REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSION FOR CALENDAR YEAR 2024 April 21, 2025

The Engineer Advisers to the Rio Grande Compact Commission met in person from March 10 to March 14, 2025, to:

- Receive reports;
- Prepare the 2024 Compact water accounting;
- Discuss continuing and new issues in preparation for the 2025 annual meeting of the Rio Grande Compact Commission (Commission); and
- Prepare the Engineer Advisers' report.

The Engineer Advisers received the participation of the U.S. Geological Survey (USGS), the U.S. Bureau of Reclamation (Reclamation), the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Indian Affairs (BIA), the International Boundary and Water Commission (IBWC), and the U.S. Fish and Wildlife Service (Service) at the meetings. The agencies each presented information about their specific water-related activities in the basin during calendar year 2024.

2024 COMPACT ACCOUNTING

The Engineer Advisers reviewed the streamflow and reservoir storage records and other pertinent data for the Upper Rio Grande Basin during calendar year 2024 and reached a consensus on the accounting. As determined by the Engineer Advisers, scheduled and actual deliveries, release of Usable Water for the year 2024, and balances as of January 1, 2025, are as follows:

(a)	Deliveries by Colorado at the State Line:	
	Balance as of January 1, 2024	-1,100 acre-feet
	Scheduled delivery from Conejos River	70,600 acre-feet
	Scheduled delivery from Rio Grande	124,100 acre-feet
	Actual delivery at Lobatos plus 10,000 acre-feet	203,000 acre-feet
	Accrued balance (credit) January 1, 2025	7,200 acre-feet
(b)	Deliveries by New Mexico at Elephant Butte Dam:	
	Balance as of January 1, 2024	-121,500 acre-feet
	Scheduled delivery	375,700 acre-feet
	Actual delivery	373,200 acre-feet
	Accrued balance (debit) January 1, 2025	-124,000 acre-feet
(c)	Project Storage and Releases:	
	Accrued departure as of January 1, 2024	3,065,800 acre-feet
	Actual release of Usable Water	626,800 acre-feet
	Normal release for year	790,000 acre-feet
	Under Release in excess of 150,000 acre-feet	13,200 acre-feet
	Accrued departure as of January 1, 2025	3,215,800 acre-feet

For calendar year 2024, New Mexico carried an Accrued Debit of 121,500 acre-feet. Article VI of the Rio Grande Compact states in part that, "Within the physical limitations of storage capacity of such reservoirs, New Mexico shall retain water in storage at all times to the extent of its accrued debit." New Mexico was unable to retain debit water in 2024.

The Engineer Advisers jointly prepared the Compact accounting based on information provided and presented by state and federal agencies, which is the best available information at the time of report preparation. The Engineer Advisers' report is considered final upon signature by the three Engineer Advisers.

RIO GRANDE BASIN CONDITIONS

After a slow start to the winter snow season, the snowpack and snow-water equivalent (SWE) amounts for most of the headwater areas in both Colorado and New Mexico peaked at slightly above their most recent 30-year median values. The Snow Water Equivalent (SWE) for upper Rio Grande basin in Colorado peaked at approximately 110% of the 30-year median peak, while the SWE for the Rio Grande basin in New Mexico peaked at approximately 118% of the 30-year median peak. However, the melt-out of the snowpack occurred somewhat sooner than usual, resulting in the runoff peaks on the Rio Grande that were slightly lower and occurred earlier than the long-term median peaks.

After the peak of the runoff, the streamflows on the Rio Grande decreased rapidly and were below normal for much of the remainder of the year. Multiple rain events in August through October temporarily increased the river flows but were not enough to substantially alter the general low flow conditions.

Usable Water in Rio Grande Project (Project) Storage was above the Article VII trigger of 400,000 acre-feet from January 1 to June 24, 2024. Usable Water fell below the Article VII trigger on June 25, 2024 and stayed below that level through the remainder of the calendar year. Platoro Reservoir reached a peak of 36,580 acre-feet in storage on July 2, 2024.

NEW AND CONTINUING ISSUES

This section of the report summarizes new information and updates on issues previously addressed by the Engineer Advisers. It reflects information obtained by the Engineer Advisers prior to the writing of the Engineer Advisers' report, including information obtained from the reports of the federal agencies at the 2025 Engineer Advisers' meetings or otherwise reported. The terms "reported" and "indicated" herein reflect information provided by various entities without analysis or approval by the Engineer Advisers.

Litigation on the 2016 Biological Opinion

On November 19, 2024, a Settlement Agreement was reached between WildEarth Guardians, the Service, Reclamation, and the Middle Rio Grande Conservancy District

(MRGCD, intervenor) and the case was dismissed. Settlement terms included reinitiation of consultation as requested by Reclamation on December 10, 2024. The current Biological Opinion (2016 BO) with a prioritization of Conservation Measures will continue until a new BO is issued. Reclamation will continue to seek supplemental water for environmental purposes and a report on the environmental leasing program will be developed. A new BO for Middle Rio Grande (MRG) water management will be issued by October 30, 2028, but Reclamation and the Service are still considering how they will conduct this Section 7 consultation.

2016 MRG Biological Opinion and Collaborative Program

Implementation of the 2016 BO for MRG in 2024 included 100% and 60% completion of fish passage designs at the San Acacia Diversion Dam and Isleta Diversion Dam, respectively. Reclamation reported it has contracted development of a Rio Grande silvery minnow (RGSM) flow options tool and an avian habitat implementation plan. Other reported work for the 2016 BO included species monitoring and an interagency agreement with the Service for a variety of projects and oversight.

The MRG Endangered Species Collaborative Program (Collaborative Program) was authorized by the Omnibus Appropriations Act of 2009 (P.L. 111-8). The Collaborative Program consists of 17 signatories from federal, state, and local governmental entities, Tribes and Pueblos, environmental organizations, and universities. Reclamation provides funding for third party management of the Collaborative Program. In 2024, the third-party management contract was transitioned to the University of New Mexico. Due to the transition, many Collaborative Program activities were paused in 2024 except for projects necessary for compliance with the 2016 BO. The Corps reported that its fiscal year (FY) 2024 collaborative program budget was \$625,000, which funded water quality and ecosystem projects, monitoring and adaptive management projects, and program management projects. No Congressional appropriation has been provided in the FY 2025 budget for the Corps.

Upper Rio Grande Water Operations Model

The Upper Rio Grande Water Operations Model (URGWOM) is a computational model developed through an interagency effort led by the Corps, Reclamation, and the New Mexico Interstate Stream Commission (NMISC). In addition to the joint lead agencies, the program

involves cooperation from USGS, the Service, MRGCD, Albuquerque Bernalillo County Water Utility Authority (ABCWUA), and the BIA. The URGWOM is implemented using RiverWare, a modeling platform developed by the Center for Advanced Decision Support for Water and Environmental Systems at the University of Colorado in Boulder, Colorado. The model supports water accounting, annual operation and planning applications in the Rio Grande Basin. Regular meetings are held to review modeling outputs for daily water operations and accounting procedures. The Corps reported that during 2024, URGWOM activities included:

- Updated and implemented the database with the latest available data (2023), including database extension for aquifer objects;
- Updated the Five-Year Plan;
- Refined municipal, industrial, and domestic pumping data (2015–2021) for the MRG valley;
- Updated the basin-wide Annual Operating Plan (AOP) in collaboration with Reclamation and the NMISC;
- In response to the sediment plug on the lower Rio Chama, developed simulations of releases from Abiquiu Reservoir;
- Enhanced RiverWare scripts for quality assurance/quality control (QA/QC) of rules, improved the Settings Manager, calibrated the Rio Chama and Upper Mainstem, and migrated additional settings to the Settings Manager;
- Finalized the URGWOM documentation and associated volumes; and
- Updated the URGWOM model and Rules database.

Key objectives for 2025 include:

- Updating the basin-wide AOP model for 2025;
- Update the database with available 2024 data;
- Improve compatibility with the Corps Water Management System (CWMS) and integrate National Weather Service (NWS) forecasts for real-time operations;

- Updating the URGWOM documentation and volumes; and
- Continue refining the municipal, industrial, and domestic pumping data (2015–2021) for the MRG valley,

Compliance with State Water Law on Depletion Offsets

The NMISC coordinates with New Mexico Office of the State Engineer (NMOSE) and project sponsors of habitat restoration projects on state water law requirements for offsetting any new depletions in the Middle Rio Grande Project. The NMOSE determines if a permit is needed for projects within the MRG Project area and whether offsets are needed for new depletions. The NMISC continues to track select habitat restoration projects and provide offsets if needed through the Strategic Water Reserve. The Strategic Water Reserve Act was established in 2007 and is composed of leased, purchased, and/or donated surface and groundwater water rights and storage rights received by the Commission for the purposes of assisting the State in complying with interstate stream compacts and court decrees and assisting with water management efforts to benefit threatened or endangered species, or to avoid additional listings of species. The Middle Rio Grande is a priority river reach for SWR. In 2024, the Reserve held about 1,085 acre-feet of consumptive use water rights for the MRG. The NMISC is working with Reclamation and other water managers and water rights holders to increase the State's Strategic Water Reserve for Compact and ESA-related water management in the Middle Rio Grande and to use the Reserve for river augmentation and habitat restoration projects.

Elephant Butte Delta Channel Project

Reclamation and NMISC jointly funded channel and river maintenance projects within the Elephant Butte Delta Channel. In 2024, maintenance efforts continued along the Delta Channel to sustain a 20-mile temporary channel into the Elephant Butte Reservoir pool, ensuring efficient water delivery. Reclamation led these efforts, focusing primarily on sediment excavation, sandbar de-vegetation, and vegetation removal along channel berms to maintain their integrity between River Mile RM 46 and RM 54. Additionally, Reclamation provided engineering services, environmental compliance, and construction inspection for Delta Channel maintenance in accordance with the technical service agreement.

Relinquishment Update

The total amount of Accrued Credit relinquished by Colorado since 2013 is 3,000 acrefeet. Colorado did not store any relinquishment credit water in 2024. Between 2013 and 2024, Colorado stored a total of 2,885 acre-feet of relinquishment credit water in Platoro Reservoir, which leaves a balance of 115 acre-feet in Colorado's relinquishment account.

The total amount of Accrued Credit relinquished by New Mexico since 2003 is 380,500 acre-feet. New Mexico did not store any relinquishment credit water during the 2024 calendar year. Relinquishment credit water storage to date totals 290,649 acre-feet, leaving a balance of 89,851 acre-feet available to be stored in future years when Article VII storage restrictions are in effect.

Gaging Station and Reservoir Stage Review

The Colorado USGS reviewed the Colorado Division of Water Resources (CDWR) gaging station records for the seven Colorado Compact gages and approved the records for 2024. Reclamation reported that the USGS reviewed the streamflow record for the Rio Grande Below Caballo streamflow gage (#08362500) for 2024.

The NMISC continued its survey of water-level elevations in Elephant Butte and Caballo Reservoirs. NMISC's surveyor performed surveys alongside Reclamation staff in June 2024 and December 2024. The NMISC added Abiquiu Reservoir to the survey regime in December 2024, and plans on keeping it in the schedule moving forward. Results from both NMISC surveys indicated that Reclamation's reservoir stage elevations were within the agreedupon threshold criteria of 0.05 feet difference between the surveyed elevation and the stagedischarge recorder (SDR). Reclamation performed routine stage elevation surveys throughout 2024 and adjusted the SDR as needed if the threshold criteria was exceeded.

In 2024, Reclamation continued to measure Elephant Butte Reservoir elevations via the SDR and a bubbler. The bubbler, which is maintained in conjunction with the USGS, shows more scatter, but in general, it more accurately reflects observed elevation when the reservoir is low. NMISC and Reclamation will continue to perform side-by-side surveys at select times during 2025 to ensure the accuracy of the reservoir elevation data.

Gaging Station Costs

The Engineer Advisers continue to express concern, as they have in past years, over the large differences in costs between what Reclamation charges to operate the gage below Caballo Reservoir, as compared to what CDWR and USGS charge for other Compact gages. In addition, the Engineer Advisers continue to have concerns over the large fluctuations in costs from year to year to operate this gage. The three Compact states split the costs of their operations in support of the Compact equally, including operation and maintenance of the Compact gaging stations. Therefore, this high and ever-changing cost from Reclamation affects all three states.

During the Engineer Advisers' meeting, the Engineer Advisers reviewed the past charges and future budget for the operation and maintenance of the Below Caballo gaging station. Reclamation did not submit any costs or budget for the below Caballo gage to the Engineer Advisers. However, at the specific request of the Secretary to the Commission, Reclamation did submit some cost information to him prior to the Engineer Advisers' meeting. The Engineer Advisers found that the proposed budget submitted by Reclamation for the below Caballo gage was for the year ending in June 2025, not for the year ending in June 2026. The Engineer Advisers evaluated alternative methods of determining the cost to be submitted to the Commission for this gage. It was ultimately decided that the Engineer Advisers would use the proposed charge submitted by Reclamation for the FY 2025 budget to develop the FY 2026 budget. The Engineer Advisers stress that detailed cost information about the previous year's budget and the future year's budget should be submitted by all parties that operate Compact gaging stations to the Engineer Advisers by the end of the third week in February.

Colorado Groundwater Regulations

The Colorado State Engineer's Rules and Regulations concerning the use of groundwater in the Upper Rio Grande Basin in Colorado went into effect in 2021. As an integral part of these rules, the Rio Grande Decision Support System Model (RGDSS) has been developed, and Phase 7 of that model is nearing completion. This model captures the interaction between surface and groundwater to show the effect that wells have on senior surface water rights and is used in the development of response functions for groundwater depletions. Owners of non-exempt wells are required to mitigate those injurious depletions and regulate the use of the confined and

unconfined aquifers to maintain a sustainable water supply in each aquifer system.

Currently, there are seven groundwater user subdistricts and multiple individual augmentation plans that have been developed as a way for well owners to comply with the rules. Difficulty meeting the aquifer sustainability requirements in Subdistrict No. 1 led to the development of a new Groundwater Management Plan (GMP) for that subdistrict. Subdistrict No. 1's new GMP was approved by the Colorado State Engineer in early 2023, but several water user groups objected to that GMP in Water Court.

A five-week trial on this GMP is set to begin in January 2026. An individual Plan of Augmentation for the Sustainable Water Augmentation Group (SWAG) has been modified from its first unsuccessful attempt and has received several protests by different water user groups. A trial on this Plan of Augmentation is set to start at the end of June 2026 and is scheduled to continue through the month of July.

New Mexico Indian Water Rights Settlements on the Rio Grande and Tributaries

Two Indian Water Rights Settlements in the Rio Grande basin have been Congressionally approved since 2013. The Taos Pueblo/Abeyta Water Rights Settlement (Taos) and the Aamodt Water Rights Settlement (Aamodt) with the Pueblos of Pojoaque, Tesuque, Nambé and San Ildefonso, are located on tributaries of the Rio Grande and the mainstem of the Rio Grande, respectively. The Taos and Aamodt Settlements are both being implemented and include construction of water infrastructure projects (i.e. groundwater well development projects and acequia improvement projects in the Taos Settlement and construction of a Regional Water System under the Aamodt Settlement).

Since 2022, two state-based settlement agreements on the tributaries of the Rio Grande have been signed and federal legislation has been introduced. These include the Pueblos of Acoma Laguna and the Navajo Nation on the Rio San José Stream System and the Ohkay Owingeh Water Rights Settlement on the Rio Chama Stream System. These are awaiting Congressional approval and federal funding.

The Abbott Water Rights Settlement with the Pueblos of Santa Clara and Ohkay Owingeh on the Santa Cruz River Stream System, which is a tributary of the Rio Grande, and the

Six Middle Rio Grande Pueblos Water Rights Settlement with the Pueblos of Cochiti, San Felipe, Santo Domingo, Santa Ana, Sandia and Isleta on the mainstem of the Rio Grande are under negotiation.

None of the settlements on the mainstem of the Rio Grande or its tributaries limit the authority of the New Mexico State Engineer to ensure compliance with the Compact. The NMISC/OSE will update the Engineer Advisers about the Settlements as appropriate.

Rio Chama Operations

Legislation related to Abiquiu Reservoir in WRDA 2020 changed the storage limit of San Juan Chama Project (SJCP) and native Rio Grande water in Abiquiu Reservoir from a total volume of 200,000 acre-feet to an elevation of 6,230 feet MSL (229,199 acre-feet) and to allow concurrent storage of Rio Grande and SJCP water in Abiquiu Reservoir. In December 2024, Reclamation and MRGCD entered into an agreement with the ABCWUA for the storage of native Rio Grande water in Abiquiu Reservoir until the completion of Safety of Dams related construction at El Vado Dam (Abiquiu Storage Agreement). The Abiquiu Storage Agreement is awaiting approval by Corps. The authority to store native Rio Grande water in Abiquiu Reservoir was congressionally authorized at the end of 2020 (P.L. 116-260, Sec 337), ABCWUA completed the acquisition of real property (fee simple ownership and water storage easements) for the increased storage in 2023, and the updated water storage contract between the Corps and ABCWUA in June 2024, all of which were necessary precursors to this new Abiquiu Storage Agreement.

Section 337 (f) of WRDA 2020 provides that "The storage of native Rio Grande system water shall be subject to the provisions of the Rio Grande Compact and the resolutions of the Rio Grande Compact Commission." The Texas Commissioner and Engineer Adviser are concerned that the newly adopted Water Control Manual does not alleviate this requirement, and storage of native Rio Grande water in Abiquiu Reservoir requires unanimous Commission approval. Texas believes that storage of Prior and Paramount (P&P) water would be consistent with the Compact, but storage of water for any other purpose would require additional unanimous approval of the Commission.

YEAR 2024 OPERATIONS

Closed Basin Project

The total production of the Closed Basin Project in calendar year 2024 was 11,360 acrefeet. This total includes water that was exchanged for the Bureau of Land Management, the Service and Colorado Parks and Wildlife water to be delivered to the Blanca Wildlife Habitat Area, the Alamosa National Wildlife Refuge, and the San Luis Lakes State Wildlife Area. The amount creditable for Compact purposes from direct delivery and exchange was 7,979 acre-feet. The remainder of the water was delivered to various federal lands along the project to be used as mitigation for the project footprint. All water delivered to the Rio Grande in 2024 was of sufficient quality to qualify for credit under the Compact.

The Closed Basin Operating Committee continues to monitor groundwater levels and groundwater production and to adjust project operations pursuant to the enabling legislation.

Reclamation's Middle Rio Grande Supplemental Water Program

The Supplemental Water Program is intended to provide additional water, primarily obtained through the voluntary leasing of SJCP water, for endangered species' needs and compliance with the 2016 BO. The program originally included water acquisition, reservoir storage, and release of water to support river flows. From 2001 to 2020, the program also included operation of a temporary pumping network in the San Acacia Reach to pump water from the Low Flow Conveyance Channel (LFCC) to the river. The only remaining site is Neil Cupp, which is now a permanent pumping site owned and operated by the MRGCD. To help maintain river connectivity, the Neil Cupp site pumped a total of 389 acre-feet from the LFCC to the river across 13 days in three periods between June and August 2024.

In 2024, a total of 9,761 acre-feet of supplemental water was released for endangered species purposes. Of that volume, 2,346 acre-feet was water that Reclamation leased from 2023 SJCP contractor allocations, and 7,415 acre-feet came from 2024 leases. Reclamation reported that the release of supplemental water began on July 29, stopped between September 14 to 17, and then resumed until storm events allowed the release to be shut off for the year on October 19.

Reclamation ended 2024 with 4,674 acre-feet of supplemental water in storage: 3,831 acre-feet of water in Heron Reservoir and 843 acre-feet of water in Abiquiu Reservoir, all leased from 2024 SJCP contractor allocations. For 2025, Reclamation is negotiating leases of approximately 11,500 acre-feet from SJCP contractor allocations.

In addition to the water released by Reclamation, four other sources of water were used to support ESA needs. These sources include pre-1907 native water rights leased by Reclamation, pre-1907 native water rights conveyed to Reclamation as part of a settlement with the City of Rio Rancho, and the Environmental Water Leasing Program, a fallowing program within the MRGCD largely funded by Reclamation. In 2024, a small amount of water was generated from an on-farm conservation project in partnership with MRGCD, a project that Reclamation hopes to expand in the future.

Six Middle Rio Grande Pueblos Prior and Paramount Operations

In 2022, the Commission agreed to allow Reclamation to store up to 20,000 acre-feet in Abiquiu Reservoir for P&P operations due to the repair operations at El Vado Dam. The agreement was in effect through December 2024.

P&P storage began on January 1, 2024. Based on the May 1 forecast, the BIA determined that 14,845 acre-feet was the storage target for 2024, and that volume of native Rio Grande water was also stored in Abiquiu Reservoir for P&P operations. The irrigation season for the Six Middle Rio Grande Pueblos is defined as March 1 through November 15 based on the updated Operations and Maintenance Agreement between BIA and MRGCD, which was signed on October 26, 2023.

Due to sufficient spring runoff, none of the water stored for P&P operations in 2024 was released for irrigation purposes. After large monsoonal storms, the MRGCD was able to deliver the daily P&P demand with the available supply from natural flows of the Rio Grande.

Sediment deposition in the Rio Chama associated with the June and September 2024 storm events affected channel capacity. Releases of P&P water were delayed due to continued channel capacity restrictions and approximately 11,700 acre-feet of P&P water was released downstream to Elephant Butte Reservoir in December 2024. The remaining 1,693 acre-feet of P&P water could not be released before the end of the calendar year and remained in Abiquiu Reservoir. Due to the expiration of the temporary Abiquiu deviation on December 31, 2024, the remaining volume of P&P water in Abiquiu Reservoir was designated as debit water on January 1, 2025. This water was released downstream during January 2025 at the request of the Texas Commissioner per Article VIII of the Compact.

The March 1, 2025, forecast prediction of P&P storage needed for the 2025 irrigation season is 37,894 acre-feet. The final P&P storage amount required will be based on the May 1 forecast. Due to a delay in the construction for the El Vado Dam rehabilitation project, up to about 16,300 acre-feet of P&P water may be stored in El Vado Reservoir in 2025. The rest of the P&P water required for the 2025 irrigation season may be stored, depending upon availability, by Reclamation at Abiquiu Reservoir pursuant to the terms of a Reclamation, MRGCD and ABCWUA storage agreement. For the 2025 P&P operations, storage began January 1, 2025, and as of March 1, 2025, about 4,000 acre-feet of water had been stored in El Vado Reservoir. Compact Article VII restrictions were in place during this time.

During the irrigation season, irrigation efficiency is an ongoing effort by the MRGCD, the BIA, the six Middle Rio Grande Pueblos, and the Pueblo farmers. The BIA provides funding to the Pueblos to upgrade their irrigation systems and to the MRGCD to perform maintenance work on the systems which serve Pueblo lands. Examples include improvements to enable the Pueblos to irrigate one acre per hour, to schedule irrigation, and to coordinate with Pueblo farmers for delivery of an adequate water supply.

2024 Rio Chama Water Supply Conditions

Snowpack conditions in the Rio Chama basin were below average during the late winter and spring of 2024. The March through July native inflow into El Vado Reservoir was 135,477 acre-feet, or approximately 83% of the 30-year median.

Streamflows were sufficient from July to August 2024 to meet the irrigation needs of the Rio Chama Acequia Association (RCAA). RCAA represents 18 acequias on the Rio Chama between Abiquiu Reservoir and the confluence with the Rio Grande that have direct surface flow diversion rights. Beginning in early August, flows on the Rio Chama were insufficient to meet the standard RCAA summer demand. With insufficient native flows to meet their needs, the

RCAA entered into a carriage water agreement with the MRGCD, which delayed curtailment by five weeks. The NMOSE curtailed RCAA diversions to the available flow of the river from mid-September to October 31 of 2024.

Rio Chama Sediment and Channel Capacity Issues

The NMISC responded to a sediment plug that formed on the lower Rio Chama after a significant storm that occurred on June 20, 2024. The NMISC funded Reclamation's Socorro Field Division to clear the sediment plug and restore channel conveyance as an emergency action. Sediment issues in the Rio Chama continued to be a problem due to subsequent flash flood events and low flows, and the NMISC again prepared to fund sediment management work. The Corps did not consider this additional work to be an emergency, and the State was required to obtain a Clean Water Act Section 404/401 permit before work could begin in the river. The ABCWUA provided valuable assistance to the NMISC to complete the permit application, and the permit was issued on November 20, 2024. The NMISC contractor began work on Phase I of the sediment management project on November 21, 2024, which was to increase channel capacity in the reach between NM HWY 233 and the Chili Diversion from 150 cubic feet per second (cfs) to a minimum 500 cfs. The second and final phase consisted of increasing channel capacity in the project reach up to 1,700 cfs and the work continued into 2025.

The NMISC is continuing to collaborate with the Corps, Reclamation, ABCWUA, and the MRGCD to find solutions and further increase channel capacity. The NMISC is also exploring various Corps programs to provide technical and/or planning assistance, as well as educational opportunities for local communities in the Rio Chama basin.

The Engineer Advisers are concerned that sedimentation causing decreased channel capacity in the Rio Chama may affect Compact and SJCP contractor deliveries. Additionally, the Engineer Advisers are concerned about the inability to release native water from upstream reservoirs in a timely manner due to channel capacity restrictions.

The Engineer Advisers are concerned that Reclamation and the Corps have not provided assistance to address sedimentation and channel capacity issues in the Rio Chama.

Rio Grande Project Operations

Reclamation reported that their 2024 Rio Grande Project (Project) water accounting values were approved by the respective district boards prior to the 2025 Engineer Advisers' meeting.

On January 1, 2024, there was 470,229 acre-feet of Usable Water in Project Storage (Elephant Butte and Caballo Reservoirs combined). Usable Water ended the year at 201,139 acre-feet on December 31, 2024, down from its high of 531,331 acre-feet on March 7, 2024. Article VII restrictions were not in place from January 1 through June 24, 2024, when Usable Water in Project Storage was above 400,000 acre-feet. Article VII restrictions were in effect from June 25 through December 31, 2024.

Mexico was provided a final in-season allocation in May 2024 of 60,000 acre-feet, which is a full allocation. The final Project allocation was 625,885 acre-feet, including Mexico's allocation. The final allocations were: 362,116 acre-feet to EP No. 1; 203,769 acre-feet to EBID; and 60,000 acre-feet to Mexico. The final charges were: 303,344 acre-feet to EP No. 1; 170,150 acre-feet to EBID; and 57,390 acre-feet to Mexico for a total of 530,884 acre-feet.

Reclamation reported that the final 2024 allocation balances carried over to 2025 were 58,772 acre-feet and 33,619 acre-feet for EP No. 1 and EBID, respectively.

Releases from Caballo Reservoir began on March 8 and ended on September 28, 2024. EP No. 1 and Mexico began the irrigation season with coordinated orders and diversions on March 12 and 13, respectively. EBID began orders and diversions on May 31 and ended their surface water diversions on August 18, Mexico ended on September 20, and EP No. 1 ended diversions on September 29. With a total release from Caballo Reservoir of 625,613 acre-feet for irrigation, there was a calculated diversion ratio of 0.85 for 2024.

During 2024, Reclamation's report indicates drainage flows into Hudspeth County Conservation and Reclamation District No. 1 (HCCRD) during March through September were 43,966 acre-feet. The calendar year total flow data for HCCRD was 57,261 acre-feet. Additionally, 1,228 acre-feet were delivered from Caballo Reservoir through the Bonita Lateral during calendar year 2024. The Texas Engineer Adviser is concerned that any water taken from Caballo Reservoir for the Bonita Lateral is not a delivery of Compact water to Texas because Bonita water is delivered to lands outside the Rio Grande Project. Texas is seeking additional information that documents the decision to provide this water to the farmlands outside the Rio Grande Project.

Reclamation reported that the total flow volume at the Rio Grande below Elephant Butte Dam gage was 649,611 acre-feet during the release season from February 12 through September 26. There was a total of 625,613 acre-feet measured at the Rio Grande below Caballo gage, including seepage outside of releases.

For 2025 Project operations, Reclamation determined that the February 2025 allocation to Mexico is 8,949 acre-feet (15% of full). The anticipated snowmelt runoff is below average, and Reclamation expects a less than 400,000-acre-foot release from Caballo for 2025. The 2025 irrigation releases from Caballo Reservoir are expected to begin on June 1 for both Districts and Mexico. Elephant Butte Reservoir will likely reach peak storage in late May before releases begin, and Usable Storage in Elephant Butte and Caballo Reservoirs will remain below 400,000 acre-feet for 2025. The length of the irrigation season will depend on the snowpack and runoff conditions.

Reclamation will continue to evaluate and update the allocations monthly as water is delivered to Elephant Butte Reservoir.

ADDITIONAL FEDERAL AGENCY REPORTED INFORMATION

Representatives for Reclamation, Corps, USGS, Service, and IBWC presented additional information to the Engineer Advisers as summarized below. This information from the federal agencies is being presented here without analysis or approval by the Engineer Advisers:

U. S. Geological Survey

The USGS presented an overview of their 2025 activities in the Rio Grande basin, including the New Mexico Streamgaging Network and multiple on-going studies. The Engineer Advisers did not receive a written report from the NM USGS Water Science Center (WCS) at the 2025 Engineer Adviser meeting.

The USGS WSC, in cooperation with the NMISC, operates and manages 68 streamgages and seven reservoir sites throughout New Mexico, where hydrologic data are collected and

published. Twenty-three of these are within the Rio Grande basin and include the Rio Grande Compact Index gages at Otowi Bridge and below Elephant Butte Dam.

The USGS WSC reported that in 2024, 14 discreet measurements were collected at the Rio Grande at Otowi gage. No equipment upgrades occurred in 2024 at the Otowi gage, and the rating curve from 2022 continues to be utilized. The USGS WSC reported that 24 discreet measurements were taken at the Rio Grande below Elephant Butte Reservoir gage, where a lower bubbler sensor required replacement, and most measurements were made below the Dam due to vegetation at the gage.

Highlighted activities for 2024 included:

- Modeling forest snow using relative canopy structure metrics;
- Post-fire water quality studies in the Gallinas Creek;
- Analyzing effects of beaver dam analogs and plug ponds on headwater streams;
- Studying Rio Grande turbidity;
- Estimating groundwater return flows at the Bosque del Apache NWR; and
- The Rio Grande Transboundary Integrated Hydrologic Model (RGTIHM).

USGS also reported on activities related to per- and polyfluoroalkyl substances (PFAS) in water resources of New Mexico. They have found PFAS in compounds in the Rio Grande with an order of magnitude increase as the water flows through Albuquerque, New Mexico, and that sampling of surface and groundwater will continue.

U.S. Army Corps of Engineers Civil Works Projects

The Corps reported on the status of Civil Works projects under the Water Resources Development Act of 2020 (WRDA 2020), which provided reauthorization for the Rio Grande Environmental Management Program in Colorado, New Mexico, and Texas. Authorization for this program was extended through federal FY 2029. Current projects undergoing either a feasibility study, higher-level planning, or construction include: Acequia Irrigation System Rehabilitation, Española Valley Ecosystem Restoration, Bernalillo to Belen Levee Project, and Sandia to Isleta Ecosystem Restoration.

The Española Valley Ecosystem Restoration design agreements were signed in November 2022, and the design completion is scheduled for 2027. That project will consist of measures to reconnect the river and floodplain with the enhancements to restore wetlands and bosque habitats while providing channel stabilization in the Ohkay Owingeh Pueblo.

The Bernalillo to Belen Levees project reached a design agreement signed in June 2023, with the preconstruction, engineering, and design phase are in progress starting with the Mountain View Segment.

The Hatch Dam feasibility phase was completed, however, due to authorized appropriation limitations under the Continuing Authorities Program, the project will be terminated.

The Tribal Partnership Program is currently underway for San Felipe, Santa Ana, Zia, and Santo Domingo pueblos. These projects include watershed assessments, drought resilience planning, and feasibility studies for irrigation infrastructure. To date, ten initial watershed assessments have been completed by the Albuquerque District, and watershed assessment agreements have been signed with the six Middle Rio Grande Pueblos and five of the six watershed assessments have been completed. There are no watershed assessments in progress. A study phase has been initiated at Pottery Mound (Isleta Pueblo) to protect cultural resources from riverine and upland erosion.

Rio Grande Silvery Minnow

The Service reported on the 2024 monitoring results for the endangered RGSM using the October Catch per Unit Effort (CPUE) data to report long-term trends in relative abundance and determine incidental take for the 2016 BO. The Service continues its use of 30 sites for evaluating RGSM take. The 2024 October fish monitoring estimated a RGSM density of 0.68 fish/100 square meters (m2) for 30 sites, compared to 5.0 fish/100 m2 in 2023 and 0.17 fish/100 m2 in 2022. This reduction in population from 2023 to 2024 was reportedly due to an early spring runoff of moderate magnitude, which likely resulted in limited spawning and recruitment. Few RGSM eggs were collected for the captive propagation program. Monsoon events during

the summer resulted in only 14 unique miles of dried channel within the San Acacia and Isleta reaches of the Middle Rio Grande. A total of 2,590 RGSM were rescued from drying between July 15 and August 21, 2024. Following the population monitoring period in October, a total of 163,206 hatchery reared RGSM were released into the MRG. Hatchery-reared fish were marked with an elastomer tag prior to augmentation. Fish were provided by the City of Albuquerque's BioPark, the Service's Southwestern Native Aquatic Resources and Recovery Center located in Dexter, New Mexico, and the NMISC's Los Lunas Silvery Minnow Refugium.

The Service is anticipating a poor recruitment year for silvery minnows in 2025 given preliminary runoff projections. They support a coordinated and robust egg collection effort this year to improve broodstock numbers in all the fish conservation facilities.

El Vado Dam Repairs

Reclamation previously reported that substantial degradation of the steel lining system and service spillway had occurred at El Vado Dam. Corrective action studies determined that construction and repair work needed to be conducted at the dam and a seepage reduction project, and a spillway replacement project were selected to address the Dam safety concerns. The El Vado Safety of Dams Project encountered unforeseeable conditions as work progressed, and a stop work order was issued on March 20, 2024.

Next steps include a study that will allow decision makers to make an informed decision on the best alternative and to collect aerial survey data and boring log samples in 2025. Reclamation reported that construction will be delayed for three to five years, and more traditional methods will be considered.

During the pause in construction, Reclamation is conducting a first fill operation to test the safety of El Vado Dam. The first fill test has multiple phases. Phase 1 began in October of 2024, when Reclamation stored about 9,400 acre-feet (6,800 feet elevation) of SJCP water in the Reservoir. In November of 2024 Phase 2 increased SJCP storage in the Dam to 16,300 acre-feet (6,810 feet elevation), and Phase 3 was planned to store up to 25,200 acre-feet (6,820 feet elevation) of SJCP and/or P&P water but was postponed due to ice development on the reservoir.

Middle Rio Grande Project River Maintenance

Reclamation has authority from the Flood Control Acts of 1948 and 1950 to maintain the floodway in New Mexico from Velarde to Caballo, which includes the Low Flow Conveyance Channel in the San Acacia Reach. For 2024, Reclamation reported that they are working on 26 projects located within this area. These projects included repair and bank stabilization to address erosion and infrastructure damage, habitat restoration, adaptive management, monitoring, and river channel capacity improvements.

Of note, Reclamation completed its planning and environmental compliance for work within a 2-mile stretch of river located just north of the Highway 6 bridge in Los Lunas, New Mexico. The Los Lunas RM 163 Project's construction phase began in February 2025. This project is considered a pilot project for more extensive river maintenance within the Isleta Reach. This reach has become progressively narrower due to vegetation encroachment and sediment accumulation. Mechanical treatment is required to remove sediment and vegetation from the active channel, reduce fuel loads in the floodplain, and temporarily improve spoil bank levees to reduce the flood risk.

Reclamation reported that several projects are being planned for the near future in the San Acacia Reach that will address river conveyance issues. The Bosque del Apache (BdA) National Wildlife Refuge (NWR) River Realignment Downstream Phase has been monitored since its completion in April 2021. Reclamation reported that the BdA Upper Realignment Project is nearing completion for design and will be ready to construct once land ownership issues have been resolved. These projects will relocate the river channel into an adjacent lower-lying floodplain to the east from its current highly aggraded channel to reduce river drying in the summer months and convey water more effectively downstream.

Reclamation provided an update on the River Mile 60 Project, which was completed to provide outlets in this location from the LFCC to the river and to an established but unmaintained channel to the west (LFCC West) that harbors a high number of Southwestern Willow Flycatcher (flycatcher) territories. Reclamation reported that the purpose of the RM 60 Project is to convey water from the LFCC to the Rio Grande for Compact obligations while protecting flycatcher habitat. In July 2024, Reclamation reported that they reduced flows to the LFCC West to 125 cfs in July, August, and September; 100 cfs in October; and 20 cfs in November and December. Their plan is to reduce flows to 50 cfs in February through August in 2025 and no diversions to the west will occur from November through January. The remaining flows will enter the Rio Grande directly through the culvert to the river. Reclamation reported that they did not have information yet on whether the RM 60 Project had improved water deliveries to Elephant Butte Reservoir.

Reclamation reported that in 2024 they began an Environmental Impact Statement (EIS) and feasibility study of the Lower San Acacia Reach Improvements Project (LSARI). The goals of this project are to improve water deliveries, improve ecosystem health, and reduce Reclamation's operation and maintenance activities and costs. The project looks at three alternatives from the southern boundary of BdA to the Elephant Butte Reservoir full pool elevation near RM 60.

The draft EIS will be ready in 2025 as well as design and construction plans. After a final EIS, Record of Decision, and Clean Water Act compliance are completed in 2026, the first phase of the construction is expected to occur in 2027 or 2028. Funding is reported to be available for the first phase of construction.

Vegetation Management at Elephant Butte and Caballo Reservoirs

Reclamation reported that they performed vegetation maintenance at Caballo Reservoir during 2024 and cleared approximately 1,350 acres of phreatophyte vegetation utilizing mowers and mulchers, including 230 acres that have been treated with spray-application herbicide.

In recognition of the Engineer Advisers' noted concerns from prior years' reports regarding the lack of vegetation management activities by Reclamation at Elephant Butte Reservoir, the State of New Mexico and Reclamation have re-engaged to complete vegetation management activities at both Elephant Butte and Caballo Reservoirs.

Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo

Reclamation conducts surveys and nest monitoring for the flycatcher and the Western Yellow-billed Cuckoo (cuckoo) during the spring and summer months south of Albuquerque, New Mexico to El Paso, Texas. In 2024, surveys were conducted throughout most of the project area. A total of 655 flycatcher territories were observed, with 563 territories documented in the MRG and 92 territories in the Lower Rio Grande (LRG). As usual, most of the flycatcher territories were in the San Marcial and Elephant Butte Reservoir areas, but territories have been increasing in the Isleta Reach over the past several years. In 2024, surveys in the Upper Rio Grande and San Luis Valley management units in Colorado observed 12 flycatcher territories. The 5-year species review will be completed in 2025.

In 2024, Reclamation also conducted surveys for the cuckoo from south of Albuquerque, New Mexico to El Paso, Texas and 157 cuckoo territories were observed with 124 in the MRG and 33 in the LRG. In late 2021, the Service began a species status assessment, which is still in progress, to inform the future recovery plan. Cuckoo surveys were not completed in 2024 within the Rio Grande basin in Colorado.

The tamarisk leaf beetle continues to be found in most of the Rio Grande area, and defoliation of salt cedar in occupied territories may result in impacts to nesting success.

New Mexico Meadow Jumping Mouse and Status of Listings

The Service continues to conduct photographic monitoring of the New Mexico meadow jumping mouse (jumping mouse) at the BdA NWR. In 2024, the BdA NWR found 38 unique photo detections at 28 different locations compared to 7 detections at 6 locations in 2023. The BdA NWR is constructing new habitat for the jumping mouse within its property.

In 2024, the Service completed species status assessments for the Rio Grande Chub, Rio Grande Sucker, and Rio Grande Cutthroat Trout and determined they were not warranted for listing. These three fish are primarily found in tributaries of the Rio Grande basin in northern New Mexico and southern Colorado. Conservation plans have been developed to reduce the likelihood of listing the species. The Rio Grande Shiner species status assessment is ongoing and expected to be completed in 2025.

International Boundary and Water Commission Activities

The IBWC provided a report of its activities along the Rio Grande in New Mexico and Texas during 2024 and their projected activities for 2025. The items discussed included their canalization levee rehabilitation work and Federal Emergency Management Agency (FEMA)

status, the American Canal rehabilitation work, the status of their hydraulic modeling, flood control issues and activities, sediment removal activities and their sediment management program, habitat restoration, environmental water transaction program, water accounting operations, and border barrier projects.

The canalization levee rehabilitation projects discussed were the Upper Rio Grande Flood Control System from Percha Dam to Little Box Canyon, Texas, the El Paso Area Levees, the Sunland Park East Levee rehabilitation project, and the El Paso 2 Levee/Zaragoza Levee. Upon completion of the levees, the design and as-built drawings will be submitted to FEMA for levee accreditation. As part of the submittals, FEMA requires an interior drainage analysis, which is required to be conducted by local entities, not the IBWC. A construction contract for the American Canal rehabilitation was awarded in August 2023, with an estimated completion by June 2027.

The IBWC reported that the hydraulic models for the reaches between Percha Dam and American Dam were completed in 2024 by the consultant team of Wilson-Freese and Nichols Joint Venture. These models identified levee freeboard deficiencies for FEMA accreditation, but additional model calibration is necessary. A hydraulic modeling effort for sediment accumulation and flow capacity is also being conducted. This study shows sediment volumes based on current conditions compared to the original 1943 design and shows the sediment accumulation over time.

The IBWC reported there were no major issues in the Canalization project area, but the Rectification project area continues to experience saturated floodplains in Hudspeth County. In 2024, IBWC work crews were able to remove about 257,000 cubic yards of sediment, which was above the sediment removal goal of 200,000 cubic yards. Projects in 2025 will include sediment removal, sediment disposal, and levee repairs at both the Canalization and Rectification project areas.

The IBWC's three field offices will be focused on sediment removal with a projected volume of 275,000 cubic yards of sediment to be removed in 2025, with 125,000 cubic yards in the Canalization reach and 150,000 cubic yards in the Rectification reach. Impacts due to sediment accumulation include the formation of sediment plugs and islands, as well as increasing surface water elevations and a loss of freeboard for the levees.

A Sediment Management Program has been established to identify problem areas and to monitor the effectiveness of sediment removal efforts, both institutional and technical. Institutional actions include a memorandum of agreement with EBID to provide sediment management projects in New Mexico, stakeholder coordination, and a Sediment Management Task Force to assist stakeholders and communities. Technical actions include finding locations for sediment disposal, coordination with various agencies and maintenance of sediment control dams, in addition to a number of projects to map potential disposal locations.

The IBWC habitat restoration work has shifted to long-term monitoring and maintenance. Under their environmental water transaction program, the IBWC has acquired 47 acres of EBID surface water rights and awarded a contract for a consultant to contact a list of landowners provided by EBID who have "idle" water rights (either not being used or not able to be used, such as on a parking lot) and who were interested in selling their water rights. They also implemented 22 habitat restoration sites over 500 acres as well as two mitigation sites.

The IBWC's River Management Plan, last updated in 2018, is currently undergoing revision. The targeted timeline is late 2025 for a revised draft which can be provided for stakeholder review. The Plan covers floodplain management, endangered species management, channel maintenance, and no mow zones.

The IBWC reported that the February 1, 2025, allocation to Mexico for the Convention of 1906 is 8,949 acre-feet, which is 14.9 percent of a full allocation. The irrigation season is anticipated to begin in June and the IBWC will host monthly meetings to ensure binational coordination of deliveries.

There are two types of border barrier projects: Department of Homeland Security/Customs and Border Patrol (CBP) barrier projects and Texas State barrier projects. The Texas barrier projects have several locations with unauthorized structures in the floodplain. Permits are required for barriers located on IBWC property, and Mexico has raised objections to the barriers located in the floodplain due to the potential for deflection of flood flows into Mexico. Currently, the IBWC is working with the CBP and Texas to alleviate these conditions as required by the 1970 Boundary Treaty.

ENGINEER ADVISER RECOMMENDATIONS

The Engineer Advisers recommend that the Compact Commission direct the Engineer Advisers to investigate the costs presented to the Engineer Advisers for the Rio Grande below Caballo reservoir gaging station.

The Engineer Advisers recommend that the Compact Commission direct the Engineer Advisers to discuss with the Corps and Reclamation their responsibilities regarding Rio Chama channel maintenance.

BUDGET

The Engineer Advisers reviewed the budgeted cost of operation for the fiscal year ending June 30, 2024, and the budget for the fiscal year ending June 30, 2026.

The Engineer Advisers found that the budgeted costs for gaging stations and administration of the Compact for the year ending June 30, 2024, were \$245,825. The U.S. federal government bore \$74,782 of this total, with the balance of \$171,043 borne equally by the three states.

In reviewing the FY 2024 costs, the Engineer Advisers found that there had been a mistake in one number on this budget as printed in the report of the Rio Grande Compact Commission for Calendar Year 2022. In that report, the cost titled "total cost of the Gaging Stations In New Mexico, Caballo reservoir and below" was mistakenly listed as being \$30,011. The correct cost was \$36,581. The correct number was used for summing the total costs in the FY 2024 budget, so all of the other amounts in the report were correct.

The Engineer Advisers found that the proposed budget for the fiscal year ending June 30, 2026, indicates that a total of \$255,917 will be spent for gaging and administration, with a proposed contribution by the U.S. federal government of \$88,294 and the balance of \$167,623 borne equally by the three states.

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