guidelines, while ensuring their success. In addition to the comments submitted jointly with the Governor's Representatives of the seven Colorado River Basin States and the Lower Division States, please consider the following comments regarding the Post-2026 EIS:

A. Sharing the Burdens of Balancing the Colorado River System

Reclamation should consider assessing how each water user can contribute to reducing the supply and demand imbalance in the system that has resulted from overallocation of water supplies, the impacts of climate change, and long-term drought. Since 2000, this supply and demand imbalance has led to the depletion of reservoir storage and most recently threatened critical infrastructure at Lake Powell. However, the burdens associated with protecting the Colorado River System should not fall disproportionately on any particular state, sector, or water user. Instead, these burdens must be shared across the Basin by all who benefit from the Colorado River.

B. Implementation of ICS or Similar Storage Mechanism in Arizona

We anticipate that the Post-2026 EIS will evaluate mechanisms for voluntary storage and conservation, such as intentionally created surplus (ICS). If a storage and conservation framework is developed that includes statewide limits, Arizona would also require a framework for implementation of ICS or any other mechanism among Arizona Tribes and other Arizona water users, similar to the 2019 Arizona ICS Framework Agreement. If such a mechanism is developed, Arizona will seek cooperation from the United States in a parallel process involving Arizona Tribes and water users.

C. Review of Beneficial Use

Given the impacts of climate change and the ongoing megadrought, the Post-2026 Operational Guidelines must also ensure that water use practices are updated throughout the Basin to minimize waste. In the Lower Basin, Reclamation should implement beneficial use standards for all contractors with respect to efficiency determinations as set forth in 43 CFR Part 417. Reclamation should also ensure similar efficiency standards are implemented in the Upper Basin.

Thank you for the opportunity to provide comments. Collaboration and cooperation among all water users and stakeholders will be essential to achieve success, particularly if Congressional authorization is required. We look forward to continuing our work with Reclamation and Interior, the other Basin States, the Tribes, Mexico, water users and other stakeholders as we seek to protect the Colorado River system now and in the future.

Sincerely,

Thomas Buschatzke
Director

August 15, 2023

Ms. Amanda Erath
Colorado River Post-2026 Program Coordinator
U.S. Bureau of Reclamation

Electronically submitted to: crbpost2026@usbr.gov

RE: Notice of Intent To Prepare an Environmental Impact Statement on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Ms. Erath:

The Arizona Game and Fish Department (Department) appreciates the opportunity to provide input to the Bureau of Reclamation's (Reclamation) Federal Register notice of June 16, 2023 Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead. The Department is aware of the effects long-term drought has had on fish and wildlife and their habitats in the Southwest and in the broader Colorado River Basin, and continues to manage fish and wildlife resources within the Colorado River watershed and its system of reservoirs, rivers, and canals of Arizona.

Under Title 17 of the Arizona Revised Statutes (ARS), the Department, by and through the Arizona Game and Fish Commission, has jurisdictional authority and public trust responsibilities to conserve and protect the state fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Endangered Species Act and the Department's 10(a)(1)(A) permit. It is the mission of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. In addition to ARS Title 17 authorities, the Department has jurisdictional authority under ARS Title 5 Chapter 3 Boating and Water Sports, regulations, and boating opportunities in coordination with partners at water bodies around the state. For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources, wildlife-related recreation, and boating recreation as they relate to the Federal Register notice.

High Risk Non-native Fish

Drought conditions in the Colorado River basin have led to lower available run-off and lower reservoir elevation levels in many system reservoirs, including Lake Powell above Glen Canyon

Dam. As reservoir water elevation drops, the Department has concerns regarding water quality released from the Dam. Elevated water temperatures and low dissolved oxygen levels pose a threat to a number of downstream resources, including the establishment of non-native species such as Smallmouth Bass (SMB) and impacts to native fish and the Rainbow Trout fishery at Lee's Ferry below Glen Canyon Dam.

As the elevation of Lake Powell has been reduced, summer and fall water temperatures at Lees Ferry have increased. In 2022 as an example, the water temperature at Lees Ferry was observed above 20℃ (68℉; August-October 2022), which is 4-5℃ warmer than has been recorded prior to 2021. There have been discussions among stakeholders within the Glen Canyon Dam Adaptive Management Program (GCDAMP) regarding the increased risk of a SMB population establishing in the Colorado River downstream of Glen Canyon Dam and the potential impacts this establishment poses to native fish, including the Humpback Chub that was recently downlisted. Implementation of control efforts to remove SMB in the upper Colorado River basin has been initiated where high-risk non-native species are impacting conservation of native species. The costs of these control efforts are substantial. Preventative measures and changes to operations that can reduce the risk of establishment are critical to minimizing biological and economic impacts.

Higher water temperatures coming through Glen Canyon Dam and the increased risk of fish entrainment due to low reservoir elevations are the driving factors for establishment of SMB and other high risk non-native fish species downstream of the dam. Although these factors are a result of the existing water conditions within the Colorado River basin, both release temperature and entrainment can be influenced and managed by operations at Glen Canyon Dam. The Department requests that Reclamation develop a full suite of alternative operations and infrastructure enhancements that disadvantage high risk non-native species and reduce their establishment potential. This will help protect healthy self-sustaining native fish populations in Marble and Grand Canyons.

High risk non-native fish invasions can also occur from downstream in Lake Mead. The decline of Lake Mead water levels has led to the development of Pearce Ferry Rapid, an important barrier prohibiting non-native fishes (such as Channel Catfish, Common Carp, and Striped Bass) from moving upstream into the Grand Canyon. If operational guidelines lead to Lake Mead water levels which inundate or otherwise alter the passage potential of Pearce Ferry Rapid, high risk nonnative fish are likely to expand into the Grand Canyon and negatively impact native fishes. While increases in water elevations in Lake Mead and Lake Powell alleviate many concerns related to water resources, hydropower, and recreation, maintaining elevations below those which would inundate Pearce Ferry Rapid may be an effective management strategy for native fish conservation in the Grand Canyon.

Rainbow Trout Fishery

The Department is concerned about the impact of higher water temperatures to the blue ribbon Rainbow Trout fishery at Lees Ferry below Glen Canyon Dam. Anglers from around the world travel to Lees Ferry to fish for high quality Rainbow Trout, and this blue ribbon recreational sport fishery is economically important to the State of Arizona, the small community of Marble

Canyon, the City of Page, AZ, and Coconino County Arizona. A 2013 statewide angler survey estimated the contribution of the Lees Ferry fishery to the State's economy in excess of $16.8 million, helping to support 251 jobs in Arizona (Fedler 2014). Anglers support local businesses such as hotels, restaurants, and other service providers, in addition to utilizing fishing and outdoor recreation equipment suppliers and guides. The Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP) states the resource goal for the Rainbow Trout fishery is to "Achieve a healthy high-quality recreational Rainbow Trout fishery in Glen Canyon National Recreation Area (GCNRA) and reduce or eliminate downstream trout migration consistent with NPS fish management and ESA compliance" (Bureau of Reclamation and National Park Service, 2014). Maintaining cold water releases to <16°C (<60.8°F) from Glen Canyon Dam is critical for achieving these goals.

The forecasted water conditions in the Colorado River basin will create less favorable conditions for Rainbow Trout in coming years, with maximum release temperature projections reaching critical thermal tolerances for Rainbow Trout. Negative effects are expected from sub-lethal warm water, as recent models suggest that the food base at Lees Ferry cannot sustain adequate Rainbow Trout growth rates at these warmer temperatures. A negative response in fish condition is expected (J. Korman, Ecometric, pers. comm.).

In addition to warmer temperatures, low dissolved oxygen represents a risk to the Rainbow Trout fishery. Rainbow Trout are susceptible to increased stress, disease, and death when dissolved oxygen levels dip below 5 ppm. High runoff events have been shown to lead to low dissolved oxygen plumes developing and traveling through Lake Powell, and lower reservoir elevations suggest that these plumes are more likely to come through the Glen Canyon Dam due to their relation to the penstocks. Low dissolved oxygen poses a threat to fish populations below the dam, particularly the first five miles, which represents the most productive sections of the Lees Ferry fishery.

Recent modeling done on the response of Rainbow Trout to warmer temperatures at Lees Ferry suggests that it is highly probable that another fishery collapse is imminent. The fishery took many years to recover after each of the previous collapses and the current status of the fishery suggests that the next recovery could take longer. Success of a healthy high-quality recreational Rainbow Trout fishery in GCNRA requires maintaining release temperatures <16 °C.

Although 16-18°C is within the range of preferred temperatures for Rainbow Trout, recent analysis presented to the Technical Working Group of the GCDAMP suggests that an increase in basal trout metabolism resulting from the elevated temperature combined with the poor trout food base that exists at Lees Ferry will stress and starve trout (J. Korman, Ecometric, pers. comm.). The Department is concerned that temperatures in Lees Ferry could exceed those that could sustain any population of Rainbow Trout, let alone meeting the LTEMP goal of a high quality recreational Rainbow Trout fishery. Therefore, the Department recommends that Reclamation implement structural modifications to Glen Canyon Dam that allow for release of cooler water when the reservoir is at lower water surface elevations.

Changes in other water quality parameters such as salinity and total dissolved solids and how these parameters can be influenced by reservoir management are less understood; however, the Department is concerned with increases to these metrics and negative effects to biota, both in reservoirs and in the Colorado River below Glen Canyon Dam. Additionally, the influence of soluble reactive Phosphorus on productivity in the system is just beginning to be quantified, but appears to be strongly correlated (Yard et al. 2023). The Department recommends BOR consider the changes in water quality and incorporate strategies to maintain water quality into long term planning at Lake Mead and Lake Powell.

Boating and Recreation Access

Recreational boating and fishing are important recreational activities at Lake Mead and Lake Powell. Recent studies have quantified the economic impact these outdoor and wildlife-related recreational activities have on the local economy. Fishing related expenditures in Mohave County and Coconino County, which includes food, lodging, transportation, and equipment, was estimated at $79.3 and $70.6 million dollars, respectively, by the Arizona Anglers' Expenditures and the Economic Impact of Fishing in the State report (Duda et al. 2022). It has also been estimated that more than 60 percent of all visitors to the Lake Mead National Recreation Area use some type of motorized watercraft (Rosen et al. 2012). The Department has concerns regarding impacts to boating recreation and Department access for wildlife management purposes as water levels have declined at Lake Mead and Lake Powell. Several boat ramps at these two large and very popular reservoirs have become unusable.

Recent planning efforts at Lake Mead National Recreation Area for boating access seem to be focused on actions to be taken when reservoir elevations improve, as no launch ramp extensions or relocations are being proposed on the Arizona side of the reservoir. The Department considers this to be unacceptable, given that the system has been experiencing a prolonged period of drought and low-runoff and future reservoir elevations are uncertain. The Department requests BOR, in partnership with the National Park Service, identify operational guidelines and strategies that retain recreational boating access in Arizona at Lake Mead and Lake Powell.

Recommendations Re: High Risk Non-native Fish, Rainbow Trout Fishery, and Recreation Access

Current conditions, and projected future water level will prohibit effective management of the Rainbow Trout fishery and high risk non-native species within the Colorado River. Intermittent use of the bypass tube has been previously proposed through the GCDAMP and the Department recommends this be considered for implementation. Infrastructure changes that facilitate long-term release temperature control while minimizing water storage or power loss could also be explored (e.g., power generation in the bypass tube, temperature control tower feeding penstocks). The Department also recommends Reclamation identify fish deterrents or exclusion mechanisms in the forebay in order to reduce entrainment of warmwater high risk non-native fish through the dam.

The Department acknowledges that there are necessary tradeoffs and competing values of water levels and releases between the two subject reservoirs. Infrastructure changes that would facilitate better control of water quality represent initial installation costs that, over time, would

likely be significantly less expensive than non-native control costs to protect the threatened Humpback Chub population. Realistically, non-native control methods would not be effective without being combined with water temperature reduction as well, and thus funds spent on preventative measures now would reduce costs later. Due to the ability to control high risk non-native fish, solutions for maintaining cold water releases (<16°C) are mutually beneficial to multiple downstream resources listed in LTEMP, including the Rainbow Trout fishery and native fish such as the listed Humpback Chub. The Department recommends Reclamation identify and design infrastructure options and implement water release actions that maintain release temperatures below 16°C (<60.8°F) and dissolved oxygen above 5 ppm, while minimizing impacts to power production and water storage.

Although the Department advocates for water management and conservation practices that result in reservoir elevations higher than those observed over the last two decades, guidelines and strategies that lead to changes in Lake Mead reservoir levels could have consequences for native fishes in the Grand Canyon if Pearce Ferry Rapid becomes inundated or its passage potential otherwise altered. Therefore, the Department recommends that all scenarios influencing Lake Mead water levels be carefully considered and studies quantifying the physical and biological effect of specific elevations should continue. The identification of management actions that prevent high risk non-native fish from colonizing the Colorado River within the Grand Canyon, may be needed if Pearce Ferry Rapid becomes inundated.

The Department requests that NPS Glen Canyon Dam National Recreational Area at Lake Powell and Lake Mead National Recreation Area, in coordination with the Department and Reclamation, identify, design, and construct improved low-water boating access facilities, which can provide year-round motorboat access for the benefit of the boating and angling public. Specifically, the Department requests motorized boating access be maintained at South Cove and Temple Bar or otherwise mitigate the loss of these access points. Additionally, the Department requests Reclamation consider long-term operational alternatives at Hoover and Glen Canyon Dams that maintain water elevations that allow access for recreational boat users and wildlife managers at both reservoirs.

More comprehensive recommendations regarding boating access to Lake Mead were submitted by the Department to the National Park Service during the public comment period on the Lake Mead National Recreation Area Sustainable Low Water Access Plan / Environmental Assessment, submitted August 2, 2023.

In addition to reservoir-based boating recreation, Lee's Ferry below Glen Canyon Dam is a popular place for motorized riverine trout fishing opportunities, one of the few such places in Arizona. Reductions in flow releases, as well as daily fluctuations in flows, can affect the ability of anglers to access the trout fishery upstream from Lees Ferry by motorboat. The Department recommends Reclamation design flow release scenarios that allow for year-round motorboat access to the entire reach of Lee's Ferry below Glen Canyon Dam.

Thank you for the opportunity to provide input on the post 2026 reservoir operational strategies for Lake Powell and Lake Mead. For further coordination, please contact Ryan Mann at rmann@azgfd.gov or by phone call to 623-236-7538.

Sincerely,

Luke Thompson
Habitat, Evaluation, and Lands Branch Chief

AZGFD # M23-06165840

Cited:

Bureau of Reclamation and National Park Service, 2014. Alternatives for consideration in the Glen Canyon Dam Long-term Experimental and Management Plan Environmental Impact Statement: Salt Lake City, Utah, Bureau of Reclamation, Upper Colorado Region; Denver, Colorado, National Park Service, Intermountain Region.

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ARIZONA POWER AUTHORITY

1810 W. ADAMS STREET
PHOENIX, AZ 85007-2697
(602) 368-4265

WWW.POWERAUTHORITY.ORG

August 15, 2023

Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225
Crbpost2026@usbr.gov

The Arizona Power Authority (APA) is providing the following comments regarding Reclamation's Notice of Intent to Prepare an Environmental Impact Statement and Notice to Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead ("Post-2026 NOI"), as published in Fed. Reg. Vol. 88, No. 116, No. 39445 (June 16, 2023).

The APA is a state agency established in 1944 to manage Arizona's allocation of hydroelectric power generated from Hoover Dam (approximately 19% of all power generated). The power generated is delivered to several western states, including Arizona. In Arizona, this power is delivered to 63 different electrical districts, irrigation districts, co-ops, tribes, and municipalities serving irrigation, agricultural, commercial, and residential loads. The Boulder Canyon Project Act (BCP) authorized the construction of Hoover Dam to control the Colorado River floods, provide storage and delivery of stored water among western states, and generate electricity as a means to provide a source of funding for the project.

The APA supports and adopts the comments made by the Colorado River Energy Distributors Association, and the joint comments made by the Irrigation and Electric Districts Association of Arizona, Grand Canyon State Electric Cooperative Association, and the Arizona Municipal Power Users Association. Additionally, the APA strongly supports Commissioner Touton's testimony provided to Congress on April 26, 2023, where she stated "[r]eclamation's projects and programs serve as the water and power infrastructure backbone of the American West. For far too long, the impacts on hydropower resources have not been adequately considered when addressing the impacts of drought in the Colorado River basin. From where we stand today, hydropower plays a vital role in ensuring the continued reliability of the western electric grid and it should be treated as such.

Sincerely,

Jordy Fuentes
Executive Director
Arizona Power Authority

August 15, 2023

Bureau of Reclamation
Attn: Post-2026
(Mail Stop 84-55000)
P.O. Box 25007
Denver, Colorado 80225
crbpost2026@usbr.gov
(Both hard copy and electronic comments submitted)

RE: [RR03040000, 23XR0680A1, RX187860005004001] Notice of Intent to Prepare an Environmental Impact Statement and Notice to Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines for Lake Powell and Lake Mead

Dear Bureau of Reclamation:

Following are comments from the Central Arizona Project (CAP) 4th priority municipal and industrial (M&I) subcontract entitlement holders[1] and potentially impacted municipalities that are also members of the Shared Interest Group of the Arizona Re-consultation Committee, regarding the above referenced Federal Register Notice requesting public input regarding specific strategies for post-2026 operating guidelines for Glen Canyon Dam and Hoover Dam.

The Shared Interest Group members represent both CAP M&I and Mainstem Colorado River contract entitlements totaling of over 80,000 acre-feet. To offer perspective, our combined group serves over 750,000 people, which is a population larger than the City of Tucson, Arizona. We understand that modified operating criteria are necessary to address the potential catastrophic loss of water supply in the Colorado River Basin and damage to critical infrastructure.

The health and safety of the millions who rely upon water delivered through the CAP canal are at risk if new operating criteria and supply reductions are not equitably applied across the Lower Basin States. Arizona water users have accepted significant supply reductions for multiple years, over and above agreed upon shortage reductions, to attempt to stabilize Lake Mead. But these reductions have not been enough. It is beyond the ability of the state of Arizona, even if it were to forego its entire 2.8 million acre-feet apportionment, to produce the volume of conservation savings that may be needed to stabilize Lake Mead.

We have experienced almost two decades of extremely dry conditions in the Colorado River Basin due to the impacts of aridification. New, comprehensive measures are needed to address the problem and all Colorado River water users must participate in these measures. For these reasons, we offer the following recommendations.

[1] Some CAP subcontractors also serve communities on the mainstem Colorado River and hold mainstem entitlements.

Apportionment of the Infrastructure Protection Volume equitably between the Lower Basin states

Approximately 1.5 million acre-feet of water is lost each year from Lake Mead due to evaporation and conveyance losses in the Lower Basin. These losses are referred to as Infrastructure Protection Volumes (IPV) by the Lower Basin States. The Interim Operating Guidelines and the Drought Contingency Plan both treat IPV losses as shortage and assign these losses largely to Arizona. IPV losses are not shortage, rather they are a cost of doing business that should not be borne by the reservoir resulting in more rapidly lowering water surface elevations in Lake Mead, thereby increasing shortage reductions primarily to Arizona. The reduction in water supply resulting from aridification of the Basin was not contemplated and is not addressed in the Law of the River. Regardless, this existential threat to all Colorado River water users must be addressed.

Those with the greatest benefit of this Colorado River water supply, by volume, should bear the greater proportionate reduction in supply on an annual basis, separate and distinct from the implementation of shortage reductions. Accounting for IPV as proposed is a permanent fix to a long-standing issue in the Lower Basin. Continued depletion of Lake Mead associated with IPV losses increases the risk of serious reductions to the Municipal and Industrial (M&I) priority CAP water supply. To reiterate, the responsibility to absorb evaporation, seepage and system losses should be equitably apportioned to the Lower Basin State's water users based on consumptive water use and must be applied before Lake Mead reaches the currently defined shortage trigger elevations.

Proposal to Decrease Deliveries Pursuant to a Mid-Year Review

Reclamation has previously proposed revision of Section 7.C (Mid-Year Review) to allow for a determination mid-year, to reduce deliveries from Lake Mead. This proposal is counter to the approach taken to date of adopting quantified criteria in advance of the need to implement supply reductions. It should be noted that the 2007 Guidelines only allow for an increase in deliveries mid-year, and only in response to an improved hydrology. Arizona subcontractors, including CAP M&I subcontractors, must minimize uncertainty for the populations they serve and provide clear plans to operate critical water treatment and distribution infrastructure. It would be difficult for Arizona subcontractors to implement additional unplanned supply reductions mid-year, on top of already agreed upon shortage reductions.

Instead of adopting mid-year reductions, it would be preferable to adopt criteria for greater volume reductions prior to the start of the operating year. Although shortages and other proposed reductions are difficult to manage, it is better to adjust deliveries to meet critical needs early rather than scrambling to do so late in the year. Reducing the available water supply mid-year runs the risk of endangering public health and safety and places an unnecessary burden on water providers.

Conclusion

Thank you for the opportunity to submit comments and explain our unique concerns and perspective regarding plans for post-2026 Colorado River operations. We believe that our recommendations are reasonable, given the state of the system today and the likelihood that we will experience a dryer future hydrology. We also believe that our recommendations can be implemented without violating the existing Law of the River but necessitate new requirements to address IPV losses.

We acknowledge that there are tough decisions to be made through this process. We understand that these decisions will adversely impact our organizations and water users. For this reason, we believe that precisely defining reservoir operations as early as possible will help us all to prepare for the challenging times ahead. Modified operating guidelines developed through this process must protect critical water related health and safety needs and additional supply reductions related to IPV losses must be applied equitably across all Lower Basin States.

Sincerely,

Shared Interest Group Members of the Arizona Re-consultation Committee

BARD WATER DISTRICT

1473 Ross Road, Winterhaven, CA 92283-9715
Tele: 760-356-0714 Email: bardwater@outlook.com

August 15, 2023

VIA ELECTRONIC MAIL

Bureau of Reclamation
Attn: Post-2026 Colorado River Operations
crbpost2026@usbr.gov

Re: Scoping Comment on Notice of Intent to Prepare and Environmental Impact Statement on the Development of Post-2026 Operation Guidelines and Strategies for Lake Powell and Lake Mead – Bard Water District

Bard Water District (the "District") respectfully submits the following comments in response to the Bureau of Reclamation's *Notice of Intent to Prepare an Environmental Impact Statement and Notice to Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead*, Fed. Reg. Vol. 88, No. 116, p. 39455 (June 16, 2023). The District appreciates this opportunity to provide comments on the scope of issues that should be considered in the upcoming environmental impact statement for post-2026 operations for Lake Powell and Lake Mead ("EIS" or "Post-2026 EIS").

The District is located in Imperial County, California, across the Colorado River from Yuma, Arizona. The District is part of the Yuma growing region as designated by the United States Department of Agriculture and contributes to the food security of this Nation. Together with the growers who farm in the Yuma area, the District's growers help provide 80-90 percent of the country's fresh vegetables and leafy greens from November to April.

Pursuant to the Boulder Canyon Project Act, and other subsequent and supplementary agreements, the United States Bureau of Reclamation (the "Bureau") delivers Colorado River water in second priority to the Bard Water District as part of the Reservation Division of the Yuma Project. Bard Water District is entitled to divert Colorado River water sufficient to irrigate 25,000 acres of farmland. Given its proximity to the River, the District and its water users rely solely on the Colorado River to deliver water to their fields and homes. Because of this, the District and its landowners and growers have a vested interest in the Colorado River and its management.

The District submits these comments for the Bureau's consideration in its analysis of the River's Post-2026 operation guidelines.

1. THE PROCESS FOR DEVELOPING THE POST-2026 OPERATIONAL GUIDELINES MUST BE INCLUSIVE, EQUITABLE AND TRANSPARENT.

Historically, there have been winners and losers when it comes to inclusion and influence on the development of policies and practices for the management of the Colorado River. Colorado River contractors and entitlement holders have not been represented equally in discussions over the use of Colorado River water. Some have been given a great deal of attention, while others have been left out entirely. This disparity is exacerbated by the fact that many of those that have been given full access to the process are the most junior users on the River while many of the most senior users have been excluded. The exclusion of senior users might otherwise be fine if their water uses were not at risk, but we know that is not the case – every water user was at risk of reduction under the Bureau's SEIS alternatives and will likely continue to be at risk in the EIS process.

These disparities between users cannot be made worse in the Post-2026 process. The process must include all water users in both the Lower and Upper Basins, tribes, and Mexico, and must also ensure full and equitable participation. Further, when water users are left out of important discussions, they should be informed of what was discussed, what policies were developed and what actions will be taken, if any. Transparency, notice and an opportunity to respond should be paramount.

It is also important to note here that state representatives do not always adequately and fully represent the interests of all water users within their state. The District understands that doing so is a difficult task given the unique and disparate interests of each contractor and entitlement holder. By ensuring an inclusive and equitable process, this gap in representation can be remedied.

The Post-2026 Guidelines will most certainly impact every user on the River in some way, and likely in varying degrees, for decades to come. The discussion, development, and negotiation of the Post-2026 Guidelines could not be more important and significant to the District. The magnitude of the impact and outcome of this process requires an inclusive, equitable and transparent process.

2. THE BUREAU'S ANALYSIS AND DEVELOPMENT OF THE POST-2026 OPERATIONAL GUIDELINES MUST FOLLOW THE LAW OF THE RIVER.

The District, and other water users on the River, have come to rely on the Law of the River and the Bureau's commitment to it and the water delivery contracts signed by the United States many decades ago. The post-2026 process and any operational guidelines developed as a result must certainly follow and comply with the Law of the River.

A key tenet of the Law of the River is the priority system. Users have acted in line with and have placed enormous reliance on the system and the whole of the Law of the River for almost a century. As such, consideration of the modification of the priority system is necessarily outside the scope of the post-2026 process and the Bureau would need exceedingly persuasive justifications for departing from it. However, proper application of the priority system is vital to correctly evaluating the impacts of any Bureau plan for post-2026 operations.

The Bureau should also consider the Law of the River in the development of post-2026 operational guidelines as they relate to intentionally created surplus ("ICS"). The continuation of the ICS program and the implementation of its framework cannot negatively impact other water users and should align with the priority system.

Further, as other major tenets of the Law of the River, the Bureau should analyze whether proposed alternatives meet the 1922 Colorado River Compact non-depletion obligations and delivery obligations to Mexico. Any proposed and/or analyzed alternatives should include actions necessary to ensure compliance with such obligations.

The District believes that the Law of the River must be the foundation for the development of post-2026 operations, and, as such, the Bureau's proposed and analyzed alternatives must follow and comply with the same.

3. THE BUREAU SHOULD PRIORITIZE VOLUNTARY, COMPENSATED CONSERVATION.

Mandatory, involuntary reductions in water use will be painful and devastating for most users and communities that rely on Colorado River water. The District and its growers and landowners are among those that would suffer significant impacts from uncompensated, mandatory cuts. In the last several years, impacts from such reductions have been lessened across the Basin with the development of voluntary, compensated conservation programs.

These types of voluntary, compensated conservation programs and others should be prioritized and fully analyzed in the post-2026 process. Existing programs show that compensated conservation is practical and effective and such programs are fundamentally fair and equitable.

The District understands that this may require additional and ongoing federal funding – Bard Water District stands ready to support the Bureau in this effort.

Further, if mandatory, uncompensated reductions are to be made, the Bureau should consider whether water users have access to other sources of water, whether water users have an opportunity to become more efficient or conserve water, and/or whether water users have historically forgone opportunities to conserve in determining what water users take reductions and in what volumes. These factors most certainly effect outcomes and the severity of impacts those reductions have on water users and, therefore, must be considered. As part of its analysis, the Bureau must not only include this evaluation but also disclose to the public which users may receive a favorable exercise of discretion, why and with what environmental effects.

4. ALTERNATIVES FOR THE POST-2026 OPERATIONAL GUIDELINES SHOULD PROVIDE CERTAINTY, CLARITY AND PREDICTABILITY.

Overall, one of the most important and impactful considerations in the development of the post-2026 operational guidelines is how alternatives create certainty, clarity and predictability to the greatest extent possible for all users within the Basin.

If water users understand the volume of reductions and when and how those reductions will be made, they can do their best to prepare and lessen the impacts. The guidelines must not only include this information but operations must also provide sufficient time for water users to react and adapt.

The District understands the Bureau's need to respond to the fluctuations of hydrology that are inevitable in a natural system, but this need must be balanced with water users' need for predictability and certainty. Currently, the Bureau's process for establishing its Annual Operating Plans and approving water orders, though not perfect, works to provide stability to water users, particularly in the Lower Basin. Users generally have adequate time to respond and adjust water use in the following year based on the timing of those operational decisions. As such, the District strongly supports continuation of these existing processes and timelines post-2026.

Should these processes and/or methods need to change post-2026 to more adequately respond actual hydrologic conditions, the District urges the Bureau to insure any new processes provide the same level of stability and certainty and allow sufficient time for water users to react and adjust. Mid-year changes in operating plans or approved water orders would be particularly devastating to agricultural water users and their communities given their growing seasons and corresponding contract obligations.

The future of the Colorado River almost certainly relies on the outcomes of this process and the post-2026 operation guidelines that are developed as a result. This process asks the Bureau to balance the needs of the River's many water and hydropower users and its extraordinary ecosystem and the related impacts of such operational decisions. It is no small task. But in doing so, we hope that the Bureau will consider these comments.

Thank you for your consideration. Should you have any questions or would like additional information, please do not hesitate to contact the District.

Sincerely.

Ray Face, President

Nick Bahr, General Manager

Shared Interest Group Members of the Arizona Re-consultation Committee

Arizona Water Company – Casa Grande – CAP M&I Subcontract No. 07-XX-30-W0456

Arizona Water Company – Coolidge – CAP M&I Subcontract No. 07-XX-30-W0457

Arizona Water Company – Superstition – CAP M&I Subcontract No. 07-XX-30-W0455

Arizona Water Company – White Tank – CAP M&I Subcontract No. 07-XX-30-W0458

City of Buckeye – CAP M&I Subcontract No. 07-XX-30-W0510

City of Surprise – CAP M&I Subcontract No. 07-XX-30-W0505

EPCOR Inc – Agua Fria – CAP M&I Subcontract No. 07-XX-30-W0485

EPCOR Inc – Paradise Valley – CAP M&I Subcontract No. 07-XX-30-W0486

EPCOR Inc – Sun City – CAP M&I Subcontract No. 07-XX-30-W0488

EPCOR Inc – Sun City West – CAP M&I Subcontract No. 07-XX-30-W0487

EPCOR Inc – Chaparral City Water Co. – CAP M&I Subcontract No. 07-XX-30-W0460

EPCOR Inc – Rio Verde Utilities – CAP M&I Subcontract No. 07-XX-30-W0512

EPCOR Inc – Mainstem Colorado River Contract No. 00-XX-30-W0391

Town of Marana – CAP M&I Subcontract No. 07-XX-W0470

Town of Queen Creek – CAP M&I Subcontract No. 09-XX-30-W0542

Water Utility of Greater Tonopah (Global Water Resources) – CAP M&I Subcontract No. 07-XX-30-W0475

City of Casa Grande, Arizona

City of Maricopa, Arizona

County of Pinal, Arizona

Todd Pryor Superior, Arizona

DEPARTMENT OF WATER RESOURCES
P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

August 15, 2023

Bureau of Reclamation, Attn: Post-2026
Amanda Erath, Colorado River Post-2026 Program Coordinator
Post Office Box 25007, Denver, Colorado 80225
crbpost2026@usbr.gov

Dear Ms. Erath:

The California Department of Water Resources (DWR) submits the following comments in response to the Bureau of Reclamation's (Reclamation) notice of intent to prepare an environmental impact statement on the development of post-2026 operational guidelines and strategies for Lake Powell and Lake Mead.

Our comments are motivated by California's recent experiences with the impacts of climate extremes. After the five-year drought of Water Years 2012-2016 we experienced a 2017 that was the wettest on record for parts of Northern California. Subsequently 2018 reverted to very dry, followed by a moderately wet 2019 and the three-year drought of 2020-2022. In the present water year, we experienced an extreme case of weather whiplash, going from the three driest consecutive years of record to one with near-record snowpack in parts of the Sierra Nevada. During this extended period California has set new records for warmest statewide temperatures and lowest statewide snowpack. The consequences of these extremes have included two consecutive years of zero deliveries to the Central Valley Project's agricultural contractors, health and safety-only deliveries to some municipal and industrial contractors, and many small rural water systems and private wells running out of water.

DWR has been aggressively providing drought emergency response grants to affected communities and this year spun up an intense effort to maximize groundwater recharge in response to the flood emergency. From the State perspective we clearly see the need for resilient Colorado River supplies not just within that service area but also as they relate to coordination with California's larger water management framework. With our State Water Project being the main link between Northern California water supplies and the needs of millions of people in Southern California, we are uniquely concerned with the balancing of Southern California's imported supplies.

When the present interim guidelines for operation of Lakes Mead and Powell and surplus and shortage criteria (Interim Guidelines) were adopted the probability of experiencing a Lower Basin shortage during their term was expected to be low. The subsequent prolonged drought period was not foreseen nor was the relatively rapid pace of aridification in response to climate warming. The present interim guidelines did represent a marked advance from historical operations and succeeded in delaying the onset of shortages. They also provided valuable operational experience in adjusting to changed conditions, but ultimately the pace of aridification exceeded their ability to provide sufficient resilience in a changing environment.

The unprecedented hydroclimate extremes observed not only in the Colorado River Basin but also in other western watersheds during the term of the present Interim Guidelines point out the limits of our climate and weather prediction ability. Accordingly, our recommendations for the post-2026 guidelines include shortening their term from the 15-year period used in the present guidelines and/or strengthening their provision for mandatory consultation and a potential re-opener when worsening hydrologic conditions point to impacts that would be difficult to mitigate. In hindsight, one shortcoming of the present Interim Guidelines was that their consultation provisions were ineffective in responding to the hydrology that was experienced.

The post-2026 guidelines need to acknowledge and reflect the varied circumstances associated with Colorado River water use. Colorado River supplies are a sole source of supply in some areas of California and part of a broader portfolio of supplies in other areas. Communities and water users have different capacities for shortage management and need certainty regarding a firm base supply as well as adequate lead time for putting measures in place to cope with shortages. Shortages in Colorado River supplies may also have cascading or unanticipated impacts in areas with multiple sources and it is important to have adequate lead time for addressing those circumstances. Improving users' certainty of receiving a specific quantity of supply as wells as lead times can be achieved by investing in improving forecasting and modeling in addition to changing specifics of reservoir operations criteria. We encourage Reclamation to aggressively assist the Colorado Basin River Forecast Center in improving its forecasts which are fundamental to reservoir operations. Specific actions include annually acquiring full coverage of aircraft-based snowpack monitoring above Lake Powell and supporting needed research on precipitation forecasting for the Center's water supply forecasts.

The present Interim Guidelines embody a narrow perspective on shortage management tools and strategies, reflecting the setting at the time they were developed, although they have enabled a broader suite of cooperative actions among Reclamation and the states than would have been expected prior to their development. The climate challenges we have subsequently faced call for more expansive and creative strategies to help basin water users transition to a warmer and drier climate. We recommend that Reclamation fully evaluate its authorities to employ techniques it has used elsewhere (e.g., the Klamath Project) to help users manage shortages, such as voluntary water banks. Similarly, we encourage Reclamation to maximize and facilitate opportunities for entities to store non-project water in system reservoirs through use of tools such as the Warren Act or Emergency Drought Relief Act, separately and apart from the present system of intentionally created surplus. The narrow focus of the present Interim Guidelines has precluded Reclamation from using the full suite of tools available to it under its authorities. Considering climate model projections, it is unlikely that that there will be a future need to limit storage in Lake Mead, and opportunities to store conserved water, system water, or non-federal water in the empty capacity available should be maximized.

The post-2026 guidelines need to better reflect post-2026 climate expectations, which generally entail warmer and drier conditions with less frequent wet periods but infrequent wet extremes that may be very extreme. The present Interim Guidelines were not designed to facilitate carry-over storage of annual apportionment in Lake Mead except through intentional conservation and they impose significant constraints on intentionally created surplus that should be re-examined and changed. Empty storage capacity is a resource that should be maximized to facilitate capturing wet extremes, including through storage of non-system water via exchanges. There is great potential to expand access to federal storage capacity to a broader group of water users in both the Upper and Lower Basins to improve over-all climate resiliency.

Developing post-2026 guidelines must be paired with a federal commitment to modernizing and improving federal infrastructure, including resolving operational issues associated with the low-level outlet works at Glen Canyon Dam, and promoting water use efficiency of Colorado River supplies. There are opportunities to expand partnerships with other federal agencies and programs, such as the U.S. Department of Agriculture's salinity control program activities, to drive increased conservation. Reclamation should also pursue opportunities for making use of the federal investment in the Yuma Desalting Plant to support shortage management.

We appreciate the opportunity to submit comments and are committed to work with Reclamation and partners to seek a sustainable future for Colorado River water uses.

Sincerely,

Karla A. Nemeth

Karla A. Nemeth, Director
CA Department of Water Resources

CENTRAL ARIZONA PROJECT
P.O. Box 43020
Phoenix, Arizona 85080

August 15, 2023

The Honorable Camille Touton
Commissioner
U.S. Bureau of Reclamation
1849 C Street, NW
Washington, D.C. 20240
Sent via Electronic Mail
crbpost2026@usbr.gov

RE: Comments on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Commissioner Touton:

The Department of the Interior (Interior) through the Bureau of Reclamation (Reclamation) has published a Notice of Intent to Prepare an Environmental Impact Statement and Notice to Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Mead (Post-2026 Operations or Post-2026 EIS). *See* 88 FR 39457 (June 16, 2023).

The Central Arizona Water Conservation District (CAWCD) is a political subdivision of the State of Arizona, established pursuant to Arizona Revised Statutes § 48-3701 et seq., which operates the Central Arizona Project (CAP) pursuant to various contracts and agreements with Reclamation. The CAP canal is a 336-mile system that brings Colorado River water to central and southern Arizona, delivers the State of Arizona's single largest renewable water supply, and provides water to municipalities, tribes and agriculture. CAWCD's service area encompasses Maricopa, Pinal and Pima counties where more than 80% of Arizona's population resides. The CAP is a federal project and our partnership with Reclamation provides critical and renewable water supplies to the greater Phoenix and Tucson areas and twelve tribal communities within Arizona. Almost half of the CAP supply is allocated to tribal purposes. CAP is critical federal infrastructure, and its water supply is crucial to ensure its continued functionality. CAWCD, therefore, has a keen interest in the wise administration of the Colorado River

system reservoirs, including Lake Powell and Lake Mead, and a particular interest in avoiding potential negative impacts from the Post-2026 Operational Guidelines while ensuring their success. In this effort, we ask that Reclamation consider and incorporate the comments below in determining the final scope of the development of the Post-2026 Operations.

a) Purpose of the Post-2026 Operational Guidelines

The Post-2026 Operations must achieve the highest level of reliability and water supply certainty to Colorado River water users. Post-2026 Operations should respond to a wide range of hydrologies and storage conditions incorporating effective, flexible mechanisms to manage storage and critical elevations while providing predictable operations on which the water users can rely. Most importantly, the purpose of the Post-2026 Operations should seek to balance supply, demand and the use of storage in the Colorado River system for the benefit of water users and the environment. The Post-2026 Operations should be resilient across a wide range of hydrologic scenarios that consider impacts of climate change. The Post-2026 Operations must also consider the water supplies available to the Basin States and Mexico and ensure that the burden of any system imbalances and national obligations do not fall solely or primarily on CAP or junior water users.

b) Scope of the Post-2026 Operations

Framework

The Post-2026 Operations should reside in a framework consistent with a reasonable interpretation of the Law of the River and other applicable provisions of federal law, taking into account the impacts of extended drought and climate change on water users and critical infrastructure.

Article III(d) of the 1922 Colorado River Compact (Compact) is designed to ensure that the Lower Basin receives the supply of 7.5 million acre-feet (maf) per year apportioned to it under Article III(a) of the Compact. Article III(d) states:

> The States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

The Compact also assigned responsibility for providing water to satisfy a future treaty with Mexico. Article III(c) provides:

> If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

Article III(d) prohibits the Upper Division States from depleting the flow of the river at Lee Ferry below a rolling 10-year aggregate of 75 maf. Article III(c) requires the Upper Division States to provide sufficient water[1] to satisfy one-half of the Mexico delivery obligation. If the 10-year rolling aggregate falls below the required aggregate volume, or if the Upper Division States fail to provide the necessary water to satisfy its share of the Mexico delivery obligation, the Upper Division States could be subject to a "Compact call" that would require a reduction in consumptive use in the Upper Basin. Alternatives evaluated in the Post-2026 EIS should include actions necessary to ensure compliance with such obligations.

Furthermore, the United States Supreme Court affirmed the division of the Lower Basin's entitlement to 7.5 maf of mainstream Colorado River water with 4.4 maf allocated to California, 2.8 maf allocated to Arizona and 300 kaf allocated to Nevada. *Arizona v. California*, 373 U.S. 546 (1963). The Court issued a Decree and an injunction requiring the Secretary to, among other things, deliver 7.5 maf of water to users in Arizona, California and Nevada "pursuant to valid contracts therefor made with such users by the Secretary of the Interior, pursuant to Section 5 of the Boulder Canyon Project Act or any other applicable federal statute." 2006 Consolidated Decree, *Arizona v. California*, 547 U.S. 150, 156 (2006). The Decree and injunction also govern the Secretary's distribution of water during surplus, normal and shortage conditions. *Id.*

In consideration of climate impacts, the Post-2026 Operations must address compliance with the Colorado River Compact and the Decree, and the imbalance between supply and demand. The burden of addressing those impacts should be equitably shared throughout the basin.

[1]A "surplus" currently does not exist because natural flows in the Colorado River have not exceeded 16 maf in the past 10 years.

The CAP supports a vast regional economy in central and southern Arizona. The socioeconomic impacts of deep reductions in water supplies to the CAP would be devastating both from a federal infrastructure standpoint and from a socioeconomic and public health and safety perspective. Furthermore, the CAP supply is a critical component of tribal water right settlements and provides tribal homeland water to meet the needs of tribal communities in Arizona. Reclamation must perform an extensive analysis of the socioeconomic and public health and safety impacts that may fall to CAP water users, including CAP tribes that may experience reduced supplies and reduced revenues under alternatives proposed in the EIS. Similarly, Reclamation must undertake a comprehensive analysis of impacts to critical federal infrastructure, including specifically the CAP, that may result from the alternatives proposed under the EIS.

Inclusion of Mexico

Article 10(b) of the 1944 Treaty between the United States and Mexico on the "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande" (1944 Treaty) allotting Mexico 1.5 maf annually from the Colorado River provides for proportional consumptive use reduction to Mexico "in the event of extraordinary drought or serious accident to the irrigation system in the United States, thereby making it difficult for the United States to deliver the guaranteed quantity of 1.5 maf." In years in which the Secretary imposes additional reductions to consumptive use in the Lower Basin states of Arizona, California and Nevada, the United States must also exercise its authority to analyze commensurate reductions to Mexico. In recent years, Mexico has agreed to voluntary reductions in proportion with those in the Lower Basin. While any reductions to Mexico would be developed and implemented through a separate process, Reclamation should analyze the potential impacts of additional reductions that appropriately fall to Mexico under the Treaty, to allow room for negotiation and diplomacy.

Forbearance Required for Conserved Water

The 2007 Interim Guidelines included provisions for the creation, storage and delivery of conserved water. The creation, storage and delivery of conserved water requires the forbearance of parties that would otherwise be entitled to take delivery of the conserved water. Alternatives in the Post-2026 EIS that contemplate the creation, storage and or delivery of conserved water must consider the appropriate forbearance mechanisms.

Balancing the Colorado River System

The Post-2026 Operations should recognize the vulnerabilities and supply and demand imbalance that exist in the Colorado River system and manage the system such that the vulnerabilities and imbalance are reduced. The supply and demand imbalance in the Colorado River System stems from numerous factors, including overallocation of water supplies, the impacts of climate change, long-term drought, a failure to properly assess evaporative and system losses in the Lower Basin, and not addressing the uncertainties inherent in the model projections used to set operating conditions. Since 2000, this supply and demand imbalance has led to the decline of reservoir storage and, most recently, threatened critical infrastructure at Lake Powell.

It is important to reduce the risk of reaching critical elevations in Lake Powell and Lake Mead to ensure the Colorado River System and its infrastructure can continue to supply the needs of all water users. Protecting infrastructure is a burden all water users should bear as all benefit from the water supply, power and flood protection benefits the dams provide. The volumes of water necessary to achieve such protections, or infrastructure protection volumes, should be shared by all as has been done in the past. *See e.g. Yuma County Water Users' Ass'n v. Udall*, 231 F.Supp. 548 (1964*); Yuma Mesa Irr. & Drainage Dist. v. Udall*, 253 F.Supp. 909 (1965).

In other words, the burdens associated with protecting the Colorado River System should be shared across all sectors and water users who benefit from the Colorado River and its storage infrastructure.

Engineering Fixes

Reliable and robust storage infrastructure is a necessary aspect of a healthy system that supplies water to over 40 million people. Recently, the Department of the Interior took actions to adjust operations at Glen Canyon Dam to reduce risks to infrastructure that may arise from decreasing elevations. A comprehensive review of Glen Canyon Dam and improvements that can be made to enhance its operational capacity must be undertaken to avoid such reactive actions, and to ensure that water can safely pass through the dam at low elevations.

Account for and Manage Total Colorado River System Contents

Accurate records of mainstream diversions, return flows, and consumptive uses in the Lower Basin are prepared, maintained and provided by Reclamation for the Lower Division States through the annual *Colorado River Accounting and Water Use Report: Arizona, California and Nevada* (Decree Accounting

Report). While the Decree Accounting Report has maintained good records in the Lower Basin, accounting practices should be further evaluated to enhance accounting for irrigation efficiency practices and conservation agreements. Colorado River water use accounting in the Upper Division states is much more challenging, is not readily accessible and does not utilize uniform methods. Uncertainty about Upper Division water use makes it challenging to estimate depletions, flows and quantify unmet demands. Upper Division States' diversions, return flows and depletions of Colorado River water must be accounted for in a uniform manner for better management of the contents in the Colorado River System. Having a strong accounting basis for the Upper Division uses will also help to develop forecasts of Upper Division uses that are reflective of actual conditions and cognizant of climate change.

Reclamation should consider assessing evaporative and system losses (ESL) to all water users within the Lower Basin. Over the past 10 years, the annual volume released from Hoover Dam and lost to evaporation has averaged around 1.33 maf over the consumptive use requirements of the Lower Division States and Mexico. This is a system vulnerability that must be addressed through the Post-2026 Operational Guidelines to manage the system that is resilient across a wide range of hydrologies. All water in the system is subject to ESL on a continual basis. Currently, and in particular in the Lower Basin, ESL is not assessed on all water users. Rather, it reduces the supply available for delivery and places the entire burden of ESL on lower priority users. All Lower Basin water users benefit from system storage. All water users should similarly share the burden of the supply impacts caused by ESL.

In addition to accounting improvements, managing the system under flexible but durable operating rules could help the system adapt to a broad range of future hydrologic conditions. The current operational framework based on elevations of Lake Powell and Lake Mead hides the actual risk to the system and increases the challenge of identifying responsive solutions. Basing the management of Lake Powell and Lake Mead on the contents of all reservoirs across the Colorado River system transparently reveals the actual risk to water supplies and allows for an integrated approach to potential solutions. Operational decisions for Lake Powell and Lake Mead under the Post-2026 Operations should include consideration of water stored in reservoirs above Lake Powell.

Analysis of Future Conditions

Post-2026 Operations must be effective across a large range of water supply scenarios. Policies must be tested against a variety of hydrologic data sets, including those with extended and persistently dry conditions. The EIS process must consider hydrologic ensembles that represent drier conditions without dampening year-to-year variability and/or consider incorporating increases in year-to-year

variability. This is a worthwhile endeavor to be able to test policies against increased variability of annual runoff in an overall drier future.

Review of Beneficial Use to Improve Water Use Efficiency

The Post-2026 Operations must also consider beneficial uses in the basin in a way that takes into consideration climate change and minimizes waste under contemporary conditions. Beneficial use considerations should maximize the scarce water supplies for all and provide flexibility to the water users to determine appropriate improvements in water use practices. Specifically, in the Lower Basin, Reclamation should implement beneficial use standards for all contractors with respect to efficiency determinations as set forth in 43 CFR Part 417, including the "area to be irrigated, climatic conditions, location, land classifications, kinds of crops raised, cropping practices, type of irrigation system in use, conditions of water carriage and distribution facilities, record of water orders, and rejection of water orders, general operating practices, operating efficiencies and methods of irrigation of the water, amount and rate of return flows to the River, municipal water requirements and the pertinent provisions of the Contractor's Boulder Canyon Project water delivery contract." Reclamation should also adopt similar efficiency standards in the Upper Basin.

Furthermore, water use determinations for the Colorado River Basin must take into consideration fundamental human health and safety and welfare needs.

Illegal Uses

CAWCD's master repayment and water delivery contract allows it to take delivery of all water remaining under Arizona's 2.8 million acre-foot entitlement after Arizona's 1st through 3rd priority uses have been satisfied, sharing up to 164,652 acre-feet of that supply with other Arizona 4th priority water users. In recent years, Reclamation has allowed certain Arizona 5th priority users[2] and unauthorized users[3] to divert water even under Tier 1 and deeper shortage conditions, unlawfully cutting into the supply available to CAWCD. Moreover, the unauthorized water users on the mainstem must not be characterized as legally authorized to use Arizona's 2.8 maf in the EIS. This mischaracterization of unauthorized users could have the effect of distorting the results of shortage in a way where the total reductions to the CAP supply is overstated.

[2] "Arizona 5th priority users" are water users with a contractual entitlement to unused Arizona entitlement. During shortage conditions where CAWCD's diversion entitlement is reduced, there is no unused Arizona entitlement available to satisfy Arizona 5th priority users.

[3] The "unauthorized users" are entities taking delivery of Colorado River water without a water delivery contract pursuant to Section 5 of the Boulder Canyon Project Act or other applicable federal statute.

Term of Guidelines

The Post-2026 EIS should consider a sufficient term to gain operational experience from implementation of new operations, changing circumstances, and potential future programs but not a length where it becomes difficult to adapt to changing circumstances.

No Action Alternative

While Section 8.C of the 2007 Guidelines made an assumption of reverting to a 70R strategy after the interim period, too much has changed on the Colorado River for this to be a realistic assumption of future management of the River. CAWCD requests that the United States consult with the Basin States, CAWCD and other Colorado River Contractors on the development of a No Action Alternative.

c) Elements of the Post-2026 Guidelines

Based on the above, CAWCD recommends that alternatives considered under the Post 2026 EIS incorporate the following four elements:

Operations and Operating Determinations

Alternatives for the Post-2026 EIS must consider Colorado River reservoir contents, including Upper Basin reservoirs, when determining operations of Lakes Powell and Mead. This strategy could incorporate various water management components including using existing reservoir contents to enhance both water supply and other benefits of the reservoir system for both the Upper Basin and Lower Basin.

Operational determinations must address the current uncertainties inherent in the model projections used to set operating conditions.

System Efficiency

Significant developments have been made in the Colorado River Basin toward developing innovative conservation programs and policies to sustain current and future supplies. With extended drought conditions expected to continue into the foreseeable future, demand management and efficient use of water will play a key role in the Colorado River Basin. To that end, the Post-2026 Operations should also

consider promulgating basin-wide efficiency standards and programs for agricultural, and municipal and industrial water users.

Storage and Voluntary Conservation

The 2007 Guidelines provided a mechanism for the creation, accounting and delivery of ICS and other such voluntary conservation mechanisms. Such conservation and storage activities have increased the elevation of Lake Mead by 72 feet[4] over what would have been in the Lake without these programs. They have further provided Contractors a mechanism for addressing water supply issues. Operational experience under the 2007 Guidelines points to a need for restructuring the ICS framework, including provisions for the creation, storage and delivery of conserved water, and assessment of evaporation and other losses on the conserved water.

The Post-2026 Operations should consider impacts on other water users that may stem from storage and conservation mechanisms. Arizona would also require a framework for implementation of ICS or any other mechanism among Arizona Tribes and other Arizona water users, similar to the 2019 Arizona ICS Framework Agreement. If ICS or a similar mechanism is developed, CAWCD and Arizona would seek cooperation from the United States in a parallel process involving Arizona Tribes and water users. As noted above, alternatives in the EIS that contemplate the creation, storage and or delivery of conserved water must consider the appropriate forbearance mechanisms.

System conservation has been used to a large extent in the Lower Basin, but additional opportunities for conservation in the Upper Basin through the System Conservation Pilot Program (SCPP) have not been fully realized. The Post-2026 Operations should consider expanding the Lower Basin System Conservation program to facilitate increased participation by higher priority water users as well as expanding the Upper Basin System Conservation Pilot Program.

The Post-2026 Operations should identify a durable source of funding to assist in paying for conservation. Given the reduced inflow into the reservoirs and ongoing drought conditions exacerbated by climate change, the need for conservation will be higher than ever. Current sources of federal funding like the Inflation Reduction Act of 2022 will not be available for new programs started after 2026. As such, identifying a long-term source of funding to support the conservation needed to respond to climate change will be an important part of success.

[4] Bureau of Reclamation estimated about 72 feet of conservation as of the end of 2022.

Mandatory Reductions

Post-2026 Operations should identify those circumstances under which the Secretary would reduce the annual amount of water available for consumptive use from Lake Mead to the Lower Division states to below 7.5 maf, pursuant to the Consolidated Decree. Post-2026 Operations should additionally consider:

a. Conditions under which annual amounts of water are available for depletion by Upper Basin uses.

b. Conditions under which annual amounts of water are available for consumptive use to Lower Basin uses.

The magnitude of reductions should be sufficient to protect critical elevations at Lake Powell and Lake Mead and must be shared equitably among all water users. It is unreasonable and unlawful to impose mandatory reductions solely or primarily upon CAP to protect or build storage in Lake Mead and Lake Powell, particularly when there is 7.5 maf or more of water in the system. The criteria and conditions for mandatory reductions should provide water supply certainty and predictability for water users.

Augmentation and Exchanges

Several opportunities exist in the Colorado River basin with the potential for augmentation and exchange that would benefit all Colorado River water users including ocean desalination, brackish water desalination, reuse and recycling projects and importation.

The Post-2026 Operations should consider a framework for exchanges for implementing potential augmentation projects that could help with the supply demand imbalance on the Colorado River system.

d) Endangered Species Act (ESA) Consultation

Reclamation must work with the U.S. Fish and Wildlife Service and the state parties to reconsult under Section 10 and Section 7 of the ESA for the Lower Colorado River Multi-Species Conservation Program simultaneously with the Post-2026 EIS process.

Conclusion

CAWCD thanks you for the opportunity to provide these comments on the scope of the Post-2026 EIS. In addition, we support the comments submitted by the Governor's Representatives of the Colorado River Basin States as well as the comments submitted by the Governor's Representatives of the Colorado River Lower Division States.

Sincerely,

Brenda Burman
General Manager

cc: Amanda Erath
Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225
crbpost2026@usbr.gov

August 15, 2023

Commissioner Camille Calimlim Touton
United States Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Re: Notice of Intent to Prepare an Environmental Impact Statement on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Commissioner Touton:

Central Utah Water Conservancy District (District) appreciates the opportunity to comment on the Notice of Intent to Prepare an Environmental Impact Statement on the Notice of Intent (NOI) Development of Post-26 Operational Guidelines and Strategies for Lake Powell and Lake Mead (Post-2026 EIS).

The District supports the initiation of this formal National Environmental Policy Act (NEPA) process and recognizes the significant opportunity the process affords to put in place an operating policy that brings the Colorado River system into balance with water supply and demand under future hydrologic conditions.

The State of Utah has provided comments on the above referenced NOI through the Colorado River Authority of Utah (Authority). By way of this letter, the District adopts the comments made by the Authority. The District retains the right to comment on proceedings related to Post-26 Operational Guidelines and Strategies for Lake Powell and Lake Mead.

Once again, the District appreciates the opportunity to provide comments. We look forward to participating in the process by supporting the State of Utah, through the Colorado River Authority of Utah, as it works in partnership with its sister states, the Bureau of Reclamation, the Colorado River Tribes and key stakeholders to ensure the stability of the Colorado River system into the future.

Regards,

Gene Shawcroft, P.E.
General Manger/CEO
Central Utah Water Conservancy District

August 11, 2023

United States Bureau of Reclamation
Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead
P.O. Box 25007
Denver, CO 80225

Via Email: crbpost2026@usbr.gov

Subject: City of Escondido's and Vista Irrigation District's Comments on the U.S. Department of the Interior, Bureau of Reclamation Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Bureau of Reclamation:

The City of Escondido (Escondido) and Vista Irrigation District (VID) jointly offer this response to the Bureau of Reclamation's (Reclamation) Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead ("Post-2026 Operational Guidelines EIS").

Escondido, a California municipality located in northern San Diego County which provides water for over 150,000 people, and VID, an independent Special District organized and incorporated under the Irrigation District Law of the State of California which serves 135,000 people in the City of Vista and portions of Escondido, Oceanside, San Marcos, and unincorporated areas of San Diego County, depend on a share of the region's Colorado River supplies, including a portion of conserved Colorado River water from the lining of the All-American Canal and its Coachella Branch that is provided under the San Luis Rey Indian Water Rights Settlement Act, Public Law 100-675, as amended (Settlement Act).

Scoping for the Post-2026 Operational Guidelines EIS

Alternatives

In the Post-2026 Operational Guidelines EIS Reclamation must only analyze legally valid alternatives, which requires it to respect Acts of Congress, Court Decisions and Settlement Agreements signed by the Secretary of the Interior that are not subject to modification by Reclamation through its administrative actions.

City of Escondido
201 N. Broadway
Escondido, CA 92025
(760) 839-4090

Vista Irrigation District
1391 Engineer Street
Vista, CA 92081
(760) 597-3100

Modeling

The models of available water for Reclamation to consider should distinguish between water over which Reclamation has authority (such as contract water) and other water in the Colorado River and Upper and Lower Basins. As described in the more detail below, the 16,000-acre feet of conserved Colorado River water provided under the Settlement Act is not subject to reduction by Reclamation through the post-2026 administrative process because it has been allocated by a Settlement, approved by Congress, signed by the Secretary of the Interior, and upheld in the United States District Court.

History of the San Luis Rey Water Rights Dispute and Settlement

Escondido and VID, along with the United States and five federally recognized Indian Tribes[1] and an intertribal consortium known as the San Luis Rey Indian Water Authority ("IWA"), are parties to the San Luis Rey Indian Water Rights Settlement, which is a complex settlement and set of agreements that resolve a decades-long dispute over the right to waters in the San Luis Rey River in northern San Diego County.

The San Luis Rey dispute[2] began when the United States gave the San Luis Rey River away twice – first to five federally recognized Indian Tribes, and then to Escondido and VID. To resolve the conflict and meet the ongoing water needs of the Tribes and Escondido and VID, Congress directed the Secretary of the Interior annually to provide 16,000 acre-feet of Supplemental Water (i.e., water from a source other than the San Luis Rey River) to the Tribes, Escondido and VID. The Settlement Act also provides for the creation of the IWA to administer the Tribes' share of the Supplemental Water. See Settlement Act, §§ 106, 107.[3]

Title II of the Settlement Act authorized the Secretary to line certain previously unlined portions of the All-American Canal and its Coachella Branch to conserve Colorado River water, § 203, and identified the Canal Lining Projects as a possible source of Supplemental Water to settle the San Luis Rey water rights dispute as among the Tribes and VID and Escondido. See Settlement Act § 106(a)(2).

In 2000, Congress enacted the "Packard Amendment," which directed that Colorado River water conserved by lining the All-American Canal and its Coachella Branch (Canal Lining Projects) would be the source of the 16,000 acre-feet per year for the San Luis Rey Settlement, Public Law 106-377, App. B, § 211 (October 27, 2000) 114 Stat. 1441A 70. The Packard Amendment added subsection 106(f) to the San Luis Rey Settlement Act:

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[1] The five Tribes are the La Jolla Band of Luiseño Indians, the Rincon Band of Luiseño Indians, the San Pasqual Band of Mission Indians, the Pala Band of Mission Indians, and the Pauma Band of Luiseño Mission Indians.

[2] The history of the San Luis Rey dispute is largely set forth in various published decisions. *See, e.g., Escondido Mutual Water Co. v. Federal Energy Regulatory Com.*, 692 F.2d 123 9th Cir. 1982), *amended 701 F.2d 826* (9th Cir. 1983), *aff'd. in part and rev. in part sub nom, Escondido Mutual Water Co v. La Jolla Band of Mission Indians,* 466 U.S. 765 (1984)

[3] The Tribes, Escondido, VID, and the IWA have often been referred to as the "San Luis Rey Settlement Parties." More recently, since the settlement is in the Implementation phase these parties are referred to as the "San Luis Rey Settlement Implementing Parties".

> **Notwithstanding any other provision of law**, in order to fulfill the trust responsibility to the Bands, the Secretary, acting through the Commissioner of Reclamation, shall **permanently furnish annually** the following:
>
> (1) WATER--16,000 acre-feet of the water conserved by the [Canal Lining Projects] for the benefit of the [San Luis Rey Settlement Implementing Parties] [emphasis added][4]

Final Settlement and Implementation of the San Luis Rey Settlement

After reaching a settlement among themselves, the San Luis Rey Settlement Implementing Parties had to also reach a settlement with the United States. This required additional Federal legislation. See Public Law 114-322, Act of Dec 16, 2016, 130 Stat 1793-94 which added section 112 "Implementation of the Settlement" to the San Luis Rey Settlement Act. Section 112 of the San Luis Rey Settlement Act approves and ratifies the Settlement Agreements among the Settlement Implementing Parties and the United States. After the Settlement Agreement was signed on behalf of the United States by both the Attorney General's Designee and the Secretary of the Interior it was approved by the United States District Court and the Federal Energy Regulatory Commission, and finally took effect.

The dispute that arose over a century ago and resulted in a 50-year court battle and Congressional actions has been resolved. The Parties to the Settlement have entered a new phase, working together as implementing partners. Supplemental Water – made possible by Canal Lining Projects that were a major conservation measure to reduce California's use of Colorado River Water – is a critical component of the Settlement's successful implementation.

The San Luis Rey Settlement is a good example of local and tribal governments working with the federal government to make water available through infrastructure improvement and conservation measures. Such examples are needed and consistent with the Bureau of Reclamation's efforts to promote multi-party cooperation and conservation measures. Water users need to be able to rely on the benefits of their investment in conserved water infrastructure projects to continue investing in them.

The Congressional mandate to permanently furnish 16,000 acre-feet per year of conserved water to the San Luis Rey Settlement Implementing Parties for the Settlement and to fulfill the United States' trust responsibility to the Tribes cannot – and must not – be diminished or affected by any new Environmental Impact Statement or the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead.

Respectfully submitted,

Dane White
Mayor
City of Escondido

Jo MacKenzie
President of the Board
Vista Irrigation District

[4] The Canal Lining Project and related contracts have withstood a variety of legal challenges. *See, e.g., Consejo De Desarrollo Economico De Mexicali. A.C. v. United States*, 482 F.3d 1157 (9th Cir 2007), *In re Quantification Settlement Cases*, 237 Cal. App.4th 72, 187 Cal. Rptr.3d 669 (2015).

City of Goodyear
Water Services Department

August 15, 2023

Commissioner Camille Touton
United States Bureau of Reclamation
Attn: Post-2023 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225

Via email to crbpost2026@usbr.gov

The City of Goodyear ("Goodyear" or "City") appreciates the opportunity to respond to the Bureau of Reclamation's solicitation of comments regarding development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, and is submitting this letter to support and reiterate the comments made by the Arizona Municipal Water Users Association (AMWUA), of which we are a member.

Goodyear is a growing community, with a current population of 102,000 residents, located west of the Phoenix metropolitan area. Properly managing water resources and investing in Goodyear's water future has long been a priority for the city. Through investing in millions of dollars in infrastructure to treat and deliver Colorado River water, Goodyear has transitioned from being one-hundred percent reliant on non-renewable groundwater to renewable surface water. The Colorado River is a crucial water supply for our community and is essential to all aspects of our community.

Goodyear requests Reclamation's serious consideration of the responses submitted by AMWUA to Reclamation's request for feedback in the notice as summarized below.

Post-2026 Operational Guideline Should Provide for Increased Flexibility

The last few years under the 2007 Operating Guidelines have involved much uncertainty about how much Colorado River water would be available for subcontractors the following year. Municipal providers need more time than is provided by the current system, which relies on the release of the August 24-month study. Municipalities need time to appropriately place orders and make planning and operational decisions. This uncertainty would be avoided if the Colorado River is managed as one, overall system for increased reliability and regularity (as opposed to maximizing diversions and releases in a given year), in order to provide stability for Colorado River water users.

Achieving this objective will require more conservative reservoir operations and more proactive shortage sharing arrangements amongst all users. The new guidelines must focus on not only slowing the declines of Lake Mead and Lake Powell, but also building the reservoirs back up. Reclamation should continue to pursue implementation of assessments on evaporation, seepage and system losses. While this may lead to greater reductions, we believe in the long run this will help stabilize the systems and provide increased reliability for all users in the Basin.

Management Tools Should Utilize the Best Available Science

Existing tools, like the 24-Month Study, should be evaluated as to their accuracy and usefulness given the circumstances faced today in the Basin. While the 24-Month Studies serve an important purpose, we cannot afford to rely on a tool that is simply good enough when other methods of evaluating the likelihood of future reservoir levels and system releases may be more effective. Reclamation should also consider if

scenarios such as the existing "Most Probable" and "Max Probable" obfuscate the likelihood of drier outcomes to Basin stakeholders.

As part of managing the Colorado River system for increased reliability, estimates of what constitutes a "normal" supply need to be brought in line with the new reality of aridification occurring throughout the Basin. Additionally, Reclamation's modeling tools and process must be updated to incorporate best available climate science, and to remove biases from past, wetter hydrology. In acknowledgement of our nonstationary climate, less focus should be given to probabilistic forecasting, which can give an unrealistic depiction of future possible conditions. Marginal shortage reductions based on an optimistic annual supply that seek to only withstand cyclical drought conditions have not been and will not be sufficient to ensure a stable system. We need to be sure that any shortage reductions levied on water users are based on the best available science and are not only slowing the decline of reservoirs but are bringing them back to healthy and stable levels.

Shortage Sharing Should be Equitable and Basin-Wide

Climate change and reduced flows will continue to have an impact on water users across the Colorado River Basin and Mexico. All water users who draw upon the Colorado River enjoy the benefits of this water supply and should share in the responsibility of protecting the river system we all rely on. Therefore, we urge Reclamation to equitably spread reductions in the Lower Basin amongst all water users in three Lower Basin States to help stabilize the system. We also ask Reclamation to consider and analyze the impact of actions to be taken by the Upper Basin States, such as shortage reductions and continued DROA releases.

The Post-2026 Process Should Involve Meaningful Collaboration and Consultation with Municipal Water Providers

The process to develop Post-2026 operational guidelines would benefit from a process to solicit specific input from municipal water providers. Goodyear supports AMWUA's suggestion for the creation of a basin-wide Municipal Sector Committee to serve as a forum for municipal water providers to share their unique perspectives to Reclamation during the NEPA process. Cities are best positioned to offer their unique input representing the residents, schools, businesses, hospitals, industries, manufacturers and more that reside within them.

This stakeholder group should be in addition to Tribal representatives and state government officials, and not intended to supplant the input or authority of these representatives. Continued collaboration and consultation with the Basin States, Mexico, Tribes, NGOs, stakeholders, and water users – including municipal water providers – throughout the Basin is crucial for successful NEPA process and implementation of the Post-2026 operations.

The City of Goodyear appreciates the opportunity to provide input on this NOI. We are pleased that Reclamation has begun the process to develop the Post-2026 Operational Guidelines. We ask that Reclamation carry out the entire Post-2026 NEA process in a way that allows for stakeholder engagement of all water users across the basin.

The challenges faced today in the Colorado River have profound impacts on all users. We must work together to develop operational guidelines that will allows for greater certainty, reliability, equity, and cooperation among all that rely on the Colorado River. We look forward to future discussions and collaboration with Reclamation and other stakeholders.

Sincerely,

Ray Diaz
Water Resources and Sustainability Manager

Barbara Chappell
Water Services Director

4980 S 157th Ave, Goodyear AZ 85338
P 623-932-3010 F 623-882-7588

goodyearaz.gov

City of Phoenix
OFFICE OF THE CITY MANAGER

August 15, 2023

VIA ELECTRONIC DELIVERY

Amanda Erath
Colorado River Post-2026 Program Coordinator
Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84–55000)
P.O. Box 25007
Denver, CO 80225
Via email: crbpost2026@usbr.gov

Re: City of Phoenix Comments on the Bureau of Reclamation's "Notice of Intent to Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead"

Dear Ms. Erath:

On behalf of the City of Phoenix ("Phoenix"), I want to express our appreciation for the opportunity to comment on Reclamation's Notice of Intent to Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, as published in Federal Register Notice 88 FR 39455 on June 16, 2023 (hereinafter the "NOI").

Phoenix is the nation's third-largest municipal water provider and supports a community and economy that relies heavily on the Colorado River and the vast Reclamation infrastructure that works to manage it. As such, Phoenix is deeply interested in the development of new Colorado River guidelines. Over the past several years, the Colorado River system has been stretched to the breaking point by a combination of overuse of reservoir storage, ongoing drought, and an underlying decline in the Basin's hydrology due to the impacts of climate change. The wet winter of 2022-2023 has provided some temporary relief, but these underlying challenges of overallocation, overuse of water, ongoing aridification, and growing hydrologic uncertainties in the face of climate change remain. These challenges threaten to return this river system to crisis within a short time—potentially even before we can complete the process of adopting the new guidelines that are the subject of the NOI.

Conditions in the Colorado River Basin have changed substantially since the adoption of the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead ("2007 Guidelines"), as has our understanding of the challenges we face. The NEPA process being initiated by this NOI presents a critical opportunity to re-shape the management of the Colorado River
in a manner that (a) rises to the challenge of a changing climate in the arid Southwest; and (b) preserves and sustains the Colorado River Basin's $1.4 trillion annual economic activity and 16 million jobs, each while maintaining the quality of life and environment that has drawn the 40 million people who depend on this Basin to make their homes in this region. The stakes could not be higher for the Basin or for the United States as a whole. If we take advantage of this

opportunity, Reclamation can help the Colorado River stakeholder community move away from historic approaches focused on the maximization of water use and guide the Basin towards an approach that focuses on long-term resilience and sustainability of the system and the Nation's economy in the face of growing uncertainty.

To that end, Phoenix respectfully offers these comments in response to the NOI, focusing on specific considerations related to needed modifications to the purpose and need elements as compared to those utilized for the 2007 Guidelines, specific water management strategies that should be considered, and the scope of the guidelines and related analysis that should be undertaken in the Environmental Impact Statement (EIS).

EXECUTIVE SUMMARY

Definition of Purpose, Need, and Elements of the 2026 Guidelines. The past two decades have demonstrated that the hydrology of the Colorado River is both less stable and less predictable than was believed when the 2007 Guidelines were developed. Climate impacts are increasingly evident and growing in every part of the Basin, and as a result our previous management strategy—focusing primarily on the allocation of water from and balance of water between Lakes Mead and Powell—will not be adequate to address the current challenges and avoid the risk of catastrophic failure in the system. To that end, we recommend that the statement of purpose and need originally identified in the 2007 Guidelines should be modified and broadened to include three additional elements:

- Providing U.S. entitlement holders and subcontractors with adequate notice of changes in water availability based on clearly defined management rules that provide meaningful opportunity for adaptation, recognizing that unexpected disruptions in water supply for municipal providers can threaten human health and safety.

- Implementing a precautionary principle in decision-making that focuses on rebuilding storage buffers and maintaining the long-term resilience of the Colorado River system.

- Improving water management by managing the Colorado River based on whole system conditions and developing coordinated solutions across natural and built infrastructure.

Strategies Proposed for Consideration. The following general management strategies should be analyzed within the range of alternatives considered in this NEPA process, with the actual details of these strategies and how they might be incorporated within alternatives to be further developed through stakeholder discussion and modeling.

- Determining volumes available for delivery within the Annual Operating Plan based upon a more holistic view of system conditions, including whole system storage values, near-term water supply/runoff forecasts, and long-term hydrologic trends.

- Adjustment of water allocations on a more gradual, continuous, and predictable basis, moving away from current "trigger and cliff" methodologies that impose large annual step-changes in supply at specific thresholds.

- Establishing operational parameters that promote system storage recovery over the medium term and the ongoing minimization of key water risks, with specific management approaches or pre-planned responses identified and tied to thresholds that avoid critical risks, provide reasonable protection for high-priority rights holders (including tribal rights), and ensure environmental compliance.

- Creative and flexible use of reservoir storage in a manner that benefits continued investments in water conservation and efficiency, co-investment in water supply solutions, and intra- and inter-state and international cooperation in managing water risk. This would include continuation of the ICS rules with certain modifications to minimize operational risks associated with ICS storage and withdrawals.

- Management policies that will specifically support transactional and transitional behaviors among water users that can mitigate water risks at the ground level, such as city-to-city exchanges, dry-year option arrangements, short- or long-term leases, mutually beneficial investments in agricultural lands and new or improved infrastructure.

Scope of Issues for Analysis. To further the purpose and need of the 2026 Guidelines, we encourage Reclamation to consider a broader scope – both geographically and substantively – for analysis in this NEPA process than was considered in the previous 2007 Guidelines process. Several key issues are noted below.

- Reclamation should broaden the geographic scope of its analysis to permit consideration of continued or expanded coordinated operation of Lakes Mead and Powell and operations of other Upper Colorado River Basin reservoirs constructed and operated under the Colorado River Storage Project Act (CRSPA).

- The scope of analysis should consider a broad range of reasonably foreseeable climate impacts that could intersect with Colorado River operations, including a robust analysis of likely futures for Colorado River Basin hydrology and the intersection of the proposed action and alternatives with this hydrology. This should include analysis of potential changes in precipitation and the influence of aridification on the timing and volume of runoff over time.
- Reclamation's analysis needs to provide both on- and off-river stakeholders with a clear understanding of potential impacts to their water supplies; this should include assessment of outcomes that could be associated with reaching dead pool and potential side effects (e.g., groundwater impacts). Reclamation's analysis of those outcomes must also include human health and safety risks and Reclamation's authority to address human health and safety concerns under worst-case conditions.

- The scope of analysis should note the estimated and relative costs and benefits of implementing conservation activities and the estimated volumes of savings that could be achieved by conservation investments.

- Given the critical economic significance of the Colorado River system, the process must employ a robust means to evaluate economic impacts in connection with different alternatives, including consideration of high-end economic values and potential impacts to local economies.

- The scope of the EIS should include discussion and consideration of specific potential mitigation and monitoring measures that could be incorporated within new management guidelines in or parallel with those guidelines to reduce or manage climate-related risks and the impacts of the proposed action.

Other Related Issues for Consideration. Phoenix proposes that Reclamation additionally consider the following as part of its NEPA analysis.

- Full sector-specific analysis of potential impacts resulting from significant shortages, addressing deficiencies observed in the consideration of shortage impacts on water

users, the environmental, and local, regional, and national economies in the 2023 Near-term Colorado River Operations Draft Supplemental Environmental Impact Statement.

- Evaluation of the potential benefits of continuing short-term system conservation efforts as well as long-term systemic demand management and water conservation efforts, and analysis of the potential benefits that landscape level investments could have for management of the Colorado River system.

- Supporting a sector-driven stakeholder process (e.g. municipal sector) to identify impacts to users and the environment and negotiate and develop alternatives.

- Continuing to improve the Basin's water accounting, forecasting and supply estimation efforts as part of the proposed action, as well as the Colorado River modeling software which in turn improves public understanding of water use, the impacts of aridification, and the impacts of water management decisions.

We provide a more detailed explanation of each of these comments in the sections below.

I. How the Purpose, Need, and the Elements of the 2007 Interim Guidelines Should be Retained, Modified, or Eliminated

The purpose and need underlying the 2007 Guidelines focused on three elements:

1. Improving management of the River by considering tradeoffs between the frequency and magnitude of reductions of water deliveries, and considering impacts on Powell/Mead storage, water supply, power production, recreation, and other environmental resources;

2. Providing U.S. mainstream users a greater degree of predictability with respect to annual water deliveries, particularly under drought and low reservoir conditions;

3. Providing additional mechanisms for storage and delivery of Lake Mead water supplies to increase flexibility. *See* 2007 Record of Decision at p. 7.

While these three original elements remain valid considerations for the next set of guidelines, circumstances have also changed substantially in the Colorado River Basin since the development of the Guidelines in 2007, as has our understanding of the climate-related challenges we face. To this end, we recommend that those elements should be modified and broadened for the 2026 guidelines process to include the following *additional* elements.

1. Providing U.S. entitlement holders and subcontractors with adequate notice of water availability, certainty of management tools, and time for adaptation.

The purpose of the 2026 guidelines should seek to provide greater *notice* to water users of both the potential for, and the timing and nature of major changes in the availability of Colorado River water, not simply "predictability." This is particularly important for municipal water providers who are responsible for providing drinking water. It is also critical that water users have *certainty* with regard to the management actions that will be deployed under a range of conditions and have *time* to adapt.

In the face of growing climate uncertainty, it is likely no longer possible to strive for complete system reliability; this is a fundamental issue and one that should be expressly acknowledged in the purpose and need for this action. However, we can and must still strive to manage the

Colorado River system in a manner that allows water users the time, space and clarity to adapt to inevitable changes in water availability.

The timeframes for changes to infrastructure and other adaptive strategies are inherently long, which can be particularly problematic in the municipal sector where there can be little to no tolerance for sudden and significant supply disruption. It must be recognized that the acceleration of timeframes for adaptation due to unexpected disruption in supply can threaten human health and safety, and massively increase the costs of adaptation.

Just as importantly, uncertainty around the potential for rapid changes in supply availability can challenge public confidence in municipal water delivery systems. The recent uncertainty that has prevailed in the Lower Basin with regard to water availability, the potential for catastrophic shortages in the face of "dead pool" conditions, and whether and how Reclamation might act in response has already caused and is likely to continue to cause measurable public concern and related economic damage both regionally and nationally.

2. ***Implementing a precautionary principle in decisionmaking that focuses on rebuilding storage buffers and maintaining the long-term resilience of the Colorado River system.***

While the full extent of future climate impacts on the Basin's water supplies and demands are yet unknown, there is a clear purpose and need of the 2026 Guidelines to introduce a precautionary principle into future decisonmaking in order to better protect human health and the environment.

Under the 2007 Guidelines and prior management regimes, the management of the major reservoirs in the Colorado River system has largely focused on preserving the delivery of Colorado River Compact volumes and maximizing the volume of water available for delivery at all times, and has focused less on ensuring the long-term sustainability of the Colorado River in the face of changing conditions. In doing so, the management of the system has failed to account for various long-standing issues such as the failure of the *Arizona v. California* Decree to allocate reservoir evaporation losses; the obvious disconnects between fixed allocations and declining hydrologic yields; and the increasingly fantastic notion that there remains any "undeveloped" water within the context of a climate-challenged Colorado River. It has also increasingly failed to account for the complexity of this watershed, its ecosystems, and the influences that the relative condition and trends in natural systems have on the system and its storage reservoirs over time.

A clear need for the 2026 Guidelines is to correct these deficiencies and set a new course that proactively addresses them. Recognizing that aridification is likely to reduce the volume of water available from this watershed, we must shift our philosophy of water storage away from viewing reservoirs as a means of *augmenting* water supply towards viewing them as a means of *preserving* and *stabilizing* the availability of water supply over time in the face of uncertainty. A precautionary principle would require efforts to reverse recent declines and promote system recovery. This recovery should address the challenge of the present moment, with Mead, Powell, and the other reservoirs already depleted well beyond the point of safety, and work to promote reasonably rapid storage recovery in the near-to-medium term.

Similarly, future management policies should also focus on increasing the resilience of the Colorado River system. Resilience for the Colorado River system should include the ability to prepare for and adapt to climate impacts—to absorb disruption and persist. A focus on resilience should move the management of the system towards the proactive management of uncertainty, adopting policies that discourage or at least do not encourage the maximization of diversions by water users, understanding vulnerabilities and pre-developing responses to avoid

system failures, and protecting sensitive ecosystem values. Resilience will also require proactive, permanent reductions in demand, with ongoing investments in agricultural, municipal, industrial, and natural watershed infrastructure, and investments to facilitate predictable economic and social transitions. Importantly, the effective term of the new guidelines should be long enough to justify making long-term investments in these areas.

3. ***Improving water management by managing the Colorado River system based on whole system conditions and developing coordinated solutions across natural and built infrastructure.***

It is essential that the purpose and need for this NEPA process embrace a scope that allows the agency to look beyond modifying the rules for the operation of Lakes Mead and Powell alone, and consider both conditions and the potential for coordinated solutions within the larger system that includes natural and built infrastructure. We recognize that there are strong pressures on the agency to limit the scope of these new guidelines and focus on the resolution of current controversies among the Basin States and Upper and Lower Basin interests. However, the challenges that we have been facing in the Colorado River Basin and that have driven the discussions around the 2007 Guidelines, the Drought Contingency Plan (DCP), the 500+ Plan, and the creative management approaches that Reclamation has undertaken in response – as well as its efforts to improve forecasting and modeling – have increasingly looked beyond Powell-Mead operations. This is out of recognition that the impacts of those operations are felt both upstream and downstream, and throughout the storage system and the user community.

At a minimum, this scope needs to permit the agency to embrace a new approach to planning that looks more holistically at system conditions – including storage held in other Upper Basin and Lower Basin reservoirs – to guide management decisions related to water availability and Mead-Powell reservoir releases. This scope can and should embrace the potential for continued and enhanced coordination with other system storage features (e.g., the full list of CRSPA reservoirs), even if this might sooner or later require supplementing existing analyses and Records of Decision governing those features. There is little question that future climate conditions could depart substantially from the conditions anticipated when the operation of other Basin facilities was planned. Additional coordination and flexibility in storage management, deliveries, and accounting between facilities could help to ensure that the water deliveries, flow requirements, and other management constraints at each reservoir can continue to be met over time.

Similarly, we would also suggest that this scope can and should embrace potential approaches to mitigate potential challenges and climate impacts created by selected Mead-Powell operations, whether these are mitigation measures included in the proposed action, or that might occur as part of expected parallel actions or activities. For example, the agency can and should consider how management rules might embrace or encourage investments in systemic demand management and landscape level investments in natural watershed infrastructure, agriculture, municipal conservation, and other activities – which in turn could factor into future management decisions related to water availability and reservoir releases.

II. Strategies Proposed for Consideration

Colorado River management has historically focused on the use of system storage to maximize available water use. Recent history has demonstrated that this approach is ineffectual to deal with the current stresses on the system—as is evidenced by the recent nearly annual interventions necessary to prop up the system, such as the DCP, the 500+ Plan, releases from Flaming Gorge, holding Powell releases back from Mead, and most recently, System Conservation Agreements. A core consideration in the development of the 2026 Guidelines

must be the transition of Colorado River management towards approaches that focus on the long-term resilience of the system in the face of growing uncertainty.

Two key deficiencies of recent Colorado River management have been our continued attention on reservoir storage while downplaying changes in whole system conditions and the use of reservoir storage as a means of delaying necessary and inevitable reductions in water use. The 2007 Guidelines were fundamentally designed to address scenarios in which short-term or medium-term drought conditions developed in the Basin. The scenario analysis and attendant guidelines therefore focused on relatively modest, temporary reductions in water use necessary to manage the use of reservoir storage as a buffer, assuming the system would eventually return to something akin to a "normal" condition that would allow reservoir storage to recover.

The science has demonstrated that a significant contributor to long-term reservoir decline has been the ongoing net reduction in hydrologic yield within the Basin as a result of aridification and gradual temperature increases attributable to climate change. Although shorter-term swings in precipitation patterns or periodic drought have clearly been an important factor in the reduced yields observed over the past 20 years, the signal of reduced hydrologic yield associated with this aridification trend has grown stronger over time, creating greater and greater disconnects between relative levels of precipitation and runoff. As runoff efficiency has decreased, whether due to changes in vegetation, dry soil columns, increases in evapotranspiration, or other factors, the probability of experiencing a repeated annual sequence of conditions wet enough to recover reservoir storage has substantially decreased.

The predictable result was that the 2007 management strategy inexorably led Basin storage in one direction: down. It quickly became clear that the shortage triggers and volumes encapsulated in the 2007 Guidelines were inadequate to prevent continued decline, which led to the expanded shortages and interventions in the DCPs and multiple system conservation and storage efforts. But even these expanded efforts proved inadequate, as our responses were chasing an ever-decreasing hydrological baseline.

We cannot afford to repeat this pattern. With future precipitation and runoff efficiency both increasingly uncertain, our management of water storage must be inherently more holistic and more precautionary in nature, addressing storage conditions not just the Powell-Mead reservoirs but conditions within the Colorado River Basin as a whole. Just as importantly, in determining the volumes of stored water that may be safely allocated from the Colorado River system, this management must be anticipating not only current storage conditions and near-term forecasts, but also underlying hydrologic trends that are likely to influence the direction of storage (and potentially the direction of water demands) into the future.

To this end, we recommend that the following general management strategies should be considered as part of the alternatives development process for the EIS, including as part of mitigation efforts, with the actual details of these strategies to be further developed through stakeholder discussion and modeling.

1. ***Consideration of whole system conditions in determining available water supply/shortages.*** The determination of volumes available for delivery within the Annual Operating Plan should be based upon the consideration of multiple factors that could provide a more holistic view of system condition, e.g.:

    a. ***Whole system storage values.*** Total system storage (rather than just relative elevations or storage volumes in Lakes Mead and Powell), including at a minimum watershed storage and active storage availability in Mead, Powell, Mohave, Havasu, and the CRSPA reservoirs.

b. ***Near-term water supply/runoff forecasts.*** Near-term Basin runoff forecasts generated by the Colorado River Forecast Center and 24-month study on total system storage.
c. ***Long-term hydrologic trend.*** Long-term forecast methodologies that anticipate the potential impact of larger hydrologic trends on a mid-to-long term basis (e.g. 5- to 10-year timeframe). For example, there are well-documented relationships or correlations between runoff efficiency and aridification, temperature, dust-on-snow measurements, and the timing and volume of prior year precipitation, as well as correlations between Atlantic and Pacific ocean temperature regimes measured by the AMO/PDO signals and wetter/drier conditions in the Basin, among other signals.
d. ***Expected results of system water supply benefit programs.*** Investments in projects and programs that create system-level water supply benefits could be incorporated in both near term forecasts (subsection b above) and long-term trends (subsection c above).
e. ***Signposts and triggers.*** As described in further detail below, key signposts and triggers should be identified as part of the modeling efforts along with related protective response strategies that are necessary or desirable to meet management objectives.

2. ***Smoother changes in available water deliveries under the Annual Operating Plan.*** Alternatives evaluated in the EIS should include consideration of a strategy for determining of the annual volumes of water available for allocation and delivery that adjusts deliveries on a more predictable, frequent, and graduated basis to better enable user adaptation over the course of each year or series of years. This would need to reflect a departure from the current "trigger and cliff" methodology for Mead shortage levels and Powell releases, which ties both shortage allocations and reservoir operational schedules to specific elevation tiers projected as of the August 24-month study, and with large step-changes tied to those tiers.

3. ***Define key management objective(s).*** In framing the parameters for operational strategies and in determining the volumes of water that may be safely allocated from the Colorado River system, management objectives should be focused on promoting medium-term system storage recovery and the ongoing minimization of key water risks, specifically:

    a. ***Protection of municipal water supplies.*** Phoenix continues to believe that Reclamation can and should provide further guidance related to the agency's ability to take extraordinary actions to protect human health and safety within its governing legal authorities and available discretion under the Law of the River. This guidance is critical to help municipal and industrial users develop realistic adaptation strategies and make appropriate investments that can prepare large populations and critical industries to make required changes to infrastructure, processes, and public expectations during worst-case conditions. As detailed in our pre-scoping letter of September 1, 2022, which is incorporated here by reference, given the scope of its existing legal authorities, we urge Reclamation to expressly consider and recognize its authority to address human health and safety concerns in at least the following areas:

        i. Reclamation's authority to undertake at least limited departures from the Basin's "priority system" where necessary to protect critical infrastructure, preserve health and safety, and meet fundamental federal objectives such as national security;

ii. Reclamation's clear authority to act to limit particular types of water uses and mandate improved efforts at conservation for various water use sectors, particularly during critical conditions; and
iii. Reclamation's clear authority to de-prioritize operational and timing considerations related to hydropower generation in the context of ensuring water deliveries.

Just as importantly, however, because taking such an action would likely be highly disruptive to system operations, would undermine the settled expectations of various water rights holders, would almost certainly lead to litigation, and is otherwise not at all desirable, **Reclamation must specifically define the limited and extreme conditions under which this sort of intervention would occur. A basic management objective should then be to operate the system in such a manner *that those conditions are never reached.***

b. ***Protection of high-priority rights holders, including tribal rights.*** A corollary to the first objective is that, in the absence of a truly disastrous situation in which extraordinary actions could become necessary, Reclamation's management regime should adequately protect higher-priority users of water in a manner consistent with settled expectations around water rights. By their nature, system reservoirs provide the greatest protection to more junior water users by smoothing out highly variable annual supplies. However, **that smoothing function cannot and should not include mining reservoir storage** over any period of time, particularly when remaining storage is no longer adequate to protect higher-priority users or where forecasts and trends indicate that storage utilized to protect junior users cannot reasonably be expected to be recovered near-term. A basic management objective should thus be to ensure that adjustments to allocations that will impose shortages on more junior users occur promptly enough and at a sufficient scale that it will not jeopardize a core volume of storage within the system.

c. ***Compliance with environmental flow targets.*** Avoiding violations of existing Record of Decisions and other system guidelines related to protection of environmental flows/Grand Canyon requirements and targets, endangered fish requirements, and other ecological priorities should remain a core obligation of Reclamation. Failure to protect these values could create significant operational uncertainties due to litigation or significant adjustments to operations required to recover ecological systems that are disrupted by low-flow events.

d. ***Creation of and response to identified signposts/triggers.*** Given the uncertainties that exist with climate change and the potential need for swift reactions to changing conditions, the EIS process should lead to the creation and analysis of an adaptive management plan for the Basin that establishes some key signposts and triggers that are correlated with significant water risks, together with potentially effective response actions that could be implemented in the event that such conditions actually occur. By signposts, we refer to indicators chosen that are monitored (e.g. average increase in temperature over baseline) and by triggers, we refer to values of signposts (e.g. 0.3 degree Celsius) that identify when associated response actions should be implemented.

Decisionmaking in the Basin is particularly complex with seven states, major municipal and agricultural users, and the country of Mexico all dependent upon the River. As we have observed over the past few years, the pace and scale of changes that could be possible in connection with aridification and less

predictable weather patterns can easily overwhelm our usual consensus-driven governance models. Rather than abandon our commitments to collaboration, we should instead work harder to collaboratively define potential courses of action that should be available to Reclamation if and when conditions change. An effective adaptive plan should help to ensure that Basin users have time to initiate necessary decision processes and implement adaptive responses when and if those conditions occur.

4. ***Operational Flexibility and Creative Use of Storage.*** A key strategy for managing water risk within the Colorado River can and should be the creative and flexible use of reservoir storage in a manner that benefits continued investments in water conservation and efficiency, co-investment in water supply solutions, and intra- and inter-state and international cooperation in managing water risk.

   Intentionally-Created Surplus and the Mexican Water Reserve represented a first step towards incorporating storage-based incentives within Reclamation's operating guidelines that created alternatives to the old paradigm of "use it or lose it." Reclamation has taken further steps towards the creative use of storage in its conjunctive management of Powell and Mead launched under the 2007 Guidelines, its modified Mead-Powell accounting that strategically held back water in Lake Powell to protect power heads, and through DROA releases.

   A next step should be the consideration of a broader range of activities that could creatively generate and utilize storage and incentivize participation. For example, the EIS could analyze creation of specific categories of storage and associated criteria that would be entitled to protection under the related Forbearance Agreement, instead of requiring individual approval of each ICS project within the exhibits to the Forbearance Agreement. It could also consider the potential for the creation of similar storage in Powell to open the same opportunities to Upper Basin users.

   More creative uses of storage could similarly include allowing Reclamation the flexibility to move certain types of stored water (like ICS) between Powell and Mead to meet other key operational priorities and requirements, such as protecting hydropower heads. It could anticipate the potential for such storage to be temporarily "moved" to other CRSPA reservoirs. It should include limits on withdrawals of storage under certain conditions to ensure that the utilization of storage does not damage other users. This could include some rethinking of the ICS rules, such as treating future ICS as "top storage" that does not count towards accounted storage volumes/elevations for purposes of determining the amount of water available for allocation under shortage rules. It should consider the re-creation of the federal ICS account considered in the 2007 Guidelines, potentially as a means to satisfy environmental minimums, protect hydropower, or meet other system-level needs without infringing on water deliveries.

5. ***Facilitation of Transactional Behaviors to Minimize and Mitigate Risk.*** As part of any alternative that Reclamation adopts, Phoenix would strongly suggest that Reclamation specifically prioritize and broaden its support within the operational guidelines for the kinds of transactional and transitional behaviors among water users that could help to mitigate the real water risks that many of the Basin's users now face and that many will continue to face irrespective of the selected strategies for Colorado River management. Regardless of the outcome of any interstate dialogue, any selected set of shortage values or voluntary reductions, or any other high-level policy determinations, the real problems of water allocation will necessarily need to be solved at the ground level, among the providers and users who best understand their needs and the constraints within which they must operate.

Reclamation should not assume that desirable types of transactions will occur in the absence of affirmative federal support, or that individual users will be in a position to mitigate the risks created by Colorado River outcomes on an independent basis as was assumed in Reclamation's 2023 Near-term Colorado River Operations Draft Supplemental Environmental Impact Statement ("SEIS"). This NEPA process provides an opportunity to potentially encourage and streamline at least some of those potential transactional and transitional behaviors – by analyzing related operational rules that would facilitate them – in a context in which substantial amounts of federal and state resources are potentially available to assist those efforts. These transactions can provide meaningful mitigation for the inevitable risks that will be associated with any particular approach to Colorado River management. To this end, we would propose that as part of any preferred alternative or identified mitigation, Reclamation should consider including:

- Analysis of a wider range of potential near-term transactional behaviors that would be supported under new operational rules, in order to reduce the need for extensive NEPA analysis and approval as a near-term obstacle.
- Establishment of a mechanism within the operational rules that would permit certain kinds of pre-approved transfers between users, helping to avoid the worst impacts whenever reservoir storage is in a critical condition.
- Establishing a stakeholder process among and between system operators and end users to determine the precise volumes of water necessary to avoid shutting down critical infrastructure like drinking water plants (and avoid undesirable Reclamation interventions that might otherwise be necessary), and to seek out voluntary solutions to meet those minimums.
- Protection of tribal interests by committing to accelerated approval of core tribal infrastructure projects related to drinking water access and agricultural efficiencies, including direct investments in capacity needed to plan and carry out projects.

III. Scope of Issues for Analysis

Given the importance of the River, its 40 million residents, and the national economy, and recognizing the significant risks facing the Basin and the scale and speed of change that will be required to address it, there are several significant issues that Reclamation should include in its scope of analysis to support a robust NEPA process and set the Basin on a path to resilience. These will require analysis of a broader scope of issues for analysis in the EIS than was considered in the 2007 Guidelines EIS process and in the 2023 SEIS.

Upper Basin Reservoirs. Unlike the 2007 Guidelines, the geographic scope of Reclamation's analysis and any alternatives should be expanded to include coordination with other Upper Colorado River Basin reservoirs apart from Lake Powell. There is little question that future climate conditions could depart substantially from the conditions anticipated when the operations of other Basin facilities were originally planned, and Reclamation's operations at Mead and Powell will inevitably have potential impacts on both upstream and downstream facilities that must be analyzed. In this context, consideration of additional coordination and flexibility in storage management, deliveries, and accounting between and among facilities – even if this is undertaken as only a limited supplement to existing analyses or associated Records of Decision – could help to ensure that the water deliveries, flow requirements, and other management constraints at each reservoir can continue to be met over time.

Reclamation's authority includes adopting guidelines and coordinated reservoir management strategies to address operations of the Upper Colorado River reservoirs constructed and operated under the Colorado River Storage Project Act (CRSPA), including Glen Canyon,

Aspinall Unit (Crystal, Blue Mesa, Morrow), Flaming Gorge, Navajo, and Fontenelle. The 2007 Guidelines were considered guidelines to implement the Operating Criteria developed pursuant to section 602(a) of the Colorado River Basin

Project Act of 1968 (CRBPA).[1] However, the CRBPA provides authority to propose criteria for the coordinated long-range operation of all CRSPA reservoirs and Lake Mead. Although other existing agreements and operational provisions have been created to govern Upper Basin reservoirs (e.g., the Upper Basin Drought Contingency Plan), a truly coordinated set of operational guidelines can and should include more than Lake Mead and Lake Powell and incorporate greater opportunities for coordinated water management strategies with other Upper Basin reservoirs as part of the new post-2026 Guidelines.

Climate Impacts. To move past our recent history of lurching from crisis-to-crisis in the management of the Colorado River system, the scope of Reclamation's analysis should consider a broad range of reasonably foreseeable climate impacts that could intersect with Colorado River operations, including impacts to (1) the affected environment and (2) the proposed action, and (3) the alternatives. It should also analyze adaptation measures to address those impacts.

Climate change is causing significant shifts in weather patterns which is stressing the Colorado River Basin in ways that go well past the levels of runoff that we see each year. The Basin is not only experiencing drought but also aridification—long-term warming and drying. The trend is expected to continue, adversely affecting water availability, water storage, air quality, human health, agriculture, energy production, ecosystem function, biodiversity, and the overall resilience of the system as a whole. Climate change can also be expected to exacerbate environmental justice issues for the communities most vulnerable to climate-related health effects.

Advances in technology, science, and modeling since 2007 have made information and projections of potential climate-related impacts broadly available, and these should be included in the NEPA analysis. Climate impacts that should be analyzed include the following and related impacts on the environment and human communities:

- increasing temperatures;
- risks of longer and more frequent heat waves;
- increasing evaporation;
- changing precipitation patterns;
- changing runoff patterns;
- dust on snow; and
- wildfires.

The analysis should also consider potential resource-related impacts in both the Upper and Lower Basin including the following:

- water availability;
- natural (e.g., wetland) and artificial (e.g., reservoir) storage;

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[1] The CRBPA states: "In order to comply with and carry out the provisions of the Colorado River Compact, the Upper Colorado River Basin Compact, and the Mexican Water Treaty, the Secretary shall propose criteria for the coordinated long-range operation of the reservoir constructed and operated under the authority of the Colorado River Storage Project Act, the Boulder Canyon Project Act, and the Boulder Canyon Project Adjustment Act." Colorado River Basin Project Act of 1968 § 602(a).

- water distribution infrastructure;
- water treatment infrastructure;
- hydropower capabilities;
- agricultural crop requirements;
- natural resources (wetland, forest, soil, vegetation, etc.);
- biological resources; and
- wildlife.

Hydrology. While the scope should include an analysis of the Colorado River Basin's likely future hydrology and the intersection of the proposed action and alternatives with this hydrology, these should also be analyzed in connection with the climate impacts analysis previously mentioned.
This should include analysis of potential changes in precipitation and the influence of aridification on the timing and volume of runoff over time. The EIS analysis should include current assessments of and trends for flows into and out of Upper and Lower Basin reservoirs, snow, runoff, and precipitation, and tie this into the analysis of other climate impacts, particularly hydrologic decline related to aridification. With aridification, Colorado River flows are measurably declining as the temperature and evaporation in the Basin increases and the timing and volume of precipitation changes. It is estimated that for every 1 degree Celsius of warming, the Colorado River is losing 5-10 percent of flow through evaporation. Given global temperature trends, it is increasingly evident that the past hydrology of the Basin cannot be relied upon to predict the future, and that doing so would underestimate the risk of future dry conditions. The hydrology ensembles that are used should thus sample a sufficient number of plausible dry-end scenarios to ensure that the management of Colorado River water is robust to future dry conditions. These should also include temperature-adjusted scenarios that incorporate the continued warming signal in the Basin and that provide an alternative means of estimating warming-related impacts, avoiding the uncertainties associated with global climate models and downscaling-derived artifacts related to precipitation.

Water Supply & Water Rights. The EIS should include a clear analysis of key water supply, demand, and water entitlement-related issues to better provide stakeholders with a clear understanding of potential changes to their water supply operations. These should include, for example (1) estimated water supply shortages for each Colorado River entitlement holder and subcontract holders such as Central Arizona Project (CAP) subcontractors, (2) potential impacts of reservoirs reaching dead pool on holders and subcontractors, (3) impacts on groundwater from changes in recharge activities or as a result of users turning to groundwater to replace Colorado River surface supplies, and (4) different sets of demand assumptions for modeling (e.g. different rates of growth, demand responses to changes in water supply or temperature) to better reflect potential future conditions.

Water Conservation. For activities that have already occurred in the Basin or where existing research is available, the analysis should note the estimated and relative costs and benefits of implementing conservation activities and the estimated volumes of savings that could be achieved by conservation investments.

Water Transactions. The EIS should include an analysis of the varying types of water transactions that Colorado River users could engage in to support mitigation and adaption, including forbearance agreements, intra-state transfers, leasing arrangements, water right sales, trades, and water exchanges. For example, Reclamation could analyze water leases and transfers between on-river users and CAP users. By including the analysis in the EIS, Reclamation can help to streamline the process for users to develop and engage in water transactions that can support water risk sharing and reduce dependence on the Colorado River.

Water Quality. The scope of analysis should include the implications of actions or inactions that create water quality issues, including potential future changes as a result of climate impacts. This includes sedimentation and reduced water quality as a result of watershed conditions, erosion, and/or wildfires, with attendant impacts on reservoir storage. It includes changes in salinity from agricultural activities and in response to shortage conditions. It also should include water quality impacts of reservoir releases, for example releases from Alamo Dam on Central Arizona Project's water supply.

Storage. The EIS should include a clear accounting of reservoir storage space and utilization in the Colorado River Basin. For example, it should describe the Lake Mead storage account volumes and space utilized by entities with ICS, DCP ICS, etc. as well as the use and availability of storage in the Upper Basin reservoirs. Promoting a better understanding of storage within the Colorado River system can help stakeholders assess possible strategies to increase storage in the reservoirs and develop flexible storage arrangements. Reclamation's analysis should also include some assessment of the role of natural storage within the watershed, which also helps to support the resilience of the system against dry conditions (particularly for Upper Basin users). This analysis could help with the consideration of mitigation strategies, such as strategic investments in key watershed areas.

Infrastructure. The scope of analysis should include a thorough assessment of the state of relevant reservoirs and associated issues that could impact other resources. For example, this can and should include an analysis of infrastructure challenges that would be associated with low water levels (e.g. power heads, Lake Powell outlet tubes), loss of storage due to sedimentation, and environmental and infrastructure harm associated with quagga mussel infestations. It is important for Reclamation to fully evaluate and for the Basin's stakeholders to understand the physical infrastructure constraints that may guide water storage and delivery availability in the future.

Socioeconomics. The scope of the EIS should include an adequate assessment of socioeconomic impacts of various alternatives and potential shortages on Colorado River users, including municipal and industrial users. For example, reduced or complete loss of water supply to municipalities can have devastating impacts on employment, the housing market, health care services, education, food packaging and distribution, pharmaceutical production, and defense manufacturing, among other critical sectors that will affect the economy. These impacts should be part of the EIS analysis.

Human Health & Safety. The scope of Reclamation's analysis should include an analysis of human health and safety impacts and Reclamation's authority to address human health and safety concerns. Reduction in Colorado River flows and available water supplies can lead to severe impacts on communities' livelihood. Areas for analysis include water levels sufficient to operate drinking water treatment facilities; communities with no or limited alternative water supplies; quality of life standards as opposed to minimum level necessary for survival (e.g. parks and trees to mitigate demonstrated heat island impacts in addition to drinking water requirements); increased cost of water services on vulnerable populations; and time and resource constraints of developing and building new water infrastructure. With the trend of warming conditions in the Basin and the dependance of many users on the River to supply drinking water and maintain a healthy quality of life, this human health and safety analysis will be critical to determining the operation of the reservoirs to prevent the Basin's citizens from experiencing a "day zero" event.

Agricultural Resources. The scope of analysis should include an analysis of (1) the agricultural areas and crop types being grown in the Basin that use Colorado River water, including identifying whether the crops are for human or animal consumption, and (2) the economic value of water in agricultural operations separated out by region and crop type. With

nearly 80 percent of Colorado River water supporting agricultural uses, it is important for water planning efforts to have a clear understanding of the use of the water and be able to identify areas where investments in infrastructure, the development of new crop markets, water transactions, or other climate adaptive measures may help to address ongoing supply-demand imbalances.

Energy. The scope of the EIS should include an up-to-date analysis of the significance of hydropower to the Western power grid, impacts to generation from reduced flows, and impacts to the financial resources that are provided by hydropower generation. Revenues from hydropower finance several activities throughout the Basin, including meeting operational costs for Reclamation facilities, operation of infrastructure critical to Indian water rights settlements, salinity control, and endangered fish programs. This analysis will be necessary to help stakeholders understand changes to hydropower operations and help plan for potential futures without or with limited hydropower. It can also help identify the funding needs that may need to be sought from other sources to sustain the programs dependent upon hydropower.

Biological & Cultural Resources. The scope of the analysis should include an analysis of impacts to endangered species efforts and habitat programs and cultural resources. The new 2026 Guidelines could have important implications for a range of programs in the Basin including the Upper Colorado Endangered Fish Recovery Program, San Juan River Basin Recovery Implementation Program, Glen Canyon Dam Adaptive Management Program, and Lower Colorado Multi-Species Conservation Program. Changes in water flows and reservoir declines can also have important cultural impacts, such as changes in recreational opportunities and impacts to exposed cultural sites.

Mitigation & Monitoring. Mitigation measures to address expected climate impacts relevant to operations and the impacts of the selected alternative should be identified and considered in the NEPA review. Climate change impacts are also likely to be highly unpredictable and uncertain, which means that Reclamation should consider how it can monitor changes in condition, commit to necessary data collection to ensure the availability of monitoring data, and propose strategies to adjust or undertake future mitigation and monitoring.

IV. Other Related Issues that Should be Considered

In addition to the scope of issues for analysis and strategies for consideration, Phoenix encourages Reclamation to consider several other related issues in the EIS.

a. *Full analysis of potential impacts from significant shortages*

As part of the NEPA analysis, Reclamation should comprehensively analyze potential impacts from shortages. Phoenix recognizes that the analytical scope of this NEPA process will necessarily be far more comprehensive than one would expect to see from Reclamation's recent SEIS. However, Phoenix is compelled to note that there were multiple instances within the (recently withdrawn) SEIS that did not provide sufficient detail or information to adequately assess either environmental impacts or the likely real social and economic effects of proposed actions and water shortages. We would strongly urge that the EIS treat these issues far more broadly and avoid the substantial deficiencies in analysis exhibited by the SEIS in many areas, including analysis of shortage impacts on water users, the environment, the local, regional, and national economies, and the Colorado River system as a whole.

Specifically, the SEIS did not provide any clear analysis of how potential water shortages would impact municipal and industrial (M&I) users, leaving stakeholders without a sufficient analysis of direct, indirect, and cumulative impacts. Shortages to M&I users have the potential to negatively affect potable water availability, drinking water treatment plant operations, users' water quality, bond ratings, business investment, employment, the housing market, gross domestic product,

packaging and shipping of agricultural products, and semi-conductor and defense output, among a host of other sectors. The possibility of a loss of a Colorado River water supply on municipal and industrial users could have an extreme impact on both the local and national economy that should be analyzed. This is particularly critical in light of the fact that the water supply challenges that will be created by any near-term action taken on the Colorado River must be met with the water supply infrastructure and the alternative supply options that are in place today. Changes to that infrastructure or associated operations necessary to adapt to long-term shortages will take substantial time and financing to plan and build; if those changes will be necessary, that will also require significant federal action and support that needs to at least be anticipated by this NEPA analysis.

Similarly, the SEIS did not address the extreme conditions that could arise by reaching "dead pool" in either or both of Lakes Powell and Mead. Given current levels of storage and recent hydrologic trends, potentially reaching these conditions within the next few decades is clearly "foreseeable," and it is critical for Reclamation to anticipate and be able to describe system conditions that could fall well outside what was ever contemplated in the 2007 Guidelines or the subsequent DCP. Reaching these conditions could have serious socioeconomic consequences for users across the spectrum of municipal, industrial, agricultural, and recreational uses, and serious ecological and environmental consequences as well. Because avoiding such conditions can and should be a primary rationale for the kinds of responses that may be authorized by new operational guidelines, Reclamation needs to at least attempt to analyze the nature of those impacts to justify its proposed approach to avoiding those conditions.

As Reclamation is aware, in the discussions leading up to the 2007 Guidelines and DCP, the scenario analyses that were provided to Basin stakeholders consistently underestimated the potential for hydrologic scenarios that would reach or exceed the "worst case" presented to stakeholders. This led to a false sense of security, especially among high-priority users, that has inhibited discussions about potential responses to growing water scarcity in the Colorado River Basin. Understanding the consequences of dry hydrologic scenarios will help to facilitate dialogue between users with greater or lesser risk exposure to explore creative solutions or management options that could address those risks.

b. ***Emphasis on Long-term Water Conservation and Systematic Demand Management***

As part of the NEPA analysis, Reclamation should evaluate the results of the multiple recent short-term system conservation efforts, as compared against approaches that focus on long-term investments in water conservation and demand management activities. System conservation has played a central role in managing short-term Lake Mead storage and limiting storage declines over the past decade, including in the System Conservation Pilot Program, Drought Contingency Plan, and 500+ Plan. Given the widespread adoption of these strategies, the 2026 Guidelines should anticipate the potential need for additional system conservation. However, other conservation approaches that create long-term gains or reduce users' dependence on the Colorado River are also going to be important to support longer-term system resiliency. For example, while system conservation may help to modestly reduce the *probability* that Reclamation will need to impose shortages in the immediate future, reduced dependence on the part of end users gives Reclamation greater *flexibility* by reducing the potential for Reclamation's future management actions and interventions—including all-but-inevitable involuntary reductions and shortages—to produce disruptive or dangerous economic, social, and political consequences.

c. ***Consideration of Landscape Level Investments***

As part of this NEPA analysis, Reclamation should (1) analyze the potential impacts and benefits that landscape level investments could have for management of reservoirs and the system as a whole and (2) consider how operational criteria for the reservoirs will or will not support these investments. Managing and combatting aridification and the impacts of climate change will require more than reservoir management. It will require broad investments in forest management and restoration of forest health, improvement of rangeland conditions, increasing the efficiency of agriculture, and the restoration of tributary streams and natural storage systems that can help insulate vulnerable natural systems from drought and climate risk. The potential value of these investments as a means of managing Colorado River system risk should be analyzed, including as a means of mitigating the risks that will be associated with any operational guidelines that are ultimately selected.

For example, as part of its supportive analysis of desirable transactional behaviors, Reclamation could set goals in the new operating guidelines that would encourage better coordination of investment efforts among federal agencies, such as aligning other federal spending programs with broader system management goals (e.g., Farm Bill programs that promote investments on private lands that promote watershed health, natural storage, forest and rangeland conditions, or increase agricultural conservation) and increase its coordination with other federal and state agencies and public land managers to promote watershed health, natural storage, forest and rangeland conditions, reduce dust on snow, and combat landscape level aridification that is driving hydrologic decline.

d. ***Sector-Driven Process and Participation***

Phoenix appreciates Reclamation's intent to design and implement a stakeholder process that is inclusive, transparent, and encourages meaningful engagement. We support Reclamation's intent to include multiple levels and prioritize regular and meaningful consultation with Tribal Nations. The governance models at the state level used to drive Colorado River negotiations have frequently failed to represent or capture the vulnerabilities of some specific users and sectors. As such, Phoenix recommends that the stakeholder process cultivate sector-driven participation pathways to identify impacts to users and the environment and negotiate and develop alternatives.

In certain cases, there are greater commonalities of risks and vulnerabilities among water users within a sector than there are among particular states. For example, municipalities across the Upper and Lower Basin face risks to housing markets and drinking water infrastructure with reduced deliveries and can be one sector. Reclamation's process should engage stakeholders within sectors to truly understand the unique circumstances the sectors face and then engage across sectors to identify (1) sector-specific or multi-sector vulnerabilities and (2) potential solutions or policies to address them that should be considered in a Robust Decision Making-based process. At the draft EIS stage, consideration of multiple divergent solutions for Basin management can support shaping a consensus-driven preferred alternative.

e. ***Enhancing Data & Analytical Tools for Effective Management***

Effective water management requires robust and effective modeling, water accounting, and supply and demand forecasting, particularly in the over-allocated Colorado River Basin system facing ongoing, climate-driven hydrologic decline. The NEPA process should provide as much information as possible about the realities, limitations, and possibilities related to water accounting and water forecasting to help with stakeholder understanding and transparency. Reclamation should also update and improve its water accounting, forecasting, and modeling work during the NEPA process and in the alternative chosen for post-2026 operations.

i. More Robust and Effective Water Accounting

The availability and quality of data related to recent and current water use and demands varies widely within the Basin States and even within individual states. Moreover, climate change is affecting the water cycle and requiring re-evaluation of previous calculations such as crop evaporation. The water accounting for the Basin should include, at a minimum:

- Data sets for current and future demand that map closely to recent use and actual trends in water demand, including deployment of indirect measurements (e.g., satellite-based evapotranspiration measurement) where direct measurement is infeasible to better evaluate current use and changes in use over time.
- Efforts to improve the resolution of available flow data at a larger number of points in the Basin.
- Consideration of ongoing changes in crop types and irrigation methods in the evaluation of demand trends.
- Consideration of the impacts of temperature increases on future agricultural, industrial, and municipal demands.
- Better measurement of ecosystem uses of water and changes in response to drought and other stressors, including as a means of evaluating future environmental risks that may be associated with changing hydrological conditions.

ii. Improved Forecasting and Supply Estimation Effort

With aridification in the Basin, the data sets utilized in short-term forecasting and the data sets used in short-, mid-, and long-term system modeling should better reflect known aridification trends. Water forecasting for the Basin should include, at a minimum:

- Separation of unusually wet sequences or wet single years that may bias results.
- Development of hydrologies that include climate-driven temperature impacts in the Basin, such as temperature-adjusted versions of historical flows, in addition to use of flow data derived from global climate models (which currently do not downscale reliably at the resolution of the Colorado River Basin).
- Incorporation of aridification trends and temperature trends into hydrologic data sets, including typographies that account for potential landscape-level disturbances due to fire, vegetation changes, and other climate-related changes.
- Evaluation of system vulnerabilities to rapid changes in hydrologic conditions that may be possible in the future, including rapid swings in precipitation patterns (whether Basin-wide or on a regional basis).

iii. Improvements to Colorado River Modeling

The Colorado River Simulation System (CRSS) and the Colorado River Mid-term Modeling System (CRMMS) models have known shortfalls that limit stakeholder understanding of the true impacts that could occur. To improve the models, Reclamation should consider:

- Incorporating, either directly or indirectly (via post-processing or the use of secondary models), the potential to model impacts on key resources that lie outside of the current scope of CRMMS or CRSS but that are likely to play a key role in the NEPA process or in development of future system management strategies, such as:
    - availability of water to particular mainstem users within the existing priority system, in order to evaluate impacts to particular end users, including tribes;
    - availability of water to contractors and subcontractors within the CAP system;
    - availability of water to key environmental resources that may drive management decisions; and

  - defining desired flexibility to manage water between reservoirs to meet required or desired management objectives (e.g., Grand Canyon, below-reservoir reaches subject to BiOps).
- More clearly incorporating, identifying, and displaying key Colorado River system limits and thresholds, including but not limited to:
  - likely real minimum power pools and changes in hydropower production, including secondary impacts from loss of hydropower;
  - Glen Canyon Dam bypass limits; and
  - CAP system minimum pumping/delivery limitations.
- Making CRSS/CRMMS model documentation, underlying assumptions, and input data sets readily available for access by advanced users.

Conclusion

Phoenix greatly appreciates Reclamation's consideration of its comments on the NOI. We look forward to future discussions and collaboration with Reclamation and other Colorado River stakeholders as part of the guidelines process.

Sincerely,

Cynthia S. Campbell

Cynthia S. Campbell
Water Resources Management Advisor

Cc: Camillie Calimlim Touton, Commissioner, US Bureau of Reclamation
David Palumbo, Deputy Commissioner, US Bureau of Reclamation
Jacklynn Gould, Regional Director, Lower Colorado Basin Region, US Bureau of Reclamation
Wayne Pullan, Regional Director, Upper Colorado Basin Region, US Bureau of Reclamation
Tom Buschatzke, Water Resources Director, Arizona Department of Water Resources
Warren Tenney, Executive Director, Arizona Municipal Water Users Association
Brenda Burman, General Manager, Central Arizona Water Conservation District
Leslie Myers, Chief Water Executive, Salt River Project

Letter #: 922

Date Received: 8/5/2023

Sender Names: 11686: Peter Culp

Emails: 11686: pculp@culpkelly.law

Organizations:

Subject: additional comment on hydrology ensembles

Dear Reclamation post-2026 team:

Thank you for the opportunity to comment on the proposed Colorado River hydrology ensembles that USBR is considering as part of the Post-2026 process. I am sending these along on behalf of the City of Phoenix.

The City greatly appreciates that Reclamation will be using a DMDU approach for the Post-2026 process, as this framework will make the selection of particular hydrologic ensembles/scenarios relatively less important in communicating outcomes and informing risks. Nonetheless, the choice of future hydrologic ensembles will still have an impact on the communication and perception of risk under different policies, and it is critical that the ensembles are considered carefully to ensure that these early choices translate into sound decision-making. This letter summarizes our comments regarding the selection of hydrology ensembles, including which of them we believe should and should not be included, to ensure that future risks are adequately characterized going forward. We have organized our comments by general themes, with supporting discussion and figures as appropriate.

We recognize that Reclamation has already taken steps to address some of these comments in the planned new hydrology from Utah that was discussed at the recent session this past week, and look forward to better understanding and discussing that with you as this process proceeds.

1. The long-term warming trend in the Colorado River Basin will continue for the foreseeable future. This means that ensembles based purely on historical observations will underestimate the risk of future drought conditions. Temperatures in the CORB have increased by over 1°C relative to the 1909-1999 average, and under even a lower greenhouse gas emissions scenario another 3-4°C can be expected by the end of the century. Because warming increases evapotranspiration, it also decreases streamflow (e.g., Vano and Lettenmaier, 2014; Udall and Overpeck, 2017). The figure below shows Lee Ferry naturalized flow over its entire period of record and shows how the 20th century warming has manifested in the long-term trend in flow. As warming accelerates in the CORB, this long-term drying trend is also likely to accelerate, which means that hydrology ensembles based entirely on historical observations are very likely to have a wet bias. For these reasons, we ask that USBR consider removing or substantially limit the number of hydrology scenarios that are based entirely on historical observations, and include a larger number of scenarios that account for future warming, as discussed below.

2. Hydrology ensembles based on downscaled climate model outputs may provide some useful information regarding future drought conditions, but they also introduce artifacts that could undermine their utility. GCMs and the land surface models to which they are linked do not capture precipitation and runoff well, particularly in mountainous terrain like the Upper Basin where nearly all the runoff in the Colorado river originates (e.g., Vano et al., 2014). In addition, the downscaled hydrology outputs driven by CMIP3 and CMIP5 climate model ensembles generate unrealistically high upper-end flow projections when compared to all the other ensembles. These extremely high modeled flows are not well understood, but they may be related to statistical artifacts introduced by the downscaling methods themselves (e.g., Vano et al., 2020; Figure 2), rather than a realistic representation of future conditions. As shown in the USBR presentation materials, the CMIP ensembles also do not generate extreme low-end flows as consistently as the temperature informed scenarios (see discussion below). Thus, these CMIP ensembles – with potentially significant oversampling of wet years but without lower-end flows that are predicted by future warming – could significantly affect simulated reservoir elevations, masking future drought risks that would otherwise be apparent. For this reason, we recommend that USBR ensure that it fully understands the nature of the methodological artifacts that are biasing the GCM-derived ensembles before incorporating them, or at least clearly identify the nature of the artifacts that are potentially associated with them in public-facing materials.

3. Climate models agree on a large and statistically significant increase in temperature in the Colorado River Basin through the 21st century, but future precipitation trends are less certain. Hydrology ensembles should leverage the more robust projected temperature trend to inform future risks of drought. The raw GCM ensembles generally show negligible to single digit percentage changes in projected annual average precipitation (2-6%) in the upper CORB, where the vast majority of runoff in the basin is generated (Figure 3). At the same time, GCM outputs project significant changes in projected temperature throughout the CORB – generally 3-4°C under a lower emissions scenario and 4-6°C under a higher emissions scenario (Figure 3). Even the lower emissions scenario (RCP 4.5) implies maximum precipitation increases of only 6%, but temperature increases of 3-4°C, in the Upper Basin. Assuming a moderate sensitivity of a 6.5% decrease in runoff per degree C (Vano and Lettenmaier, 2014; Udall and Overpeck, 2017), these changes imply that future decreases in Colorado River runoff due to temperature changes alone are likely to be 3-4 times larger than any increases in precipitation projected by the GCMs. Because the GCM-projected temperature increase in the Upper Basin is larger and more consistent across models and scenarios, we recommend that ensembles driven by temperature adjustments (e.g., “Temp Adj. RCP4.5” and “Temp Adj. RCP8.5”) be primarily used to inform future operations, and/or that other similar ensembles be developed to supplement these initial ensembles. While we recognize that the methodology used to produce the temperature adjusted ensembles may be simplistic, they do provide a range of outcomes that could well be associated with continued temperature increases, and are more plausible than, for example, our continued use of the historic record without any adjustment.

Although there will always be uncertainty about what the future hydrology in the Colorado River will look like, we have seen over the past decade that the largest risks to water management arise from underestimating the potential severity of drought. The hydrology ensembles that are used to inform Colorado River operations therefore must sample enough plausible dry-end scenarios to ensure that the management of Colorado River water is robust to future droughts, which may be more severe than anything we have yet witnessed. The science is clear that we should expect continued warming in the Colorado River Basin through the 21st century, and that this warming will be larger than the warming we have already observed. Furthermore, we know that increasing temperatures lead to decreased runoff even in the absence of any changes in precipitation. Of the hydrology ensembles currently under consideration from USBR, only the temperature adjusted scenarios (and potentially the new ensemble under development) seem to directly incorporate this signal without introducing significant uncertainties due to potential GCM and downscaling-derived artifacts related to precipitation.

We recognize the potential limitations of using temperature projections alone to generate future hydrology ensembles. For example, these ensembles are likely to under-represent the potential for future high flow extremes, since the temperature adjustment has a uniformly drying effect. There is also uncertainty regarding the overall temperature sensitivity of runoff, which could range from -3%/°C or less to -12%/°C or more (e.g., Vano et al., 2014). Including other ensembles (e.g., “Paleo Record” or “Paleo Conditioned”) that potentially sample higher-end extremes, and expanding the temperature adjusted scenarios to include a wider range of temperature sensitivities, could improve the representation of potential future flows to overcome these shortcomings. However, the most important criterion in our mind is that the hydrology ensembles must sample a wide enough range of plausible low-end flow scenarios to ensure that the DMDU process leads to operational rules that are robust to the range of potential future droughts.

Of the ensembles presented by USBR at the July session, the temperature-adjusted ensembles best accomplish this goal. We also look forward to better understanding and discussion of the new planned ensemble that is under development.

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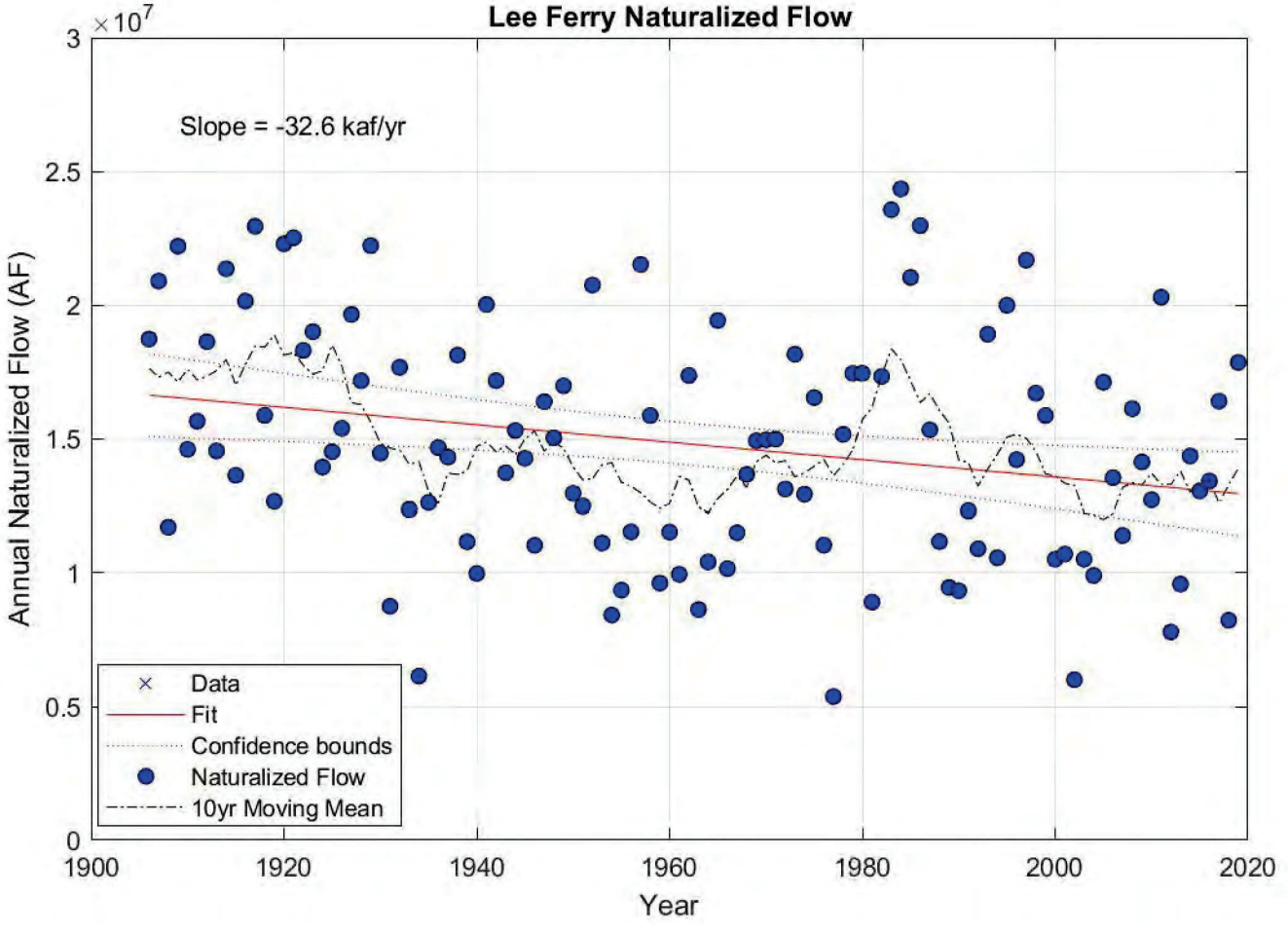
Peter W. Culp, Managing Partner

Culp & Kelly, LLP | O: 602-888-7011 | M: 602-402-6788


Lee Ferry Naturalized Flow
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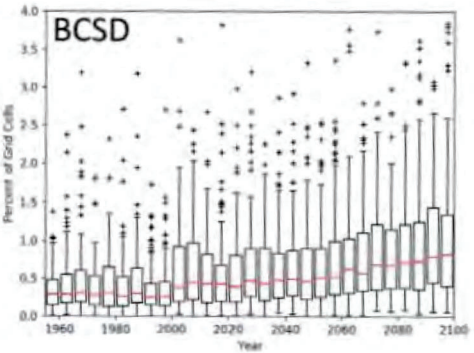
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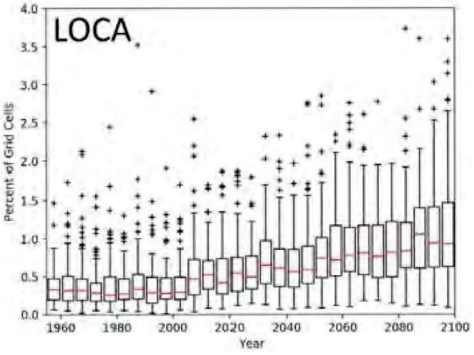
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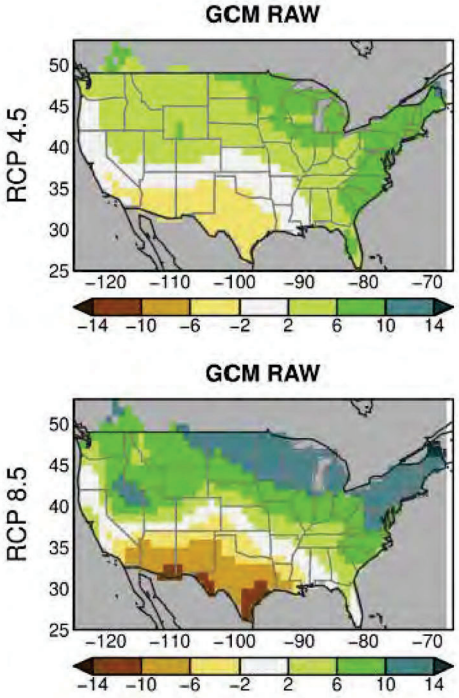
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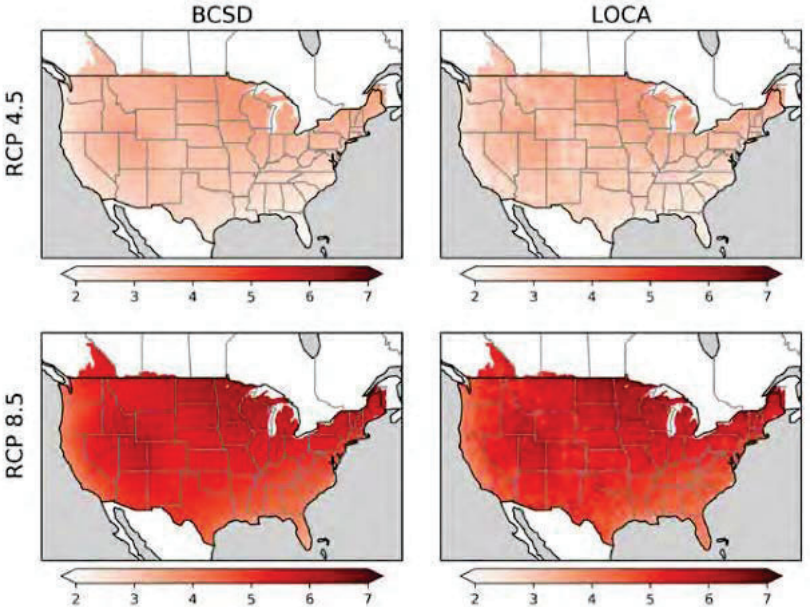
BCSD
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Figure 1 – long-term decreasing trend in Lees Ferry naturalized flow, which correlates with a long-term increasing trend in Colorado River Basin temperatures.

Figure 2 – Trends in the frequency of extreme runoff events extracted from BCSD and LOCA downscaled hydrology outputs. In each case, blue shading is the historical distribution, red shading is the future distribution, and the step change between them is a statistical artifact introduced by the downscaling methodology. Note that in both cases, this artifact creates a future flow distribution that is biased toward wet extremes. Figure adapted from Vano et al., 2020.


Step Change

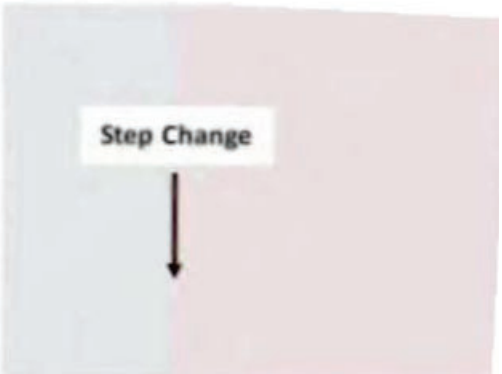

Step Change

Figure 3 – GCM ensemble projections of future precipitation (left column) and future temperature based on BCSD (middle column) and LOCA (right column). Upper basin precipitation projections suggest only modest increases in precipitation, whereas temperature projections suggest significant warming that imply substantial reductions in runoff and flow. From Vano et al., 2020.

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Colorado River Authority of Utah

Gene Shawcroft, P.E.
River Commissioner

Amy I. Haas
Executive Director

August 15, 2023

Commissioner Camille Calimlim Touton
United States Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Re: Notice of Intent to Prepare an Environmental Impact Statement on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Commissioner Touton:

On behalf of the state of Utah, I am pleased to comment on the above-referenced Notice of Intent (NOI) to Prepare an Environmental Impact Statement for the Development of Post-2026 Operational Guidelines for Lakes Powell and Mead (Post-2026 EIS). Utah supports the initiation of this formal National Environmental Policy Act (NEPA) process and welcomes the opportunity to provide feedback concerning the scope of anticipated operational guidelines for Lakes Powell and Mead (Post-2026 Operations) that will take effect after the 2007 Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (2007 Interim Guidelines, Guidelines) expire in 2026. Moreover, Utah is committed to working with our sister Colorado River Basin states (Basin States) to develop a consensus alternative for consideration and evaluation in the Post-2026 EIS process.

I. Priorities for Post-2026 Operations

A. Post-2026 Operations Must Address the Imbalance Between Water Supply and Demand

Exceedingly low reservoir elevations and runoff in the Colorado River system require substantial revisions to the current operating paradigm. Simply making modest changes to the 2007 Interim Guidelines for Post-2026 Operations will perpetuate the fundamental issue confronting the system: the imbalance between water supply and demand. In order to resolve this water balance problem, Post-2026 operations must include annual reductions to Lower Division State uses of at least 1.2 to 1.5 million acre-feet (MAF). Six Basin States, including two Lower Division States, endorsed reductions in these amounts in their Consensus Based Modeling Alternative for the separate but parallel NEPA process to develop a Supplemental EIS for Near-Term Colorado River Operations.[1]

[1] See January 31, 2023, Letter to Assistant Secretary Trujillo and Commissioner Touton from the Colorado River Basin State Representatives of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming re: Notice of Intent to Prepare a Supplemental Environmental Impact Statement.

Alternatively, shortages in greater volumes and at higher Lake Mead elevations must be assessed against Lower Basin uses in the future to address the system imbalance. Lower Basin reductions under the 2007 Interim Guidelines and the 2019 Colorado River Basin Drought Contingency Plan (2019 DCP) are of an insufficient magnitude to cure the water imbalance . Moreover, under the 2007 Interim Guidelines meaningful reductions do not occur until Lake Mead is at dangerously low elevations. When Lake Mead is below elevation 1, 025', the lowest shortage elevation under the Guidelines and a mere 5' above the Lake Mead "protection" elevation identified in the 2019 DCP, Lower Basin use is reduced 500,000 acre-feet, one third of the volume necessary to balance the system. Under the 2019 DCP, a total reduction of 1.1 MAF is not assessed until Lake Mead is below 1,025.' The Post-2026 Criteria must provide more meaningful reductions in Lower Basin use in order to begin to bring the system into balance.

B. Lake Powell Releases Should Not be Impacted by Lower Basin Operations

Under the current operational framework, Lake Powell releases are directly impacted by Lower Basin operations. The Lower Basin's reliance on Lake Mead storage to satisfy its uses notwithstanding actual hydrology has resulted in larger than average releases from Glen Canyon Dam and drawn down Lake Powell levels. This is evidenced by the five consecutive 9 MAF balancing releases from Lake Powell that occurred from 2015 to 2019.

Moreover, operations under the 2007 Interim Guidelines are easily manipulated to cause greater releases from Lake Powell. For example, until 2021, the Lower Basin was able to avoid a shortage determination under the Guidelines while making modest contributions of conserved water to Lake Mead (Intentionally Created Surplus or ICS) in reliance on above average releases from Lake Powell. The Post-2026 Criteria must be structured in a way to avoid manipulation of the system.

C. Activities that Reduce Demand and Protect Critical Elevations Should be Neutral

Utah supports sustainable, meaningful conservation activities throughout the Colorado River Basin consistent with the Law of the River as defined in Section E, below. We also recognize the value of operations that protect critical elevations at both Lake Powell and Lake Mead pursuant to existing agreements and authorities. Nevertheless, any future conservation activities or tools to stabilize Lake Powell and Lake Mead should not influence the coordinated operations of the two reservoirs such that they impact release determinations. Rather, these operations should be treated as separate from normal operations and accounted for by the Bureau of Reclamation (Reclamation) as "neutral."

D. Post-2026 Operations Must be Based Upon Actual Hydrology and Storage

Release determinations under Post-2026 Criteria must be based upon actual hydrology and storage conditions at Lake Powell and Lake Mead. Operations under the 2007 Interim Guidelines and 2019 DCP rely on projected elevations based exclusively on forecasts performed six months in advance of operations; for January 1 operations, the forecast occurs the previous August, and for operations through September 30, the end of the Water Year in the Upper Basin, the forecast occurs the previous April. Experience under the 2007 Interim Guidelines illustrates that these forecasts consistently overestimate Lake Powell elevations and underestimate Lake Mead elevations, resulting in greater releases from Glen Canyon Dam to the detriment of the Upper Basin.

E. Operations Must Not Impair Upper Basin Consumptive Use

Post-2026 Operations must consider both the appropriate amount of storage at Lake Powell and the volume of releases from Glen Canyon Dam required to satisfy Upper Basin obligations under the 1922

Colorado River Compact (Compact) without impairment to annual consumptive uses in the Upper Basin pursuant to the Colorado River Compact.

II. Purpose and Need for Post-2026 Operations

In order to have a new management system in place when the 2007 Guidelines expire in 2026, the Secretary of Interior has directed Reclamation to develop guidelines for Post-2026 Operations at Lake Powell and Lake Mead. More than 15 years of operational experience illustrate that the 2007 Guidelines are insufficient to properly manage Lake Powell and Lake Mead. Extended periods of dry hydrology and depleted reservoir conditions have highlighted the inadequacy of the 2007 Guidelines to adapt to worsening hydrology and increased uses. Releases from storage under the 2007 Guidelines do not appropriately respond to actual hydrology and storage at the two reservoirs. Under the 2007 Guidelines, shortages in the Lower Basin are triggered at elevations when storage is already significantly depleted. Lower Basin shortages under the 2007 Guidelines are also insufficient in magnitude to protect critical elevations at Lake Mead. These inadequate operations, exposed by numerous years of dry hydrology, have brought the system to the brink of crisis. Operating the system in this manner is not sustainable.

To assure stability into the future, the Post-2026 Operations must address the imbalance between available supply and demand. Moreover, the Post-2026 Operations must consider increased hydrologic variability exacerbated by climate change. The Colorado River supports multiple uses of water. To protect these varied uses, Reclamation must develop Post-2026 Operations for Lake Powell and Lake Mead that provide the greatest possible degree of operational certainty for water users and managers while providing sufficient flexibility to respond to changing conditions.

The Law of the River must be the foundation for the Post-2026 Operations, anchored by the 1922 Colorado River Compact and the 1948 Upper Colorado River Basin Compact ("Compacts") together with the 1944 Treaty with Mexico.

III. Scope of Post-2026 Operations

The NOI limits the Post-2026 Operations to guidelines and strategies for Lake Powell and Lake Mead. Utah agrees that the scope of the Post-2026 Operations should be strictly circumscribed to managing water supplies at Lake Powell and Lake Mead and coordinating operations between the two reservoirs. Operations that seek to modify the management of the upstream Initial Units or other Colorado River facilities are beyond the scope of the EIS. Likewise, the Post-2026 Operations may not modify, limit or otherwise interfere with the state of Utah's authority over the regulation, distribution and management of its Colorado River system water. Moreover, environmental issues and concerns, such as those related to threatened and endangered species, are beyond the scope of this NEPA process and instead should be addressed through established programs and processes. Similarly, Utah is supportive of projects, particularly those in the Lower Basin, that increase water supply. However, we do not believe that this EIS is the appropriate forum to analyze specific augmentation projects.

Finally, the duration of the Post-2026 guidelines should be limited. The guidelines should be interim to allow for modification due to unforeseen circumstances that are beyond the ability of the guidelines to adapt, yet of sufficient duration to provide certainty and stability to Colorado River water users.

IV. No Action Alternative

Operations under the Guidelines and 2019 DCP have revealed the danger of managing a system based on a single, assumed future hydrology rather than a variable one; the shortcomings of balancing releases without proper constraints; the problems associated with basin reservoir operations on forecasting; and,

reservoir operations that favor, or can be manipulated to favor, one basin over the other. Accordingly, Utah will not support a No Action Alternative for the Post-2026 EIS that extends the 2007 Interim Guidelines or the 2019 DCP. Moreover, we will not support a No Action Alternative that reverts to the operating criteria used to model baseline conditions in the December 2000 Final Environmental Impact Statement for the Interim Surplus Guidelines ("long-range operating criteria") as interpreted by Reclamation.

There are outstanding questions as to what will constitute the No Action Alternative. In order for the Basin States to develop a consensus alternative, it is essential that Reclamation consult with Basin States on what will constitute the No Action Alternative as soon as possible.

V. Post-2026 Operations Policy

The 2007 Interim Guidelines, the 2019 DCPs and subsequent emergent operations including the 2022 Coordinated Operation, have failed to adequately protect the Colorado River system. Utah will not support the continuation of the current operational framework beyond the Interim Period (2026). Rather, Utah will insist on Post-2026 operations that are resilient, will adapt to changing conditions, can be implemented in a fair and transparent manner and will be sustainable over time. Specifically, Post- 2026 operations must:

a. Respond early and appropriately to changing system conditions and recover the system to a desirable state;
b. Are effective across a full range of possible future conditions (e.g. both wet and dry hydrology);
c. Are clearly defined;
d. Are transparent and easy to implement;
e. Provide operational longevity under any hydrologic or system condition and do not require reactive intervention;
f. Bring certainty and predictability to the operations of the river; and
g. Do not favor one basin over another.

VI. Engagement

Utah is committed to engaging with sovereign Tribes located within the State during this NEPA process through appropriate sovereign-to-sovereign discussions and existing frameworks, including the Upper Division States-Tribes Dialogue. Utah will not support Post- 2026 operations that prevent any Tribe with lands in the Colorado River system in Utah from developing water rights settled under federal law and decreed under state law. Nevertheless, we recognize that the determination of unresolved Tribal water rights should be addressed through a process that is distinct from the development of the Post-2026 EIS.

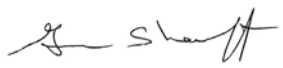
Utah also supports appropriate binational discussions with the Republic of Mexico on potential actions Mexico may be willing to undertake to protect the system when Minute 323 of the 1944 US-Mexico Water Treaty expires in 2026. We encourage the Department of Interior to coordinate with the International Boundary and Water Commission, while engaging with the Basin States, on parallel processes to develop post-2026 binational agreements with Mexico as this domestic NEPA process proceeds.

Finally, the unique role of the seven Colorado River basin states (Basin States) in the EIS process cannot be overstated. The involvement of the Basin States in the development of Post-2026 Operations is essential to ensuring their effectiveness. Accordingly, Utah will work closely with Reclamation and the

Basin States during the pendency of this NEPA process, including through the development of a Basin States alternative for evaluation by Reclamation in the EIS.

Once again, the state of Utah appreciates the opportunity to provide comment. As a Basin State, we recognize the critical role of the seven states in the operation and management of the Colorado River. We look forward to continued cooperation and partnership with our sister states, the Bureau of Reclamation, the Colorado River Tribes and key stakeholders to ensure the stability of the Colorado River system into the future.

Regards,



Gene Shawcroft, P.E.
Colorado River Commissioner
State of Utah

COLORADO RIVER COMMISSION
OF NEVADA

August 15, 2023

Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225
Crbpost2026@usbr.gov

The Colorado River Commission of Nevada (CRCNV) appreciates the opportunity to submit the following comments in response to the Bureau of Reclamation's (Reclamation) *Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead*, Fed. Reg. Vol. 88, No. 116, p. 39455 (June 16, 2023) (EIS or Post-2026 EIS).

The CRCNV is the state agency responsible for protecting Nevada's annual 300,000 acre-feet allocation from the Colorado River. Southern Nevada relies on the Colorado River for ninety percent of its drinking water. Additionally, CRCNV's customers rely on the CRCNV's hydroelectric power allocation from the Colorado River Storage Project, Boulder Canyon Project, and the Parker-Davis Projects. The energy from those projects supports communities' energy demand in southern Nevada, power delivery for water pumping and wastewater treatment, and industrial manufacturing for critical elements for the industrial economy and defense. The CRCNV is one of the primary state representatives and beneficiaries in the long history of the development of the *Law of the River* and has been a party to the vast number of collaborative efforts and operational negotiations over the last century.

The CRCNV supports the comments provided to Reclamation under the 7 State Scoping Comment Letter and the Lower Division Scoping Comment Letter, most critically the need for Reclamation to engage the Basin States in developing the Post-2026 EIS. It is likewise the CRCNV's interest that a Basin States' alternative be submitted to Reclamation for consideration and evaluation of post-2026 operations, including operations to protect critical lake elevations. The CRCNV submits below these additional comments regarding hydropower generation concerns and the need for full impact analysis on post-2026 guidelines and strategies.

555 E. Washington Avenue, Suite 3100, Las Vegas, Nevada 89101-1065
Phone: (702) 486-2670
Fax: (702) 486-2695
http://crc.nv.gov

Reduced Hydrology and the Impact to Hydropower Contractors

Hydropower customers are the primary funding source for the ongoing operation and maintenance of the dams and related facilities. In addition to supporting hydropower production, hydropower revenues also support other programs and services not directly related to the production of power including downstream water delivery, environmental protection, and tourism. Reclamation and Western Area Power Administration (WAPA) have done their best to control costs for their customers during the drought, but both agencies continue to face upward pressure on costs caused by reduced hydrology, increasing plant and equipment costs and the requirement and need to subsidize non-hydropower programs to the contractors' financial detriment.

Technical Analysis on the Importance of Hydropower to Grid Reliability

The scope of Reclamation's analysis needs to consider the impact of proposed guidelines and operations on hydropower generation generally and more specifically on the reliability of the western electric grid. It is particularly important to study the impact of reduced releases from the dams during the dry summer months when electrical demand is high, and the grid is most vulnerable. States in the west are working aggressively toward increasing renewable generation with the goal of having generation portfolios in the range of fifty percent or more by 2030. The goals are laudable, but difficult to achieve since the dominant renewable energy in the southwestern United States is solar which has operational challenges during those periods when demand is high and solar production is unavailable. Efforts are being made to couple solar with batteries, but some operational challenges remain. These challenges have played out in the past and likely will continue to be of concern post 2026, especially with the expected growth in demand for energy as part of the electrification of the transportation sector.

Thus, consistent with recommendations made during the pre-scoping period to assemble an integrated, interdisciplinary team to help prepare the EIS, Reclamation should also consider assembling such a team to evaluate the impact of reduced water releases from the dams on the reliability of the grid during periods of high demand. Such a team should include a broad range of industry experts including WAPA, reliability organizations, and grid operators. The studies should focus on resource adequacy and the need to preserve generation capacity which would help inform the need to establish a minimum protection level at both Lake Powell and Lake Mead.

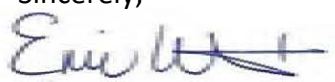
Impact Analysis and Mitigation Options

The post-2026 guidelines and strategies are most likely going to have scenarios that result in hydropower customers receiving less energy at higher prices. An analysis of those impacts is needed. If those impacts are significant, which is highly plausible, such information would be informative to identifying legislative and regulatory strategies that could help mitigate those impacts on hydropower customers. These strategies could, for example, involve enhancing the ability of the federal agencies to raise revenue to support the operation of the dam and visitor centers and/or reducing power customer cost responsibility for expenses not directly related to the production of hydropower.

Conclusion

The CRCNV again appreciates the opportunity to provide these comments and looks forward to working with Reclamation and the Basin States, other water users, Tribes, NGOs and Mexico in developing post-2026 operational guidelines aimed at protecting the Colorado River System and the resources it yields.

Sincerely,



Eric P. Witkoski
Executive Director

COLORADO RIVER DISTRICT
PROTECTING WESTERN COLORADO WATER SINCE 1937

August 15, 2023

Maria Camille Touton
Commissioner, Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225

crbpost2026@usbr.gov

RE: Comments regarding Proposed Development of Post-2026 Guidelines and Operational Strategies for Lake Powell and Lake Mead

Dear Commissioner Touton:

I am writing to provide Reclamation with the Colorado River Water Conservation District's input on Reclamation's scoping notice for the development of post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead.

By way of background, the Colorado River District is a political subdivision of the State of Colorado formed by the Colorado Legislature (*see*, C.R.S. § 37-46-101, *et seq.*) in 1937 for the purpose of safeguarding that portion of the waters of the Colorado River apportioned to the state by interstate compact and for promoting the welfare of the inhabitants of the River District. Geographically, the Colorado River District encompasses an area of approximately 29,000 square miles, including all of twelve and parts of three western Colorado counties (approximately 28% of the State of Colorado). Included in that area are the headwaters and tributaries of the Colorado River mainstem and its principal tributaries, the Gunnison, the White, and the Yampa Rivers.

The Colorado River District includes municipal, industrial, agricultural, commercial, and recreational water users. Our water users depend upon the wise and proper development and implementation of policies to assure the continued availability of reliable water resources in the Colorado River Basin. We offer the comments and input in this letter for Reclamation's consideration in its analysis and development of post-2026 operational guidelines.

The 2007 Interim Operating Guidelines (the 2007 IGs) and the adaptive and emergency management actions implemented following adoption of the 2007 IGs have failed to provide the operational certainty and system stability that the 2007 IGs intended to achieve. The impacts of climate change, drought, and the institutional system imbalance in river operations have made clear that substantial changes must be adopted for the post-2026 guidelines.

We believe that, while Reclamation must institute bold and meaningful changes, those changes can and should implemented consistent with the 1922 Colorado River Compact, the 1944 bi-national treaty with Mexico, the 1948 Upper Basin Compact, and the other foundational elements of the Law of the River. Please consider the following principles and concepts that we believe should guide Reclamation's review and adoption of post-2026 operations:

1. **Reclamation's review must not be limited to incremental changes to existing policies and operating guidelines.** The temporary measures adopted in recent years to address declining water elevation levels at Lakes Powell and Mead have been incremental and stop-gap in nature. Reclamation's adoption of new guidelines must not be constrained to "tweaks" of existing guidelines and should not be limited to long-term adoption of the moderate measures contemplated by Reclamation's anticipated Supplemental EIS for Near-Term Operations.

2. **Hydrology, not reservoir levels, must drive post 2026 operations.** Operating guidelines based upon comparative reservoir elevations which do not factor in real time hydrology have been proven to be disastrous for protecting storage in Lake Powell, and thus have failed to provide the water supply certainty for the Upper Basin intended by the Law of the River, including the 1968 Colorado River Basin Project Act (with specific reference to Section 602a). Post-2026 guidelines should be based primarily on near term water supply forecasts and real time basin hydrology.

3. **Depletion accounting must replace delivery accounting in the Lower Basin.** The past decade has made clear that the lack of accounting for system losses in the Lower Basin has been the primary driver in the dramatic decline in storage at Lakes Powell and Mead. Reclamation must institute physical accounting procedures in the Lower Basin that recognize and assess the hydrologic reality of system losses (i.e., transit losses, ordered but not diverted water, and reservoir evaporation). Such losses are inherent in the cost of putting Colorado River water to beneficial use. No contractor, state or basin should be allowed to cause the depletion of more water from the system than their respective legal allotments unless an agreed surplus of system storage has been recharged.

4. **Operational Guidelines must address a wide range of hydrologic futures.** Post-2026 guidelines must consider the potential reality of a river system that produces significantly less water and is more variable than anticipated by the 2007 IGs. Specifically, the guidelines should cover a larger range of potential futures which sets forth the operations of the river under a wide range of potential long-term average annual flows (*e.g.*, between 9 million acre-feet and 17 million acre-feet) regardless of the observed historical period of record.

5. **Tiers that can be manipulated or "gamed" must be eliminated.** Post 2026 guidelines should not have defined "black line" tiers that can be gamed by contractors to dictate large volumetric swings in the release volumes from Lake Powell and/or avoid the

triggering of required Lower Basin shortage operations. The Colorado River District recommends the development of an incremental "rule curve" that would provide for increased or reduced storage releases in gradual steps that are tied to actual hydrology.

6. **The post-2026 guidelines should be limited to the operation of Lake Powell and Lake Mead.** The Colorado River District is concerned that the statement in Reclamation's June 16, 2023, Scoping Notice concerning "alternative paradigms, *e.g.*, basing reservoir operations on…system storage" could be misconstrued to contemplate the analysis and adoption of guidelines that consider storage facilities in the Upper Basin other than Lake Powell. While the post-2026 guidelines must adopt bold and meaningful changes to existing operations, the actions must be limited to storage and release operations at Lake Powell and Lake Mead (consistent with, and as correctly identified by, the title of Reclamation's Scoping Notice: "Notice of Intent…on the Development of Post 2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead.").

Please feel free to contact me or the Colorado River District's General Manager, Andy Mueller, with any questions or comments.

Sincerely,

Peter C. Fleming
General Counsel

cc: Rebecca Mitchell, Colorado Commissioner to the Upper Colorado River Commission
Andrew A. Mueller, General Manager, CRWCD
CRWCD Board of Directors

COLORADO
Upper Colorado River Commissioner
Department of Natural Resources

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

August 15, 2023

Commissioner Camille Calimlim Touton
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

VIA ELECTRONIC MAIL
crbpost2026@usbr.gov

RE: The State of Colorado's Response to the Request for Comments on the Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead, 88 FR 39455 (June 16, 2023)

Dear Commissioner Touton:

The State of Colorado, acting through the Governor's Representative and the Colorado Water Conservation Board (collectively "Colorado"), submit the following comments in response to the Bureau of Reclamation's ("Reclamation") Request for Comments on the *Notice of Intent To Prepare an Environmental Impact Statement and Notice To Solicit Comments and Hold Public Scoping Meetings on the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead* ("NOI"), 88 FR 39455 (June 16, 2023). Colorado appreciates your consideration of our comments and requests that they be incorporated into the preparation of the Post-2026 Operations Environmental Impact Statement ("Post-2026 Operations").

The State of Colorado understands that Reclamation is formally initiating an environmental review process under the National Environmental Policy Act ("NEPA") to prepare an Environmental Impact Statement ("EIS") for the development of Post-2026 Operations. Through the June 16, 2023, Notice, Reclamation is requesting comments on: (1) the scope of specific operational guidelines; (2) strategies; and (3) any other related issues that should be considered in the upcoming EIS.

In addition to joining the Comment Letter submitted by the Basin States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming, and the Upper Division States of Colorado, New Mexico, Utah, and Wyoming Letter through the Upper Colorado River Commission ("UCRC"), Colorado submits the following comments:

I. Colorado's Interests

Colorado is on the front lines of climate change. Because no major rivers flow into Colorado, and we are without the benefit of large reservoirs above our places of use to provide a steady, reliable source of supply, Colorado must satisfy all its water demands from runoff within the state. The Colorado River and its tributaries supply over forty percent of Colorado's water needs and provide water to the majority of the State's population.

In Colorado, we have a long history of administering water rights according to the physical and legal availability of water in a particular location at a particular time. Because we rely solely on snowpack and subsequent runoff each spring for our water use, our water use is highly variable each year. Colorado's system of administration allows for adaptation to such changing circumstances, including throughout the last twenty-three years of drought. This means that many water users in Colorado do not receive the full amount of their legal allocation that they can place to beneficial use under existing rights, which significantly impacts Colorado's farms, ranches, cities and towns, the recreation industry, and the environment. Importantly, for the last twenty-three years, Colorado water users have had to cut uses and take shortages nearly every year, including cuts to water rights that are senior to the 1922 Colorado River Compact. In some instances, Colorado water users only received ten percent of what they are legally entitled to receive. In 2021, Colorado and the other Upper Division States used 3.5 maf, which is roughly 1.0 maf less than they used in 2020 and is less than half of the water apportioned to the Upper Basin under the Colorado River Compact.

Despite these challenging circumstances, over the last two years, Colorado and the other Upper Division States contributed 624,000 acre-feet of water from Colorado River Storage Project Act reservoirs to help protect critical elevations in Lake Powell under the 2019 Drought Contingency Plan ("DCP"). In 2022, Colorado, along with the three other Upper Division States also developed a 5 Point Plan that included a voluntary, temporary, and compensated pilot program available to willing water users to conserve water to help mitigate drought conditions in the Upper Basin through 2024. Through that program, the Upper Division States are projected to conserve approximately 40,000 acre-feet in 2023, with Colorado contributing roughly 2,700 acre-feet.

Despite these efforts, storage in Lake Powell and Lake Mead has been depleted over the last twenty years, which has created risks for the entire Colorado River System, including Colorado's substantial interests in the Colorado River. Protection of Colorado's interests into the future requires operation of Lake Powell and Lake Mead based on actual hydrology, and the restoration and protection of storage to maximize operational certainty.

II. Purpose and Need

New guidelines for Post-2026 Operations are needed because the current operating guidelines are not sustainable. Between 2000 and 2022, the Colorado River experienced the worst drought conditions in over one hundred years of recorded history. During this period, storage in Lake Powell and Lake Mead dropped from nearly full to a system storage of less than 32 percent of capacity as of March 20, 2023. Despite a record snowpack in 2023 and a very high spring runoff, the system storage was still only at 44 percent of capacity as of July 18, 2023. The prolonged drought and allowed overuse in the Lower Basin have highlighted the deficiencies in the *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead* ("2007 Guidelines"). The 2007 Guidelines have proven insufficient to properly manage Lake Powell and Lake Mead during periods of dry hydrology and depleted reservoir conditions.

The need for repeated interventions as the system bordered on collapse demonstrates the ineffectiveness of the 2007 Guidelines. This includes the System Conservation Pilot Programs that started in 2014, the DCP, Minute 323, and the 2022 Supplemental EIS to the 2007 Guidelines that is currently underway.

Over the past fifteen years, storage in Lake Powell and Lake Mead has been depleted largely due to reservoir releases that do not respond to actual hydrologic conditions. Releases from storage under the 2007 Guidelines ignore critical components of the mass balance of water across the Basin including but not limited to accounting for evaporative and conveyance losses in the Lower Basin. Moreover, as has been clear since 2020, shortage conditions imposed by the 2007 Guidelines and the DCPs do not begin early enough and do not conserve adequate volumes of water to sustain critical infrastructure elevations at Lake Powell and Lake Mead during multi-year drought periods.

Guidelines that meet the criteria below will provide a greater degree of operational certainty to Colorado River water users and managers of waters at and below Lake Powell into the future. Going forward, the guidelines for Post-2026 Operations must use actual hydrologic conditions for decision-making, rather than data from projections several months or years into the future, and allow for the restoration and protection of storage in both reservoirs. This enables water users and managers in the Upper and the Lower Basin to know the amount of available water supply in a given year, and to adapt in such a way that in dry years, uses are reduced to reflect available water supplies and storage is preserved to the greatest extent possible in the event of multi-year drought.

This will require guidelines for Post-2026 Operations that:

1. Acknowledge that climate change is real, and include operations for a drier, more variable future that adapt and respond to actual hydrology.

2. Include mechanisms to rebuild depleted storage in both reservoirs and to protect storage into the future by considering actual hydrology and using targeted, short-term forecasting.

3. Recognize that Lower Basin overuse is unsustainable and puts the entire system at risk. New guidelines should better assure operational certainty into the future by reducing the imbalance between supply and uses. This will require permanent Lower Basin reductions of 1.2 million acre-feet to 1.5 million acre-feet each year. An important step to help meet those reductions may be to account for evaporation and system losses in the Lower Basin.

4. Do not interfere with the right of any state to administer and distribute all the waters within its boundaries.

5. Avoid uncertain outcomes from litigation by recognizing the Law of the River, anchored by the 1922 Colorado River Compact and the 1948 Upper Colorado River Basin Compact ("Compacts") together with the 1944 Treaty with Mexico, as the foundation for any new guidelines and strategies for Post-2026 Operations. These foundational components provide legal certainty regarding management of the Colorado River System and its infrastructure and allow for collaboration and consensus.

6. Ensure that operations do not favor one basin over the other. Post-2026 operating guidelines must fairly balance the burden of climate change across the entire Colorado River Basin. The Upper and Lower Basins have equal apportionments of the Colorado River in perpetuity. Water users in the Lower Basin cannot be given priority over water users in Colorado and the other Upper Division States.

7. Acknowledge that Colorado River Basin Tribes have water rights that they are entitled to use. The development of sustainable and effective guidelines and

8. Strategies for Post-2026 Operations at Lake Powell and Lake Mead will depend upon participation of the Colorado River Basin Tribes.

III. Scope of NEPA Process

The NOI recognizes that guidelines and strategies for Post-2026 Operations will pertain to operations of Lake Powell and Lake Mead. As such, those guidelines can only focus on hydrologic conditions impacting Lake Powell, storage conditions, and releases at Lake Powell and Lake Mead subject to the existing legal framework. They cannot modify operations at the other Initial Units built under the Colorado River Storage Project Act, including the respective records of decision that govern each of these reservoirs.

Over the last twenty-three years of drought, the Upper Division States experienced imbalances between available supply and demands because the Upper Division States are limited by actual hydrology and experience shortages every year. This includes uncompensated water rights administration that result in reductions in water annually. During the same period, water use in the Lower Basin remained constant and even increased during the worsening drought in recent years.

Any assumption of reductions in use or curtailment in the Upper Basin is beyond the scope of this process. Separate from this process, Colorado will continue to advance initiatives to increase resiliency and the sustainable use of its Colorado River supplies.

Guidelines for Post-2026 Operations must rely upon the best available science, including actual hydrology and storage conditions at Lake Powell and Lake Mead, and the targeted use of short-term forecasting. The guidelines must include accurate, and transparent accounting for all depletions in the Colorado River System that are consistent with the Law of the River, issued annually, and rely upon the most recent studies including, but not limited to, the *One Meter Topobathymetric Digital Elevation Model for Lake Powell, Arizona-Utah, 1947-2018.*

Moreover, to understand and compare alternatives for guidelines for Post-2026 Operations, it is imperative that Reclamation issue the Lower Basin Consumptive Uses and Losses Report 2006-2022 at the earliest opportunity.

There must also be a thorough analysis of the Secretary of the Interior's ("Secretary") authorities to apportion water and impose shortages in the Lower Basin and to consider opportunities to balance water supplies with depletions there to recover storage at Lake Powell and Lake Mead. However, a detailed framework or rulemaking for voluntary water conservation measures in the Lower Basin, species conservation programs, or other related matters must be addressed in separate but parallel proceedings.

Guidelines for Post-2026 Operations must be interim in duration.

IV. No Action Alternative

The NOI recognizes that the 2007 Guidelines and the DCPs, and related reservoir and water management agreements and decisional documents are scheduled to expire December 31, 2025. Amending the 2007 Guidelines, the DCPs, and related agreements to extend their current expiration dates requires federal action. Therefore, the No Action alternative cannot include the extension of the 2007 Guidelines or the DCPs.

The No Action Alternative must acknowledge that pursuant to Section 8.C of the 2007 Guidelines, absent the issuance of a Record of Decision for Post-2026 Operations at Lake Powell and Lake Mead, at the conclusion of the effective period of the 2007

Guidelines, the operating criteria for Lake Powell and Lake Mead are to revert to the long range operating criteria used to model baseline conditions in the Final Environmental Impact Statement ("FEIS") for the Interim Surplus Guidelines dated December 2000 ("2000 ISGs") (i.e., modeling assumptions based upon a 70R Strategy for the period commencing January 1, 2026 (for preparation of the 2027 AOP)).

There are outstanding questions related to the long range operating criteria used to model baseline conditions in the FEIS for the 2000 ISGs. Colorado respectfully requests the Secretary and Reclamation consult with Colorado and the other Basin States on that criteria, modeling assumptions, and the No Action Alternative.

V. Other Considerations

Colorado, with the other Upper Division States, has committed to a process with the Lower Division States to develop a consensus Basin States Agreement Alternative. Participation of the Colorado River Basin Tribes is critical to this process. To that end, Colorado is engaging with the other Basin States to coordinate with the Colorado River Basin Tribes. Colorado and the other Upper Division States through the UCRC, are also engaging with the Upper Basin Tribes, and Colorado continues to work closely with the Southern Ute Indian Tribe and the Ute Mountain Ute Indian Tribe.

Colorado supports the efforts of the United States and Mexico through the International Boundary and Water Commission to engage in the separate but concurrent binational process to complement any guidelines for Post-2026 Operations at Lake Powell and Lake Mead.Colorado further supports the inclusion of the Basin States in the binational process.

VI. Reservation of Rights

Colorado's comments are intended to highlight overarching issues that will require acknowledgment or clarification as the EIS process continues. Colorado's failure to provide specific comments regarding details of this NEPA process shall not be construed as an admission with respect to any factual or legal issue or the waiver of rights for the purposes of any future legal, administrative, or other proceeding. Furthermore, Colorado reserves the right to comment further on Scoping and the EIS documentation as Reclamation proceeds with subsequent phases of the NEPA process to develop guidelines for Post-2026 Operations at Lake Powell and Lake Mead.

VII. Conclusion

As a Colorado River Basin State, Colorado has a unique interest in the water supplies of the Colorado River Basin. As a party to, and beneficiary of, the interstate compacts and laws that govern the management of the Colorado River, Colorado has an obligation to protect the

interests of Colorado's water users who rely on the Colorado River. Colorado is committed to working with Reclamation as the formal NEPA process develops. Moreover, Colorado plans to partner and engage with the other Basin States, Colorado River Basin Tribes, water users, and stakeholders.

Colorado appreciates the opportunity to provide these comments on the NOI for the development of guidelines for Post-2026 Operations at Lake Powell and Lake Mead. We look forward to continuing our partnership with you and our partners across the Colorado River basin as we move forward in protecting and managing this critical resource into the future.

Rebecca Mitchell
Colorado Commissioner
Upper Colorado River Commission

Lauren Ris
Acting Director
Colorado Water Conservation Board

Dolores Water Conservancy District

60 S. Cactus St. P.O. Box 1150 Cortez, CO 81321
Phone: 970-565-7562 Fax: 970-565-0870
Email: dwcd@frontier.net

August 15, 2023

Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000),
P.O. Box 25007, Denver, CO 80225
Via email to crbpost2026@usbr.gov

On behalf of the Dolores Water Conservancy District ("DWCD" or "District") please accept and enter into the record in this matter the following comments.

INTEREST OF THE DISTRICT:

As the Bureau of Reclamation is aware DWCD operates the Dolores Project, with McPhee Reservoir as its principal feature. Although the Dolores Project water supply is stored pursuant to a relatively junior water right established pursuant to state law, McPhee Reservoir storage provides a generally predictable water supply for the Montezuma Valley Irrigation Company; the Ute Mountain Ute Indian Tribe; direct project water users and the downstream fishery. Recent drought, however, has caused shortages to project supplies never anticipated when the project was authorized.

It has become apparent that the existing 2007 interim guidelines have had the effect of driving Lake Powell water levels to dangerous lows while the lower basin has continued to engage in brinksmanship with balancing tiers and habitual overuse of its long-term Colorado River Compact entitlements.

DWCD is concerned that Reclamation operations of Lake Powell and Lake Mead not continue to contribute to the challenges of drought by artificially driving Lake Powell to dangerously low levels, potentially fueling curtailment of Upper Basin water users including the District.

ANALYSIS OF AN ADEQUATE RANGE OF ALTERNATIVES:

The alternatives analyzed and carried forward by Reclamation should include only those within Reclamation's authority and competence that satisfy the core purpose of bringing the operation of Mead and Powell into the long-term sustainability that can provide certainty to Colorado River water users to the greatest extent practicable. Accordingly, Reclamation should look exclusively to coordinated operations of Powell and Mead that

have the effect of forcing the Lower Basin into compliance with its long-term river entitlements rather than facilitating the continued and unsustainable overuse.

Among the actions that Reclamation should evaluate are requiring the Lower Basin to take into account both evaporation and tributary accruals below Lake Powell in determining required Upper Basin deliveries. Further, Reclamation should evaluate limiting releases from Lake Powell that comport with the provision of the Colorado River Compact that the "Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years." This would have the effect of limiting Lower Basin habitual over-use and reducing system water evaporation to some degree.

SCREENING CRITERIA FOR ELIMINATION OF ALTERNATIVES FROM DETAILED STUDY:

Consistent with NEPA Reclamation should develop screening criteria early in the process to eliminate from detailed study alternatives which do not meet the purpose and need of providing certainty and stability to water users in the Colorado River Basin.

Any alternative that relies on emergency releases to shore up reservoir levels to secure power production or minimum operational volumes likely can be eliminated from detailed study early in the process.

Similarly, system conservation in the upper basin, with or without pools earmarked for specific users or activities, can likely be eliminated from study early in the process upon a showing that no reasonable level of demand reduction can secure reservoir levels to avoid future curtailment given the vicissitudes of hydrology and persistent, habitual overuse in the Lower Basin.

NO ACTION ALTERNATIVE:

Reclamation should confirm that the statutorily required "no action" alternative under NEPA is an analysis of the Long-Range Operating Criteria, not the 2007 interim guidelines which will sunset in 2025.

Sincerely,

Kenneth W. Curtis III
DWCD General Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

August 15, 2023

Amanda Erath, Colorado River Post-2026 Program Coordinator
Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, Colorado 80225

Subject: Notice of Intent to Prepare an Environmental Impact Statement on the Development of Post-2026 Colorado River Reservoir Operational Guidelines and Strategies for Lake Powell and Lake Mead

Dear Amanda Erath:

The Environmental Protection Agency has reviewed the June 16, 2023 Notice of Intent to prepare an Environmental Impact Statement on the development of Post-2026 Colorado River Reservoir operational guidelines and strategies for Lake Powell and Lake Mead. Our scoping comments are provided pursuant to the National Environmental Policy Act and our unique NEPA review authority under Section 309 of the Clean Air Act which requires EPA to review and comment publicly on the effects of all proposed federal actions requiring an EIS.

The beneficial uses of the Colorado River provide vital environmental, economic, and public health benefits for all Basin states. The NOI states that the Draft EIS will be designed to analyze alternatives that would replace expiring, interim operational guidelines (2007) and drought continency plans (2019), and inform parallel negotiations with Mexico.[1] Although there are significant resource constraints and technical and political barriers to allocating available water among competing human and environmental uses, the Notice of Intent states that Reclamation recognizes this monumental opportunity to develop long-term strategies for Colorado River operations while simultaneously addressing the current drought conditions and preparing for the potential of continuing low runoff and low reservoir conditions. While state laws and regulations govern water diversion and use, the Draft EIS provides an opportunity for Reclamation to provide leadership and establish a foundation for a system that more accurately aligns available water supplies with deliveries to provide increased stability to water users while protecting human health and safety and the environment.

The EPA supports Reclamation in identifying and analyzing alternatives to achieve these goals. We provide the following recommendations and others for the Draft EIS as described in the attached detailed comments.

[1] Reclamation is currently operating under the 2007 *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*, 2019 *Drought Contingency Plans*, the 2021 *500+ Plan*, and the 2017 amendment (*Minute 323*) to the United States treaty with Mexico, each of which expire in 2026. The parallel Supplemental EIS process initiated for Near-term Operations from 2024 through 2026, has been suspended while Reclamation considers a seven-state alternative designed to protect infrastructure, add operating flexibility to conserve and store water in the system, and provide certainty to water users regarding the timing and volumes of potential water delivery reductions.

- Ensure appropriate inputs are used in a climate-oriented, science-based model that recognizes both hydrological and atmospheric trends, includes tools to increase the accuracy in measuring system losses (e.g., evaporative and soil moisture losses), and estimates water supply availability as accurately as possible for an appropriately long period of time.
- Include a strategy to increase management flexibility, enhance climate adaptation planning, and improve infrastructure resilience.
- Provide an Environmental Justice analysis that identifies and involves communities with environmental justice concerns who are most likely to have their water supplies severely diminished or reduced to zero as tied to the current priority system, and a discussion of ways to avoid, minimize or mitigate adverse and disproportionate impacts.
- Provide a summary of government-to-government collaboration and communications with Basin tribes, and the identification of long-term management or operational actions needed to account for unsettled, unresolved, or unfulfilled indigenous rights to Colorado River water.
- Discuss the ability of the U.S. to meet its treaty obligations to Mexico and identify current access challenges and potential to exacerbate border sanitation and water quality impacts.
- Analyze potential impacts to air quality, water resources, and other environmental resources resulting from changes to water management or deliveries, including in the Salton Sea region of California.

The EPA respectfully requests to be a cooperating agency[2] to provide support to Reclamation regarding the identification and analysis of issues to be addressed in the Draft EIS, particularly in the areas of EPA special expertise or jurisdiction by law regarding air and water resources and environmental justice. We appreciate the opportunity to provide scoping comments and look forward to continued coordination as a cooperating agency. Contact me at Truitt.Robin@epa.gov or (415) 972-4372, or the Environmental Review Branch manager, Jean Prijatel, at Prijatel.Jean@epa.gov or (415) 947-4167.

Sincerely,

for Jean Prijatel
Manager, Environmental Review Branch

Enclosure: Detailed Scoping Comments

Cc: via email: Bureau of Indian Affairs
United States Fish and Wildlife Service
National Park Service
Western Area Power Administration
United States Section of the International Boundary and Water Commission

[2] EPA's status as a cooperating agency does not affect our independent responsibilities under Section 309 of the Clean Air Act to review and comment publicly on all Draft Environmental Impact Statements. Participation as a cooperating agency does not imply endorsement of the proposed project.

The EPA understands that the Bureau of Reclamation has a complex role in Colorado River system-wide water delivery, storage, and hydropower production, and that Reclamation must consider the laws, policies, and actions of several other federal agencies, seven states, 30 tribes and Mexico in its decision-making. We note that the June 2022 *Request for Input on Development of Post-2026 Colorado River Operational Strategies* yielded a report[3] containing important and thoughtful suggestions for the National Environmental Policy Act planning effort, and we recognize Reclamation's additional efforts to voluntarily publish the report early in the NEPA process to enhance public awareness regarding the issues and recommendations related to this project. The report included public comments requesting robust, science-based operational guidelines and strategies that are holistic, sustainable, adaptive, resilient, and inclusive. The equitable apportionment of water shortages and the need to better approximate and balance Basin hydrological inputs and outputs were common themes. The public also asked Reclamation to address, in the Draft EIS, a broader range of management options or alternatives when compared to the present system. The EPA supports these requests and recommendations.

STATEMENT OF PURPOSE AND NEED

The Draft Environmental Impact Statement for the post-2026 Colorado River Reservoir Operational Strategies should clearly identify the underlying purpose and need to which Reclamation is responding in proposing the alternatives. The EPA recommends that the Purpose and Need statement clearly address the storage and delivery of water supplies for irrigation, municipal and other beneficial uses throughout the upper and lower Colorado River Basin. Please also address low runoff conditions and severe reductions in reservoir levels, as well as the inadequacy of current guidelines to adjust to warmer and drier climatic conditions. The EPA recommends that Reclamation prioritize overall demand management as a central objective of the Draft EIS by aligning long-term guidelines, contingent or adaptative management plans, or contract conditions with basin-wide water supply availability.[4]

ALTERNATIVES ANALYSIS

The EPA recommends that Reclamation evaluate, in detail, all reasonable alternatives that fulfill the project's purpose and need. We encourage Reclamation to explore alternatives, or elements of alternatives, beyond the agency's direct control, such as partnerships with states and other entities to decrease water use and align distributions with projected supply. The No Action Alternative should clearly describe the current operational, regulatory, and legal framework that govern water storage and deliveries. Disclose the potential long-term impacts of reduced water supplies on agricultural, municipal, and tribal uses, cessation of hydropower caused by dead pool, and other possible scenarios to fully inform the public about consequences of continuing the status quo. Address what changes to operations or modifications of contracts may be needed if consensus of the Basin states and Mexico cannot be reached before the current agreements expire at the end of 2026.

Potential action alternatives, based on hydrometeorological modeling, could include revisions to reservoir coordination, reapportionment of predicted shortages between basins, states or users, or modifications to drought and surplus guidelines. Present the environmental impacts of the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options

[3] Pre-Scoping Comment Summary Report, https://www.usbr.gov/ColoradoRiverBasin/documents/Post-2026_Pre-Scoping%20Comment%20Summary%20Final_Updated1.30.2023_508.pdf
[4] See, e.g., Colorado River Basin Project Act, 43 U.S.C. §§1501, 1551(b)(2)

by the decision makers and the public (40 CFR 1502.14(b)). Quantify the potentially adverse environmental impacts (and benefits) of each alternative to the greatest extent possible (e.g., production of hydropower; changes in water quality). Include resources directly impacted by potential project footprints within the geographic scope of analysis as well as the resources indirectly (or secondarily) impacted by any of the alternatives. Indirectly impacted areas may include downstream segments, source streams where water diversions would occur, and any other resource areas which may be affected by changes in water management or operations. Provide clear maps of the project area, including wetlands and regional water features, and conduct a wetland function analysis if there is any potential that an alternative could cause impacts.

CLIMATE CHANGE

As stated in the scoping notice, Reclamation acknowledges that unprecedented drought has changed our understanding of Basin hydrology and reliance on the historical hydrological record has limited value in forecasting the future. Climate science predicts increases in both temperature and the likelihood of prolonged periods of drought, potentially resulting in less water available to the system. The EPA agrees with Reclamation that future policies must be tested across a wide range of potential future conditions, including drought sequences that are longer and more severe than those that have been observed historically. Absent such an approach, operational policies are likely to be insufficiently robust, resilient, and adaptable.

Modeled Scenarios

For the Draft EIS, the EPA recommends that Reclamation simulate and present, as simply as possible, projected water budgets that account for water entering the system, water leaving the system (e.g., from consumptive use, trans-basin diversions, evaporation), and water moving through the system (stored in reservoirs or flowing in river reaches). While recognizing the inherent uncertainties associated with modeling future conditions, we recommend new or modified guidelines be applicable for the longest period of time possible to avoid emergency crisis responses that were not accounted for in the analysis.

Because the past hydrologic record may not represent future water availability, the EPA recommends that the Draft EIS analyze a range of possible future conditions and identify how this information is, or will be, incorporated into overall hydrologic modeling[5]. Clearly identify the methodologies, assumptions, and model inputs used for the assessments and discuss the rationale for using each model. The EPA also recommends that Reclamation consider other climate-related input data such as increases in the fraction of precipitation falling as rain rather than snow, increased frequency of extreme weather events resulting in heavy precipitation and flooding, dust accumulation on snow, and changing soil moisture levels. After establishing a consistent approach for measuring and reporting reservoir evaporation Basin-wide, assess the potential for increased evaporative losses and sedimentation and the combined effect of each on long-term reservoir levels and future energy production. Under each climate scenario presented in the Draft EIS, clearly identify how the alternative policies and operations identified have accounted for these losses using the most accurate science-based atmospheric and reservoir models available. Using these assumptions in hydrologic and environmental modeling (e.g., Colorado River Mid-term Modeling System), assess potential impacts from changes in the amount and timing of streamflow and identify how such changes could affect aquatic species and their habitats, riparian and wetland areas and functions, and climate-influenced water quality parameters like water temperature.

[5] We understand that Reclamation uses several models to simulate different components of operations, including the Colorado River Simulation System, a shortage allocation model, Intentionally Created Surplus, Generalized and Transmission Maximization Model, Colorado River Mid-term Modeling System.

Climate Adaptation Strategies

The EPA supports the inclusion of the analysis proposed in Reclamation's April 20, 2023 *Climate Change Adaptation Strategy*[6] (Strategy) for the Draft EIS in order to inform the alternatives, the public, and decision-makers. The Strategy includes objectives to increase water management flexibility; enhance climate adaptation planning; improve infrastructure resilience; and expand information sharing. The Strategy suggests increasing early-phase engagement with interested parties on climate change and inclusion of quantitative climate change analyses in environmental reviews.

In the Draft EIS, discuss Reclamation's commitment to continue coordination with states, tribes, local interested parties, and Mexico to implement policies, programs, and practices across all sectors – agricultural, municipal, and power – to develop strategies and operational guidelines that respond to climate variability and reduce overall demand. While increased flexibility will be needed to avoid crisis responses, the EPA recommends that Reclamation consider the need to make contingency and conservation measures or contract modifications mandatory or permanent to provide more certainty to water users. In the Draft EIS, analyze and disclose climate impacts and vulnerabilities, the efficacy of conservation and efficiency measures, and any management actions that have been taken to date to prevent or slow the progression of climate impacts. The EPA recommends that the Draft EIS clearly describe adaptation planning efforts, and how additional minimization, mitigation, or management measures are integrated into adaptation planning commitments to achieve sustainable development and provide access to water vital to public health and safety. The EPA recommends that the Draft EIS identify where additional delivery or aquifer recharge infrastructure is needed and whether maintaining or replacing aging infrastructure will improve water and energy efficiencies and protect public assets.

Conservation Coordination and Funding Opportunities

At a recent public meeting, Reclamation stated that post-2026 guidelines and plans need to be designed to expand participation in conservation and Basin-wide programs.[7] We agree and consider a full understanding of the various types of conservation and funding programs currently available to be central to long-term demand management. The EPA notes that the 2019 Drought Contingency Plan effective through 2026 gives the Secretary of the Interior authority to implement water conservation programs thereunder.[8] The EPA notes that there are a number of current and planned efficiency projects in the Lower Basin and recommends that the new guidelines incorporate these activities and projects that fulfill Reclamation's commitments or otherwise assist in drought response actions.

As part of demand management, the EPA recommends identifying and analyzing the effectiveness of conservation measures in both the Upper and Lower Basin states as commitments to increase efficiencies or otherwise reduce demand (e.g., covering canals with solar panels), even if such measures are beyond Reclamation's control, already underway, or still in development (e.g., Reclamation's initial funding of Colorado River Basin projects[9]). Highlight conservation as a tool to reduce demand as a stated need, as well as a purpose of the project to ensure that conservation is incorporated into all action

[6] Climate Change Adaptation Strategy (usbr.gov), https://www.usbr.gov/climate/docs/2023ccas/CCAS2023Webversion.pdf
[7] Reclamation's Public Meeting on post-2026 operations, July 17, 2023
[8] Water conservation includes "contributions" made to the system under Drought Contingency Plan (DCP) agreement. Depending on Lake Mead's elevation, contributions allow users to store water in Lake Mead for later years, rather than being forced to use it immediately or lose their entitlement. Total shortages and DCP contributions are currently limited to 2.083 maf. Both the Upper Basin DCP and the Lower Basin DCP supplement and further the goals and operations in the 2007 Interim Guidelines.
[9] The Bipartisan Infrastructure Law Spend Plan Addendum provides project-specific allocations for the Colorado River Endangered Species recovery and conservation programs https://www.usbr.gov/bil/docs/spendplan-2023/Reclamation-BIL-Spend-Plan-Addendum-ESA%20WaterSMART12-27-2022.pdf

alternatives. Consider more advanced or aggressive levels of conservation or reallocations (e.g., those associated with smart growth principles or prioritizing municipal uses) within the alternatives analysis.

Because implementation of a variety of conservation actions, like increased reuse, will require an all-of-government approach to respond to changing hydrological conditions, the EPA recommends that the Draft EIS present a conceptual framework for continual engagement and participation of all seven states and Basin tribes to adopt innovative ideas, effective regulations and management practices, including an outline of action items needed to achieve common goals and objectives. In the Draft EIS, evaluate the effectiveness of existing programs and preserve those robust measures or mechanisms that are available to provide greater stability to water and energy systems. Clearly identify Reclamation's commitment to continue to initiate and participate in cooperative processes at the federal, state, tribal and local levels because Reclamation's actions alone will be insufficient to meet the needs of all water users. For example, the EPA encourages a partnership with the Natural Resources Conservation Service which could provide technical assistance and financing necessary to develop more efficient drinking water, wastewater, and energy systems, and implement rural development programs that reduce total water use, especially in the agricultural sector. Similarly, the USDA's Farm Service Agency has a Conservation Reserve Program that might provide a model for agricultural demand reduction, and the collaborative efforts of 100 organizations have resulted in a National Water Reuse Action Plan.[10]

Outline in the Draft EIS which types of state activities could be best supported by project operations. EPA recommends that the Draft EIS compile or reference existing actions that address supply-side and demand-side response actions in both the Upper and Lower Colorado River Basins. Moreover, EPA is aware that many communities are interested in potential sources of funding or grant opportunities for drought relief or infrastructure investments from the Inflation Reduction Act, Bipartisan Infrastructure Investment and Jobs Act, and Reclamation's WaterSMART Grants Program; information about these funding sources and interested communities would be helpful to include in the Draft EIS to foster future partnerships.

Climate Change Guidance on Greenhouse Gas Emissions

On January 9, 2023, the Council on Environmental Quality published interim guidance[11] to assist federal agencies in assessing and disclosing climate change impacts during environmental reviews. CEQ developed this guidance in response to Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. This interim guidance is currently in effect; CEQ indicated that agencies should use this interim guidance to inform the NEPA review for all new proposed actions and may use it for evaluations in progress, as agencies deem appropriate, to consider alternatives or help address comments raised through the public comment process. EPA recommends the Draft EIS apply the interim guidance to ensure robust consideration of potential climate impacts, mitigation, and adaptation issues.

EPA is aware that greenhouse gas emissions can be produced by dam and reservoir operations. In the Draft EIS, estimate these emissions, particularly the amount of methane emissions released by algal blooms and vegetative decomposition caused by reservoir fluctuations either seasonally or by hydropower-ramping cycles.[12] We recommend the details of the calculations of GHGs be included as an

[10] See online platform https://www.epa.gov/waterreuse/national-water-reuse-action-plan-online-platform?action=2.19
[11] https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate
[12]EPA (2023). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021. U.S. Environmental Protection Agency, EPA 430-R-23-002. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021.

appendix to the Draft EIS so that the assumptions are adequately documented and the calculations can be replicated.

Increases in GHG emissions could also result from alternative fossil fuel power sources if hydroelectric power is reduced or unavailable due to lower reservoir levels. Discuss how reservoir elevation changes at Lake Powell and Lake Mead affect hydropower production at the Glen Canyon, Hoover, Parker, and Davis powerplants, and which energy alternatives would likely replace these power sources should they lose capacity. Discuss how GHG emissions could increase if this power were to be replaced by fossil fuel energy sources. In 2021, the United States set a target to create a carbon pollution-free power sector by 2030 as an important part of reducing U.S. greenhouse gas emissions 50-52% from 2005 levels and achieving a net zero emissions economy no later than 2050.[13] It would be useful for the public to understand how hydropower helps to meet these targets and what the percentage of the power generated is, or could be, provided by the Glen Canyon, Hoover and Lower Basin dams within the 11-state Western Interconnection regional portfolio.[14]

The EPA recommends that relative changes in reservoir levels under each alternative be discussed in the context of reducing greenhouse gas emissions and achieving power sector targets. Discuss the current regional capacity to replace hydroelectric power with other renewable energy sources like solar or wind power.

ENVIRONMENTAL JUSTICE ANALYSIS

The EPA recommends that the Draft EIS incorporate an environmental justice perspective into all facets of decision-making and strive to achieve water equity among all users through operations and funding consistent with Executive Order 14096 *Revitalizing Our Nation's Commitment to Environmental Justice for All* (2023). EO 14096 direct agencies to identify, analyze, and address actions related to any Federal regulation, policy, or practice that impairs the ability of communities with environmental justice concerns to achieve or maintain a healthy and sustainable environment. Further, it requires agencies to evaluate relevant legal authorities and, where available and appropriate, consider adopting or requiring measures to avoid, minimize, or mitigate disproportionate and adverse human health and environmental effects of Federal activities on communities with environmental justice concerns, to the maximum extent practicable.

Identifying Communities with EJ concerns

To comply with this Executive Order, a relatively refined understanding of potential adverse impacts on a community-by-community basis is needed to provide decision-makers with the level of detail necessary to make an informed choice between alternatives and determine whether mitigation is available. Depending on the scope of the Draft EIS, EPA is aware of the challenges presented by large, impacted areas to initially identify communities with EJ concerns. We strongly encourage the use of *EJScreen*[15] when conducting EJ scoping efforts as the first step in highlighting locations that may be candidates for further analysis.

Chapter 6, p. 6-115 begins the section on Flooded Lands and describes the methodology for calculating GHG emissions from flooded lands.

[13] https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies.

[14] The Western Interconnection region includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[15] Available at: https://ejscreen.epa.gov/mapper/; User Guide at https://ejscreen.epa.gov/mapper/help/ejscreen_help.pdf

When assessing large geographic areas, the EPA recommends considering individual block groups within the project area, in addition to an area-wide assessment, in recognition of the inherent uncertainties with screening level data and instances when the presence of EJ populations may be diluted (in large project areas or rural locations). This can help narrow down the areas that may warrant further consideration, analysis, or outreach. While county level reports can provide meaningful baseline information upon which to compare small geographies, county level reports should not be used to determine the presence, or absence, of areas of potential EJ concern.

The *EJScreen* tool combines demographic and environmental information that can help identify potential community vulnerabilities. *EJScreen* calculates EJ Indexes and displays data in color-coded maps and standardized reports (e.g., pollution sources, health disparities, climate change data*). EJScreen* uses two types of indexes: supplemental and standard. We strongly suggest using the standard EJ index, which includes people of color. The threshold map feature[16] in *EJScreen* can be used to identify areas with one or more *EJScreen* indicator(s) above the 80th Percentile.[17] The national (vs. state) index is most appropriate for this EJ analysis since project operations cross multiple state lines.[18]

For purposes of NEPA review, the EPA identified the 80th percentile filter as a starting point for identifying areas of potential concern in geographic areas showing one or more of the twelve EJ Indexes at or above the 80th percentile in the nation. The 80th percentile is not intended to designate an area as an "EJ community;" conversely, scores under the 80th percentile should not be interpreted to mean there are definitively no EJ concerns present or that other relevant vulnerabilities do not exist. Nor should the tool's standard data report be considered a substitute for conducting a full EJ analysis - scoping efforts should consider other factors and sources of information such as local knowledge, health-based information or proximity and exposure to environmental hazards when reasonably available.[19] A minority population does not need to meet a 50 percent standard if "the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."[20] The NEPA Committee of the Federal Interagency Working Group on Environmental Justice has noted that, in some cases, it may be appropriate to use a threshold for identifying low-income populations that exceeds the poverty level.[21]

When identifying communities that may have environmental justice concerns, it is important to avoid labeling or defining communities as "Environmental Justice Communities" unless that is how they define themselves. EPA suggests using the term "communities with EJ concerns," as there may be urban, rural, or tribal areas that may have communities with environmental justice concerns within their boundaries, but not be representative of the community as a whole.

Meaningful Engagement

Once communities with EJ concerns are identified, Section 3 of EO 14096 directs agencies to seek out and encourage the involvement of communities with EJ concerns that are potentially affected by federal

[16] See basic information on threshold maps here: https://www.epa.gov/ejscreen/threshold-maps-ejscreen

[17] For details on the 80th percentile, see: https://www.epa.gov/sites/default/files/2021-04/documents/ejscreen_technical_document.pdf

[18] To download data for the *EJScreen* map data for threshold analysis, visit: https://www.epa.gov/ejscreen/download-ejscreen-data

[19] https://www.epa.gov/ejscreen/how-interpret-ejscreen-data, updated 6/26/23.

[20] Council on Environmental Quality. Environmental Justice: Guidance Under the National Environmental Policy Act. December 1997. Available at https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf.

[21] Federal Interagency Working Group on Environmental Justice & NEPA Committee. Promising Practices for EJ Methodologies in NEPA Reviews. March 2016. Available at: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

activities and provide technical assistance tools and resources to assist in facilitating meaningful and informed public participation. Additionally, CEQ's EJ Guidance states "…agencies should elicit the views of the affected populations on measures to mitigate a disproportionately high and adverse human health or environmental effect…and should carefully consider community views in developing and implementing mitigation strategies. Any mitigation measures should reflect the needs and preferences of affected low-income populations, people of color, or Indian tribes to the extent practicable."

This guidance suggests that a comprehensive public involvement plan be developed including an environmental justice component that identifies and engages with disproportionately, adversely affected communities. The Environmental Justice Interagency Working Group's *Promising Practices for EJ Methodologies in NEPA Reviews*"[4] provides ways to both consider environmental justice concerns during environmental analyses and encourage effective participation by communities with environmental justice concerns. EPA recommends that Reclamation review the input received during pre-scoping efforts to identify any disparities in participation by these communities and flag for further outreach and involvement. *Promising Practices* suggests initiating meaningful engagement with communities early and often; providing potentially affected communities with an agency-designated point of contact; and convening project-specific community advisory committees, as appropriate.

In the Draft EIS, summarize information describing what was done to inform these communities about the project and the potential impacts it would have on their communities, what input was received from the communities, and how that input was utilized in the decisions that were made regarding the project. EPA notes that the participation of low-income, people of color, and tribal populations may require adaptive or innovative approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making processes of Federal agencies under customary NEPA procedures.[22]

Mitigation and Availability of Alternative Supplies

Where alternatives may result in zero available project water for some water users, the EPA recommends that the Draft EIS present information on the relative availability, estimated costs, and affordability of alternative water sources for low-income communities or communities burdened by other EJ concerns as it is essential to making a reasoned choice among alternatives, minimizing, or mitigating adverse impacts, and protecting public health and safety.

Following our recommendation to use block groups to identify communities with EJ concerns, describe in the Draft EIS the measures taken by Reclamation to identify and analyze:

- which of the action alternatives could potentially result in substantial reductions or zero available water for these communities;
- the associated impacts from zero water availability in these communities;
- which disproportionately impacted communities have no water replacement sources or rely on deficient groundwater supplies;[23]
- the general, estimated costs for disproportionately impacted communities to utilize available alternative water sources; and
- whether these communities could reasonably be expected to afford the estimated replacement costs.

[22] CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act* (1997)

[23] See e.g., Arizona Department of Water Resources Technical Memorandum for Phoenix Active Management Areas - 100-Year Assured Water Supply Projection: https://infoshare.azwater.gov/docushare/dsweb/Get/Document-76432/2023_Technical_Memorandum_Phx_AMA_100_Yr_Projection.pdf

Clearly identify potential mitigation measures to minimize impacts to communities with EJ concerns and provide monitoring and adaptive management plans to ensure that mitigation is effective.

Cumulative Effects on Communities with EJ Concerns

Executive Order 14096 clarifies that federal agencies should carry out environmental reviews in a manner that includes the cumulative effects of the proposed action on communities with environmental justice concerns. The NEPA definition of cumulative impact is one "… which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR §1508.1(g)(3)). Although all communities are affected by, and vulnerable to, uncontrolled water shortages, it is important to evaluate prior actions and decisions that have resulted in disproportionate burdens.

EPA recommends detailing all past, present, and future actions that have or will contribute to significant cumulative effects on the communities with EJ concerns, discussed in the context of historical burdens or inequities and acknowledging previous reductions in water supplies.[24]

TRIBES AND INDIGENOUS PEOPLE

Meaningful engagement and collaboration with Basin tribes is crucial to the success of any future operational decisions and studies. EPA appreciates Reclamation's commitment to engaging and consulting with Basin tribes in a meaningful and transparent manner and its endeavor to fully consider tribal input and viewpoints.[25]

Government-to-Government Consultations

The EPA notes Executive Order 14096 clarifies that "[c]ommunities with environmental justice concerns exist in all areas of the country, including…within the boundaries of Tribal Nations." Although some issues overlap, the EPA recommends that the Draft EIS consider separating the discussion and analysis of tribal issues and concerns from the analysis of environmental justice, unless a specific tribe has requested that their concerns be addressed in the environmental justice section. Thoroughly describe the process and outcome of government-to-government consultation between Reclamation and tribes, including issues that were raised and how those issues were addressed in the development and selection of the proposed alternative and proposed mitigation. Section 2 of the *Presidential Memorandum on Uniform Standards for Tribal Consultation*[26] states "Consultation requires that information obtained from tribes be given meaningful consideration, and agencies should strive for consensus with tribes or a mutually desired outcome." The *Standards* present best practices and consultation policies that call on federal agencies to incorporate tribal treaty and reserved rights into agency decision-making with the goal of co-management and co-stewardship of federal land and water.

In the Long Term Experimental and Management Plan for the Glen Canyon Dam,[27] Reclamation and the National Park Service incorporated tribal information, perspectives, and analyses into multiple resource

[24] Even though prepared for a transportation agency, EPA recommends using the *Guidance for Preparers of Cumulative Impact Assessments* (2005) which has wide application for assessing cumulative effects in EJ analyses. Guidance for Preparers of Cumulative Impact Analysis | Caltrans; https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/cumulative-impact analysis

[25] Public hearing July 17, 2023 and https://www.usbr.gov/ColoradoRiverBasin/documents/7.D.Review_FinalReport_12-18-2020.pdf

[26] *Presidential Memorandum on Uniform Standards for Tribal Consultation* at https://www.whitehouse.gov/briefing-room/presidential-actions/2022/11/30/memorandum-on-uniform-standards-for-tribal-consultation

[27] https://www.usbr.gov/uc/progact/amp/ltemp.html#LTEMP

chapters. This was a unique opportunity to discuss tribal perspectives in a holistic and informative way and we encourage Reclamation to explore a similar approach, as appropriate, in the Draft EIS. To the extent such information is not sensitive or otherwise confidential, summarize in the Draft EIS the areas in which consensus with tribes regarding their treaty or reserved rights and mutually desired outcomes are achievable.

National Historic Preservation Act and Executive Order 13007

Consultation for tribal cultural resources is required under Section 106 of the National Historic Preservation Act. Historic properties under the NHPA are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, to consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer. Under NEPA, any impacts to tribal, cultural, or other treaty resources must be discussed and mitigated. Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources (36 Code Fed. Reg. 800).

Executive Order 13007, *Indian Sacred Sites* (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, tribal sacred sites by its religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site.

The EPA recommends that the Draft EIS address the existence of Indian sacred sites in the Basin, as distinguished from Section 106 of the NHPA, and discuss how Reclamation would avoid adversely affecting the physical integrity, accessibility, or use of sacred sites, if they exist. Summarize all coordination with tribes and with the SHPO/THPO, including identification of National Register of Historic Places eligible sites, and whether Cultural Resource Management Plans need be developed.

Effect of Historic Inequities on Tribal Water Rights

Executive Order 14096 directs agencies to identify, analyze, and address historical inequities and systemic barriers related to any Federal regulation, policy, or practice that impairs the ability of tribes who may have environmental justice concerns to achieve or maintain a healthy and sustainable environment. Tribes have been historically excluded from river governance, apportionment decisions and federal developments and to this day tribal water rights remain unresolved, inaccessible, or unquantified.

For example, the Central Arizona Project is the single largest provider of water to tribal communities in the Colorado River system but has very junior (4th priority) water rights. [28] Because tribal water rights are tied to the CAP priority date and delivery system, available water could be reduced to zero depending on shortage levels.

EPA recommends acknowledging historic and present inequities or systemic barriers to indigenous water rights. Discuss policies, programs or funding opportunities specifically designed to correct or remove inequities or barriers; provide tribes with more clarity; maintain or construct infrastructure for the delivery of or access to Colorado River water for tribal use; or develop replacement water resources.

[28] See e.g., Central Arizona Project. 2023. Tribal Water Rights, https://www.cap-az.com/about/tribal-water-rights/ and 2007 Interim Guidelines Final Environmental Impact Statement (Reclamation 2007).

INTERNATIONAL CONSIDERATIONS

Tijuana, Mexico is particularly vulnerable to reduced water allocations due to drought since more than 90% of its water supply is sourced from the Colorado River. Mexico's permanent 3 percent reduction (45,000 acre-feet) to their annual allocation of 1.5-million-acre feet of water took effect in 2022 in accordance with Minute 323 signed in 2017. As a result, there is high interest at all levels of the Mexican government in pursuing reuse of treated wastewater to diversify the city's water supply, keep up with demand, and increase wastewater treatment.

Under the Statement of Intent and Minute 328 signed in 2022, the EPA committed $10M from the Border Water Infrastructure Grant Program (BWIP) towards a project that would pipe effluent from two wastewater treatment plants in Tijuana (La Morita and Arturo Herrera) upstream of the Rodriguez Reservoir for indirect reuse. This project is a high priority for Mexico and would be one of the first projects of its kind in the country. Once the feasibility studies and design are complete (expected end of 2024), Mexico would need to secure the match to the EPA's BWIP funds to finance the construction, which would take several years to complete. The Bureau of Reclamation could provide funding for water conservation projects in Mexico in exchange for a one-time allotment of Colorado River water under Minute 323, "Extension of Cooperative Measures and Adoption of a Binational Water Scarcity Contingency Plan in the Colorado River Basin." Funding from the U.S. could support effluent reuse projects, including projects at San Diego-Tijuana if there were a Colorado River benefit.

We recommend Reclamation include discussions in the Draft EIS about reuse projects and funding such projects to reduce dependence on Colorado River water in Mexico. Analyze impacts from cuts and transfers to Mexico on the Colorado River delta, border sanitation and water supply. Consider how the alternatives may adversely and disproportionately affect growing transboundary communities and the movement of transboundary populations with potential environmental justice concerns.

BIOLOGICAL RESOURCES

In the Draft EIS, the EPA recommends that Reclamation identify all proposed/candidate and listed threatened and endangered species and critical habitat (final or proposed) that might occur within the project area. Identify and quantify which species or critical habitat might be directly, indirectly, or cumulatively affected by each alternative and mitigate impacts to these species. Consider operational releases that prioritize flows during critical times for biological processes and meet critical flow needs for both ESA-listed species and habitats.

In addition, discuss the impacts of the alternatives on sensitive or ecologically diverse areas that depend on Colorado River water, including consistency with the Lower Colorado River Multi-Species Habitat Conservation Plan and the effects upon the Salton Sea. Address the prolonged drought that has prompted major reductions in water deliveries to the Imperial and Coachella Irrigation Districts and the transfer or sale of their water supplies away from agriculture toward cities in coastal southern California (Los Angeles and San Diego). Describe the ecological and temporal ramifications of any proposed reductions in water on migratory birds, fish, and wildlife populations, and how reductions may affect state and federal efforts to create or restore wetlands and wildlife habitat in the area. Address how restoration projects, as well as proposed lithium development in the Salton Sea region, may require augmentation of water supplies from the Pacific Ocean, the Sea of Cortez, or from reuse in Tijuana, Mexico and what direct, indirect, and cumulative effects may be attributed to imported water into the system.

Riparian and Aquatic Ecosystems

We recommend that the Draft EIS assess the potential direct, indirect, and cumulative effects upon existing aquatic resources which may include changes in surface and groundwater hydrology supporting

streams and wetlands or functional conversion of wetland types. Describe how the project would comply with Executive Order 11990, *Protection of Wetlands*, including how wetlands would be identified and avoided. To the extent adverse effects to wetlands are unavoidable, discuss the loss or degradation of wetland functions and values, the assessment method used to make these determinations, and how such impacts would be minimized, offset, or mitigated.

If wetlands on federal lands are going to be impacted, EPA recommends offsetting mitigation based on a functional replacement approach rather than acre-to-acre replacement to ensure that the specific wetland functions are replaced in an ecosystem. The EPA notes that conversion from one type of wetland to another will likely result in the loss or degradation of certain wetland functions, but that any assumptions regarding wetland quality and function should be field verified using an assessment method appropriate for the region. EPA further recommends post-2026 monitoring for potentially adverse effects to wetland functions.

Periodic high flows reduce adverse impacts and are critical to maintaining the health and function of the ecosystem of the Colorado River. These high flows mimic the natural floods and geomorphic processes that are blocked by the dams, improve both in-stream and riparian habitat for aquatic and terrestrial wildlife, reduce invasive plant populations, and increase recreational opportunities along the Colorado River through Grand Canyon National Park. The existing Long Term Experimental and Management Plan (LTEMP)(2016) provides a framework for adaptively managing Glen Canyon Dam operations through 2036 consistent with the Grand Canyon Protection Act of 1992 (GCPA) and other provisions of applicable federal law. Within the area affected by Lake Powell's operations, the LTEMP sets out options between non-flow, minimum flow thresholds, and high flow experimental and management actions that meet the GCPA's requirements and minimize impacts on resources within the Colorado River ecosystem, including those of importance to tribes. The EPA recommends the analysis of alternatives that would allocate sufficient water in Lake Powell to continue LTEMP releases and High-Flow Events.

Direct, Indirect and Cumulative Effects

Analyze the direct, indirect (secondary), and cumulative impacts to the aquatic and other resource characteristics of the project area, including impacts to water quality and water quantity; stream channel morphology; riparian function; fish and invertebrate assemblages; threatened, endangered and/or sensitive species and their habitat; and other resources within the geographic scope of analysis. Additionally, we recommend that the impact analysis consider the potential for non-linear responses, where incremental impacts of the proposed project may result in non-incremental changes in environmental conditions.

In the Draft EIS, include the following analyses or descriptions of potential project effects.

- Analyze the direct, indirect, and cumulative impacts to all aquatic resources including, but not limited to wetlands including fens, streams, rivers, vernal pools within the geographic scope of potential impacts, including impacts to wetlands from changes in hydrology. Include in the analysis the indirect impacts to wetlands from loss of hydrology from water diversions and transfers.
- Assess impacts associated with reservoir fluctuations and periodic inundation with quantification of lost aquatic and riparian habitat areas.
- Provide detailed hydrologic analysis of existing stream conditions using representative datasets to enable an adequate assessment of the project's potential geomorphic and biological impacts. At a minimum, include wet, average, and dry year analyses at a daily time-step wherever

possible. Consider potential influences of temperature and precipitation trends on future hydrology.
- Analyze impacts to flow regime and stream morphology, with an emphasis on the implications of these changes on sediment transport, channel complexity, channel maintenance, aquatic habitat availability and life cycle requirements.
- Review various water importation schemes, including transporting water from Sea of Cortez, Pacific Ocean, and reuse activities in Tijuana (all proposed for Salton Sea restoration in the absence of Colorado River allocations), and analyze the effects on the lower and upper Basin states.

WATER QUALITY

Removal of water from streams or storing large volumes of water in reservoirs can have substantial effects on water quality on those waters as well as downstream waters. Analyze any potential for the project to cause or contribute to exceedances of Water Quality Standards and/or increase pollution above allowable increments (i.e., excessive degradation of available assimilative capacity) within and downstream of the project area. Relevant WQS likely will include dissolved oxygen, temperature, pH, metals, nutrients, algal growth, bacterial concentrations, total suspended solids, total dissolved solids, turbidity and total dissolved organic carbon.

If exceedances of WQS and/or significant reductions in assimilative capacity are possible, it is important that the Draft EIS characterize the spatial extent, magnitude, frequency, and duration of effects. A change in any of the WQS parameters caused by the alternative operations and fluctuating water levels may influence water quality, fisheries, or recreational use (including fish consumption advisories) within or downstream of the reservoirs. The EPA recommends characterizing the frequency and magnitude of water level fluctuations within the reservoir and analyzing the potential impacts associated with these fluctuations.

Shoreline processes, including frequently changing reservoir levels that vary month to month and year to year, will provide a constant mechanism by which soil in the new area of inundation can be eroded into the reservoirs, contributing to suspended sediments and turbidity. To predict potential nutrient-related impacts, we recommend that any predictive reservoir water quality modeling ensures that the full variability and dynamics of growing season nutrient cycling, algal blooms, and reductions in dissolved oxygen are adequately represented. Since algal blooms and nutrient cycle dynamics significantly change within hours in any growing season day, a high frequency timestep is necessary to accurately predict any project-related impacts (e.g., algal blooms are in a $\leq$ 12-hour timestep). Therefore, it is fundamental that the calculations use a high frequency timestep, account for dissolved oxygen concentrations throughout the water column, and consider daily minimums.

Specifically, where a project alternative modifies flows through operational changes, increases the diversion of water, or introduces new water sources, the EPA recommends that the Draft EIS's water quality analysis:

- Compare current water quality and projected post-2026 water quality against applicable NPDES or state water quality standards.
- If the EIS identifies the potential for the selected alternative to cause or contribute to violations of water quality standards, identify mitigation or operational controls to avoid such impacts. If it proves difficult to determine the system's potential to exceed water quality standards, EPA recommends implementing a water quality monitoring program be performed before, during and after project implementation.

- Account for changes in background water quality for water quality modeling and when making determinations of assimilative capacity.
- Identify reaches with existing water quality impairments per State Clean Water Act Section 303(d) lists, draft or established total maximum daily loads (TMDLs), and potentially affected dischargers to ensure the project will avoid contributing to existing impairments.
- Identify Source Water Protection areas and explain how the project would be consistent with Source Water Protection planning measures, including groundwater.
- Identify potentially affected drinking water treatment providers with intakes on reaches with predicted water quality changes and describe the potential need to change treatment locations or processes.
- Identify wastewater treatment plants discharging to reaches with predicted water quality changes. Evaluate current and post-project water quality at a critical flow condition and expected changes to assimilative capacity or permit limits for any NPDES or state discharge permits.
- Discuss the negative impacts that proposed operational strategies, such as fluctuating reservoir levels, could have on water quality, and the benefits of sediment resuspension and transport on riparian and recreational resources.
- Evaluate where agricultural irrigation in the project area is most likely to increase or decrease as a result of the selected alternative, describe the water quality effects related to return flows in receiving waters, and any associated impacts to water treatment facilities and discharge permittees.

The EPA recommends providing details about mitigation for any anticipated water quality effects in the Draft EIS to the extent practicable.

Groundwater

The EPA anticipates that new guidelines and operations could potentially impact groundwater resources that are interconnected and/or dependent upon the Colorado River in both positive and negative ways. In assessing the potential impacts of each alternative on connected groundwater systems in the project area, the EPA recommends that the Draft EIS examine the potential for changes in the volume, storage, flow, and quality of groundwater using available characterization of groundwater resources and groundwater use. If project operations could potentially result in any adverse impacts to groundwater resources, we recommend considering alternatives, mitigation measures or operational controls that would avoid, reduce, or minimize impacts on groundwater.

AIR QUALITY

After establishing existing environmental conditions in the affected airsheds using attainment of National Ambient Air Quality Standards as a baseline, the EPA recommends evaluating and disclosing any air quality impacts associated with project alternatives and, if necessary, detailing mitigation steps that will be taken to minimize associated adverse impacts.

The EPA is particularly concerned about exacerbating air quality problems around the Salton Sea. As mentioned above, climate change coupled with diminished agricultural return flows at its northern and southern edges could expose more than 11,000 acres of playa salt flats to wind erosion by 2030 with a 3-foot decline in water levels. Blowing dust, laden with concentrated waste and agricultural runoff, not only affects the ability to meet air quality standards but could also affect the respiratory health of people throughout the Imperial Valley, many of whom reside in disadvantaged and border communities. Discuss the air quality impacts of any operational changes that would reduce deliveries to the Salton Sea region, including a robust analysis of impacts to public health and safety of residents. Identify other areas that would have similar impacts throughout the project area.

CUMULATIVE AND INDIRECT IMPACTS

The cumulative impacts analysis should identify how resources, ecosystems, and communities in the project have already been, or would be, affected by past, present, or future activities in the project area. These resources should be characterized in terms of their response to change and capacity to withstand stresses. Trends data should be used to establish a baseline for the affected resources, to evaluate the significance of historical degradation, and to predict the environmental effects of the project components.

For the cumulative impacts assessment, we recommend focusing on resources of concern or resources that are "at risk" and/or are significantly impacted by the proposed project before mitigation. For this project, conduct a thorough assessment of the cumulative impacts to aquatic, biological, and tribal resources.

The EPA recommends that the Draft EIS identify which resources are analyzed, which ones are not, and why. NEPA requires the Draft EIS consider the following for each resource analyzed:

- Identify the current condition of the resource as a measure of past impacts.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify all on-going, planned, and reasonably foreseeable projects in the study areas, which may contribute to cumulative impacts.
- Identify the future condition of the resource based on an analysis of impacts from reasonably foreseeable projects or actions added to existing conditions and current trends.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource and provide a specific measure for the projected impact from the proposed alternatives.
- When cumulative impacts are identified for a resource, propose mitigation.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.

Identify opportunities to avoid and minimize impacts through changes to project elements or mitigation, including working with other entities that may have authority or responsibility for these measures. Although some mitigation measures may be outside the jurisdiction of Reclamation, describing them in the EIS would serve to alert other agencies or officials who can implement these extra measures (Council on Environmental Quality's 40 Questions #19(b)).

FRONT RANGE WATER COUNCIL

1600 West 12th Avenue
Denver, CO 80204-3412

Sent Via Email

Email: crbpost2026@usbr.gov

August 15, 2023

Amanda Erath
Colorado River Post-2026 Program Coordinator
Bureau of Reclamation
Attn: Post-2026 (Mail Stop 84-55000)
P.O. Box 25007
Denver, CO 80225

Re: Scoping Comments for Environmental Impact Statement on Post-2026 Colorado River Operations Agency/Docket Number: RR03040000, 23XR0680A1, RX187860005004001

Dear Ms. Erath:

The Front Range Water Council (FRWC) thanks you for the opportunity to provide scoping comments for the environmental impact statement (EIS) on Post-2026 Colorado River operations.

The FRWC consists of Colorado River water users located on the Front Range of Colorado that have a vested interest in ensuring the long-term sustainability and reliability of the Colorado River. The FRWC is comprised of Denver Water, Northern Water, Pueblo Water, Aurora Water, Colorado Springs Utilities, the Southeastern Colorado Water Conservancy District, and Twin Lakes Reservoir and Canal Company. The members of the FRWC rely on the continued security of the Colorado River to provide potable drinking water to approximately 80% of the State's population, and supply irrigation water to highly productive agricultural operations in the South Platte and Arkansas river basins. The sustainability of the Colorado River is therefore vital to the economic, environmental, and recreational health of Colorado's Front Range communities.

We appreciate the Bureau's efforts to develop an EIS for Post-2026 Colorado River operations while separately updating the draft supplemental EIS for the current 2007 Interim Guidelines for the remainder of the interim term. The FRWC submits this letter in support of comments from the State of Colorado, and to provide our own perspectives on the scoping for the EIS on Post-2026 Colorado River operations.

We offer the following comments for your consideration:

1. The EIS operational scenarios should be based upon the Law of the River, 1922 Colorado River Compact, the 1948 Upper Colorado River Basin Compact, and the 1944 Treaty with Mexico. These foundational documents provide durability, certainty, and stability in managing the Colorado River System and Infrastructure. The scope of this contemplated federal action must be consistent with federal law and existing federal

authority. Specifically, the Secretary of the United States Department of the Interior is vested with the responsibility of managing the mainstream of the Colorado River in the Lower Basin pursuant to Federal Law. In contrast, the Upper Basin states have the exclusive right and power to regulate waters within their boundaries, including the appropriation, use, and control of the water as apportioned by the Colorado River Compact and the Upper Colorado River Basin Compact. The scope of the EIS should be limited to the operation of Lake Powell and Lake Mead and must not analyze alternatives involving the operation of Colorado River Storage Project Act (CRSPA) reservoirs upstream of Lake Powell. These upstream CRSPA reservoir operations are governed by applicable records of decision (ROD) that must not be impacted by this EIS. The EIS should not include alternatives involving balancing releases from Lake Powell that could reduce water supply available to the Upper Basin, or limit the intent and ability of the CRSPA reservoirs upstream of Lake Powell to provide maximum certainty of water supply available to the Upper Basin.

2. Future Lake Powell releases must be consistent with Section 602(a) of the 1968 Colorado River Basin Project Act. Operations should proactively improve system stability and resiliency and seek to avoid allowing federal-managed facilities to fall to crisis levels. To achieve this, operational guidelines and strategies should consider and be adaptable to a broad range of future hydrologic and operating conditions that factor in climate change to minimize system vulnerability with rapidly warming climate conditions. The alternatives should consider a permanent reduction in use in the Lower Basin that corresponds to evaporation and system losses in the Lower Basin and greater flexibility to impose shortages in the Lower Basin in response to changing hydrology. The alternatives should also include the recovery of storage in Lake Powell and Lake Mead so as to allow the reservoirs to function as intended and in response to greater fluctuations in hydrology.

3. The no-action alternative should assume as its starting point the expiration of the 2007 Interim Guidelines as provided for in section 8.C of the ROD for the 2007 Interim Guidelines. Section 8.C provides that upon the expiration of the 2007 Interim Guidelines, the operating criteria for Lake Powell and Lake Mead are assumed to revert to the operating criteria used to model baseline conditions in the Final EIS for the Interim Surplus Guidelines dated December 2000 (i.e., modeling assumptions are based upon a 70R Strategy for the period commencing January 1, 2026 (for preparation of the 2027 Annual Operating Plan).

4. Based on the operating experience under the existing interim guidelines, alternatives that consider operations of Lake Mead and Lake Powell should not be based on reservoir elevation triggers that are prone to manipulation and create large swings in release volumes from Lake Powell due to balancing. The EIS should contemplate neither the reduction of beneficial uses within the Upper Basin nor limiting Upper Basin depletions to current levels.

Amanda Erath
Colorado River Post-2026 Program Coordinator
August 15, 2023

5. The United States should continue to work with Mexico through the International Boundary and Water Commission to provide for shortage sharing under the 1944 Treaty with Mexico.

6. Any revised system operating guidelines must preserve the ability to generate hydropower at Glen Canyon Dam consistent with applicable law.

Thank you for your consideration of these comments. We look forward to working cooperatively within the Colorado River Basin to further achieve the goal of making the Colorado River a more sustainable and reliable river.

Sincerely,

DocuSigned by:
Jim Broderick
BD1832A12164482...
James W. Broderick
Executive Director
Southeastern Colorado Water Conservancy District

Alan Salazar
CEO/Manager
Denver Water

DocuSigned by:
Seth Clayton
FA690A8295C74E6...
Seth Clayton
Executive Director
Board of Water Works of Pueblo, CO

DocuSigned by:
Alan Ward
0E8D6AE1A4814F1...
Alan Ward
President
Twin Lakes Reservoir and Canal Company

DocuSigned by:
Lisa Barbato
CE41F9DE0F74426...
Lisa Barbato
Chief Water Services Officer
Colorado Springs Utilities

DocuSigned by:
FC047187832549C...
Bradley D. Wind
General Manager
Northern Water

DocuSigned by:
Marshall Brown
D267C3389819460...
Marshall P. Brown
General Manager
Aurora Water

cc: Rebecca Mitchell