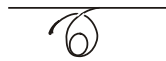


**REPORT
of the
RIO GRANDE COMPACT
COMMISSION
FOR CALENDAR YEAR 2021**



**TO THE GOVERNORS OF
Colorado, New Mexico and Texas**

LOCATION MAP

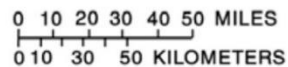


COLORADO
NEW MEXICO



RIO GRANDE BASIN
ABOVE
FT. QUITMAN, TEXAS

RIO GRANDE COMPACT COMMISSION



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RIO GRANDE COMPACT COMMISSION

COLORADO NEW MEXICO TEXAS

May 6, 2022

The Honorable Jared Polis
Governor of the State of Colorado
Denver, Colorado

The Honorable Michelle Lujan Grisham
Governor of the State of New Mexico
Santa Fe, New Mexico

The Honorable Greg Abbott
Governor of the State of Texas
Austin, Texas

Honorable Governors:

The 83rd Annual Meeting of the Rio Grande Compact Commission was held in Alamosa, Colorado on May 6, 2022. The meeting was held to discuss Rio Grande Compact issues such as compact accounting and administration. Public comment was also received by the Commission.

The Commission reviewed the cost of operation and found that the expenses for the administration of the Rio Grande Compact were \$228,229 in the fiscal year ending June 30, 2021. The United States bore \$74,203 of this total; the balance of \$154,026 was borne equally by the three States party to the Compact.

Upon printing, the Report of the Rio Grande Compact Commission for calendar year 2021 will be provided under separate cover.

Respectfully,


Kevin G. Rein, P.E., Commissioner for Colorado


Mike A. Hamman, P.E., Commissioner for New Mexico


Robert S. Skov, Commissioner for Texas

**REPORT OF THE ENGINEER ADVISERS
TO THE RIO GRANDE COMPACT COMMISSION
FOR CALENDAR YEAR 2021**

April 22, 2022

Because of the on-going, global COVID-19 pandemic the Engineer Advisers to the Rio Grande Compact Commission met via video conference on February 2, 2022 and between February 28 and March 4, 2022 to:

- Receive reports;
- Prepare the 2021 Rio Grande Compact (Compact) water accounting;
- Discuss continuing and new issues in preparation for the 2022 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 2021.

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 2021 and were again unable to reach a consensus on the accounting. The lack of consensus arises from a disagreement that began in 2011 amongst the Texas Engineer Adviser and the New Mexico and Colorado Engineer Advisers on the release of credit water by Reclamation from Elephant Butte Reservoir in late summer 2011. As a result, the Engineer Advisers have not reached consensus on how to finalize the 2011 through 2021 Compact Delivery accounting sheets for Colorado and New Mexico and the Release and Spill from Project Storage accounting sheet. For 2021, as in previous years,

each of the Engineer Advisers developed accounting methods described in the addenda to this report from each Engineer Adviser. At its 2021 meeting, the Commission did not approve any of the proposed accounting methods. The Engineer Advisers continued to use the accounting methods they individually prepared to carry forward Compact accounting for the 2021 calendar year. Article VII storage restrictions were in effect for all of 2021, using either accounting method, so there were no impacts to the timing of storage restrictions for calendar year 2021.

For calendar year 2021, New Mexico carried an Accrued Debit of 96,300 acre-feet, in accordance with the New Mexico Engineer Adviser's accounting methodology. 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.*" At the beginning of calendar year 2021, New Mexico had 2,181 acre-feet of Compact Debit water remaining in storage in El Vado Reservoir after reduction due to evaporation and sedimentation during 2020. In accordance with Article VIII of the Compact, the Commissioner for Texas requested that New Mexico release remaining Debit water for delivery to Elephant Butte. The Debit water release from El Vado was completed between January 11 and January 16, 2021. Additionally, between January 16 and January 29, 2021, City of Santa Fe released 956 acre-feet of their San Juan-Chama Project (SJCP) water from storage in Abiquiu Reservoir in exchange for releasing native debit water stored in their reservoir system.

The Engineer Advisers jointly prepare their annual report based on information provided and presented by 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. The addenda to this report are the perspectives of each individual Engineer Adviser and do not receive approval from the Commission but are included for clarity.

RIO GRANDE BASIN CONDITIONS

Snowpack and snow-water equivalent (SWE) amounts were near to below average for the winter of 2020-2021. Some snow courses in the northern portion of the basin in Colorado peaked well-above average, while those farther south lagged behind. Below-average precipitation in the spring months as well as windy conditions and very low soil moisture were factors preventing much of the SWE from reaching the rivers and streams. As a result, snowmelt runoff levels and yearly streamflow amounts in 2021 were well-below the long-term average for

most areas across the basin in Colorado and in New Mexico.

Due to the low-runoff flows, Platoro Reservoir only reached a high of approximately 41 percent of capacity during early June of 2021. Usable Water in Rio Grande Project (Project) Storage was below the Article VII trigger of 400,000 acre-feet the entire year, which imposed Article VII storage restrictions on storage in post-compact reservoirs.

CONTINUING ISSUES

This section of the report summarizes new information about 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 2022 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.

Middle Rio Grande Endangered Species Collaborative Program

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) was authorized by the Omnibus Appropriations Act of 2009 (P.L. 111- 8). The Collaborative Program continues to seek innovative and collaborative ways to support Endangered Species Act (ESA) compliance for listed species while protecting water uses in the Middle Rio Grande. Reclamation reported that their federal appropriations in federal fiscal year (FY) 2021 were \$2.78 million for Collaborative Program activities, a decrease from \$3.84 million in FY 2020. Projects funded through Reclamation remaining in the Collaborative Program currently are several long-term monitoring programs, such as silvery minnow population monitoring, genetics monitoring, and Middle Rio Grande bird surveys. Western Ecosystems Technology, Inc., originally contracted to administer the Collaborative Program, has resecured the contract with Reclamation for the next five years.

The Corps' Collaborative Program budget has been restored in the FY 2022 President's Budget to \$1.94 million and, if passed, the Corps expects to resume work on contracts halted in 2021.

WildEarth Guardian's Notice of Intent to Sue over the 2016 Biological Opinion

On June 9, 2021, WildEarth Guardians filed a Notice of Intent (NOI) to sue the Service, Reclamation, State of New Mexico, and Middle Rio Grande Conservancy District (MRGCD) for violations of the Endangered Species Act pursuant to the Endangered Species Act (ESA) regarding alleged violations of the Service's Biological Opinion issued in 2016 (2016 BO) covering Middle Rio Grande water management and river maintenance activities. The agencies are working to resolve the issues raised in the NOI.

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). The effort includes regular meetings to discuss modeling outputs for daily water operations and accounting procedures. During 2021, URGWOM activities included:

- Developing an updated basin-wide annual operating plan (AOP) in collaboration with Reclamation and NMISC;
- Updating the database to include data from years 2019 to 2020;
- Updating the five-year plan;
- Developed new and updated versions of all of the URGWOM documentation and volumes; and
- Further development and expansion of the new aquifer objects to model deep aquifer head elevation and the groundwater movement between the shallow aquifer and the deep aquifer for the Middle Rio Grande and the Lower Rio Grande. Work in 2021 included final calibration to the MODFLOW model.

Key objectives for 2022 include:

- Preparing basin-wide AOPs for 2022;
- Develop real-time simulations with the Corps Water Management System (CWMS) and URGWOM; and
- Final integration of the new aquifer objects into the official URGWOM model.

Compliance by Federal and State Agencies with State Water Law

The NMISC continues to track habitat restoration projects implemented by various federal and state agencies, and to account and report on related depletions in the Middle Rio Grande. It coordinates with the New Mexico Office of the State Engineer (NMOSE) to determine if a permit is needed and to ensure the depletions are offset by the projects' sponsors. The NMISC reported that it continues to coordinate with the Corps on several habitat restoration projects to ensure that those depletions are offset. The NMISC also coordinates with Reclamation in using the State's Strategic Water Reserve for ESA-related water management, including offsetting depletions associated with habitat restoration and river augmentation activities. Below-average snowmelt runoff in 2021 resulted in approximately 2 acre-feet of depletions for habitat restoration projects in the Middle Rio Grande that were offset by New Mexico's Strategic Water Reserve.

Elephant Butte Delta Channel Project

The below-average snowmelt runoff and a near-average monsoon season resulted in the Elephant Butte Delta Channel (Delta Channel) successfully conveying all flows during 2021. During November and December of 2021, the NMISC construction contractor conducted regular maintenance on the Delta Channel in the middle and upper project sections above the Narrows. Since 2003, New Mexico has spent over \$20 million to construct and maintain the Delta Channel and continues to partner with Reclamation, who provides engineering support, environmental compliance, access road work and primary maintenance for the project. When the Delta Channel was constructed, NMISC and Reclamation were responsible for discrete sections of the project, however there is no such delineation during ongoing maintenance efforts.

Relinquishment Update

The total amount of Accrued Credit relinquished by Colorado since 2013 is 3,000 acre-feet. Colorado stored 329 acre-feet of relinquishment credit water in 2021. Between 2013 and 2021, 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. No relinquishment credit water was stored in New Mexico reservoirs during the 2021

calendar year. Relinquishment-credit water storage to date totals 288,728 acre-feet, leaving a balance of 91,772 acre-feet available to be stored in future years when Article VII storage restrictions are in effect.

Article VII storage restrictions will likely be in effect for the entire 2022 calendar year although there is a slight possibility that Article VII restrictions may be lifted for a short period of time during the spring snow-melt runoff.

Gaging Station Review

The Colorado Division of Water Resources (CDWR) reported on activities at Colorado's Compact gages. The Colorado USGS reviewed CDWR gaging station records for the seven Colorado Compact gages and approved all of those records for 2021. The CDWR made an average of 28 measurements at each of these seven compact gaging stations, with the ratings of those measurements varying from excellent to poor. The records for most of these stations were rated as 'good' except for the periods of estimation, which were rated as 'poor'.

A new rating table was developed for the Conejos near Mogote gage in 2021, and an infrared water temperature sensor was installed at this location. The steel sheet-pile weir at the South Channel near La Sauses gage was repaired in 2021.

For the Rio Grande near Otowi streamflow gage (#08313000), the USGS reported that in calendar year 2021 they developed a new stage discharge rating (#42) which was implemented on February 8, 2021 and used for the remainder of 2021. The USGS reported they made a total of 11 measurements at the Otowi gage in 2021, with nine rated good, one rated fair, and one rated poor. For 2021, the USGS continued to utilize redundant primary sensors (non-contact radar and wire weight) as well as redundant secondary reference gages (bubbler and staff gage) for gage height readings.

The USGS reported that during the 2021 calendar year, 20 measurements were collected at the Rio Grande below Elephant Butte streamflow gage (#08361000). Of the 20 measurements, 13 were rated good, five were rated fair, and two were rated poor. Aquatic vegetation growth on the streambed at the USGS gaging station section continues to cause a low bias in gaged flow during certain months. This issue has occurred for an undetermined period but began to be addressed in 2016 by utilizing an alternate section which is not impacted by vegetation growth during certain months. In 2021, the USGS also installed an electric cableway at the alternate section below the dam and will begin utilizing it in 2022. The gage records for 2016 through

2021 reflect improved precision, and the NMISC will continue to coordinate with the USGS to provide more accurate gage records in the future.

Reclamation reported that they analyzed the data for the Rio Grande Below Caballo gage, comparing the Acoustic Doppler Velocity Meter (ADVM) data with the stage-discharge data recorded for that section. Reclamation reported that the ADVM data may not be as accurate and has more variability than the stage-discharge data. They will continue to monitor and evaluate the gage data in an effort to improve the record.

The USGS also reported that they reviewed and approved the 2021 streamflow gage below Caballo (#08362500) flow records developed by Reclamation, and that all necessary documentation was provided. The USGS reported that the record accuracy looked good, in large part due to the high number of measurements made at the gage (65 in total). In 2021, Reclamation completely transitioned to ADCP measurements, while periodically performing check measurements with AA meters. There was no significant difference in these measurement results. The USGS stated once the quality control issues have been resolved, measurement quantity could be reduced by fully utilizing the ADVM installed at the site. The USGS also reported that they ran levels in cooperation with Reclamation in 2021 to verify datum at the site.

During 2021, 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 and December 2021. Both the June and December 2021 results from NMISC's survey indicated that Reclamation's reservoir stage elevations were within the agreed upon threshold criteria. Reclamation performed routine stage elevation surveys throughout 2021 and made adjustments to the stage-discharge recorder (SDR) as needed if the threshold criteria of 0.05 feet difference between the surveyed elevation and the SDR was exceeded.

In 2021, Reclamation continued to measure Elephant Butte elevation via the SDR and a bubbler. The bubbler, which is maintained in conjunction with the USGS, shows more scatter but in general 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 2022 to ensure the accuracy of the reservoir elevation data.

Mass Balance Review

The NMISC conducted a mass balance analysis for the Rio Grande between the Elephant Butte and Caballo gages for calendar year 2021. The mass balance analysis indicated that the

reach gained water in nine out of twelve months with a total calculated annual gain of 2,076 acre-feet. During May and June, the mass balance fluctuated substantially between reservoirs, with May seeing a gain of approximately 20,000 acre-feet and June seeing a loss of approximately 20,000 acre-feet. During this time, there was a lot of water moving between reservoirs and irrigation releases were being made from Caballo. Although there is a small net gain between Elephant Butte and Caballo for calendar year 2021, the Engineer Advisers will continue to monitor the mass balance in this reach, especially when large volumes of water are moving during irrigation season.

Gaging Station Costs

In recent years, the Engineer Advisers and Compact Commissioners have expressed concern over the large difference in costs between what Reclamation charges to operate the gage below Caballo Reservoir as compared to what the CDWR and USGS charge on average for other Compact gages. 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 cost from Reclamation affects all three states.

In some recent years, Reclamation has decreased their charged amount for the gage below Caballo Reservoir. However, the cost charged by Reclamation for this coming year increased by approximately 10% over last year's costs, with no specific reasons given for the increase. Currently Reclamation's charges are nearly twice the amount of the average cost charged per gage by CDWR and the USGS. The Engineer Advisers remain concerned with Reclamation's high cost for the operation of this gage and with the large fluctuations in the charged costs year to year and request backup information on how their gaging costs are derived.

Colorado Groundwater Regulations

In late 2015, the State Engineer of Colorado completed the development of rules and regulations concerning the use of groundwater in the Upper Rio Grande Basin in Colorado. These rules were approved by the Colorado Division 3 (Rio Grande Basin) Water Court in 2019 and went into full effect on March 15, 2021. As an integral part of these rules, the State Engineer of Colorado has also completed the development of Phase 6 of the Rio Grande Decision Support System Model. This model captures the interaction between surface and groundwater and shows

the effect that wells have on senior surface water rights. The owners of non-exempt wells are required to mitigate the injurious depletions that their wells cause to senior surface-water rights and regulate the use of the confined and unconfined aquifers to maintain a sustainable water supply in each aquifer system. There are currently seven groundwater user subdistricts and multiple individual augmentation plans that have been developed as a way for the well owners to comply with the rules.

Aamodt Settlement and Pojoaque Basin Regional Water System

The Aamodt Water Rights Settlement Agreement (Settlement Agreement) was developed through multi-party negotiations, which began in 2000 between the Pueblos of Nambé, Pojoaque, Tesuque and San Ildefonso, the State of New Mexico, the United States of America (U.S.), Santa Fe, Santa Fe County, and representatives of non-Pueblo water users, to settle the Pueblos' water right claims in the Pojoaque Basin. The Settlement Agreement provides for the funding and construction of the Pojoaque Basin Regional Water System to supply treated water to Pueblo and non-Pueblo parties. As expressly stated in the Settlement Agreement, "Nothing in this agreement shall be construed to limit the authority of the State Engineer to...ensure compliance with the Rio Grande Compact," (Section 6.6.1.6). The Engineer Advisers will continue to evaluate the project as it moves forward including evaluating potential impacts to the Otowi Index Supply.

The final Pojoaque Basin Regional Water System Environmental Impact Statement was published in the Federal Register in January 2018 and the Record of Decision was signed on September 11, 2019. Construction began on the intake area of the Regional Water System in June 2020. Additional funding and a time extension were authorized in late 2020 and the first portion of Phase I work was completed in January 2022. The next portion of Phase 1 construction is expected to begin in March 2022 and includes the installation of the raw water intake pumps for collector wells 1 and 3, completion of the intake area mechanical and electrical building, and starting construction of the water treatment plant.

In 2021, about 1.9 acre-feet were withdrawn from the completed wells for construction purposes, such as dust abatement and compaction.

Reclamation's Identification of San Acacia Reach Options

For FY 2021, Reclamation reported on progress on the Identification of San Acacia

Reach Options (ISARO), which has advanced to the next stage called the Evaluation of San Acacia Reach Options (ESARO). This project addresses the lower section of the San Acacia Reach from Highway 380 bridge just above the Bosque del Apache Wildlife Refuge downstream to the Narrows of Elephant Butte Reservoir. As previously reported, this area has historically been problematic for deliveries of water and sediment downstream into the reservoir, and high losses continue to occur in this section of the river. Reclamation has engaged with the NMISC, MRGCD, Service, and local landowners on its conceptual engineering options. A ‘Value Planning Study’ required by Reclamation for large-scale projects was recently completed.

Conversion from a two-channel system (river channel and LFCC) to a single channel, with the movement of the river into the lowest part of the valley within the Tiffany Basin, is the highest- ranking option in a Feasibility Study, but other options will continue to be evaluated as well.

The study will include a technical committee that includes nonfederal partners and is expected to start in March 2022 with an estimated completion date in 2024. In addition, the operation of the LFCC from San Acacia Diversion Dam to its terminus will be part of the evaluation as requested by the MRGCD.

YEAR 2021 OPERATIONS

Closed Basin Project

The total production of the Closed Basin Project in calendar year 2021 was 11,600 acre-feet. This total includes water that was exchanged for Colorado Parks and Wildlife water to be delivered to the Blanca Wildlife Habitat Area, the Alamosa National Wildlife Refuge and to the San Luis Lakes State Wildlife Area. The amount creditable for Compact purposes from direct delivery and exchange was 8,239 acre-feet. The remainder of the water produced was delivered to various federal lands along the project to be used as mitigation for the project footprint. All the water delivered to the Rio Grande in 2021 was of sufficient quality to qualify for credit under the Compact.

Reclamation continues to address problems of biofouling in the production wells of the Closed Basin Project. During 2021, Reclamation replaced two wells, rehabilitated nineteen other wells, and installed ten new pumps. Wells will continue to be replaced as budgetary constraints

allow to help maintain project production. 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

Reclamation's 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. In 2021, Reclamation reported a total of 10,364 acre-feet of supplemental water was released for endangered species purposes. Of that volume, 9,513 acre-feet was SJCP water Reclamation leased from 2020 and 2021 contractor allocations. The release of supplemental water began on June 19 and continued through September 29, although monsoon activity allowed the release to either be reduced or stopped entirely for much of July. Reclamation also released 851 acre-feet of water leased from Albuquerque Bernalillo County Water Utility Authority's (ABCWUA) SJCP water stored in Abiquiu Reservoir from October 8 through October 21. Reclamation ended 2021 with a total of 4,149 acre-feet of the ABCWUA lease of SJCP water in storage.

In addition to the water released by Reclamation, 325 acre-feet of SJCP water leased by Audubon New Mexico was released as needed between September 9 and September 14, 2021.

At one time, Reclamation maintained portable pumps at four strategic locations along the Low Flow Conveyance Channel (LFCC) to maintain river connectivity to the Elephant Butte Reservoir pool. Reclamation decommissioned its pumping stations that delivered water from the LFCC to the river in 2021. Therefore, Reclamation did not pump any water to the river in 2021.

The Neil Cupp pumping site, which Reclamation used to maintain, is now a permanent pumping site operated and maintained by MRGCD. MRGCD pumped 65 acre-feet from the Neil Cupp pumping site to the Rio Grande between June 16 to June 20, 2021.

Six Middle Rio Grande Pueblos Prior and Paramount Operations

BIA requested that Reclamation store 15,428 acre-feet of Rio Grande water in El Vado Reservoir for the Coalition of Six Middle Rio Grande Basin Pueblos' (Pueblos) Prior and Paramount (P&P) operations in 2021. The entire amount was stored while Article VII Compact restrictions were in place. Due to significant monsoon rains and sufficient spring runoff, none of the water stored for P&P operations in 2021 was released for irrigation purposes. The P&P water

stored in El Vado Reservoir suffered 1,252 acre-feet of evaporative losses, and the remaining 14,176 acre-feet was released downstream to Elephant Butte Reservoir November 29 through December 9, 2021.

Computations for the required amount of P&P storage take place between March and early May each year. At the time of the 2022 Engineer Advisors meeting, the March 1 snowmelt runoff forecast was not available, and thus, the first official computation for 2022 P&P storage had not been made. Based on the February 2022, most-probable snowmelt runoff forecast, the BIA reported that Reclamation might have a preliminary storage target of approximately 28,000 acre-feet for their P&P operation in 2022. Additional forecasts may change this storage estimate, and the May 1 forecast produces the final storage target.

BIA reported that with El Vado Reservoir under construction during the 2022, and possibly during the 2023 irrigation season, El Vado Reservoir will not be available to store P&P water. P&P storage has begun at El Vado Reservoir in the hopes that Reclamation will secure an alternative storage location. Possible options for alternative P&P storage include a deviation from the Corps' operations at Abiquiu Reservoir or an exchange of native water with SJCP water at Heron Reservoir. If neither of these options come to fruition, the P&P water currently stored at El Vado Reservoir may need to be released to Elephant Butte Reservoir by mid-May, and BIA reports that P&P lands would only have use of direct flow of native waters during the 2022 irrigation season.

The BIA was able to make limited funding available to the Pueblos to perform work upgrading their irrigation systems. Due to the COVID-19 pandemic, very little work was performed on Pueblo lands in 2021. The BIA also provides funds to the MRGCD to perform maintenance work on the systems which serve Pueblo lands, which continued in 2021.

The BIA reported that discussions concerning the carryover storage of P&P water in El Vado are occurring infrequently and no discussions took place in 2021.

The Engineer Advisers remain concerned about the procedures for quantifying storage, release, and delivery of water for the P&P lands of the Pueblos.

2021 Rio Chama Water Supply Conditions

Snowpack conditions in the Rio Chama Basin were well-below average during the winter of 2020-2021. The March through July native inflow to El Vado Reservoir was 123,212 acre-feet, or approximately 55 percent of average.

Beginning in early summer, flows on the Rio Chama were insufficient to meet the direct-flow irrigation needs of the Rio Chama Acequia Association (RCAA). RCAA represents 16 acequias on the Rio Chama between Abiquiu Reservoir and the confluence with the Rio Grande that have direct surface flow diversion rights. With insufficient native flows to meet their needs and the absence of sufficient leased SJCP water, the NMOSE curtailed RCAA diversions to the available natural flow of the river from summer through fall of 2021.

Rio Grande Project Operations

The 2021 Rio Grande Project (Project) water accounting amounts were approved by the respective district boards and Reclamation prior to the Engineer Advisers' Meeting. All accounting information reported by Reclamation is based on URGWOM which uses a daily timestep.

On January 1, 2021, there was 156,139 acre-feet of Usable Water in Project Storage (Elephant Butte and Caballo reservoirs combined) and 181,019 acre-feet on December 31, 2021. Usable Water reached a high of 281,016 acre-feet on May 30 and a low of 115,314 acre-feet on August 30, 2021.

Reclamation's initial allocation for calendar year 2021 for El Paso County Water Improvement District No. 1 (EP No. 1) and Elephant Butte Irrigation District (EBID), was provided in April after the 2020 water accounting had been finalized. The allocation balance from the previous year was used to determine the current year's allocation. EP No. 1 and EBID were provided updated allocations monthly as Usable Water in storage increased. The last in-season allocation was on May 26, 2021, due to below average inflows and Usable Water.

Mexico was provided an initial allocation of zero acre-feet in January 2021. Based on the provisions of the 1906 Convention for extraordinary drought, the allocations to Mexico were updated monthly, with a final in-season allocation in May 2021 of 12,129 acre-feet, which is about 20 percent of a full allocation.

The final in-season allocation was 288,822 acre-feet, including Mexico's allocation of 12,129 acre-feet. The calculated charges were: 120,659 acre-feet to EP No. 1; 57,704 acre-feet to EBID; and 12,145 acre-feet to Mexico.

Mexico is allocated Project Water for delivery during the year based on the anticipated release of Usable Water. This allocation cannot be reduced once it has been made. The actual release for the 2021 irrigation season was less than the anticipated release in May. Deliveries to

Mexico during the year are made based on the most recent Project allocation. At the end of the year, Mexico's final allocation is determined using the actual annual release from Caballo Dam. If the amount of water delivered to Mexico is larger than Mexico's final allocation, the difference is charged to the two districts based on the proportion of the end-of-year 2021 allocation balances. Reclamation refers to this as an over delivery to Mexico in their report.

Therefore, EP No. 1 and EBID were also charged with 1,390 acre-feet and 857 acre-feet, respectively. The final allocation balances for EP No. 1 and EBID were 59,430 acre-feet and 36,652 acre-feet respectively.

Reclamation reported a final 2021 release from Caballo Reservoir during the irrigation season of 229,418 acre-feet for all three Project water users: EP No. 1, EBID, and Mexico. Releases from Caballo Reservoir began on May 31 and ended on August 31. Mexico delayed their initial order by one week, and their diversions began on June 7. A total of 190,508 acre-feet of water were delivered to the Project water users.

During 2021, Reclamation's report indicates drainage flows into Hudspeth County Conservation and Reclamation District No. 1 (HCCRD) during March through September were 20,951 acre-feet. The calendar year total flow data for HCCRD was 25,020 acre-feet.

Additionally, 1,149 acre-feet was delivered through the Bonita Lateral during calendar year 2021.

The USGS reported that the total annual flow volume at the gage below Elephant Butte dam was 216,751 acre-feet. Elephant Butte Reservoir storage peaked at 245,320 acre-feet on May 19, 2021, and storage at Caballo Reservoir peaked at 47,406 acre-feet on May 31, 2021. Releases from Caballo Reservoir for irrigation deliveries began on May 31 and ended on August 31, 2021, releasing 229,455 acre-feet, as measured at the Rio Grande below Caballo Dam gage.

For 2022 Project operations, Reclamation determined that the initial 2022 allocation was zero acre-feet. On December 1, 2021, the final calculated Usable Water was 148,876 acre-feet in storage which is below the range of the standard allocation equations used by the Project. Reclamation will continue to evaluate the amount of Usable Water monthly to determine the actual Project allocations.

Based on the February 2022 snowmelt runoff forecast for the Rio Grande, the current La Niña conditions for El Niño Southern Oscillation activity, and current hydrologic conditions, Reclamation anticipates a near-record low allocation for 2022 and expects a shortened irrigation season beginning around June 1 and lasting for one to three months.

ADDITIONAL FEDERAL AGENCY REPORTED INFORMATION

Representatives of USGS, Reclamation, Corps, Service, and IBWC presented additional information to the Engineer Advisers as summarized below:

U. S. Geological Survey

The Engineer Advisers received reports from the USGS on their Rio Grande Basin projects. The USGS completed a four-year WaterSMART Focus Area Study in 2019 to assess water use and availability from the headwaters in southern Colorado to Fort Quitman, Texas. Although the funding has ended, USGS continues to generate and finalize the associated reports. The study investigated spatial and temporal trends of selected water-budget components. USGS reported details of the snow and watershed modeling projects and streamflow response to potential changes in climate. Data and reports are available on the Upper Rio Grande Basin Focus Area Study website.

The USGS, in cooperation with Reclamation, has developed a model of the transboundary aquifers and interconnected surface waters of the Palomas and Mesilla basins in New Mexico and Texas and the Conejos-Médanos Basin of northern Mexico, known as RGTIHM. A Techniques and Methods Report on the MODFLOW One-Water Hydrologic Flow Model used for RGTIHM was released in 2020. Recalibration has been finalized and a Scientific Investigations Report will be published in 2022. As part of the Transboundary Aquifer Assessment Program, USGS is synthesizing binational data and has developed the first potentiometric surface map across the Mexico and United States border. Through the Mesilla Basin Monitoring Program, which is supported by several cooperators, the USGS continues to maintain an observation well network and hydrologic cross sections in the Mesilla valley, and to monitor salinity in shallow groundwater in the Mesilla Valley

Corps Rio Grande Civil Works Projects

The Corps reported on the status of Civil Works projects under the Water Resources Development Act (WRDA) of 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: Abiquiu Reservoir legislation, Bernalillo to Belen Levee Project, and Sandia to Isleta ecosystem restoration.

Abiquiu legislation (P.L. 116-260 (2020)) changed the limit of storage of SJCP and native Rio Grande in Abiquiu Reservoir from a total volume of 200,000 acre-feet to an elevation of 6,230 feet MSL (229,199 acre-feet), the elevation of future storage easements, to allow concurrent storage of Rio Grande and SJCP water in Abiquiu Reservoir. This would not have an affect on flood control operations at Abiquiu. The Water Control Manual must be updated, and environmental compliance completed, with a target date of the end of 2023.

The Bernalillo to Belen Levee Project, Espanola Valley Ecosystem Restoration, and Sandia to Isleta Ecosystem Restoration projects are authorized for construction under WRDA 2020 and most received funding to begin work on design and compliance contingent on executing agreements with project sponsors in FY 2022.

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. Efforts were initiated in FY 2020 and are expected to be completed this year.

Rio Grande Silvery Minnow

The Service reported on the 2021 monitoring results for the endangered Rio Grande Silvery Minnow (RGSM) using the October Catch per Unit Effort (CPUE) data used to report long-term trends in relative abundance.

The Service has adopted using 30 sites for evaluating RGSM take instead of the standard 20 sites. The 2021 October fish monitoring estimated an RGSM density of 0.32 fish/100 square meter (m^2) for 30 sites. High spring runoff years in 2017 and 2019 had October RGSM densities of 23.2 and 3.4 fish/ m^2 . The Service expressed concern about the potential CPUE in 2022 if the Middle Rio Grande experiences similar flow conditions as in 2021. The Service stated that up through 2021, the 2016 BO has not been violated nor has Reclamation exceeded its take for RGSM.

The Service reported that 208,772 RGSM were augmented to the Middle Rio Grande in 2021, in comparison to 310,634 in 2020, and 83,635 in 2019. 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.

Stocked RGSM were only partially tagged in 2020 and 2021 due to Covid-19 restrictions, so distinguishing wild and hatchery fish will not be possible until tagging of all the fish is resumed.

The Service, with assistance from the 2016 BO partners, continued to conduct rescue activities in the San Acacia and Isleta reaches. For 2021, 818 RGSM were rescued from the San Acacia and Isleta Reaches, which had 33.9 miles and 11.5 miles of unique drying, respectively.

The Engineer Advisors asked the Service about the RGSM experimental 10(j) population at Big Bend, Texas and the Service responded they were no longer pursuing the effort due to unsuccessful species recruitment but did not have any specific information regarding results.

The Engineer Advisors requested the Service report on the results and conclusions of the RGSM experimental 10(j) population at Big Bend, Texas at the Compact meeting to provide information on why this effort has been suspended and potential next steps for reintroduction efforts outside the Middle Rio Grande to achieve recovery goals.

El Vado Dam Repairs

Reclamation reported that substantial degradation of the steel lining system and service spillway have occurred at El Vado Dam. Corrective action studies have determined that construction and repair work need to be conducted at the dam. The planned El Vado Safety of Dams Project will occur in two phases: 1) embankment seepage reduction, which will involve installation of a synthetic liner system across the entire face plate of the existing dam, and 2) spillway repair and refurbishment. Reclamation reported that a contract for the embankment seepage reduction phase of the project was awarded in August 2021, with contractor mobilization to occur in March 2022. The El Vado spillway repair and refurbishment 60-percent design phase was completed in August 2020, and a contract is expected to be awarded by May of 2023.

During both phases of construction, there will be restrictions on storage of water in El Vado Reservoir. NMISC and Reclamation have each submitted a request to the Corps to deviate from the Water Control Plan at Abiquiu Reservoir to temporarily store native water at Abiquiu Reservoir during El Vado Dam and spillway construction activities under the same rules that would apply to native water storage at El Vado Reservoir. Additionally, MRGCD has applied for and received a temporary NMOSE storage permit at Abiquiu Reservoir that is contingent on the Corps' approval of the deviation. The Corps is analyzing the deviation and expects to provide a decision in April, that is contingent on favorable advice and consent from the Commission. An

approval letter from each state is considered sufficient as advice and consent from the Commission.

Middle Rio Grande Project Channel Maintenance

Reclamation's report indicates it is pursuing work at 17 active priority sites along the Middle Rio Grande Project reach where bank erosion or reduced channel capacity could cause levee failure. Of the active priority sites, five require an annual review of channel capacity and possible maintenance due to sediment accumulation. Reclamation reported that Phase I of the maintenance work at the River Mile 202.2 project area near Sandia Pueblo (Sandia Priority Site), begun in early 2020, was completed in April 2021. This project includes major side-channel construction intended to provide increased channel capacity, resulting in less lateral migration, as well as habitat improvements for listed species. A second phase of that project is anticipated to begin in late 2022 or later.

Reclamation reported that the Bosque del Apache National Wildlife Refuge (BDANWR) Pilot Realignment Project was completed in March 2021. Reclamation reported that due to the low snowmelt runoff, the realigned channel has not seen high enough flows to further advance the river slope adjustment from the new downstream connection. The New Mexico Engineer Adviser notes that the current channel continues to be undefined through a significant portion of the project, resulting in extensive open water evaporation that is likely contributing to Compact delivery issues.

Reclamation reported that it is working on a new programmatic approach to Clean Water Act (CWA) compliance for river maintenance activities, using a Letter of Permission. This approach will take time to implement but should reduce the time needed for future projects to achieve CWA compliance. Project specific mitigation requirements under CWA compliance, specifically wetlands and vegetation replacement, continues to be an issue for river maintenance and habitat restoration projects in the Middle Rio Grande.

Vegetation Management at Elephant Butte and Caballo Reservoirs

Reclamation reported that it performed vegetation maintenance at Caballo Reservoir during 2021, but that it did not use State of New Mexico funds because of the state's concerns with mowing locations. Reclamation noted that maintenance at Caballo Reservoir included mowing and mulching of approximately 709 acres of phreatophytic vegetation.

The Engineer Advisers remain concerned about the lack of vegetation management activities by Reclamation at Elephant Butte Reservoir. The State of New Mexico is reluctant to continue the Vegetation Management Agreement if Elephant Butte Reservoir is not included in the effort.

Southwestern Willow Flycatcher and Yellow-billed Cuckoo

Reclamation and the Service conduct surveys and nest monitoring for the southwestern willow flycatcher (flycatcher) and the western yellow-billed cuckoo (cuckoo) during the summer along the Rio Grande from Belen, New Mexico, to El Paso, Texas. Survey efforts were impacted by travel and hiring restrictions due to the COVID-19 pandemic that resulted in inconsistent survey efforts in 2020 and 2021. Decreases in reported territories may not represent the actual species condition within the Middle Rio Grande. The Service has requested Reclamation conduct a full survey in 2022.

For 2021, 378 flycatcher territories were documented in the Middle Rio Grande. As usual, most of the flycatcher territories are in the San Marcial and Elephant Butte Reservoir areas; however, increased activity also occurred within the Isleta Reach. While the current number of flycatcher territories in the Middle Rio Grande is well above the recovery goal of 100 territories, habitats in other regions have not hit their recovery targets yet, and down listing or delisting has not been considered for this species.

Reclamation has historically conducted surveys for the cuckoo from Belen to El Paso. In 2021, 90 cuckoo territories were observed in the surveyed area.

A final revised proposal of critical habitat for the cuckoo was completed in April 2021 and 298,845 acres of land in seven states were declared critical habitat. New Mexico contains seven units of this area covering 57,459 acres. In late 2021, the Service began a Species Status Assessment (SSA) to inform the future recovery plan.

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. Although numbers of tamarisk beetles in the Middle Rio Grande have been declining in the past few years, this may be cyclical, and it is uncertain if there is a long-term trend.

The Service agreed to report to the Engineer Advisers on any flycatcher and cuckoo monitoring that is occurring in Colorado and the upper Rio Grande area in future years.

Additional Listing Information Provided by the Service

In 2016, the Service found that listing the Rio Grande chub and the Rio Grande sucker may be warranted. A Conservation Agreement was signed in September 2018 between the Service and the states of New Mexico, Colorado and Texas, the Jicarilla Apache Nation, the Pueblo of Santa Ana, several counties in Colorado, the U.S. Forest Service, Bureau of Land Management, and the National Park Service to reduce the threats to these fishes. The Service will complete a SSA in 2023 and conduct a 12-month review in 2024.

The Service conducts photographic monitoring of the New Mexico meadow jumping mouse (jumping mouse) at BDANWR. In 2021, there were 23 unique photo detections compared to seven photo detections in 2020.

International Boundary and Water Commission Activities

The IBWC provided a report of its activities along the Rio Grande in New Mexico and Texas during 2021 and their projected activities for 2022. The items discussed included their levee rehabilitation work and Federal Emergency Management Agency (FEMA) status, the status of their new hydraulic modeling, the River Management Plan and habitat restoration, flood control issues and activities, sediment removal activities, water accounting operations, IBWC gaging station information and status, as well as information on the border fence projects and the El Paso Water wastewater emergency.

The Sunland Park West Levee construction was awarded in September 2019, and the construction was completed in June 2021. The designs for East Levee sections are complete and construction will be awarded in 2022. The IBWC also provided updates on the FEMA status for their levee projects which have been either submitted to FEMA, are pending design, in design, or pending construction. Floodplain maps will be developed for the levee areas which show the reduced flood zones due to the levees. However, levee projects are required to include interior drainage designs to be certified by FEMA in order to gain the benefits of removing properties from the floodplain.

Brief updates were also provided for the IBWC's ongoing channel maintenance projects. The American Canal Upper Reach was completed in 2020. This project included concrete lining replacement, soil remediation, treatment of contaminated groundwater, a new Parshall flume, a gaging bridge, access ramp and new safety features. The American Canal Lower Reach redesign is expected to be completed in 2022. This project redesign will include access ramps, section

redesigns and relining, and a transition into College Arroyo.

IBWC presented updates to the status of the Canalization River Management Plan (RMP). The RMP covers floodplain management, endangered species management, and channel maintenance. It incorporates the 2009 Record of Decision (ROD) commitments, the 2017 Biological Opinion, and statutory compliance. The last version of the RMP was November 2018, and the update is pending the analysis in the ongoing hydraulic modeling study. The target date for the revised update is late 2022.

In 2019, the IBWC began development of a new hydraulic model for three separate reaches between Percha Dam and American Dam. The modeling system will include both 1-dimensional, steady-state and 2-dimensional, unsteady-state HEC-RAS hydraulic models. The project will be 90 percent completed in June 2022, with a final completion date of August 32, 2022.

The IBWC committed to implement 30 habitat restoration projects under the River Habitat Restoration Program. Currently, the IBWC has implemented 22 habitat restoration sites, totaling over 500 acres. Under the River Habitat Restoration Program, the IBWC is treating 246 acres of salt cedar, planting about 160,000 trees and shrubs, and installing groundwater-monitoring wells. The IBWC completed an Environmental Assessment for aquatic habitat restoration in November 2021.

Status updates were also provided for the Environmental Water Transaction Program, included under the 2009 ROD for the Canalization Project. In 2021, the IBWC awarded a contract to conduct an appraisal of EBID surface water rights to acquire additional water rights to meet their commitments for the 2009 ROD. They are currently working with several federal agencies to develop an interagency agreement allowing them to conduct review appraisals pursuant to federal regulations.

Under the 2017 Biological Opinion, the IBWC is required to move vegetation from islands being removed that have known endangered species nesting or have suitable habitat. In 2020, about 15,000 additional willows were transplanted at the Vado West mitigation site.

The IBWC estimated that 400,000 cubic yards of silt is deposited into the Rio Grande Canalization Project reach annually. This results in sediment plugs, island formations, raised riverbeds, increased flooding risks, and inhibited irrigation return flows. The Canalization reach is defined as 105 river miles from Percha Dam in New Mexico to El Paso. Prior to 1990, the IBWC removed 250,000 to 300,000 cubic yards of sediment per year. During 2019, the IBWC removed over 422,000 cubic yards. In 2020, they were able to hire outside contractors to remove

about 1,188,000 cubic yards, and for 2021, contractors removed an additional 400,000 cubic yards of sediment. For 2022, due to limited funding, the IBWC will be relying on in-house capabilities to remove about 200,000 cubic yards of sediment deposited in the Rincon, Canutillo and El Paso County regions of the Rio Grande.

The IBWC reported deliveries for the Convention of 1906 to Mexico in 2021, which were 20 percent of a full allocation. The initial allocation for 2022 to Mexico was reported to be 5,283 acre-feet (an 8.8 percent allocation) based on Usable Water in storage.

The IBWC provided an update on the border wall fence projects in the Compact reach. These consist of replacing the survey monuments which were moved or damaged during the previous border wall construction activities, which were halted in 2021.

Finally, the IBWC provided an update on the status of the El Paso Water Frontera wastewater emergency. On August 12, 2021, the Frontera force main lines ruptured which caused approximately 8 to 10 million gallons per day of sewage to be diverted into the Rio Grande for four months. Repairs to the line were completed in January 2022, which included replacement of about 1.2 miles of pipe. Currently, remediation to remove contaminated soil is ongoing for the reach of the Rio Grande above the Courchesne Bridge to the American Dam, including the lower section of the American Canal. Contractors are working to complete the remediation of this reach and the reach between the American and International dams prior to the start of irrigation season.

ENGINEER ADVISER RECOMMENDATIONS

On January 1, 2020, Reclamation implemented new area-capacity tables for Elephant Butte Reservoir based on their 2017 sediment survey. These tables account for the sediment buildup within the reservoir and the related loss of storage. They also are used to determine the current total storage volume of the reservoir. The Rio Grande Compact Rules and Regulations describe the now-outdated total storage volume in the reservoir. The Engineer Advisers again recommend that the Commissioners direct the Legal Committee, in conjunction with the Engineer Advisers, to incorporate the new tables developed by Reclamation for Elephant Butte Reservoir into the Compact Rules and Regulations for potential approval at the 2023 Commission annual meeting.

The Engineer Advisers recommend that the Commissioners direct the Legal Committee

in conjunction with the Engineer Advisers to investigate the need to create an official Rio Grande Compact document repository and report the results of their investigation at the 2023 Commission annual meeting.

The Engineer Advisers recommend that the Commissioners direct the Engineer Advisers to investigate and to better understand URGWOM calculations and the output data that are used by the states and federal agencies, how those are used in Compact accounting procedures, and whether they are appropriate for Compact accounting purposes.

BUDGET

The Engineer Advisers reviewed the cost of operation for the fiscal year ending June 30, 2021 and the budget for the fiscal year ending June 30, 2023.

The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2021 were incorrectly listed as part of the 2019 Report of the Rio Grande Compact Commission. Specifically, the total cost for the USGS Technical Services and the portion of this cost borne by the United States was incorrect. An errata sheet has been prepared for the 2019 report. The budget for FY 2021 as listed in this report are correct.

The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2021 were \$228,229. The U.S. federal government bore \$74,203 of this total, with the balance of \$154,026 to be borne equally by the three states.

The Engineer Advisers found that the proposed budget for the fiscal year ending June 30, 2023 indicates that a total of \$235,187 will be spent for gaging and administration, with a proposed contribution by the U.S. federal government of \$73,468.



Craig W. Cotten, P.E.

Engineer Adviser for Colorado



Page Pegram

Engineer Adviser for New Mexico



Suzy Valentine, P.E.

Engineer Adviser for Texas

ADDENDA OF THE ENGINEER ADVISERS

The following Addenda to the Engineer Adviser Report were developed by and are the opinion of the authoring state. They are not approved by the Rio Grande Compact Commission.

The Colorado Engineer Adviser's Addendum to the 2022 Engineer Advisers' Report

May 3, 2022

At the 2022 Rio Grande Compact Commission (RGCC) Engineer Advisers' meeting, the Engineer Advisers did not reach consensus on the 2021 Rio Grande Compact (Compact) Accounting. The lack of consensus stems from the continuing disagreement regarding Colorado and New Mexico Credit Water that Reclamation released in 2011, the appropriate accounting of 2011 Colorado and New Mexico deliveries that were affected by Reclamation's release beyond the available Usable Water, and the directly relevant 2006 direction of the RGCC to Reclamation. There was no release of credit water by Reclamation in 2021 and the Engineer Advisers did reach agreement on the accounting of the 2021 streamflow numbers for the Colorado and New Mexico gaging stations. However, because of the lack of agreement on the effects of the releases of credit water in previous years, the amount of the accrued credit of Colorado and of New Mexico could not be agreed upon or finalized for 2021.

Therefore, the Colorado Engineer Adviser presents for the Commission's consideration the following method of accounting for the 2021 calendar year Compact Accounting:

Method 2: Colorado and New Mexico Credit Water was released during 2011, and accounted as being reduced in the month it was released, as in a relinquishment.

Method 2:

With this Method, the Credit Water will have been reduced for evaporation at the end of the calendar year – in accordance with Article VI of the Compact and the 2006 direction of the RGCC to Reclamation. The Colorado Engineer Adviser carried forward the end of 2020 accounting results for Method 2 used through the 2021 calendar year. This method complies with the last paragraph of Article VI of the Compact, wherein Credit Water in Elephant Butte Reservoir is "reduced annually to compensate for evaporation losses in the proportion that such credits (or debits) bore to the total amount of water...during the year." Under this method, Reclamation released accrued Credit Water from Elephant Butte Reservoir during the summer of 2011 unilaterally and without the permission of Colorado or New Mexico. Unlike an authorized relinquishment, however, Colorado did not receive the Article VII benefit of being able to store a like amount of water to that released by Reclamation in 2011 in post-compact reservoirs in the future when Article VII of the Compact is in effect.

At the end of calendar year 2021, there was no difference in the amount of water in Colorado's Compact credit/debit pool between the Texas method and Method 2. Both methods now result in Colorado having an Accrued Debit for the end of year 2021 of 3,800 acre-feet, and this equivalence is due to the differences in evaporation amounts from the differing size of Colorado's credit water pool under each method since 2011.

Summary

The Colorado Engineer Adviser believes that the Texas method (Method 1) of accounting as put forth in the Texas addendum contravenes the last unnumbered paragraph of Article VI of the Compact and the unanimous direction of the Commission to Reclamation in 2006. Therefore, the Texas method is not acceptable to the Colorado Engineer Adviser.

No after-the-fact accounting can address the primary issues that occurred in 2011 when Reclamation made its unauthorized releases of accrued Credit Water, which are:

- 1) Colorado and New Mexico have sole authority to decide the disposition of any of their respective accrued Credit Water; and
- 2) Reclamation's actions denied Colorado and New Mexico the benefits associated with relinquishments or other negotiated solutions under the Compact and eliminated Texas' incentive to negotiate the terms of a relinquishment or other negotiated solution during drought times.

The method proposed above is a suggestion for the Commission's consideration. The Colorado Engineer Adviser recognizes that no accounting method may be approved without the unanimous approval of the Commission, and that any accounting method must not violate the express terms of the Compact.

New Mexico Addendum to the Engineer Advisers' Report to the Rio Grande Compact Commission May 2022

At the 2022 Rio Grande Compact Commission (RGCC) Engineer Advisers' meeting, the Engineer Advisers again did not reach unanimous consensus on a method by which to finalize the Rio Grande Compact (Compact) Accounting. The lack of unanimous consensus stems from:

- 1) the continuing disagreement regarding New Mexico and Colorado Credit Water that Reclamation unilaterally released from Elephant Butte Reservoir in 2011 without authorization from either Colorado or New Mexico;
- 2) the continuing disagreement regarding appropriate accounting of New Mexico and Colorado deliveries from 2011 thru 2021 that were affected by Reclamation's unilateral 2011 Credit Water release;
- 3) Reclamation's disregard for Article VI in the Compact¹ and the 2006 direction of the RGCC to Reclamation regarding the accounting and release of accrued Credit Water; and
- 4) Reclamation's continued use of Method 1 accounting (see Method 1 accounting sheet) and the impacts on New Mexico of this accounting.

Compact Accounting by Texas/Reclamation using Method 1, as compared to New Mexico's use of Method 2

The Texas Engineer Adviser conducted Compact accounting for the 2021 calendar year using a method (see Method 1 accounting sheets) that reduces Credit Water by subtracting evaporation losses on a monthly basis during the calendar year. This same method was put forward to the RGCC by Texas and Reclamation in 2012 and carried forward by them in subsequent years using the same accounting steps. This method, however, is contrary to Article VI of the Compact for computing evaporation losses on both Credit and Debit water retained in storage and is contrary to the 2006 direction of the RGCC to Reclamation. New Mexico objects to the use of Method 1.

The New Mexico Engineer Adviser conducted Compact accounting for the 2021 calendar year using a method (referred to as Method 2, see accounting sheets) that was proposed by both the New Mexico and the Colorado Engineer Advisers in 2012 (see the 2012 New Mexico and Colorado joint addendum to the 2012 Engineer Adviser Report). Method 2 reduces Credit Water

¹Pursuant to Article VI of the Compact, "all credits and debits of Colorado and New Mexico shall be computed for each calendar year" and "such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bore to the total amount of water in such reservoirs during the year."

for evaporation at the end of the calendar year in accordance with Article VI of the Compact and the 2006 direction of the RGCC to Reclamation. The New Mexico Engineer Adviser carried forward the end of 2011 accounting results with Method 2 through the 2021 calendar year using the same accounting steps (See 2021 New Mexico Addendum). During the 2021 calendar year, Colorado carried an Accrued Credit of 1,200 acre-feet, and New Mexico carried an Accrued Debit of 96,300 acre-feet by Method 2. The New Mexico Engineer Adviser used these values as inputs for the 2021 Compact accounting. Consequently, the Compact compliance status for 2021, using Method 2, is 3,800 acre-feet of Accrued Debit for Colorado and 127,100 acre-feet of Accrued Debit, for New Mexico. Method 2 accounting sheets and associated tables are attached to this New Mexico April 2022 addendum.

Article VII storage restrictions were in effect for all of calendar year 2021. Article VII storage restrictions have been in effect since June 19, 2020 for both Method 1 and Method 2 accounting. No storage of native water has occurred in New Mexico since June 19, 2020, other than the federal government's storage of Prior and Paramount (P&P) water to meet the needs of the six middle Rio Grande pueblos. No P&P water was released for irrigation in 2021 and P&P water remaining in storage was released for delivery to Elephant Butte in December 2021.

Reclamation's 2011 unilateral release of credit water also impacted the timing of Article VII storage restrictions. This has impacted New Mexico and Colorado up-stream storage benefits as documented in addenda included in the annual report of the Engineer Advisers to the Rio Grande Compact Commission since 2011.

Given the lack of resolution on the above issues and absent an explicit agreement by Reclamation regarding the accounting and release of Accrued Credit Water, the New Mexico Engineer Adviser again recommends that the RGCC not approve any Compact accounting for 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, and 2021.

For calendar year 2021, New Mexico carried an Accrued Debit of 96,300 acre-feet, in accordance with the New Mexico Engineer Adviser's accounting methodology. Article VI of the Rio Grande Compact states in part that, "*New Mexico shall retain water in storage at all times to the extent of its accrued debit.*" For New Mexico, retention of Accrued Debit water occurs in reservoirs constructed after 1929 between Lobatos and San Marcial, which are authorized to store native Rio Grande water. For calendar year 2021, due to the storage prohibition of Article VII being in effect, no native water could be stored in New Mexico, and thus no native water could be retained as debit storage as described in Article VI of the Compact. Most of the 2021 snow melt runoff therefore was conveyed downstream to Elephant Butte Reservoir. Additionally, the Middle Rio Grande Conservancy District imposed a one-month delay on the startup of their irrigation season with no water diverted for agricultural use during the month of March 2021, further contributing to Compact deliveries

2021 Evaporation Loss On Rio Grande Compact Water Stored in Elephant Butte Reservoir

(Unit = Acre-Feet) Except Col. (8)

(New Mexico Accounting Method-2)

Month	Total Rio Grande Stored in Elephant Butte (Ac-Ft)	Total Net Evap on Rio Grande Stored in Elephant Butte (Ac-Ft)	Colorado's Rio Grande Compact Credit Water Stored in Elephant Butte (Ac-Ft)	Colorado's Credit Water Evaporation Adjustment (Ac-Ft)	New Mexico's Rio Grande Compact Credit Water Stored in Elephant Butte (Ac-Ft)	New Mexico's Credit Water Evaporation Adjustment (Ac-Ft)	Total Credit Water Evaporation Adjustment (Ac-Ft)	Total Rio Grande Usable Water Stored in Elephant Butte (Kaf)	Total Water Relinquished (Ac-Ft)	CO Credit Water Relinquished (Ac-Ft)	NM Credit Water Relinquished (Ac-Ft)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BOY Credit (2020)			1200		0				NA	NA	NA
January	156044	1533	1200	12	0	0	12	155	0	0	0
February	182096	2780	1200	18	0	0	18	181	0	0	0
March	210290	5189	1200	29	0	0	29	209	0	0	0
April	223233	7453	1200	38	0	0	38	222	0	0	0
May	232716	9562	1200	45	0	0	45	232	0	0	0
June	137372	8368	1200	64	0	0	64	136	0	0	0
July	119280	4743	1200	40	0	0	40	118	0	0	0
August	102948	3321	1200	31	0	0	31	102	0	0	0
September	109034	2829	1200	24	0	0	24	108	0	0	0
October	115026	3105	1200	24	0	0	24	114	0	0	0
November	133673	1869	1200	12	0	0	12	132	0	0	0
December	166904	2023	1200	10	0	0	10	166	0	0	0
Annual		52775		347		0	347		0	0	0

(8) = (1) - [(3) + (5)] Total usable Rio Grande water in Elephant Butte Reservoir.

Addendum to the 2022 Engineer Advisers' Report
Texas Engineer Adviser
April 29, 2022

The Engineer Advisers to the Rio Grande Compact Commission (Commission) were unable to reach agreement on the accounting of water deliveries for 2021 at the 2022 Engineer Advisers' meeting held on February 28-March 4, 2022, via videoconference. The issue centered on how the evaporation losses on Credit Water are calculated and tabulated and are carried forward from the 2011 and 2012 Water Accounting. Three separate accountings were developed in 2014 and labeled as Method 1, 2, and 3. At the 2016 Rio Grande Compact Commission meeting, Colorado noted they will no longer follow Method 3. The Texas Engineer Adviser proposes that Method 1 be accepted and thus bases Texas' calculations on that method.

The history of this issue is addressed in a memorandum from the Engineer Advisers to the Commission dated March 23, 2006 (2006 Memorandum). As described in the 2006 Memorandum, the Commission has been inconsistent in the way it has tabulated Credit Water in storage based on evaporation losses during the year. There have been times when the Commission has approved an accounting where Credit Water was held constant each month and the Credit Water was only reduced at the end of the year (Method 3), even though the calculation of Credit Water evaporation is a summation of monthly evaporation amounts. Under this method, whenever Usable Water amounts become negative and Credit Water was released, those amounts were repaid immediately as inflows occur. Also, there were times when the Commission approved the evaporation of Credit Water monthly (Method 1); that is, when Credit Water and Usable Water are subject to evaporation as it occurs. Under this method, the Texas Engineer Adviser understands that Usable Water does not become negative.

As understood by the Texas Engineer Adviser, Method 2 holds the Credit Water constant throughout the year. If there is insufficient Usable Water in Elephant Butte to cover all the evaporation losses on the Credit Water, Usable Water has gone negative. Method 2 then assumes that the negative dip into the Credit Water can never be repaid. The Texas Engineer Adviser was unable to find any instance where this method had been approved by the Commission. The Texas Commissioner believes that the intent and spirit of the Memorandum has not been followed by New Mexico and Colorado. Accordingly, Texas rescinded its support and approval of the 2006 Memorandum.

The Engineer Advisers presented recommendations to the Commission on this issue in the 2006 Memorandum. The Commission approved the following three recommendations that:

The Commission direct that accrued Credit Water be held constant during the year.

The Commission direct the Engineer Advisers to meet if the total combined accrued Credit Water exceeds 150,000 acre-feet and Usable Water is less than a full allocation, or if the combined accrued Credit Water exceeds 50% of Project Storage, and to make a

recommendation to the Commission regarding optimum use of water in Project Storage for Commission approval.

The Commission direct Reclamation to allocate or release Credit Water only as directed by the Commission.

The Engineer Advisers have not agreed on a recommendation per the 2006 Memorandum, and the Commission has not approved a proposal to optimize the use of water in Project Storage. Therefore, since one of the methods historically used by the Commission was to tabulate evaporation of Credit Water on a monthly basis, Reclamation proceeded with this historical practice and allocated the monthly tabulated evaporation of Credit Water to Usable Water.

For calendar year 2020, New Mexico carried an Accrued Debit of 38,800 acre-feet according to accounting Method 2, the New Mexico Engineer Adviser's accounting methodology. Due to the extreme drought conditions in the Middle Rio Grande in 2020, the Texas Commissioner consented to a conditional emergency release of New Mexico's stored Debit Water to prevent catastrophic economic losses in the middle Rio Grande and also impacts to the silvery minnow. A total of approximately 32,000 acre-feet of retained Debit water was released from El Vado Reservoir during the 2020 irrigation season. In response to the assistance from Texas in agreeing to the release of Debit Water stored by New Mexico, the Middle Rio Grande Conservancy District implemented an operations plan in 2021 to delay the start of their irrigation season and optimize deliveries to Elephant Butte Reservoir to decrease the Accrued Debit caused by the 2020 emergency release.

For calendar year 2021, New Mexico carried an Accrued Debit of 127,100 acre-feet according to New Mexico's accounting Method 2. Based on New Mexico's interpretation of Article VI of the Rio Grande Compact, without consensus or agreement of the Texas and Colorado Commissioners, New Mexico did not retain water attributed to its Accrued Debit in any post-1929 reservoir upstream of Elephant Butte Reservoir. This allowed users in the Middle Rio Grande to divert water which otherwise could be stored and delivered to Texas according to Article VI of the Compact.

An additional accounting concern for Texas involves the Bonita Lateral. Texas does not believe that any water taken from Elephant Butte Reservoir and Caballo Reservoir for the Bonita Lateral (Bonita Water) is a delivery of Compact water to Texas because Bonita Water is delivered to lands outside the Rio Grande Project. Texas believes that the historical method of Compact accounting, where Bonita Water is added to the Usable Water release, is wrong and that the methodology is double counting the Bonita Water. Texas has requested an explanation for the Bonita Water from Reclamation and has not received enough information which would settle this issue. Texas believes that under the Compact, the accounting for deliveries of water to the Rio Grande Project should be accurate. This would require an official explanation for the Bonita Lateral and why Compact waters, which are counted as deliveries to Texas, can be

diverted by Reclamation for non-project users. Texas is ready to discuss this following receipt of an official response from Reclamation and looks forward to resolving this issue.

COMPACT ACCOUNTING 2020 - METHOD 1

The Texas Engineer Adviser has reviewed the streamflow and reservoir storage records and other pertinent data for calendar year 2021. Method 1 reduces the Credit Water evaporation monthly. The scheduled and actual deliveries, release of Usable Water for the year 2021, and balances as of January 1, 2022, based on Method 1 are as follows:

(a) Deliveries by Colorado at the State Line:

Balance as of January 1, 2021	1,300 acre-feet
Scheduled delivery	172,800 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	168,100 acre-feet
Reduction of credits on account of evaporation	400 acre-feet
Accrued credit January 1, 2022	3,800 acre-feet

(b) Deliveries by New Mexico at Elephant Butte Dam:

Balance as of January 1, 2021	91,500 acre-feet
Scheduled delivery	287,400 acre-feet
Actual delivery	256,600 acre-feet
Reduction of debits on account of evaporation	0 acre-feet
Accrued debit January 1, 2022	122,300 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2021	2,615,800 acre-feet
Actual release of Usable Water	217,900 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2022	2,765,800 acre-feet
Under-release capped at 150,000 acre-feet	

Method 1: Reduce Credit Water for Evaporation Monthly during the 2021 Calendar Year - Developed by Texas and Reclamation RIO
GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2021 - Method 1

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES							
	MEASURED FLOW				ADJUSTMENTS				SUPPLY		RECORDED FLOW NEAR DEL NORTE	ADJUSTMENTS					SUPPLY		CONEJOS RIVER AT MOUTH NEAR LASAUCES	RIO GRANDE LESS CONEJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS				
	CONEJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END d	OF MONTH CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN b	DIVERSIONS OTHER a	ADJUSTMENTS NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
	-----	-----	-----	-----	8.3	-----	-----	-----	-----	0.0	-----	0.5	-----	-----	-----	-----	-----	0.0	-----	-----	-----	0.0				
JAN	2.3	-----	-----	2.3	8.3	0.0		0.0	2.3	2.3	8.3	0.5	0.0			0.0	8.3	8.3	2.7	10.1	12.8	12.8				
FEB	2.7	-----	-----	2.7	8.4	0.1		0.1	2.8	5.1	8.5	0.5	0.0			0.0	8.5	16.8	3.7	11.1	14.8	27.6				
MAR	4.7	-----	-----	4.7	8.5	0.1		0.1	4.8	9.9	13.3	0.5	0.0			0.0	13.3	30.1	5.9	15.0	20.9	48.5				
APR	18.5	11.4	3.8	33.7	8.9	0.2		0.2	33.9	43.8	40.3	0.5	0.0			0.0	40.3	70.4	5.1	6.5	11.6	60.1				
MAY	62.6	27.4	2.5	92.5	11.3	2.6	0.1	2.7	95.2	139.0	144.3	0.5	0.0			0.0	144.3	214.7	12.4	12.0	24.4	84.5				
JUN	41.1	6.7	0.2	48.0	15.7	4.4	0.1	4.5	52.5	191.5	123.3	0.5	0.0			0.0	123.3	338.0	7.8	15.2	23.0	107.5				
JUL	15.4	1.5	0.0	16.9	12.5	-3.2	0.0	-3.2	13.7	205.2	36.3	0.4	-0.1	-1.8	0.2	-1.7	34.6	372.6	3.3	4.6	7.9	115.4				
AUG	9.5	1.1	0.0	10.6	9.5	-3.0	0.1	-2.9	7.7	212.9	23.6	0.2	-0.2			-0.2	23.4	396.0	1.9	4.8	6.7	122.1				
SEPT	3.4	0.6	0.0	4.0	8.7	-0.8	0.1	-0.7	3.3	216.2	13.3	0.2	0.0			0.0	13.3	409.3	0.3	3.8	4.1	126.2				
OCT	4.7	1.1	0.1	5.9	8.6	-0.1	0.1	0.0	5.9	222.1	16.9	0.2	0.0			0.0	16.9	426.2	0.6	4.8	5.4	131.6				
NOV	2.9	-----	-----	2.9	8.6	0.0	0.0	0.0	2.9	225.0	11.1	0.2	0.0			0.0	11.1	437.3	2.1	12.6	14.7	146.3				
DEC	2.7	-----	-----	2.7	8.8	0.2	0.0	0.2	2.9	227.9	9.4	0.2	0.0			0.0	9.4	446.7	2.0	9.8	11.8	158.1				
YEAR	170.5	49.8	6.6	226.9	-----	0.5	0.5	1.0	227.9	-----	448.6	-----	-0.3	-1.8	0.2	-1.9	446.7	-----	47.8	110.3	158.1	-----				
Remarks: Cols. 6 and 13 do not include transmountain water. a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado. b 2,047 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado. c Reduction of credits for evaporation calculated on a monthly basis. d 329 ac-ft relinquishment credit stored in 2021. Storage of relinquished credit to date has totaled 2,885 acre-feet; balance remaining is 115 acre-feet.														SUMMARY OF DEBITS AND CREDITS												
														ITEM									DEBIT	CREDIT	BALANCE	
														C1	Balance at Beginning of Year									-----	-----	Cr. 1.3
														C2	Scheduled Delivery from Conejos River									61.7	-----	Dr. 60.4
														C3	Scheduled Delivery from Rio Grande									111.1	-----	Dr. 171.5
														C4	Actual Delivery at Lobatos plus 10,000 Acre Feet									-----	168.1	Dr. 3.4
														C5	Reduction of Debits a/c Evaporation									-----	-----	-----
														C6	Reduction of Credits a/c Evaporation									0.4	-----	Dr. 3.8
														C7										-----	-----	-----
C8	Balance at End of Year									-----	-----	Dr. 3.8														

APPROVED: _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____ 03/01/2022

Method 1: Reduce Credit Water for Evaporation Monthly during the 2021 Calendar Year - Developed by Texas and Reclamation
RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2021 - Method 1

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY									Total Water Stored in New Mexico Above San Marcial at End of Month ^a	ELEPHANT BUTTE EFFECTIVE SUPPLY										
	Recorded Flow at Otowi Bridge	ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam ^b	Effective Supply							
		RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total		End of Month ^a	Change Gain (+) Loss (-)		During Month	Accumulated Total						
		Storage End of a Month	Change in Storage	Reservoir Evaporation																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16						
	-----	3.4	-----	-----	-----	-----	-----	-----	-----	4.6	127.1	-----	-----	-----	-----						
JAN	34.3	2.9	-0.5	0.0		-2.4	-2.9	31.4	31.4	3.0	156.0	28.9	0.0	28.9	28.9						
FEB	32.4	5.9	3.0	0.0		-1.0	2.0	34.4	65.8	6.2	182.1	26.1	0.0	26.1	55.0						
MAR	40.7	11.6	5.7	0.0		-2.0	3.7	44.4	110.2	11.7	210.3	28.2	0.1	28.3	83.3						
APR	70.6	15.8	4.2	0.1		-5.0	-0.7	69.9	180.1	15.9	223.2	12.9	0.1	13.0	96.3						
MAY	112.5	15.5	-0.3	0.1		-2.8	-3.0	109.5	289.6	15.4	232.7	9.5	26.9	36.4	132.7						
JUN	65.3	14.8	-0.7	0.1		-13.1	-13.7	51.6	341.2	15.1	137.4	-95.3	110.8	15.5	148.2						
JUL	37.7	15.3	0.5	0.2		-2.6	-1.9	35.8	377.0	15.8	119.3	-18.1	43.8	25.7	173.9						
AUG	34.4	14.6	-0.7	-0.1		-6.5	-7.3	27.1	404.1	14.6	102.9	-16.4	34.8	18.4	192.3						
SEPT	19.6	14.3	-0.3	0.0		-6.8	-7.1	12.5	416.6	14.7	109.0	6.1	0.0	6.1	198.4						
OCT	22.9	14.5	0.2	0.1		-1.7	-1.4	21.5	438.1	14.8	115.0	6.0	0.1	6.1	204.5						
NOV	32.0	12.3	-2.2	0.1		-1.4	-3.5	28.5	466.6	12.3	133.7	18.7	0.1	18.8	223.3						
DEC	50.2	0.0	-12.3	0.1		-2.3	-14.5	35.7	502.3	0.2	166.9	33.2	0.1	33.3	256.6						
YEAR	552.6	-----	-3.4	0.7		-47.6	-50.3	502.3	-----	-----	-----	39.8	216.8	256.6	-----						
Remarks: Cols. 3, 11, and 12 do not include transmountain water. Column 12 reflects implementation of revised area-capacity tables for Elephant Butte Reservoir, effective Jan. 1, 2020. ^a In 2021, no relinquishment credit under previous relinquishment agreements was stored in New Mexico reservoirs. Storage of relinquished credit to date has totaled 288,728 acre-feet; balance remaining is 91,772 acre-feet. ^b All debit water in El Vado was released by January 16, 2021. There was no evaporation because of reservoir being ice covered.							SUMMARY OF DEBITS AND CREDITS														
							ITEM										DEBIT		CREDIT		BALANCE
							NM1		Balance at Beginning of Year								-----		-----		Dr. 91.5
							NM2		Scheduled Delivery at Elephant Butte								287.4		-----		Dr. 378.9
							NM3		Actual Elephant Butte Effective Supply								-----		256.6		Dr. 122.3
							NM4		Reduction of Debits a/c Evaporation ^b								-----		0.0		
							NM5		Reduction of Credits a/c Evaporation and Spill								-----		-----		Dr. 122.3
							NM6										-----		-----		
							NM7										-----		-----		
NM8		Balance at End of Year								-----		-----		Dr. 122.3							

APPROVED: _____
 Engineer Adviser for Colorado _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____ 03/01/2022

Method 1: Reduce Credit Water for Evaporation Monthly during the 2021 Calendar Year - Developed by Texas and Reclamation

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE

YEAR 2021 - Method 1

Quantities in thousands of acre feet to nearest hundred

MONTH	Total Project Storage Capacity Available at End of Month ^a	USABLE WATER IN STORAGE				CREDIT WATER IN STORAGE				Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	RIO GRANDE BELOW CABALLO DAM							
		Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Unfilled Capacity of Project Storage at End of Month	Colorado Credit ^c Water ^r	New Mexico Credit ^c Water	Total at End of Month	Measured Flow at Caballo Gaging Station			Intervening Diversions to Canals	Total Release and Spill	SPILL FROM STORAGE			USABLE RELEASE		
														Caballo Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	-----	-----	-----	-----	-----	1.3 ^b	0 ^b	1.3 ^b		-----	-----	-----	-----	-----	-----	-----	-----	-----	
JAN	2,210.4	154.7	30.1	184.8	2,025.6	1.3	0.0	1.3		186.1	0.0	0.1	0.1				0.1	0.1	
FEB	2,210.4	180.8	30.9	211.7	1,998.7	1.3	0.0	1.3		213.0	0.0	0.0	0.0				0.0	0.1	
MAR	2,210.4	209.1	30.3	239.4	1,971.0	1.2	0.0	1.2		240.6	0.1	0.1	0.2				0.2	0.3	
APR	2,185.4	222.0	29.6	251.6	1,933.8	1.2	0.0	1.2		252.8	0.1	0.2	0.3				0.3	0.6	
MAY	2,185.4	231.6	47.4	279.0	1,906.4	1.1	0.0	1.1		280.1	26.9	0.1	27.0				27.0	27.6	
JUN	2,185.4	136.3	24.3	160.6	2,024.8	1.1	0.0	1.1		161.7	110.8	0.1	110.9				110.9	138.5	
JUL	2,185.4	118.3	17.6	135.9	2,049.5	1.0	0.0	1.0		136.9	43.8	0.2	44.0				44.0	182.5	
AUG	2,185.4	101.9	13.5	115.4	2,070.0	1.0	0.0	1.0		116.4	34.8	0.1	34.9				34.9	217.4	
SEPT	2,185.4	108.0	14.6	122.6	2,062.8	1.0	0.0	1.0		123.6	0.0	0.1	0.1				0.1	217.5	
OCT	2,210.4	114.1	14.4	128.5	2,081.9	0.9	0.0	0.9		129.4	0.1	0.1	0.2				0.2	217.7	
NOV	2,210.4	132.8	14.7	147.5	2,062.9	0.9	0.0	0.9		148.4	0.1	0.0	0.1				0.1	217.8	
DEC	2,210.4	166.0	15.1	181.1	2,029.3	0.9	0.0	0.9		182.0	0.1	0.0	0.1				0.1	217.9	
YEAR	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	216.8	1.1	217.9	0.0	0.0	0.0	217.9	-----	
Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte (2017 and 2019) and Caballo (2017) Reservoirs, effective for Compact accounting purposes Jan 1, 2020. ^a Total Project Storage Capacity is 2,185,400 acre-feet (April through September) and 2,210,400 acre-feet (October through March) which accounts for flood control storage reservation at Caballo Reservoir of 100,000 acre-feet and at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March. Total capacity of Elephant Butte Reservoir for spill purposes is 1,960,900 acre-feet (April through September) and 1,985,900 acre-feet (October through March). See Engineer Advisers' Report for the 2020 calendar year for explanation of corrections to columns 2 and 6. ^b Balance at Beginning of Year (C1 and NM1). ^c Calculated on a monthly basis.											ACCRUED DEPARTURE FROM NORMAL RELEASE								
											ITEM			DEBIT		CREDIT		BALANCE	
											P1	Accrued Departure at Beginning of Year			-----	-----	Cr. 2615.8		
											P2	Actual Release during Year			217.9	-----	Cr. 2397.9		
											P3	Normal Release for Year			-----	790.0	Cr. 3187.9		
											P4	Under Release in Excess of 150.0			422.1	-----	Cr. 2765.8		
											P5								
											P6								
											P7	Accrued Departure at End of Year			-----	-----	Cr. 2765.8		
											TIME OF HYPOTHETICAL SPILL <u>Did not occur</u>								

APPROVED: _____
 Engineer Adviser for Colorado _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____ 03/01/2022

Method 2: Reduce Credit Water for Evaporation at the End of the 2021 Calendar Year - Developed by Colorado and New Mexico RIO
GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2021 - Method 2

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES										
	MEASURED FLOW				ADJUSTMENTS				SUPPLY		RECORDED FLOW NEAR DEL NORTE	ADJUSTMENTS					SUPPLY		CONEJOS RIVER AT MOUTH NEAR LAS ALBUQUERQUE	RIO GRANDE LESS CONEJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS							
	CONEJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END d	OF MONTH CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN b	DIVERSIONS OTHER a	ADJUSTMENTS NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
	-----	-----	-----	-----	8.3	-----	-----	-----	-----	0.0	-----	0.5	-----	-----	-----	-----	-----	0.0	-----	-----	-----	0.0							
JAN	2.3	-----	-----	2.3	8.3	0.0		0.0	2.3	2.3	8.3	0.5	0.0			0.0	8.3	8.3	2.7	10.1	12.8	12.8							
FEB	2.7	-----	-----	2.7	8.4	0.1		0.1	2.8	5.1	8.5	0.5	0.0			0.0	8.5	16.8	3.7	11.1	14.8	27.6							
MAR	4.7	-----	-----	4.7	8.5	0.1		0.1	4.8	9.9	13.3	0.5	0.0			0.0	13.3	30.1	5.9	15.0	20.9	48.5							
APR	18.5	11.4	3.8	33.7	8.9	0.2		0.2	33.9	43.8	40.3	0.5	0.0			0.0	40.3	70.4	5.1	6.5	11.6	60.1							
MAY	62.6	27.4	2.5	92.5	11.3	2.6	0.1	2.7	95.2	139.0	144.3	0.5	0.0			0.0	144.3	214.7	12.4	12.0	24.4	84.5							
JUN	41.1	6.7	0.2	48.0	15.7	4.4	0.1	4.5	52.5	191.5	123.3	0.5	0.0			0.0	123.3	338.0	7.8	15.2	23.0	107.5							
JUL	15.4	1.5	0.0	16.9	12.5	-3.2	0.0	-3.2	13.7	205.2	36.3	0.4	-0.1	-1.8	0.2	-1.7	34.6	372.6	3.3	4.6	7.9	115.4							
AUG	9.5	1.1	0.0	10.6	9.5	-3.0	0.1	-2.9	7.7	212.9	23.6	0.2	-0.2			-0.2	23.4	396.0	1.9	4.8	6.7	122.1							
SEPT	3.4	0.6	0.0	4.0	8.7	-0.8	0.1	-0.7	3.3	216.2	13.3	0.2	0.0			0.0	13.3	409.3	0.3	3.8	4.1	126.2							
OCT	4.7	1.1	0.1	5.9	8.6	-0.1	0.1	0.0	5.9	222.1	16.9	0.2	0.0			0.0	16.9	426.2	0.6	4.8	5.4	131.6							
NOV	2.9	-----	-----	2.9	8.6	0.0	0.0	0.0	2.9	225.0	11.1	0.2	0.0			0.0	11.1	437.3	2.1	12.6	14.7	146.3							
DEC	2.7	-----	-----	2.7	8.8	0.2	0.0	0.2	2.9	227.9	9.4	0.2	0.0			0.0	9.4	446.7	2.0	9.8	11.8	158.1							
YEAR	170.5	49.8	6.6	226.9	-----	0.5	0.5	1.0	227.9	-----	448.6	-----	-0.3	-1.8	0.2	-1.9	446.7	-----	47.8	110.3	158.1	-----							
Remarks: Cols. 6 and 13 do not include transmountain water. a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado. b 2,047 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado. c Evaporation of credit water accounted as described in Article VI of the Rio Grande Compact. d 329 ac-ft relinquishment credit stored in 2021. Storage of relinquished credit to date has totaled 2,885 acre-feet; balance remaining is 115 acre-feet.														SUMMARY OF DEBITS AND CREDITS															
														ITEM										DEBIT		CREDIT		BALANCE	
														C1	Balance at Beginning of Year										-----		-----		Cr. 1.2
														C2	Scheduled Delivery from Conejos River										61.7		-----		Dr. 60.5
														C3	Scheduled Delivery from Rio Grande										111.1		-----		Dr. 171.6
														C4	Actual Delivery at Lobatos plus 10,000 Acre Feet										-----		168.1		Dr. 3.5
														C5	Reduction of Debits a/c Evaporation										-----				
														C6	Reduction of Credits a/c Evaporation										0.3		-----		Dr. 3.8
														C7															
C8	Balance at End of Year										-----		-----		Dr. 3.8														

APPROVED: _____
 Engineer Adviser for Colorado _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____ 3/1/2022

Method 2: Reduce Credit Water for Evaporation at the End of the 2021 Calendar Year - Developed by Colorado and New Mexico

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE

YEAR 2021 - Method 2

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY									Total Water Stored in New Mexico Above San Marcial at End of Month ^a	ELEPHANT BUTTE EFFECTIVE SUPPLY							
	Recorded Flow at Otowi Bridge	ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam ^b	Effective Supply				
		RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total		End of Month ^a	Change Gain (+) Loss (-)		During Month	Accumulated Total			
		Storage End of Month ^a	Change in Storage	Reservoir Evaporation														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
	-----	3.4	-----	-----	-----	-----	-----	-----	-----	4.6	127.1	-----	-----	-----	-----			
JAN	34.3	2.9	-0.5	0.0		-2.4	-2.9	31.4	31.4	3.0	156.0	28.9	0.0	28.9	28.9			
FEB	32.4	5.9	3.0	0.0		-1.0	2.0	34.4	65.8	6.2	182.1	26.1	0.0	26.1	55.0			
MAR	40.7	11.6	5.7	0.0		-2.0	3.7	44.4	110.2	11.7	210.3	28.2	0.1	28.3	83.3			
APR	70.6	15.8	4.2	0.1		-5.0	-0.7	69.9	180.1	15.9	223.2	12.9	0.1	13.0	96.3			
MAY	112.5	15.5	-0.3	0.1		-2.8	-3.0	109.5	289.6	15.4	232.7	9.5	26.9	36.4	132.7			
JUN	65.3	14.8	-0.7	0.1		-13.1	-13.7	51.6	341.2	15.1	137.4	-95.3	110.8	15.5	148.2			
JUL	37.7	15.3	0.5	0.2		-2.6	-1.9	35.8	377.0	15.8	119.3	-18.1	43.8	25.7	173.9			
AUG	34.4	14.6	-0.7	-0.1		-6.5	-7.3	27.1	404.1	14.6	102.9	-16.4	34.8	18.4	192.3			
SEPT	19.6	14.3	-0.3	0.0		-6.8	-7.1	12.5	416.6	14.7	109.0	6.1	0.0	6.1	198.4			
OCT	22.9	14.5	0.2	0.1		-1.7	-1.4	21.5	438.1	14.8	115.0	6.0	0.1	6.1	204.5			
NOV	32.0	12.3	-2.2	0.1		-1.4	-3.5	28.5	466.6	12.3	133.7	18.7	0.1	18.8	223.3			
DEC	50.2	0.0	-12.3	0.1		-2.3	-14.5	35.7	502.3	0.2	166.9	33.2	0.1	33.3	256.6			
YEAR	552.6	-----	-3.4	0.7		-47.6	-50.3	502.3	-----	-----	-----	39.8	216.8	256.6	-----			
Remarks: Cols. 3, 11, and 12 do not include transmountain water. Column 12 reflects implementation of revised area-capacity tables for Elephant Butte Reservoir, effective Jan. 1, 2020. ^a Note: In 2021, no relinquishment credit under previous relinquishment agreements was stored in New Mexico reservoirs. Storage of relinquished credit to date has totaled 288,728 acre-feet; balance remaining is 91,772 acre-feet. ^b All debit water in El Vado was released by January 16, 2021. There was no evaporation because of reservoir being ice covered.							SUMMARY OF DEBITS AND CREDITS											
							ITEM					DEBIT		CREDIT		BALANCE		
							NM1	Balance at Beginning of Year					-----		-----		Dr. 96.3	
							NM2	Scheduled Delivery at Elephant Butte					287.4		-----		Dr. 383.7	
							NM3	Actual Elephant Butte Effective Supply					-----		256.6		Dr. 127.1	
							NM4	Reduction of Debits a/c Evaporation ^b					-----		0.0			
							NM5	Reduction of Credits a/c Evaporation and Spill					-----		-----		Dr. 127.1	
							NM6								-----			
							NM7											
							NM8	Balance at End of Year					-----		-----		Dr. 127.1	

APPROVED:

Engineer Adviser for Colorado _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____

3/1/2022

Method 2: Reduce Credit Water for Evaporation at the End of the 2021 Calendar Year - Developed by Colorado and New Mexico

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE

YEAR 2021 - Method 2

Quantities in thousands of acre feet to nearest hundred

MONTH	Total Project Storage Capacity Available at End of Month ^a	USABLE WATER IN STORAGE				CREDIT WATER IN STORAGE			Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	RIO GRANDE BELOW CABALLO DAM										
		Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Unfilled Capacity of Project Storage at End of Month	Colorado Credit Water ^c	New Mexico Credit Water ^c	Total at End of Month			Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	SPILL FROM STORAGE			USABLE RELEASE				
														Caballo Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	-----	-----	-----	-----	-----	1.2 ^b	0 ^b	1.2 ^b		-----	-----	-----	-----	-----	-----	-----	-----	-----			
JAN	2,210.4	154.8	30.1	184.9	2,025.5	1.2	0.0	1.2		186.1	0.0	0.1	0.1				0.1	0.1			
FEB	2,210.4	180.9	30.9	211.8	1,998.6	1.2	0.0	1.2		213.0	0.0	0.0	0.0				0.0	0.1			
MAR	2,210.4	209.1	30.3	239.4	1,971.0	1.2	0.0	1.2		240.6	0.1	0.1	0.2				0.2	0.3			
APR	2,185.4	222.0	29.6	251.6	1,933.8	1.2	0.0	1.2		252.8	0.1	0.2	0.3				0.3	0.6			
MAY	2,185.4	231.5	47.4	278.9	1,906.5	1.2	0.0	1.2		280.1	26.9	0.1	27.0				27.0	27.6			
JUN	2,185.4	136.2	24.3	160.5	2,024.9	1.2	0.0	1.2		161.7	110.8	0.1	110.9				110.9	138.5			
JUL	2,185.4	118.1	17.6	135.7	2,049.7	1.2	0.0	1.2		136.9	43.8	0.2	44.0				44.0	182.5			
AUG	2,185.4	101.7	13.5	115.2	2,070.2	1.2	0.0	1.2		116.4	34.8	0.1	34.9				34.9	217.4			
SEPT	2,185.4	107.8	14.6	122.4	2,063.0	1.2	0.0	1.2		123.6	0.0	0.1	0.1				0.1	217.5			
OCT	2,210.4	113.8	14.4	128.2	2,082.2	1.2	0.0	1.2		129.4	0.1	0.1	0.2				0.2	217.7			
NOV	2,210.4	132.5	14.7	147.2	2,063.2	1.2	0.0	1.2		148.4	0.1	0.0	0.1				0.1	217.8			
DEC	2,210.4	165.7	15.1	180.8	2,029.6	1.2	0.0	1.2		182.0	0.1	0.0	0.1				0.1	217.9			
YEAR	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	216.8	1.1	217.9	0.0	0.0	0.0	217.9	-----			
Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte (2017 and 2019) and Caballo (2017) Reservoirs, effective for Compact accounting purposes Jan 1, 2020. ^a Total Project Storage Capacity is 2,185,400 acre-feet (April through September) and 2,210,400 acre-feet (October through March) which accounts for flood control storage reservation at Caballo Reservoir of 100,000 acre-feet and at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March. Total capacity of Elephant Butte Reservoir for spill purposes is 1,960,900 acre-feet (April through September) and 1,985,900 acre-feet (October through March). See Engineer Advisers' Report for the 2020 calendar year for explanation of corrections to columns 2 and 6. ^b Balance at Beginning of Year (C1 and NM1). ^c Credit water held constant during the year in accordance with Article VI and per direction of Compact Commission in March 2006. Evaporation for credit water is accounted at end of calendar year in the proportion that the credit water bore to the total amount of water in Elephant Butte Reservoir during the year. If loan during 2011 had been approved, credit water would have been decreased by the amount of the negative usable water. ^d Due to Caballo release discrepancies during 2011, data was not approved for 2011; consequently, the accrued departure at the beginning of 2012 through 2021 could not be computed.											ACCRUED DEPARTURE FROM NORMAL RELEASE										
											ITEM			DEBIT			CREDIT		BALANCE		
											P1	Accrued Departure at Beginning of Year ^d			-----			-----		Cr.	
											P2	Actual Release during Year			217.9			-----		Cr.	
											P3	Normal Release for Year			-----			790.0		Cr.	
											P4	Under Release in Excess of 150.0			422.1			-----		Cr.	
											P5										
											P6										
											P7	Accrued Departure at End of Year			-----			-----		Cr.	
TIME OF HYPOTHETICAL SPILL <u>Not applicable</u>																					

APPROVED: _____ Date: _____ Engineer Adviser for Colorado _____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____ 3/1/2022

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2021 (FY-2021)

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado	\$84,058		\$84,058		
In New Mexico, above Caballo Reservoir	\$86,274	\$61,040		\$25,234	
In New Mexico, Caballo Reservoir and below	\$33,684	\$6,737			\$26,947
Subtotal	\$204,016	\$67,777	\$84,058	\$25,234	\$26,947
ADMINISTRATION					
U.S.G.S. Technical Services	\$21,027	\$6,240	\$4,929	\$4,929	\$4,929
Other expenses ¹	\$3,000		\$1,000	\$1,000	\$1,000
Subtotal	\$24,027	\$6,240	\$5,929	\$5,929	\$5,929
GRAND TOTAL	\$228,043	\$74,017	\$89,987	\$31,163	\$32,876
EQUAL SHARES			\$51,342	\$51,342	\$51,342

¹Includes estimated cost of court reporter.

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2023 (FY-2023)

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado	\$93,792		\$93,792		
In New Mexico, above Caballo Reservoir	\$86,274	\$61,040		\$25,234	
In New Mexico, Caballo Reservoir and below	\$30,011	\$6,002			\$24,009
Subtotal	\$210,077	\$67,042	\$93,792	\$25,234	\$24,009
ADMINISTRATION					
U.S.G.S. Technical Services	\$22,110	\$6,426	\$5,228	\$5,228	\$5,228
Other expenses ¹	\$3,000		\$1,000	\$1,000	\$1,000
Subtotal	\$25,110	\$6,426	\$6,228	\$6,228	\$6,228
GRAND TOTAL	\$235,187	\$73,468	\$100,020	\$31,462	\$30,237
EQUAL SHARES			\$53,906	\$53,906	\$53,906

¹Includes estimated cost of court reporter.

RECEIVED

JUL 12 2021

WATER RESOURCES
STATE ENGINEER
COLO

Agreement No: 21RGJFA12

Customer No:

6000001029/6000001775/6000000631

Project No: RG00GVC

Tax ID: 84-0644739 (CO)

85-6000565 (NM)

74-1694284 (TX)

Fixed-price agreement

**COOPERATIVE AGREEMENT
FOR
INVESTIGATION OF WATER RESOURCES**

THIS AGREEMENT, entered into this 1st day of July, 2021 by and between the United States Geological Survey, party of the first part, and each of the Commissioners representing the three signatory states and the Representative of the United States, constituting the Rio Grande Compact Commission, party of the second part.

In consideration of the mutual promises and agreements herein contained, it is agreed by and between the parties hereto as follows:

1. The parties agree that, subject to the availability of appropriations and in accordance with their respective authorities, there shall be maintained a cooperative program for duties as stated in the attached Statement of Work, for the Rio Grande Compact Commission within and among the three states in accordance with the terms of the Rio Grande Compact, incorporated herein by reference.

The parties further agree that this agreement shall in no manner affect any other agreement between the United States Geological Survey and any of the three states of the basin concerning the collection of hydrologic data, but in each case where there is or may be another agreement covering the collection of such data, the duty of the United States Geological Survey as provided here, shall be to compile, correlate, and present hydrographic data that has been collected under such agreements.

2. The parties agree to contribute to this program in the amounts specified or as are from time to time agreed upon in writing, funds needed and available to cover all the cost of the necessary field and office work directly related to the program, excluding any general administrative or accounting work in the office of any of the parties, and excluding the costs of publication by any of the parties of the results of the program.

3. The United States Geological Survey and state members of the Rio Grande Compact agree to contribute to the program during the period from July 1, 2021 to June 30, 2022, the following amounts:

(a)	U.S. Geological Survey	\$6,426
(b)	State of Colorado	\$5,076
(c)	State of New Mexico	\$5,076
(d)	State of Texas	\$5,076

4. So far as may be mutually agreed, all expenses shall be paid in the first instance by the United States Geological Survey with appropriate reimbursement thereafter by the other parties hereto. Each of the parties shall furnish to each of the other parties such statements or reports of expenditures as may be needed to satisfy fiscal requirements.

5. Unless previously terminated by the parties hereto, this agreement shall terminate on June 30, 2022, provided it may be renewed by the mutual agreement of the United States Geological Survey and each of the Commissioners representing the three signatory states to the Rio Grande Compact, as the voting members of the Rio Grande Compact Commission, on or before June 30, 2022, for a period of 1 year, and may be renewed in a like manner on or before June 30th of any year thereafter for a similar period. Any party may terminate this agreement by providing 60 day's written notice to the other party. When an accepted agreement is terminated by the State members of the Rio Grande Compact Commission, the USGS is authorized to collect costs incurred prior to the effective date of termination of the agreement plus any termination cost.

6. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other parties.

7. In the event this Agreement is renewed as herein provided, the amounts to be contributed by the parties for each renewal period may be determined by mutual agreement and set forth by exchange of letters between the parties at or near the beginning of each such period.

8. Billing for this agreement will be rendered semi-annually in January 2022 and July 2022. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30-day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717, Comptroller General File-B212222, August 23, 1983.)

9. The Legal authorities for the U.S. Geological Survey to enter into this Agreement are 43 USC 36C; 43 USC 50; and 43 USC50b.

UNITED STATES GEOLOGICAL SURVEY

JEANNIE
BARLOW

Digitally signed by JEANNIE
BARLOW
Date: 2021.04.08 08:27:35 -06'00'

Jeannie RB Barlow 4/8/2021
Director, New Mexico Water Science Center

RIO GRANDE COMPACT COMMISSION

Kerrin S. Lein 4-23-2021
Commissioner for Colorado Date

John D. McIntyre 6/8/21
Commissioner for New Mexico Date

Pat Gndm 4/23/2021
Commissioner for Texas Date

Harold D. Simpson 6/28/2021
Federal Commissioner for RGCC Date

Statement of Work for 21RGJFA12

The duties of the United States Geological Survey are as follows:

1. Obtain data for yearly accounting from U.S. Geological Survey in New Mexico and Colorado as well as U.S. Bureau of Reclamation, Albuquerque and El Paso Offices, and Colorado Division of Water Resources.
2. Prepare and submit provisional water accounting reports on the deliveries of the Rio Grande water.
3. Compile Rio Grande Compact Commission water accounting from the data supplied by various agencies. Present annual accounting at the Engineer Advisor's Meeting. Obtain signature of Engineer Advisors on approved accounting sheets.

RESOLUTION OF THE RIO GRANDE COMPACT COMMISSION

Honoring John R. D'Antonio, Jr.

May 6, 2022

WHEREAS, John R. D'Antonio, Jr. served as the New Mexico State Engineer, the Secretary to the New Mexico Interstate Stream Commission, and the Rio Grande Compact Commissioner for New Mexico from 2003 through 2011, and returned to serve in those same capacities for New Mexico from 2019 through 2021; and

WHEREAS, John R. D'Antonio, Jr. worked tirelessly and calmly to protect New Mexico's compact entitlements to the waters of the Rio Grande and is regarded by all as a competent and knowledgeable professional whose judgment can be trusted; and

WHEREAS, John R. D'Antonio, Jr. has rendered long, meritorious service to the Rio Grande Compact Commission and to the people of New Mexico in matters related to the conservation, utilization and development of the water and related land resources of the Rio Grande Basin; and

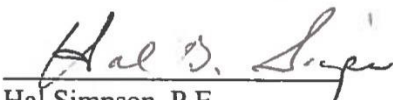
WHEREAS, as a result of his professional and knowledgeable conduct, his fellow Commissioners, their advisers and staff have developed great respect, admiration and appreciation for John R. D'Antonio, Jr.; and


NOW, THEREFORE, BE IT RESOLVED, that the Rio Grande Compact Commission, at its 83rd annual meeting held in Alamosa, Colorado on May 6, 2022, does hereby express the gratitude and appreciation of the Commission and its staff for the untiring service and counsel rendered by John R. D'Antonio, Jr.; and


BE IT FURTHER RESOLVED, that the Rio Grande Compact Commission, its advisers and staff sincerely wish John R. D'Antonio, Jr., his wife Cassandra and their family the best of all health, happiness and prosperity in all their future endeavors; and


BE IT FURTHER RESOLVED, that the Rio Grande Compact Commission, its advisers and staff would welcome John D'Antonio, Jr to return to the service of the Rio Grande Compact Commission for a third time if he so desires; and

BE IT FURTHER RESOLVED, that the New Mexico Engineer Adviser of the Rio Grande Compact Commission is hereby directed to furnish copies of this unanimously adopted Resolution to John R. D'Antonio, Jr. and the Governor of the State of New Mexico, and to cause said resolution to be included in the Minutes of the 83rd annual meeting of the Rio Grande Compact Commission.


Hal Simpson, P.E.
Chairman and Commissioner
For the United States of America


Kevin G. Rein, P.E.
Commissioner for Colorado


Mike A. Hamman, P.E.
Commissioner for New Mexico


Robert S. Skov
Commissioner for Texas

RESOLUTION OF THE RIO GRANDE COMPACT COMMISSION

Honoring Patrick R. Gordon

May 6, 2022

WHEREAS, *Patrick R. Gordon has rendered long, meritorious service to the Rio Grande Compact Commission as the Rio Grande Compact Commissioner for Texas from 2006 through 2021; and*

WHEREAS, *Patrick R. Gordon has worked tirelessly to protect Texas' compact water supplies from the waters of the Rio Grande and is regarded by all as a competent and knowledgeable commissioner in matters related to the conservation, utilization and development of the water and related land resources of the Rio Grande Basin; and*

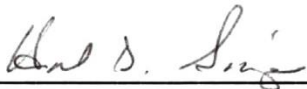
WHEREAS, *during that time, Patrick R. Gordon did faithfully and conscientiously carry out his responsibilities to the overall benefit of not only Texas but to all the states involved in the Rio Grande Compact Commission; and*

WHEREAS, *as a result of Patrick R. Gordon's professional conduct in addressing numerous matters regarding administration of the Rio Grande, his fellow Commissioners, their advisers and staff have developed great respect, admiration and appreciation for him; and*

NOW, THEREFORE, BE IT RESOLVED *that the Rio Grande Compact Commission, at its 83rd annual meeting held in Alamosa, Colorado, on May 6, 2022, does hereby express the gratitude and appreciation of the Commission and its staff for the untiring service and counsel rendered by Patrick R. Gordon in addressing the many complex and political water resource problems that have confronted the Commission during his tenure as the Commissioner for Texas; and*

BE IT FURTHER RESOLVED *that the Rio Grande Compact Commission, its advisers and staff sincerely wish Patrick R. Gordon and his family the best of all health, happiness and prosperity in all their future endeavors; and*

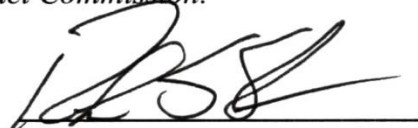
BE IT FURTHER RESOLVED *that the Texas Engineer Adviser of the Rio Grande Compact Commission is hereby directed to furnish copies of this unanimously adopted Resolution to Patrick R. Gordon and the Governor of the State of Texas, and to cause said resolution to be included in the Minutes of the 83rd annual meeting of the Rio Grande Compact Commission.*



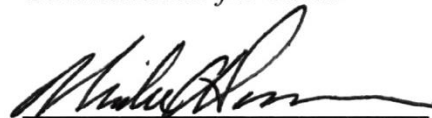
Hal Simpson, P.E.
Chairman and Commissioner
for the United States of America



Kevin G. Rein, P.E.
Commissioner for Colorado



Robert S. Skov
Commissioner for Texas



Mike A. Hamman, P.E.
Commissioner for New Mexico

WATER RESOURCES DATA ACKNOWLEDGMENTS

This report was prepared by the U.S. Geological Survey, technical adviser to the Rio Grande Compact Commission.
The water-supply data contained in this report have been provided by various Federal and State agencies.

The office of the State Engineer of Colorado provided records of transmountain diversions and of storage for the following:

Squaw Lake	Jumper Creek Reservoir	Mill Creek Reservoir
Rito Hondo Reservoir	Big Meadows Reservoir	Fuchs Reservoir
Hermit Lakes Reservoir No. 3	Alberta Park Reservoir	Platoro Reservoir
Troutvale No. 2 Reservoir	Shaw Lake Enlargement	Trujillo Meadows Reservoir

The office of the State Engineer of Colorado provided records of discharge for the following:

Rio Grande near Del Norte, Colo.	Los Pinos River near Ortiz, Colo.
Conejos River below Platoro Reservoir, Colo.	Conejos River near Lasauces, Colo.
Conejos River near Mogote, Colo.	Rio Grande near Lobatos, Colo.
San Antonio River at Ortiz, Colo.	

The U.S. Bureau of Reclamation, Albuquerque, N. Mex., provided the following records:

Azotea Tunnel at Outlet, near Chama, N. Mex.	Willow Creek below Heron Dam, N. Mex.
Willow Creek above Heron Res., near Los Ojos, N. Mex.	Storage in El Vado Reservoir near Tierra Amarilla, N. Mex.
Storage in Heron Reservoir near Los Ojos, N. Mex.	

The U.S. Geological Survey, in cooperation with the U.S. Bureau of Reclamation, Albuquerque, N. Mex, provided the following records:

Storage in Nambe Falls Reservoir near Nambe, N. Mex.
Rio Nambe below Nambe Falls Dam, near Nambe, N. Mex.

The U.S. Geological Survey supplied the record for Rio Grande below Elephant Butte Dam, and in cooperation with the New Mexico Interstate Stream Commission, also provided the following:

Rio Chama below El Vado Dam, N. Mex.	Santa Fe River near Santa Fe, N. Mex.
Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.	Storage in Nichols Reservoir near Santa Fe, N. Mex.
Storage in McClure Reservoir near Santa Fe, N. Mex.	

The U.S. Geological Survey, in cooperation with the Corps of Engineers, Albuquerque, N. Mex., also provided the following records:

Rio Chama below Abiquiu Dam, N. Mex.
Rio Grande below Cochiti Dam, N. Mex.
Galisteo Creek below Galisteo Dam, N. Mex.
Jemez River Outlet below Jemez Canyon Dam, N. Mex.

The Corps of Engineers, Albuquerque, N. Mex., provided the following records of storage:

Abiquiu Reservoir.
Galisteo Reservoir.
Jemez Canyon Reservoir.
Cochiti Lake.

The Bureau of Indian Affairs, Albuquerque, N. Mex., provided the records of storage in Seama Reservoir.

The U.S. Bureau of Reclamation, El Paso, Texas, provided the following records:

Storage in Elephant Butte Reservoir at Elephant Butte, N. Mex.
Storage in Caballo Reservoir near Arrey, N. Mex.
Rio Grande below Caballo Dam, N. Mex.
Bonito ditch below Caballo Dam, N. Mex.

The Rio Grande Compact Commission gratefully acknowledges the cooperation received from the agencies listed above.

ACCURACY OF RECORDS

The Rules and Regulations of the Commission state that the equipment, method, and frequency of measurement at each gaging station shall be sufficient to obtain records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. Within the physical limitations of stream gaging, the agencies obtaining the records at Compact gaging stations have complied with these regulations.

The accuracy of streamflow records depends primarily on (1) the stability of the stage- discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description states the degree of accuracy attributed to the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true value; "good" within 10 percent; and "fair" within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record. The probable error in a monthly or annual mean discharge depends more on the distribution of the daily errors between the limits than it does on the limits themselves. For this reason, monthly and annual records are more accurate than most daily records.

STREAMFLOW

Rio Grande near Del Norte, Colo

Location. -- Water-stage recorder with satellite telemetry, lat 37°41'19.0", long 106°27'35.5", in NW1/4 NW 1/4 sec. 29, T. 40 N. R. 5 E., on right bank, 40 ft downstream from county highway bridge, 6.0 mi west of Del Norte, and 5.0 mi upstream from Pinos Creek. Datum of gage is 7,980.25 ft above National Geodetic Vertical Datum of 1929. Prior to May 16, 1908, nonrecording gage at site 4 mi downstream at different datum. Records are equivalent.

Drainage area. -- 1,320 sq mi, approximately.

Average discharge. -- 132 years (1890-2021), 882 ft³/s (639,100 acre-ft per year).

Extremes. -- 1889-2021: Maximum discharge, 18,000 ft³/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft³/s; minimum daily, 74 ft³/s Nov. 16, 1956.

Remarks. -- Records good except for estimated for estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, transmountain diversions from Colorado River Basin, diversions for irrigation and municipal use, groundwater withdrawals, return flows from irrigated areas, and flows from sewage-treatment plants. Flow regulated by four reservoirs, total capacity 126,100 acre-ft, and by several smaller ones.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,185	150	115	135	8,301
February	4,265	175	125	152	8,460
March	6,704	306	120	216	13,297
April	20,296	963	287	677	40,257
May	72,750	3,350	1,230	2,347	144,300
June	62,178	4,080	936	2,073	123,330
July	18,319	899	411	591	36,336
August	11,922	670	232	385	23,647
September	6,709	297	200	224	13,307
October	8,524	324	229	275	16,907
November	5,581	285	138	186	11,070
December	4,736	190	105	153	9,394
Calendar year 2021	226,169	4,080	105	618	448,606

Conejos River below Platoro Reservoir, Colo.

Location. -- Water-stage recorder with satellite telemetry and concrete control, lat 37°21'17.65", long 106°32'39", in SW 1/4 NW 1/4 sec. 22, T. 36 N., R. 4 E., on left bank 1,100 ft downstream from valvehouse for Platoro Reservoir, and 0.7 mi northwest of Platoro. Datum of gage is 9,866.60 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

Drainage area. -- 40 sq mi, approximately.

Average discharge. -- 69 years (1952-2021), 91 ft³/s (65,640 acre-ft per year).

Extremes. -- 1952-2021: Maximum discharge, 1,160 ft³/s Nov. 1, 1957; maximum gage height, 4.29 ft June 15, 1958; no flow Oct. 16-20, 1955.

Remarks. -- Records fair except for the periods Nov. 19 to Apr. 15, and estimated daily discharges, which are poor Flow completely regulated by Platoro Reservoir (0.2 mi upstream) since Nov. 7, 1951.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	294	10	9	9	584
February	256	10	9	9	507
March	271	9	8	9	538
April	2,134	130	10	71	4,232
May	9,405	434	194	303	18,655
June	7,354	426	109	245	14,587
July	4,074	178	82	131	8,081
August	2,572	137	41	83	5,102
September	680	43	10	23	1,349
October	568	32	6	18	1,127
November	292	12	7	10	578
December	297	10	9	10	589
Calendar year 2021	28,197	434	6	77	55,928

STREAMFLOW

Conejos River near Mogote, Colo

Location. -- Water-stage recorder with satellite telemetry, lat 37°03'14", long 106°11'13", in SE 1/4SE 1/4 sec. 34, T. 33 N., R. 7 E., on left bank 75 ft downstream from bridge on State Highway 174, 0.4 mi downstream from Fox Creek, and 5.3 mi west of Mogote, and 10 mi west of Antonito. Datum of gage is 8,269.39 ft above National Geodetic Vertical Datum of 1929.

Drainage area. -- 282 sq mi.

Average discharge. -- 111 years (1904, 1912-2021), 315 ft³/s (228,500 acre-ft per year).

Extremes. -- 1903-1905, 1911-2021: Maximum discharge, 9,000 ft³/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft³/s; minimum daily determined, 10 ft³/s July 18, 1904, also occurred Aug. 19, 2002.

Remarks. -- Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation and return flows from irrigated areas. Some regulation by Platoro Reservoir (about 59 mi upstream) since Nov. 7, 1951.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,181	45	31	38	2,343
February	1,369	56	37	49	2,715
March	2,376	118	44	77	4,713
April	9,323	473	113	311	18,492
May	31,558	1,330	631	1,018	62,595
June	20,717	1,070	302	691	41,092
July	7,766	322	194	251	15,404
August	4,797	272	78	155	9,515
September	1,692	115	37	56	3,356
October	2,350	103	61	76	4,661
November	1,447	59	36	48	2,870
December	1,360	50	35	44	2,698
Calendar year 2021	85,936	1,330	31	234	170,454

San Antonio River at Ortiz, Colo

Location. -- Water-stage recorder with satellite telemetry, lat 36°59'35", long 106°02'17", in New Mexico in NE 1/4 SE 1/4, sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 mi southeast of Ortiz, and 0.4 mi upstream from Los Pinos River. Altitude of gage is 7,970 ft above National Geodetic Vertical Datum of 1929.

Drainage area. -- 110 sq mi, approximately.

Average discharge. -- 81 years (1941-2021), 23 ft³/s (17,010 acre-ft per year).

Extremes. -- 1920, 1925-2021: Maximum discharge, 1,750 ft³/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft³/s; no flow at times.

Remarks. -- Records fair except for flows below 1 ft³/s, and estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation and return flows from irrigated areas.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	77	3	2	2	152
February	116	5	3	4	231
March	334	25	4	11	662
April	1,905	104	24	64	3,779
May	1,267	121	10	41	2,513
June	108	12	0	4	215
July	23	4	0	1	45
August	9	2	0	0	17
September	0	0	0	0	0
October	40	3	0	1	79
November	56	2	1	2	112
December	56	4	1	2	112
Calendar year 2021	3,991	121	0	11	7,917

STREAMFLOW

Los Pinos River near Ortiz, Colo

Location. -- Water-stage recorder with satellite telemetry, lat 36°58'56", long 106°04'23", in New Mexico on line between secs. 26 and 27, T. 32 N., R. 8 E., on left bank 0.9 mi south of New Mexico-Colorado State line, 2.1 mi southwest of Ortiz, and 2.9 mi upstream from mouth. Altitude of gage is 8,040 ft above National Geodetic Vertical Datum of 1929.

Drainage area. -- 167 sq mi.

Average discharge. -- 103 years (1915-1921, 1925-2020), 115 ft³/s (82,980 acre-ft per year).

Extremes. -- 1915-1920, 1925-2021: Maximum discharge, 3,160 ft³/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft³/s; minimum observed, 1.7 ft³/s Aug. 27, 2002.

Remarks. -- Records good except for those below 10 ft³/s, which are fair, and estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation and return flows from irrigated areas.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	439	19	11	14	871
February	517	20	16	18	1,025
March	776	36	18	25	1,539
April	5,731	398	36	191	11,367
May	13,816	634	285	446	27,404
June	3,392	278	38	113	6,728
July	785	39	17	25	1,557
August	545	51	10	18	1,081
September	314	19	8	10	623
October	549	28	12	18	1,089
November	384	17	9	13	762
December	370	15	9	12	735
Calendar year 2021	27,619	634	8	75	54,782

Conejos River near Lasauces, Colo

Location. -- Two water-stage recorders with satellite telemetry, lat 37°18'01", long 105°44'47", in SW 1/4 SW 1/4 sec. 2, T. 35 N., R. 11 E., on left bank of main channel 125 ft downstream from bridge on State Highway 158, 2.1 mi north of Lasauces, and on left bank of secondary channel 1,550 ft upstream from bridge, 1.0 mi upstream from mouth, and 1.5 mi north of Lasauces. Datum of gage on main (north) channel is 7,495.02 ft above National Geodetic Vertical Datum of 1929, and on secondary (south) channel is 7,499.86 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

Drainage area. -- 887 sq mi.

Average discharge. -- 100 years (1922-2021), 167 ft³/s (121,300 acre-ft per year).

Extremes. -- 1921-2021: Maximum discharge, 3,890 ft³/s May 15, 1941; no flow at times in some years.

Remarks. -- Records good except for flows below 1.0 ft³/s, and estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation, groundwater withdrawals, and return flows from irrigated areas. Flow regulated to some extent by Platoro Reservoir (about 83 mi upstream) since Nov. 7, 1951.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,385	54	36	45	2,747
February	1,849	80	52	66	3,667
March	2,973	161	62	96	5,897
April	2,568	144	20	86	5,094
May	6,250	639	63	202	12,397
June	3,934	405	46	131	7,803
July	1,661	115	23	54	3,295
August	981	120	5	32	1,946
September	151	6	4	5	300
October	308	31	6	10	610
November	1,054	40	31	35	2,091
December	992	40	21	32	1,968
Calendar year 2021	24,106	639	4	66	47,814

STREAMFLOW

Rio Grande near Lobatos, Colo

Location. -- Water-stage recorder with satellite telemetry, lat 37°04'43", long 105°45'25", in NE 1/4 NW 1/4 sec. 27, T. 33 N., R. 11 E., on right bank at highway bridge, 5.7 mi north of Colorado-New Mexico State line, 11 mi east of Lobatos, and 14 mi east of Antonito. Datum of gage is 7,427.63 ft above National Geodetic Vertical Datum of 1929.

Drainage area. -- 7,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley).

Average discharge. -- 31 years (1900-1930), 846 ft³/s (612,900 acre-ft per year); 91 years (1931-2021) 422 ft³/s (306,000) acre-ft per year).

Extremes. -- 1899-2021: Maximum discharge observed, 13,200 ft³/s June 8, 1905 (gage height, 9.1 ft); from rating curve extended above 8,000 ft³/s; no flow at times in 1950-51, 1956.

Remarks. -- Records good except for flows below 20 ft³/s, which are fair, and estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, transmountain diversions, diversions for irrigation and municipal use, groundwater withdrawals, return flows from irrigated areas, and flows from sewage-treatment plants.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	6,430	225	185	207	12,754
February	7,470	310	225	267	14,817
March	10,531	421	295	340	20,888
April	5,865	412	102	196	11,633
May	12,306	872	175	397	24,409
June	11,579	756	171	386	22,967
July	3,992	261	84	129	7,918
August	3,400	204	64	110	6,744
September	2,074	90	58	69	4,114
October	2,715	127	70	88	5,385
November	7,403	311	122	247	14,684
December	5,959	238	120	192	11,820
Calendar year 2021	79,724	872	58	219	158,133

Willow Creek above Heron Reservoir, near Los Ojos, N. Mex.

Location. -- Water-stage recorder, lat 36°44'33", long 106°37'34", in Tierra Amarilla Grant, on right bank 200 ft downstream from bridge, 0.2 mi downstream from Iron Spring Creek, 3.3 mi west of Los Ojos, and at mi 9.7. Datum of gage is 7,196.29 ft above mean sea level. Prior to Apr. 1, 1971, at site 900 ft downstream.

Drainage area. -- 112 sq mi.

Average discharge. -- 7 years (1963-1969), 11.5 ft³/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 52 years (1970-2021) 132 ft³/s (95,510 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes. -- 1963-2003: Maximum discharge, 1,610 ft³/s Mar. 12, 1985 (gage height, 6.65 ft); 2003-2021: Maximum daily discharge, 1,030 ft³/s Apr. 4, 2005; no flow at times.

Remarks. -- Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in Rutheron Drain included prior to Apr. 1, 1971.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0	0	0	0	0
February	0	0	0	0	0
March	853	93	0	28	1,691
April	7,554	375	122	252	14,983
May	11,822	509	247	381	23,449
June	8,698	521	85	290	17,253
July	1,523	94	20	49	3,021
August	348	88	0	11	691
September	58	41	0	2	116
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 2021	30,857	521	0	84	61,204

STREAMFLOW

Horse Lake Creek above Heron Reservoir, near Los Ojos, N. Mex.

Location. -- Water-stage recorder, lat 36°42'24", long 106°44'42", in Tierra Amarilla Grant, on right bank 3.7 mi northwest of Heron Dam, 7.8 mi downstream from Horse Lake, and 9.9 mi west of Los Ojos. Datum of gage is 7,188.85 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1971, at site 1,100 ft upstream.

Drainage area. -- 45 sq mi, approximately.

Average discharge. -- 12 years (1963-1973,1986), 1.17 ft³/s (848 acre-ft per year).

Extremes. -- 1963-2011: Maximum discharge, 3,960 ft³/s July 30, 1968 (gage height, 4.9 ft); no flow most of time.

Remarks. -- Records good for period of record. Diversions above station for irrigation of meadows and for off-channel stock tanks. Seasonal gage discontinued in 2011.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	---	---	---	---	---
February	---	---	---	---	---
March	---	---	---	---	---
April	---	---	---	---	---
May	---	---	---	---	---
June	---	---	---	---	---
July	---	---	---	---	---
August	---	---	---	---	---
September	---	---	---	---	---
October	---	---	---	---	---
November	---	---	---	---	---
December	---	---	---	---	---
Calendar year 2018	---	---	---	---	---

Willow Creek below Heron Dam, N. Mex.

Location. -- Totalizing flowmeters, lat 36°39'46", long 106°42'20", in Tierra Amarilla Grant, in outlet conduits at Heron Dam, 0.2 mi upstream from Rio Chama, 5.1 mi northeast of El Vado Dam, and 8.7 mi southwest of Los Ojos.

Drainage area. -- 193 sq mi.

Average discharge. -- 51 years (1971-2021), 130 ft³/s (94,180 acre-ft per year).

Extremes. -- 1971-2021: Maximum daily discharge, 2,780 ft³/s Dec. 18, 19, 1982; no flow at times each year. Remarks. - Flow completely regulated by Heron Dam.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0	0	0	0	0
February	0	0	0	0	0
March	340	40	0	11	674
April	1,138	40	0	38	2,256
May	0	0	0	0	0
June	7,412	408	59	247	14,701
July	6,297	207	201	203	12,490
August	7,564	406	199	244	15,003
September	11,707	402	191	390	23,220
October	0	0	0	0	0
November	1,074	38	0	36	2,130
December	722	38	0	23	1,432
Calendar year 2021	36,254	408	0	99	71,908

STREAMFLOW

Rio Chama below El Vado Dam, N. Mex

Location. -- Water-stage recorder with satellite telemetry, lat 36°34'49.38", long 106°43'29.16", in Tierra Amarilla Grant, on left bank 1.5 mi downstream from El Vado Dam, 2.8 mi upstream from Rio Nutrias, and 13 mi southwest of Tierra Amarilla.

Datum of gage is 6,696.12 ft above National Geodetic Vertical Datum of 1929. Prior to October 1935, at site 1.5 mi upstream at different datum. October 1935 to September 1938, at site 1.1 mi upstream at datum 30.34 ft higher.

Drainage area. -- 877 sq mi of which about 100 sq mi is probably noncontributing.

Average discharge. -- 4 years (1914, 1921-1923), 448 ft³/s (324,600 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-1970), 373 ft³/s (270,200 acre-feet per year), prior to release of transmountain water; 51 years (1971-2021) 450 ft³/s (326,200 acre-feet per year).

Extremes. -- 1914-1916, 1920-1924, 1936-2021; Maximum discharge observed, 9,000 ft³/s May 22, 1920 (gage height, 12 ft); no flow Mar. 25, 26, 31, 1955.

Remarks. -- Records good except for estimated discharges, which are fair. Flow regulated by El Vado Reservoir since 1935. Flow affected by release of transmountain water from Heron Reservoir since May 1971. Diversions for irrigation of about 10,600 acres upstream from station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	3,780	247	102	122	7,498
February	2,819	105	99	101	5,591
March	3,052	100	93	98	6,053
April	17,822	1,130	101	594	35,350
May	29,683	1,450	607	958	58,876
June	12,773	523	113	426	25,335
July	7,093	495	75	229	14,069
August	6,636	516	97	214	13,162
September	6,832	517	97	228	13,550
October	1,883	106	34	61	3,735
November	6,959	2,400	35	232	13,803
December	5,934	1,430	95	191	11,771
Calendar year 2021	105,265	2,400	34	288	208,793

Rio Chama below Abiquiu Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 36°14'14", long 106°25'02.7", on right bank 0.8 mi downstream from Abiquiu Dam and 5.9 mi northwest of Abiquiu. Altitude of gage is 6,040 ft above National Geodetic Vertical Datum of 1929 (from river-profile map and topographic map).

Drainage area. -- 2,147 sq mi, of which about 100 sq mi is probably noncontributing.

Average discharge. -- 9 years (1962-1970), 384 ft³/s (278,200 acre-ft per year), prior to release of transmountain water; 51 years (1971-2021), 496 ft³/s (359,000 acre-feet per year).

Extremes. -- 1961-2021; Maximum discharge, 2,990 ft³/s July 1, 1965 (gage height, 6.69 ft); minimum, about 0.5 ft³/s Mar. 17, 1966, Jan. 28, 1972.

Remarks. -- Records good except for estimated discharges, which are poor. Flow regulated by El Vado and Abiquiu reservoirs since Feb. 1963. Since May 1971, flow affected by release of transmountain water from Heron Reservoir. Diversions for irrigation of about 17,600 acres upstream from station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2,515	257	29	81	4,988
February	933	34	31	33	1,850
March	1,636	255	30	53	3,246
April	20,884	1,240	327	696	41,423
May	32,786	1,570	648	1,058	65,031
June	12,414	649	250	414	24,623
July	5,998	395	49	193	11,896
August	5,708	394	77	184	11,322
September	3,786	136	118	126	7,510
October	2,320	119	49	75	4,601
November	1,921	553	30	64	3,811
December	10,270	1,050	64	331	20,371
Calendar year 2021	101,171	1,570	29	276	200,672

STREAMFLOW

Rio Nambe below Nambe Falls Dam, near Nambe, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°50'46", long 105°54'35", on Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 ft upstream from Nambe Falls, 2.6 mi upstream from confluence of Rio Nambe and Rio En Medio, 4.4 mi southeast of Nambe Pueblo, and 5.4 mi southeast of Nambe. Datum of gage is 6,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Drainage area. -- 34.1 sq mi.

Average discharge ----- 43 years (1979-2021), 12.3 ft³/s (8,920 acre-feet per year).

Extremes --- 1979-2021; Maximum discharge, 312 ft³/s June 9, 1979 at site 1,100 ft downstream; no flow December 31, 1993.

Remarks. -- Records fair except for estimated discharges, which are poor. Flow completely regulated by Nambe Falls Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	30	1	1	1	59
February	23	1	1	1	46
March	17	1	0	1	34
April	88	6	1	3	175
May	397	32	6	13	788
June	368	33	3	12	730
July	170	6	5	5	337
August	293	30	6	9	581
September	221	34	1	7	439
October	83	6	1	3	165
November	24	1	1	1	47
December	28	1	0	1	56
Calendar year 2020	1,743	34	0	5	3,458

Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°52'28.2", long 106°08'32.8", in San Ildefonso Pueblo Grant, 400 ft downstream from bridge on State Highway 502, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pojoaque River, and 6.8 mi west of Pojoaque. Datum of gage is 5,491.66 ft above North American Vertical Datum of 1988, from global navigation satellite system survey. Prior to May 19, 1904, and July 25 to Oct 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower.

Drainage area. -- 14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge. -- 122 years (1896-1905, 1910-2021), 1,465 ft³/s (1,061,000 acre-feet per year).

Extremes. -- 1895-1905, 1910-2021; Maximum discharge, 24,400 ft³/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 195 ft³/s Aug. 4, 1977.

Remarks. -- Records good except for estimated discharges, which are poor. Considerable regulation by Heron, El Vado, and Abiquiu reservoirs on Rio Chama. Flow affected by release of transmountain water from Heron Reservoir since May 1971. Diversions upstream from station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	17,277	719	491	557	34,269
February	16,361	637	536	584	32,452
March	20,497	758	593	661	40,656
April	35,594	1,720	873	1,186	70,601
May	56,720	2,230	1,340	1,830	112,504
June	32,902	1,710	682	1,097	65,261
July	19,024	983	328	614	37,734
August	17,340	929	310	559	34,394
September	9,869	425	288	329	19,575
October	11,550	441	308	373	22,909
November	16,131	590	373	538	31,996
December	25,332	1,580	442	817	50,246
Calendar year 2021	278,597	2,230	288	762	552,597

STREAMFLOW

Santa Fe River near Santa Fe, N. Mex.

Location. -- Water-stage recorder with satellite telemetry and concrete control, lat 35°41'11.2", long 105°50'37", in Santa Fe National Forest, on left bank 0.4 mi downstream from McClure Dam, and 5.3 mi east of Santa Fe at mile 36.6. Altitude of gage is 7,720 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 4, 1930, at site 1.5 mi downstream, and Apr. 11, 1931 to Sept. 30, 1947, at site 0.3 mi upstream, each at different datum.

Drainage area. -- 18.2 sq mi.

Average discharge. -- 109 years (1913-2021), 7.7 ft³/s (5,600 acre-feet per year).

Extremes. -- 1913-2021; Maximum discharge, 1,500 ft³/s Aug. 14, 1921 (gage height, 5.17 ft); from rating curve extended above 150 ft³/s; no flow at times.

Remarks. -- Records good. Flow regulated by McClure Reservoir, completed in 1926, raised in 1935, 1947 and again in 1989.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	81	6	1	3	160
February	29	2	1	1	58
March	34	1	1	1	68
April	66	7	1	2	131
May	240	11	4	8	477
June	32	2	1	1	64
July	39	4	1	1	78
August	128	5	2	4	254
September	229	9	6	8	455
October	155	6	4	5	308
November	104	4	3	3	206
December	113	5	3	4	224
Calendar year 2021	1,252	11	1	3	2,483

Rio Grande below Cochiti Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°37'04.8", long 106°19'26.2", in Pueblo de Cochiti Grant, 320 ft upstream from bridge on State Highway 22, 700 ft downstream from Cochiti Dam, and 1.4 mi northeast of Cochiti Pueblo, and at mile 1,587.6. Datum of gage is 5,229.01 ft above North American Vertical Datum of 1988. Prior to Nov. 14, 1973, at site 2.4 mi downstream at altitude 5,210 ft, from topographic map. Nov. 14, 1973 to Jan. 8, 1976, at site 320 ft downstream at datum 1.79 ft lower.

Drainage area. -- 14,900 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Average

discharge. -- 51 years (1971-2021), 1,248 ft³/s (904,000 acre-feet per year).

Extremes. -- 1971-2021; Maximum discharge, 10,300 ft³/s July 26, 1971 (gage height, 7.90 ft) at site 2.4 mi downstream prior to closure of Cochiti Dam; from rating curve extended above 2,600 ft³/s; minimum discharge 0.51 ft³/s Aug. 3-5, 1977, Aug. 27-28, 1978.

Remarks. -- Records good except for estimated discharges, which are poor. Discharges include flow of Santa Fe River, which is intercepted by Cochiti Dam and released through the combined outlet works. Flow regulated by Cochiti Dam since Nov. 12, 1973. Diversions upstream from station for irrigation of about 620,000 acres in Colorado and about 81,000 acres in New Mexico. Cochiti Eastside Main canal, on left bank, and Sili Main canal, on right bank, head at Cochiti Dam and bypass gage for irrigation of about 6,000 acres downstream from station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	15,285	623	451	493	30,318
February	14,382	552	472	514	28,527
March	18,886	704	545	609	37,460
April	31,794	1,660	650	1,060	63,063
May	53,840	2,140	1,170	1,737	106,792
June	28,520	1,530	627	951	56,569
July	13,584	768	218	438	26,944
August	12,316	696	177	397	24,429
September	5,581	232	122	186	11,070
October	7,705	312	180	249	15,283
November	13,797	544	290	460	27,366
December	24,244	1,440	381	782	48,088
Calendar year 2021	239,934	2,140	122	656	475,909

STREAMFLOW

Galisteo Creek below Galisteo Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°27'52.75", long 106°12'48.2", in Mesita de Juana Lopez Grant, on right bank 0.4 mi downstream from Galisteo Dam, 5.3 mi northwest of Cerrillos, and at mile 11.4. Elevation of gage is 5,450 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 21, 1981, at site 1,200 ft downstream at different datum.

Drainage area. -- 596 sq mi.

Average discharge. -- 51 years (1971-2021), 4.8 ft³/s (3,496 acre-feet per year).

Extremes. -- 1970-2021; Maximum discharge, 3,460 ft³/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.

Remarks. -- Records fair. Flow regulated by Galisteo Reservoir 0.4 mi upstream. Diversions for irrigation of about 50 acres above reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	369	104	0	13	732
August	105	58	0	3	208
September	10	10	0	0	20
October	112	103	0	4	222
November	1	1	0	0	3
December	0	0	0	0	0
Calendar year 2021	597	104	0	2	1,185

Jemez River Outlet below Jemez Canyon Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°23'41", long 106°32'41", in NE1/4 SW1/4 SW1/4 sec. 32, T. 14 N., R. 4 E., gage located at outlet pipe for Jemez Canyon Dam, 0.7 mi upstream from prior gage location. Elevation of gage is 5,162 ft above National Geodetic Vertical Datum of 1929, from topographic map. Gage replaces Jemez River below Jemez Canyon Dam. Discharge records for two gages are comparable except the period 2002-2009, when original gage was affected by siltation.

Drainage area. -- 1,034 sq mi.

Average discharge. -- 12 years (2010-2021), 32.7 ft³/s (23,680 acre-feet per year).

Extremes. -- 2010-2021; Maximum discharge, 1,420 cfs Jul. 27, 2013 (gage height, 4.82); no flow many days each year.

Remarks. -- Records fair except for estimated discharges, which are poor. Flow regulated by Jemez Canyon Dam since October 1953. Diversions for irrigation of about 3,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	48	4	0	2	96
February	149	19	1	5	296
March	394	31	1	13	782
April	1,273	65	19	42	2,525
May	449	46	0	14	890
June	19	3	0	1	37
July	482	190	0	16	956
August	95	37	0	3	189
September	34	29	0	1	68
October	17	6	0	1	34
November	26	3	0	1	52
December	74	7	0	2	147
Calendar year 2021	3,060	190	0	8	6,069

STREAMFLOW

Rio Grande below Elephant Butte Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 33°08'54.64", long 107°12'24.42", in Pedro Armendariz

Grant, on left bank 1.0 mi downstream from dam, 1.5 mi upstream from Cuchillo Negro River.

Datum of gage is 4,243.22 ft above North American Vertical Datum of 1988. Prior to Mar. 24, 1980, at datum 1.0 ft higher.

Prior to April 24, 1942, at several different sites and datums.

Drainage area. -- 29,450 sq mi approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Average discharge. -- 107 years (1915-2021), 955 ft³/s (691,500 acre-feet per year).

Extremes. -- 1915-2021; Maximum daily discharge, 8,220 ft³/s May 22, 1942; no flow at times.

Remarks. -- Records good except for estimated discharges, which are poor. Flow regulated by Elephant Butte Reservoir.

Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	13	1	0	0	25
February	6	0	0	0	12
March	20	13	0	1	40
April	35	16	0	1	70
May	13,574	1,730	0	438	26,925
June	55,867	1,940	867	1,862	110,812
July	22,098	935	479	713	43,831
August	17,535	1,230	0	566	34,781
September	7	1	0	0	15
October	17	1	0	1	35
November	64	4	1	2	126
December	41	2	1	1	81
Calendar year 2021	109,278	1,940	0	299	216,754

Rio Grande below Caballo Dam, N. Mex.

Location. -- Water-stage recorder, lat 32°53'05.68", long 107°17'33.71", on left bank 2,000 ft upstream from Interstate

Highway 25, 4,200 ft downstream from Caballo Dam, 1.2 mi downstream from Apache Canyon

1.3 mi upstream from Percha diversion dam, and 3 mi northeast of Arrey. Datum of gage is 4,133.19 ft above North American Vertical Datum of 1988. October 13, 1938 to December 31, 1945, at datum 5.0 ft higher.

Drainage area. -- 30,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Average discharge. -- 84 years (1938-2021), 880 ft³/s (637,800 acre-feet per year).

Extremes. -- 1938-2021; Maximum daily discharge, 7,650 ft³/s May 20, 1942; minimum daily, 0.0 ft³/s May 9-15, 2012 and Oct 3, 2012.

Remarks. -- Records good. Flow regulated by Elephant Butte Reservoir and Caballo Reservoirs. Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	13	1	0	0	25
February	6	0	0	0	12
March	20	13	0	1	40
April	35	16	0	1	70
May	13,574	1,730	0	438	26,925
June	55,867	1,940	867	1,862	110,812
July	22,098	935	479	713	43,831
August	17,535	1,230	0	566	34,781
September	7	1	0	0	15
October	17	1	0	1	35
November	64	4	1	2	126
December	41	2	1	1	81
Calendar year 2021	109,278	1,940	0	299	216,754

STREAMFLOW

Bonito Ditch below Caballo Dam, N. Mex.

Records available. -- January 1938 to current year. Published as supplementary data with Rio Grande below Caballo Dam in USGS Water-Supply Papers and Water-Data Reports from October 1947 until September, 2005.

Remarks. -- Ditch diverts directly from Caballo Reservoir for irrigation of lands on right bank of river. The total release from Project Storage, as used in computations of Compact Commission, is the combined flow of this ditch and Rio Grande below Caballo Dam.

Diversion, in acre-ft

January	124.0
February	42.0
March	72.7
April	166.9
May	148.7
June	113.6
July	227.5
August	51.9
September	60.6
October	91.0
November	38.1
December	11.9
Calendar year 2021	1,149.0

STORAGE IN RESERVOIRS

Squaw Lake. – Staff gage in sec. 12, T. 39 N., R. 4 W., on tributary to Squaw Creek. Completed in 1938; capacity, 162 acre-ft by 1953 survey. Water is used for irrigation below gaging station on Rio Grande near Del Norte.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca l. Yr.
Gage height	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	-
Contents	162	162	162	162	162	162	162	162	162	162	162	162	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Rito Hondo Reservoir. – Staff gage in sec. 22, T. 42 N., R. 3 W., on Rito Hondo (Deep Creek) tributary to Clear Creek.

Completed in 1957; capacity, 561 acre-ft. Originally filled during May and June 1958 with transmountain water; storage is not in debit status. Water is used for fish culture.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	F b.	Mar.	Apr.	May	June	J ly	Aug.	S pt.	Oct.	Nov.	Dec.	Ca l. Yr.
Gage height	0	0	0	0	0	0	0	0	0	0	0	0	-
Contents	0	0	0	0	0	0	0	0	0	0	0	0	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Hermit Lakes Reservoir No.3. – In sec. 25, T. 41 N., R. 4 W., on South Clear Creek. Completed prior to 1960; capacity, 192 acre-ft. Capacity table based on elevation above bottom of outlet. Water is used for fish culture. Includes 169 acre- feet of transmountain water by exchange in 1984 and 23 acre-ft of transmountain water by exchange in 1985.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca l. Yr.
Gage height	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	-
Contents	192	192	192	192	192	192	192	192	192	192	192	192	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Troutvale No. 2 Reservoir. – Staff gage in E1/2 sec. 10, T. 41 N., R. 3 W., on South Clear Creek. Completed in 1940; capacity, 435 acre-ft. Condition of spillway limited storage to 168 acre-ft after May 1942. Repairs to spillway in 1947 increased capacity to 257 acre-ft. Water is used for fish culture with only occasional sale for irrigation. Storage omitted from accounting by action of Commission on Feb. 15, 1962.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca l. Yr.
Gage height	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-
Contents	213	213	213	213	213	213	213	213	213	213	213	213	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

STORAGE IN RESERVOIRS

Jumper Creek Reservoir. – In sec. 5, T. 39 N., R. 2 W., on Jumper Creek, tributary to Trout Creek. Completed in 1951; capacity, 38 acre-ft. Capacity table based on elevation above bottom of outlet. Storage omitted from accounting by action of Commission on Feb. 15, 1962.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca	I. Yr.
Gage height	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-	
Contents	38	38	38	38	38	38	38	38	38	38	38	38	-	
Change	0	0	0	0	0	0	0	0	0	0	0	0	0	

Big Meadows Reservoir. – In NW1/4 sec. 17, T. 38 N., R. 2 E., on South Fork about 0.9 mi upstream from Hope Creek. Completed in 1967; capacity, 2,437 acre-ft. Capacity table based on elevation above outlet. Water is used for fish culture. Includes 140 acre-ft of transmountain water, by exchange, in 1967; 838 acre-ft, by exchange, in 1968; 347 acre-ft, by exchange, in 1969; and 1,112 acre-ft, by exchange, in 1983, for a total of 2,437 acre-ft.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca	I. Yr.
Gage height	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	-	
Contents	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	-	
Change	0	0	0	0	0	0	0	0	0	0	0	0	0	

Alberta Park Reservoir. – In sec. 34, T. 38 N., R. 2 E., on Pass Creek. Completed in 1953; capacity, 598 acre-ft. Capacity table based on elevation above bottom of outlet. Storage prior to June 30, 1983 included 244 acre-ft of transmountain water imported in 1963. By a 1983 resolution of the Rio Grande Compact Commission, the reservoir was drained for repairs in July 1983; recovery was completed in 1984. The reservoir also contains 100 acre-ft of transmountain water stored by exchange in 1983 and 254 acre-ft of transmountain water stored in 1984.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.	Yr.
Gage height	27.0	27.0	27.0	27.0	27.0	27.0	24	0	0	0	0	0	0	-
Contents	598	598	598	598	598	598	489	0	0	0	0	0	0	-
Change	0	0	0	0	0	0	-109	-489	0	0	0	0	0	

Shaw Lake Enlargement. – sec. 5, T. 38 N., R. 2 E., on tributary to Lake Creek. Capacity, 638 acre-ft by 1916 decree; enlarged in 1955 to 681 acre-ft. Only the storage in excess of 638 acre-ft is subject to terms of Rio Grande Compact. Includes 42 acre-ft of transmountain water imported in 1965.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.	Yr.
Gage height	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contents	42	42	42	42	42	42	42	42	42	42	42	42	-	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0	

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in Colorado (constructed or enlarged since 1937)

Mill Creek Reservoir. – In sec. 16, T. 39 N., R. 3 E., on Mill Creek. Completed in 1953; capacity, 43 acre-ft. Capacity based on elevation above bottom of outlet. Includes 43 acre-ft of transmountain water, by exchange, in 1976.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-
Contents	41	41	41	41	41	41	41	41	41	41	41	41	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Fuchs Reservoir. – Staff gage in sec. 2, T. 37 N., R. 4 E., on East Pinos Creek. Completed in 1939; capacity, 237 acre-ft with 2 ft of flash boards in spillway. Prior to calendar year 1999, contents reported as 238 acre-ft were actually 237 acre-ft. Pinos Creek enters Rio Grande below station near Del Norte.

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	11.5	14.4	17.2	17.2	17.2	17.2	16	12.4	7.3	7.3	9.8	12.0	-
Contents	119	176	237	237	237	237	212	136	55	55	91	128	-
Change	+64	+57	+61	0	0	0	-25	-76	-81	0	+36	+37	+9

Platoro Reservoir. – Water-stage recorder in NW1/4 sec. 22, T. 36 N., R. 4 E., on Conejos River. Completed in 1951; capacity, 59,570 acre-ft at crest of spillway. Reservoir is used for irrigation and flood control. Storage affects Conejos Index Supply. Contents include 3,000 acre-ft of transmountain water stored by exchange in April 1985 on behalf of the Colorado Division of Wildlife.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2020	9,972.07	14,231	-
January 31, 2021	9,972.12	14,256	+25
February 28	9,972.06	14,226	-30
March 31	9,972.27	14,329	+103
April 30	9,972.77	14,576	+247
May 31	9,977.39	16,936	+2360
June 30	9,985.26	21,354	+4418
July 31	9,979.49	18,065	-3,289
August 31	9,973.72	15,047	-3,018
September 30	9,972.00	14,195	-852
October 31	9,971.80	14,097	-98
November 30	9,971.88	14,137	+40
December 31, 2021	9,972.23	14,309	+172
Calendar year 2021	-	-	+78

Trujillo Meadows Reservoir. – In sec. 5, T. 32 N., R. 5 E., on Los Pinos River. Completed in 1957; capacity, 869 acre-ft, effective Jan. 1, 1999. Water is used for fish culture. Storage is transmountain water, by exchange, in 1959

Month-end gage height, in feet, and contents, in acre-feet Calendar Year

2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ca l. Yr.
Gage height	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	-
Contents	869	869	869	869	869	869	869	869	869	869	869	869	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (constructed or enlarged since 1929)

Heron Reservoir. – Water-stage recorder with satellite telemetry, lat 36°39'56", long 106°42'13", on Willow Creek. Storage began in October 1970. Capacity, 401,300 acre-ft at elevation 7,186.1 ft (low point on crest of spillway); dead storage, 1,340 acre-ft at elevation 7,003.0 ft. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Used for storage of transmountain water.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2020	7,088.42	53,271	-
January 31, 2021	7,088.52	53,407	+136
February 28	7,088.63	53,557	+150
March 31	7,089.56	54,835	+1,278
April 30	7,096.81	65,716	+10,881
May 31	7,109.49	89,392	+23,676
June 30	7,110.84	92,345	+2,953
July 31	7,106.35	82,871	-9,474
August 31	7,098.15	67,919	-14,952
September 30	7,081.23	44,229	-23,960
October 31	7,081.05	44,019	-210
November 30	7,078.90	41,572	-2,447
December 31, 2021	7,077.69	40,239	-1,333
Calendar year 2021	-	-	-13,032

El Vado Reservoir. – Water-stage recorder and surface follower, lat 36°35'39", long 106°44'00", on Rio Chama. Storage began in January 1935. Capacity, 186,250 acre-ft at gage height 6,902.0 ft (crest of spillway); dead storage, 480 acre-ft, below gage height 6,775.0 ft (invert of outlet works), as determined by survey in 1984. Datum of gage is 8.21 ft above National Geodetic Vertical Datum of 1929. Storage includes both Rio Grande and transmountain water

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2020	6,813.18	20,105	-	16,668
January 31, 2021	6,807.29	14,238	-5,867	11,335
February 28	6,803.59	11,675	-2,563	5,744
March 31	6,803.78	11,801	+126	169
April 30	6,809.32	15,766	+3,965	167
May 31	6,808.99	15,511	-255	165
June 30	6,811.50	17,502	+1,991	2,628
July 31	6,815.02	20,511	+3,009	5,585
August 31	6,819.60	24,793	+4,282	10,150
September 30	6,829.35	35,154	+10,361	20,806
October 31	6,827.99	33,590	-1,564	19,106
November 30	6,818.52	23,750	-9,840	17,529
December 31, 2021	6,809.75	16,101	-7,649	16,101
Calendar year 2021	-	-	-4,004	-

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (constructed or enlarged since 1929)

Abiquiu Reservoir. -- Water-stage recorder, lat 36°14'24", long 106°25'44", on Rio Chama. Completed in February 1963; capacity, 1,192,800 acre-ft at elevation 6,350 feet (crest of spillway) by 1998 survey. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Reservoir is operated by Corps of Engineers for flood control and sediment storage. A resolution granting permission to store transmountain waters was approved by Rio Grande Compact Commission on May 3, 1974. Storage includes both Rio Grande and transmountain water.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2020	6,182.19	66,435	-	64,341
January 31, 2021	6,183.32	68,992	+2,557	66,941
February 28	6,185.15	73,265	+4,273	71,212
March 31	6,186.44	76,376	+3,111	74,289
April 30	6,183.97	70,492	-5,884	68,215
May 31	6,182.20	66,458	-4,034	64,148
June 30	6,181.23	64,310	-2,148	62,150
July 31	6,183.64	69,728	+5,418	67,149
August 31	6,184.43	71,565	+1,837	69,366
September 30	6,186.53	76,596	+5,031	74,383
October 31	6,186.23	75,864	-732	73,662
November 30	6,189.32	83,655	+7,791	75,377
December 31, 2021	6,187.06	77,904	-5,751	75,669
Calendar year 2021	-	-	+11,469	-

Nambe Falls Reservoir. -- Water-stage recorder, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, on Rio Nambe. Completed in 1976; capacity 1,920 acre-ft at elevation 6,826.6 feet (crest of spillway) by 2004 survey, dead storage 121 acre-ft at elevation 6,760.9 ft. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Storage is transmountain water by exchange (see resolution adopted March 27, 1975).

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2020	6,813.56	1,091	-
January 31, 2021	6,816.70	1,229	+138
February 28	6,819.23	1,348	+119
March 31	6,823.16	1,544	+196
April 30	6,826.60	1,729	+185
May 31	6,822.70	1,521	-208
June 30	6,814.09	1,114	-407
July 31	6,817.71	1,276	+162
August 31	6,820.37	1,403	+127
September 30	6,816.70	1,229	-174
October 31	6,818.29	1,303	+74
November 30	6,821.20	1,444	+141
December 31, 2021	6,823.57	1,566	+122
Calendar year 2021	-	-	+475

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (constructed or enlarged since 1929)

McClure (Granite Point) Reservoir. – Water-stage recorder, lat 35°41'18", long 105°50'06", in NE1/4SW1/4 sec. 24,

T. 17 N., R. 10 E., on Santa Fe River. Original reservoir completed in 1926, capacity, 561 acre-ft; in 1935, permanent flash boards were installed in spillway increasing capacity to 650 acre-ft; in 1947 both dam and spillway were reconstructed increasing capacity to 2,615 acre-ft (gage height, 96.6 ft, crest of spillway). In 1953 spillway was equipped with radial gates that opened automatically, increasing capacity to over 3,000 acre-ft. In 1972, radial gates were removed decreasing capacity to 2,615 acre-ft.

In 1989, modifications to the dam and spillway increased

capacity to 2,813 acre-ft. In 1995, modification to the dam and spillway increased capacity to 3,257 acre-ft. No dead storage.

Elevation of gage is 7,800 ft above North American Vertical Datum of 1988 (levels by City of Santa Fe).

Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange.

Capacity includes 561 acre-ft for pre-Compact storage and additional capacity as may be available to accommodate up to a total of 1,061 acre-feet of pre-Compact storage in McClure and Nichols Reservoirs combined

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2020	7,845.39	713	-	0	0
January 31, 2021	7,842.06	607	-106	0	597
February 28	7,842.23	612	+5	0	612
March 31	7,842.74	628	+16	0	628
April 30	7,844.24	675	+47	0	675
May 31	7,832.83	368	-307	6	362
June 30	7,834.48	406	+37	25	381
July 31	7,850.95	917	+511	401	516
August 31	7,855.10	1,093	+176	581	512
September 30	7,846.43	748	-345	299	449
October 31	7,840.05	549	-200	155	394
November 30	7,834.84	414	-135	72	342
December 31, 2021	7,828.49	279	-135	7	272
Calendar year 2021	-		-434		

Nichols Reservoir. – Water-stage recorder, lat 35°41'24", long 105°52'46", in SE1/4NE1/4 sec. 21, T. 17 N., R. 10 E., on Santa Fe River. Completed in 1942; capacity, 685 acre-ft at gage height 167.0 feet (crest of spillway), dead storage, 14 acre-ft at gage height 121.1 feet. Datum of gage is 7,400 ft above North American Vertical Datum of 1988 (levels by City of Santa Fe). Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity may include pre-Compact storage such that total pre-Compact storage in McClure and Nichols Reservoirs combined does not exceed 1,061 acre-ft

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2020	7,474.00	346	-	0	0
January 31, 2021	7,474.57	357	+11	0	351
February 28	7,470.78	286	-72	0	286
March 31	7,465.01	206	-80	0	206
April 30	7,456.78	106	-100	0	106
May 31	7,475.52	377	+271	7	370
June 30	7,475.39	374	-3	23	351
July 31	7,475.83	384	+11	168	216
August 31	7,479.65	471	+86	250	220
September 30	7,479.69	472	+2	189	283
October 31	7,479.61	470	-2	132	338
November 30	7,479.69	472	+2	82	390
December 31, 2021	7,479.73	473	+1	12	461
Calendar year 2021	-		+127		

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (constructed or enlarged since 1929)

Jemez Canyon Reservoir. – Water-stage recorder, lat 35°23'40", long 106°32'50", in SW1/4SW1/4 sec. 32, T. 14 N., R. 4 E., on Jemez River. Completed in 1953; capacity, 259,423 acre-ft at elevation 5,271.20 ft. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Maximum controlled capacity at elevation 5,232.0 ft (floor of spillway) is 97,425 acre-ft by 1998 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A sediment pool of about 2,000 acre-ft of transmountain water has been maintained since August 1979.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2020	5,133.00	0	-	0
January 31, 2021	5,133.00	0	0	0
February 28	5,133.00	0	0	0
March 31	5,133.00	0	0	0
April 30	5,133.00	0	0	0
May 31	5,133.00	0	0	0
June 30	5,133.00	0	0	0
July 31	5,133.00	0	0	0
August 31	5,133.00	0	0	0
September 30	5,133.00	0	0	0
October 31	5,133.00	0	0	0
November 30	5,133.00	0	0	0
December 31, 2021	5,133.00	0	0	0
Calendar year 2021	-	-	0	-

Acomita Reservoir. – Staff gage in SE1/4 sec. 29, T. 10 N., R. 7 W., on San Fidel Arroyo; water for reservoir is diverted from Rio San Jose. Completed in 1938; original capacity, 850 acre-ft; present capacity 650 acre-ft on basis of 1956 sediment survey. Water is used for irrigation on Acoma Indian Reservation. Storage omitted from accounting by action of Commission on March 23, 2000.

Month-end contents, in acre-feet

Calendar Year 2021

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Contents	-	-	-	-	-	-	-	-	-	-	-	-	-
Change	-	-	-	-	-	-	-	-	-	-	-	-	-

Seama Reservoir. – In sec. 36, T. 10 N., R. 7 W., off channel from Rio San Jose. Completed in October 1980; capacity approximately 400 acre-ft. Water is used for irrigation on Laguna Indian Reservation.

No storage during 2021.

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (project storage)

Elephant Butte Reservoir. – Water-stage recorder, lat 33°09'15", long 107°11'28", in NW1/4 sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,023,400 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1999 with flood control storage reservation of 50,000 acre-ft from April through September and 25,000 acre-ft from October through March in accordance with Sept. 9, 1998 resolution of the Rio Grande Compact Commission. Datum of gage is 43.3 ft above National Geodetic Vertical Datum of 1929. Water is used for power development and irrigation in New Mexico and Texas. Records furnished by Bureau of Reclamation. Delivery of transmountain water for minimum recreation pool was initiated in December 1975. Beginning Jan. 1, 1977 gage readings are midnight readings.

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2020	4,302.18	127,253	-	162
January 31, 2021	4,306.84	156,205	+28,952	161
February 28	4,310.60	182,255	+26,050	159
March 31	4,314.33	210,447	+28,192	157
April 30	4,316.13	224,977	+14,530	1,744
May 31	4,317.26	234,416	+9,439	1,700
June 30	4,304.15	139,027	-95,389	1,655
July 31	4,301.06	120,893	-18,134	1,613
August 31	4,297.97	104,528	-16,365	1,580
September 30	4,299.15	110,587	+6,059	1,553
October 31	4,300.27	116,550	+5,963	1,524
November 30	4,303.52	135,180	+18,630	1,507
December 31, 2021	4,308.55	167,756	+32,576	852
Calendar year 2021	-	-	+40,503	-

Caballo Reservoir. – Water-stage recorder, lat 32°53'47", long 107°17'30", in SE1/4SW1/4 sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 326,700 acre-ft (by 1999 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above National Geodetic Vertical Datum of 1929.

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents
December 31, 2020	4,140.38	29,449	-
January 31, 2021	4,140.62	30,123	+674
February 28	4,140.88	30,858	+735
March 31	4,140.68	30,292	-566
April 30	4,140.43	29,589	-703
May 31	4,145.88	47,406	+17,817
June 30	4,138.41	24,281	-23,125
July 31	4,135.52	17,599	-6,682
August 31	4,133.46	13,452	-4,147
September 30	4,134.04	14,563	+1,111
October 31	4,133.96	14,407	-156
November 30	4,134.11	14,700	+293
December 31, 2021	4,134.29	15,055	+355
Calendar year 2021	-	-	-14,394

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico (project storage)

Project storage. – The combined total storage in Elephant Butte and Caballo Reservoirs.

Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 2020	156,702	-
January 31, 2021	186,328	+29,626
February 28	213,113	+26,785
March 31	240,739	+27,626
April 30	254,566	+13,827
May 31	281,822	+27,256
June 30	163,308	-118,514
July 31	138,492	-24,816
August 31	117,980	-20,512
September 30	125,150	+7,170
October 31	130,957	+5,807
November 30	149,880	+18,923
December 31, 2021	182,811	+32,931
Calendar year 2021	-	+26,109

NOTE.-- Values of combined contents may not agree with sum of individual values because of rounding.

TRANSMOUNTAIN DIVERSIONS

Pine River - Weminuche Pass ditch (Fuchs ditch).-- Water-stage recorder and 3-ft Parshall flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from North Fork Los Pinos River in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.

Weminuche Pass ditch (Raber-Lohr ditch).-- Water-stage recorder and 4-ft rectangular flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from Rincon la Vaca Creek in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.

Williams Creek - Squaw Pass ditch.-- Water-stage recorder and 2-ft Parshall flume in sec. 21, T. 39 N., R. 3 W., at Squaw Pass in Colorado. Diversion is from Williams Creek in San Juan River Basin into Squaw Creek in Rio Grande Basin. Constructed in 1938. Diversion for irrigation is from Rio Grande below Del Norte gaging station.

Tabor ditch.-- Water-stage recorder and 3-ft Parshall flume in sec. 35, T. 43 N., R. 3 W., at Spring Creek Pass in Colorado. Diversion is from Cebolla Creek in Gunnison River Basin into tributary of Clear Creek in Rio Grande Basin. Completed in 1910 or 1911. Diversion for irrigation is from Rio Grande below Del Norte gaging station.

Don La Font No. 1 & 2 ditches (Piedra Pass ditch).-- Water-stage recorder and 2-ft Parshall flume in sec. 4, T. 38 N., R. 1 W., at Piedra Pass in Colorado. Diversion is from tributaries of Piedra River in San Juan River Basin to South River in Rio Grande Basin. Original ditch completed in 1938, first enlargement completed in 1940. Water is imported by Colorado Game and Fish Department, beginning in 1959, to offset losses from fish culture reservoirs.

Treasure Pass diversion ditch.-- Water-stage recorder and 2-ft Parshall flume in sec. 31, T. 38 N., R. 2 E., at Wolf Creek Pass in Colorado. Diversion is from Wolf Creek in San Juan River Basin to a tributary of South Fork Rio Grande. Completed in 1923 or 1924. Water is diverted for irrigation from Rio Grande above the Del Norte gaging station, beginning in 1959. Prior to 1959 it was diverted below gaging station.

Azotea tunnel.-- Water-stage recorder and 10-ft Parshall flume, lat 36°51'12", long 106°40'18", at south portal of Azotea tunnel, San Juan-Chama Project. Diversion is from Rio Blanco, Little Navajo River, and Navajo River in Colorado and discharge is into Azotea in New Mexico. Construction completed in 1970.

Imported quantities, in acre-feet, 2021

Month	Pine River- Weminuche Pass ditch	Weminuche Pass ditch	Williams Creek- Squaw Pass ditch	Tabor ditch	Don La Font ditches	Treasure Pass diversion ditch	Azotea tunnel
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	816
April	0	0	0	13	0	4	13,446
May	94	423	12	119	0	90	24,778
June	308	493	201	308	191	154	17,907
July	0	0	17	129	43	7	2,439
August	0	0	1	85	18	3	627
September	0	0	0	51	1	1	116
October	0	0	0	45	0	2	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
Calendar year	402	916	231	750	253	261	60,129

EVAPORATION AND PRECIPITATION

The last paragraph of Article VI of the Compact states, in part, --- "such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bear to the total amount of water in such reservoirs during the year."

To provide the data needed for the computation of such evaporation losses, the Commission has encouraged the establishment and operation of evaporation stations near each major reservoir in the basin and at other selected locations.

Evaporation and other climatological data collected at the several stations in Colorado and New Mexico are tabulated on the next page. At some of the stations, it was not possible to obtain evaporation records throughout the winter period.

The measurements of evaporation were made in accordance with standard practice for the type of pan in use. Measurements of precipitation were made in standard 8-inch rain gages, which were supplemented at some of the stations by recording rain gages.

Records for the evaporation stations at the State University, Elephant Butte Dam, and El Vado Dam antedated the creation of the Commission; the stations at Abiquiu Dam, Cochiti Dam, and Jemez Canyon Dam were established by the Corps of Engineers. All others were established at the request of the Commission.

The Rio Grande Compact Commission gratefully acknowledges the cooperation of the National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, and U.S. Bureau of Reclamation for furnishing the climatological records contained in this report.

Alamosa Airport--Lat 37°27', long 105°52', in Alamosa County at airport near Alamosa, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 7,536 ft.

Platoro Dam--Lat 37°21', long 106°30', in Conejos County near Platoro, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, fan type psychrometer, standard 8-inch and recording rain gages at elevation 9,826 ft.

Heron Dam--Lat 36°40', long 106°42', in Rio Arriba County about 4 mi. northeast of Heron Dam near Tierra Amarilla, N. Me. Standard class A pan, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 7,310 ft.

El Vado Dam--Lat 36°36', long 106°44', in Rio Arriba County at El Vado Dam near Tierra Amarilla, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,750 ft.

Abiquiu Dam--Lat 36°14', long 106°26', in Rio Arriba County at Abiquiu Dam near Abiquiu, N. Mex. Standard class A pan, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,380 ft.

Nambe Falls Dam--Lat 35°51', long 105°54', in Santa Fe County at Nambe Falls Dam, N. Mex. Standard class A pan, maximum and minimum thermometers, recording thermograph, standard 8-inch and recording rain gages at elevation 6,840 ft.

Cochiti Dam--Lat 35°38', long 106°19', in Sandoval County at operations building, at Cochiti Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,560 ft.

Jemez Canyon Dam--Lat 35°23', long 106°32', in Sandoval County at Jemez Canyon Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,388 ft.

Elephant Butte Dam--Lat 33°09', long 107°11', in Sierra County at Elephant Butte Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 4,576 ft.

Caballo Dam--Lat 32°54', long 107°18', in Sierra County at Caballo Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 4,190 ft.

New Mexico State University--Lat 32°17', long 106°45', in Doña Ana County at University Park, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 3,881 ft.

EVAPORATION AND PRECIPITATION

Evaporation and precipitation, in
inches 2021

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precip.	0.23	0.28	0.26	0.21	1.79	0.89	1.14	0.10	0.32	0.36	0.05	0.03	5.66
Platoro Dam	Evap.	-	-	-	-	1.87	6.96	5.95	8.23	4.70	1.51	-	-	-
	Precip.	-	-	-	-	0.18	0.58	3.41	2.80	0.56	1.96	-	-	-
Heron Dam	Evap.	-	-	-	6.34	7.47	9.39	8.44	7.79	6.63	2.77	-	-	-
	Precip.	1.16	0.75	0.62	0.81	0.71	1.9	3.44	0.34	1.19	0.83	0.00	0.81	12.56
El Vado Dam	Evap.	-	-	-	7.91	8.28	9.52	7.89	7.65	6.56	3.18	-	-	-
	Precip.	0.98	0.65	0.56	0.37	0.54	1.69	6.11	0.86	0.80	1.02	0.35	0.68	14.61
Abiquiu Dam	Evap.	3.28	3.64	6.20	6.86	10.35	12.71	9.50	9.95	7.32	5.51	3.66	2.18	81.16
	Precip.	0.05	0.12	1.53	0.49	0.81	1.29	2.38	0.56	0.67	0.89	0.04	0.4	9.23
Nambe Canyon Dam	Evap.	-	-	-	8.74	8.13	10.31	6.80	8.24	7.03	4.28	-	-	-
	Precip.	0.39	0.63	0.50	0.00	1.41	1.07	1.56	1.08	0.00	0.23	0.00	0.31	7.18
Cochiti Dam	Evap.	3.69	4.20	7.13	8.41	9.32	10.43	7.70	9.19	7.91	4.30	3.86	2.79	78.93
	Precip.	0.12	0.10	0.02	0.04	0.52	0.94	2.72	1.53	0.31	1.27	0.11	0.41	8.09
Jemez Canyon Dam	Evap.	4.10	4.48	7.75	9.53	12.62	14.33	13.72	11.78	9.60	5.89	4.20	3.10	101.10
	Precip.	0.12	0.10	0.21	0.04	0.40	0.17	1.48	0.33	0.47	0.43	0.25	0.14	4.14
Elephant Butte Dam	Evap.	5.12	6.93	12.11	15.87	19.42	20.94	15.08	13.46	10.90	10.16	5.77	5.52	141.28
	Precip.	0.61	0.04	0.24	0.00	0.04	1.20	0.93	1.51	1.02	0.03	0.04	0.14	5.80
Caballo Dam	Evap.	4.14	6.10	10.52	13.46	16.50	16.37	13.04	12.26	10.59	9.40	5.43	5.77	123.58
	Precip.	0.00	0.23	0.04	0.35	0.00	1.52	1.09	2.36	2.01	0.06	0.00	0.10	7.76
State University	Evap.	4.50	5.05	7.97	10.61	12.55	13.61	10.89	10.27	8.66	7.62	4.61	4.46	100.8
	Precip.	0.16	0.26	0.03	0.01	0.02	1.28	1.71	1.33	0.88	0.04	0.52	0.20	6.44

RIO GRANDE COMPACT

The State of Colorado, the State of New Mexico, and the State of Texas, desiring to remove all causes of present and future controversy among these States and between citizens of one of these States and citizens of another State with respect to the use of the waters of the Rio Grande above Fort Quitman, Texas, and being moved by considerations of interstate comity, and for the purpose of effecting an equitable apportionment of such waters, have resolved to conclude a Compact for the attainment of these purposes, and to that end, through their respective Governors, have named as their respective Commissioners:

For the State of Colorado
For the State of New Mexico
For the State of Texas

M. C. Hinderlider
Thomas M. McClure
Frank B. Clayton

who, after negotiations participated in by S. O. Harper, appointed by the President as the representative of the United States of America, have agreed upon the following articles, to-wit:

ARTICLE I

(a) The State of Colorado, the State of New Mexico, the State of Texas, and the United States of America, are hereinafter designated "Colorado," "New Mexico," "Texas," and the "United States," respectively.

(b) "The Commission" means the agency created by this Compact for the administration thereof.

(c) The term "Rio Grande Basin" means all of the territory drained by the Rio Grande and its tributaries in Colorado, in New Mexico, and in Texas above Fort Quitman, including the Closed Basin in Colorado.

(d) The "Closed Basin" means that part of the Rio Grande Basin in Colorado where the streams drain into the San Luis Lakes and adjacent territory, and do not normally contribute to the flow of the Rio Grande.

(e) The term "tributary" means any stream which naturally contributes to the flow of the Rio Grande.

(f) "Transmountain Diversion" is water imported into the drainage basin of the Rio Grande from any stream system outside of the Rio Grande Basin, exclusive of the Closed Basin.

(g) "Annual Debits" are the amounts by which actual deliveries in any calendar year fall below scheduled deliveries.

(h) "Annual Credits" are the amounts by which actual deliveries in any calendar year exceed scheduled deliveries.

(i) "Accrued Debits" are the amounts by which the sum of all annual debits exceeds the sum of all annual credits over any common period of time.

(j) "Accrued Credits" are the amounts by which the sum of all annual credits exceeds the sum of all annual debits over any common period of time.

(k) "Project Storage" is the combined capacity of Elephant Butte Reservoir and all other reservoirs actually available for the storage of usable water below Elephant Butte and above the first diversion to lands of the Rio Grande Project, but not more than a total of 2,638,860 acre feet.

RIO GRANDE COMPACT

(l) "Usable Water" is all water, exclusive of credit water, which is in project storage and which is available for release in accordance with irrigation demands, including deliveries to Mexico.

(m) "Credit Water" is that amount of water in project storage which is equal to the accrued credit of Colorado, or New Mexico, or both.

(n) "Unfilled Capacity" is the difference between the total physical capacity of project storage and the amount of usable water then in storage.

(o) "Actual Release" is the amount of usable water released in any calendar year from the lowest reservoir comprising project storage.

(p) "Actual Spill" is all water which is actually spilled from Elephant Butte Reservoir, or is released therefrom for flood control, in excess of the current demand on project storage and which does not become usable water by storage in another reservoir; provided, that actual spill of usable water cannot occur until all credit water shall have been spilled.

(q) "Hypothetical Spill" is the time in any year at which usable water would have spilled from project storage if 790,000 acre feet had been released therefrom at rates proportional to the actual release in every year from the starting date to the end of the year in which hypothetical spill occurs; in computing hypothetical spill the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following the effective date of this Compact, and thereafter the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following each actual spill.

ARTICLE II

The Commission shall cause to be maintained and operated a stream gaging station equipped with an automatic water stage recorder at each of the following points, to-wit:

(a) On the Rio Grande near Del Norte above the principal points of diversion to the San Luis Valley;

(b) On the Conejos River near Mogote;

(c) On the Los Pinos River near Ortiz;

(d) On the San Antonio River at Ortiz;

(e) On the Conejos River at its mouths near Los Sauces;

(f) On the Rio Grande near Lobatos;

(g) On the Rio Chama below El Vado Reservoir;

(h) On the Rio Grande at Otowi Bridge near San Ildefonso;

(i) On the Rio Grande near San Acacia;

(j) On the Rio Grande at San Marcial;

(k) On the Rio Grande below Elephant Butte Reservoir;

(l) On the Rio Grande below Caballo Reservoir.

Similar gaging stations shall be maintained and operated below any other reservoir constructed after 1929, and at such other points as may be necessary for the securing of records required for the carrying out of the Compact; and automatic water stage recorders shall be maintained and operated on each of the reservoirs mentioned, and on all others constructed after 1929.

RIO GRANDE COMPACT

Such gaging stations shall be equipped, maintained and operated by the Commission directly or in cooperation with an appropriate Federal or State agency, and the equipment, method and frequency of measurement at such stations shall be such as to produce reliable records at all times. (Note: See Resolution of Commission printed elsewhere in this report.)

ARTICLE III

The obligation of Colorado to deliver water in the Rio Grande at the Colorado-New Mexico State Line, measured at or near Lobatos, in each calendar year, shall be ten thousand acre feet less than the sum of those quantities set forth in the two following tabulations of relationship, which correspond to the quantities at the upper index stations:

DISCHARGE OF CONEJOS RIVER

Quantities in thousands of acre feet

Conejos Index Supply (1)	Conejos River at Mouths (2)
100	0
150	20
200	45
250	75
300	109
350	147
400	188
450	232
500	278
550	326
600	376
650	426
700	476

Intermediate quantities shall be computed by proportional parts.

(1) Conejos Index Supply is the natural flow of Conejos River at the U.S.G.S. gaging station near Mogote during the calendar year, plus the natural flow of Los Pinos River at the U.S.G.S. gaging station near Ortiz and the natural flow of San Antonio River at the U.S.G.S. gaging station at Ortiz, both during the months of April to October, inclusive.

(2) Conejos River at Mouths is the combined discharge of branches of this river at the U.S.G.S. gaging stations near Los Sauces during the calendar year.

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER

Quantities in thousands of acre feet

Rio Grande at Del Norte (3)	Rio Grande at Lobatos less Conejos at Mouths (4)
200	60
250	65
300	75
350	86
400	98
450	112
500	127
550	144
600	162

RIO GRANDE COMPACT
DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER--Con.
Quantities in thousands of acre feet

Rio Grande at Del Norte (3)	Rio Grande at Lobatos less Conejos at Mouths (4)
650	182
700	204
750	229
800	257
850	292
900	335
950	380
1,000	430
1,100	540
1,200	640
1,300	740
1,400	840

Intermediate quantities shall be computed by proportional parts.

(3) Rio Grande at Del Norte is the recorded flow of the Rio Grande at the U.S.G.S. gaging station near Del Norte during the calendar year (measured above all principal points of diversion to San Luis Valley) corrected for the operation of reservoirs constructed after 1937.

(4) Rio Grande at Lobatos less Conejos at Mouths is the total flow of the Rio Grande at the U.S.G.S. gaging station near Lobatos, less the discharge of Conejos River at its Mouths, during the calendar year.

The application of these schedules shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) any new or increased depletion of the runoff above inflow index gaging stations; and (c) any transmountain diversions into the drainage basin of the Rio Grande above Lobatos.

In event any works are constructed after 1937 for the purpose of delivering water into the Rio Grande from the Closed Basin, Colorado shall not be credited with the amount of such water delivered, unless the proportion of sodium ions shall be less than forty-five percent of the total positive ions in that water when the total dissolved solids in such water exceeds three hundred fifty parts per million.

ARTICLE IV

The obligation of New Mexico to deliver water in the Rio Grande at San Marcial, during each calendar year, exclusive of the months of July, August, and September, shall be that quantity set forth in the following tabulation of relationship, which corresponds to the quantity at the upper index station:

RIO GRANDE COMPACT
DISCHARGE OF RIO GRANDE AT OTOWI BRIDGE AND AT SAN MARCIAL
EXCLUSIVE OF JULY, AUGUST AND SEPTEMBER
Quantities in thousands of acre feet

Otowi Index Supply (5)	San Marcial Index Supply (6)
100	0
200	65
300	141
400	219
500	300
600	383
700	469
800	557
900	648
1,000	742
1,100	839
1,200	939
1,300	1,042
1,400	1,148
1,500	1,257
1,600	1,370
1,700	1,489
1,800	1,608
1,900	1,730
2,000	1,856
2,100	1,985
2,200	2,117
2,300	2,253

Intermediate quantities shall be computed by proportional parts.

(5) The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San Ildefonso (formerly station near Buckman) during the calendar year, exclusive of the flow during the months of July, August and September, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.

(6) San Marcial Index Supply is the recorded flow of the Rio Grande at the gaging station at San Marcial during the calendar year exclusive of the flow during the months of July, August and September.

The application of this schedule shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) depletion after 1929 in New Mexico at any time of the year of the natural runoff at Otowi Bridge; (c) depletion of the runoff during July, August and September of tributaries between Otowi Bridge and San Marcial, by works constructed after 1937; and (d) any transmountain diversions into the Rio Grande between Lobatos and San Marcial.

Concurrent records shall be kept of the flow of the Rio Grande at San Marcial, near San Acacia, and of the release from Elephant Butte Reservoir to the end that the records at these three stations may be correlated. (Note: See Resolution of Commission printed elsewhere in this report.)

RIO GRANDE COMPACT

ARTICLE V

If at any time it should be the unanimous finding and determination of the Commission that because of changed physical conditions, or for any other reason, reliable records are not obtainable, or cannot be obtained, at any of the stream gaging stations herein referred to, such stations may, with the unanimous approval of the Commission, be abandoned, and with such approval another station, or other stations, shall be established and new measurements shall be substituted which, in the unanimous opinion of the Commission, will result in substantially the same results so far as the rights and obligations to deliver water are concerned, as would have existed if such substitution of stations and measurements had not been so made. (Note: See Resolution of Commission printed elsewhere in this report.)

ARTICLE VI

Commencing with the year following the effective date of this Compact, all credits and debits of Colorado and New Mexico shall be computed for each calendar year; provided, that in a year of actual spill no annual credits nor annual debits shall be computed for that year.

In the case of Colorado, no annual debit nor accrued debit shall exceed 100,000 acre feet, except as either or both may be caused by holdover storage of water in reservoirs constructed after 1937 in the drainage basin of the Rio Grande above Lobatos. Within the physical limitations of storage capacity in such reservoirs, Colorado shall retain water in storage at all times to the extent of its accrued debit.

In the case of New Mexico, the accrued debit shall not exceed 200,000 acre feet at any time, except as such debit may be caused by holdover storage of water in reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and San Marcial. Within the physical limitations of storage capacity in such reservoirs, New Mexico shall retain water in storage at all times to the extent of its accrued debit. In computing the magnitude of accrued credits or debits, New Mexico shall not be charged with any greater debit in any one year than the sum of 150,000 acre-feet and all gains in the quantity of water in storage in such year.

The Commission by unanimous action may authorize the release from storage of any amount of water which is then being held in storage by reason of accrued debits of Colorado or New Mexico; provided, that such water shall be replaced at the first opportunity thereafter.

In computing the amount of accrued credits and accrued debits of Colorado or New Mexico, any annual credits in excess of 150,000 acre feet shall be taken as equal to that amount.

In any year in which actual spill occurs, the accrued credits of Colorado, or New Mexico, or both, at the beginning of the year shall be reduced in proportion to their respective credits by the amount of such actual spill; provided that the amount of actual spill shall be deemed to be increased by the aggregate gain in the amount of water in storage, prior to the time of spill, in reservoirs above San Marcial constructed after 1929; provided, further, that if the Commissioners for the States having accrued credits authorize the release of part, or all, of such credits in advance of spill, the amount so released shall be deemed to constitute actual spill.

In any year in which there is actual spill of usable water, or at the time of hypothetical spill thereof, all accrued debits of Colorado, or New Mexico, or both, at the beginning of the year shall be cancelled.

RIO GRANDE COMPACT

In any year in which the aggregate of accrued debits of Colorado and New Mexico exceeds the minimum unfilled capacity of project storage, such debits shall be reduced pro- portionally to an aggregate amount equal to such minimum unfilled capacity.

To the extent that accrued credits are impounded in reservoirs between San Marcial and Courchesne, and to the extent that accrued debits are impounded in reservoirs above San Marcial, such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bore to the total amount of water in such reservoirs during the year.

ARTICLE VII

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre feet of usable water in project storage; provided, that if the actual releases of usable water from the beginning of the calendar year following the effective date of this Compact, or from the beginning of the calendar year following actual spill, have aggregated more than an average of 790,000 acre feet per annum, the time at which such minimum stage is reached shall be adjusted to compensate for the difference between the total actual release and releases at such average rate; provided, further, that Colorado, or New Mexico, or both, may relinquish accrued credits at any time, and Texas may accept such relinquished water, and in such event the state, or states, so relinquishing shall be entitled to store water in the amount of the water so relinquished.

ARTICLE VIII

During the month of January of any year the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debits of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total debit of each, and in amounts, limited by their accrued debits, sufficient to bring the quantity of usable water in project storage to 600,000 acre feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre feet may be made from project storage in that year.

ARTICLE IX

Colorado agrees with New Mexico that in event the United States or the State of New Mexico decides to construct the necessary works for diverting the waters of the San Juan River, or any of its tributaries, into the Rio Grande, Colorado hereby consents to the construction of said works and the diversion of waters from the San Juan River, or the tributaries thereof, into the Rio Grande in New Mexico, provided the present and prospective uses of water in Colorado by other diversions from the San Juan River, or its tributaries, are protected.

ARTICLE X

In the event water from another drainage basin shall be imported into the Rio Grande Basin by the United States or Colorado or New Mexico, or any of them jointly, the State having the right to the use of such water shall be given proper credit therefor in the application of the schedules.

ARTICLE XI

New Mexico and Texas agree that upon the effective date of this Compact all controversies between said States relative to the quantity or quality of the water of the Rio Grande are composed and settled; however, nothing herein shall be interpreted to prevent

RIO GRANDE COMPACT

recourse by a signatory state to the Supreme Court of the United States for redress should the character or quality of the water, at the point of delivery, be changed hereafter by one signatory state to the injury of another. Nothing herein shall be construed as an admission by any signatory state that the use of water for irrigation causes increase of salinity for which the user is responsible in law.

ARTICLE XII

To administer the provisions of this Compact there shall be constituted a Commission composed of one representative from each state, to be known as the Rio Grande Compact Commission. The State Engineer of Colorado shall be ex-officio the Rio Grande Compact Commissioner for Colorado. The State Engineer of New Mexico shall be ex-officio the Rio Grande Compact Commissioner for New Mexico. The Rio Grande Compact Commissioner for Texas shall be appointed by the Governor of Texas. The President of the United States shall be requested to designate a representative of the United States to sit with such Commission, and such representative of the United States, if so designated by the President, shall act as Chairman of the Commission without vote.

The salaries and personal expenses of the Rio Grande Compact Commissioners for the three States shall be paid by their respective States, and all other expenses incident to the administration of this Compact, not borne by the United States, shall be borne equally by the three States.

In addition to the powers and duties hereinbefore specifically conferred upon such Commission, and the members thereof, the jurisdiction of such Commission shall extend only to the collection, correlation and presentation of factual data and the maintenance of records having a bearing upon the administration of this Compact, and, by unanimous action, to the making of recommendations to the respective States upon matters connected with the administration of this Compact. In connection therewith, the Commission may employ such engineering and clerical aid as may be reasonably necessary within the limit of funds provided for that purpose by the respective States. Annual reports compiled for each calendar year shall be made by the Commission and transmitted to the Governors of the signatory States on or before March first following the year covered by the report. The Commission may, by unanimous action, adopt rules and regulations consistent with the provisions of this Compact to govern their proceedings.

The findings of the Commission shall not be conclusive in any court or tribunal which may be called upon to interpret or enforce this Compact.

ARTICLE XIII

At the expiration of every five-year period after the effective date of this Compact, the Commission may, by unanimous consent, review any provisions hereof which are not substantive in character and which do not affect the basic principles upon which the Compact is founded, and shall meet for the consideration of such questions on the request of any member of the Commission; provided, however, that the provisions hereof shall remain in full force and effect until changed and amended within the intent of the Compact by unanimous action of the Commissioners, and until any changes in this Compact are ratified by the legislatures of the respective states and consented to by the Congress, in the same manner as this Compact is required to be ratified to become effective.

ARTICLE XIV

The schedules herein contained and the quantities of water herein allocated shall never be increased nor diminished by reason of any increase or diminution in the delivery or loss of water to Mexico.

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ARTICLE XV

The physical and other conditions characteristic of the Rio Grande and peculiar to the territory drained and served thereby, and to the development thereof, have actuated this Compact and none of the signatory states admits that any provisions herein contained establishes any general principle or precedent applicable to other interstate streams.

ARTICLE XVI

Nothing in this Compact shall be construed as affecting the obligations of the United States of America to Mexico under existing treaties, or to the Indian Tribes, or as impairing the rights of the Indian Tribes.

ARTICLE XVII

This Compact shall become effective when ratified by the legislatures of each of the signatory states and consented to by the Congress of the United States. Notice of ratification shall be given by the Governor of each state to the Governors of the other states and to the President of the United States, and the President of the United States is requested to give notice to the Governors of each of the signatory states of the consent of the Congress of the United States.

IN WITNESS WHEREOF, the Commissioners have signed this Compact in quadruplicate original, one of which shall be deposited in the archives of the Department of State of the United States of America and shall be deemed the authoritative original, and of which a duly certified copy shall be forwarded to the Governor of each of the signatory States.

Done at the City of Santa Fe, in the State of New Mexico, on the 18th day of March, in the year of our Lord, One Thousand Nine Hundred and Thirty-eight.

(Sgd.) M. C. HINDERLIDER

(Sgd.) THOMAS M. McCLURE

(Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

Colorado, February 21, 1939
New Mexico, March 1, 1939
Texas, March 1, 1939

Passed Congress as Public Act No. 96, 76th Congress,

Approved by the President May 31, 1939

RESOLUTION ADOPTED BY RIO GRANDE COMPACT COMMISSION

AT THE ANNUAL MEETING HELD AT EL PASO, TEXAS, FEBRUARY 22-24, 1948, CHANGING
GAGING STATIONS AND MEASUREMENTS OF
DELIVERIES BY NEW MEXICO

R E S O L U T I O N

Whereas, at the Annual Meeting of the Rio Grande Compact Commission in the year 1945, the question was raised as to whether or not a schedule for delivery of water by New Mexico during the entire year could be worked out, and

Whereas, at said meeting the question was referred to the Engineering Advisers for their study, recommendations and report, and

Whereas, said Engineering Advisers have met, studied the problems and under date of February 24, 1947, did submit their Report, which said Report contains the findings of said Engineering Advisers and their recommendations, and

Whereas, the Compact Commission has examined said Report and finds that the matters and things therein found and recommended are proper and within the terms of the Rio Grande Compact, and

Whereas, the Commission has considered said Engineering Advisers' Report and all available evidence, information and material and is fully advised:

Now, Therefore, Be it Resolved:

The Commission finds as follows:

- (a) That because of change of physical conditions, reliable records of the amount of water passing San Marcial are no longer obtainable at the stream gaging station at San Marcial and that the same should be abandoned for Compact purposes.
- (b) That the need for concurrent records at San Marcial and San Acacia no longer exists and that the gaging station at San Acacia should be abandoned for Compact purposes.
- (c) That it is desirable and necessary that the obligations of New Mexico under the Compact to deliver water in the months of July, August, September, should be scheduled.
- (d) That the change in gaging stations and substitution of the new measurements as hereinafter set forth will result in substantially the same results so far as the rights and obligations to deliver water are concerned, and would have existed if such substitution of stations and measurements had not been so made.

Be it Further Resolved:

That the following measurements and schedule thereof shall be substituted for the measurements and schedule thereof as now set forth in Article IV of the Compact:

"The obligation of New Mexico to deliver water in the Rio Grande into Elephant Butte Reservoir during each calendar year shall be measured by that quantity set forth in the following tabulation of relationship which corresponds to the quantity at the upper index station:

RIO GRANDE COMPACT COMMISSION REPORT

DISCHARGE OF RIO GRANDE AT OTOWI BRIDGE AND ELEPHANT BUTTE EFFECTIVE SUPPLY

Quantities in thousands of acre-feet

Otowi Index Supply (5)	Elephant Butte Effective Index Supply (6)
100	57
200	114
300	171
400	228
500	286
600	345
700	406
800	471
900	542
1,000	621
1,100	707
1,200	800
1,300	897
1,400	996
1,500	1,095
1,600	1,195
1,700	1,295
1,800	1,395
1,900	1,495
2,000	1,595
2,100	1,695
2,200	1,795
2,300	1,895
2,400	1,995
2,500	2,095
2,600	2,195
2,700	2,295
2,800	2,395
2,900	2,495
3,000	2,595

Intermediate quantities shall be computed by proportional parts.

- (5) The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San ildefonso (formerly station near Buckman) during the calendar year, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.
- (6) Elephant Butte Effective Index Supply is the recorded flow of the Rio Grande at the gaging station below Elephant Butte Dam during the calendar year plus the net gain in storage in Elephant Butte Reservoir during the same year or minus the net loss in storage in said reservoir, as the case may be.

RIO GRANDE COMPACT

The application of this schedule shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) depletion after 1929 in New Mexico of the natural runoff at Otowi Bridge; and (c) any transmountain diversions into the Rio Grande between Lobatos and Elephant Butte Reservoir.”

Be it Further Resolved:

That the gaging stations at San Acacia and San Marcial be, and the same are hereby abandoned for Compact purposes.

Be it Further Resolved:

That this Resolution has been passed unanimously and shall be effective January 1, 1949, if within 120 days from this date the Commissioner for each State shall have received from the Attorney General of the State represented by him, an opinion approving this Resolution, and shall have so advised the Chairman of the Commission, otherwise, to be of no force and effect.

(Note: The following paragraph appears in the Minutes of the Annual Meeting of the Commission held at Denver, Colorado, February 14-16, 1949.

“The Chairman announced that he had received, pursuant to the Resolution adopted by the Commission at the Ninth Annual Meeting on February 24, 1948, opinions from the Attorneys General of Colorado, New Mexico and Texas that the substitution of stations and measurements of deliveries by New Mexico set forth in said resolution was within the powers of the Commission”).

RULES AND REGULATIONS FOR ADMINISTRATION OF THE RIO GRANDE COMPACT

A Compact, known as the Rio Grande Compact, between the States of Colorado, New Mexico and Texas, having become effective on May 31, 1939 by consent of the Congress of the United States, which equitably apportions the waters of the Rio Grande above Fort Quitman and permits each State to develop its water resources at will, subject only to its obligations to deliver water in accordance with the schedules set forth in the Compact, the following Rules and Regulations have been adopted for its administration by the Rio Grande Compact Commission; to be and remain in force and effect only so long as the same may be satisfactory to each and all members of the Commission, and provided always that on the objection of any member of the Commission, in writing, to the remaining two members of the Commission after a period of sixty days from the date of such objection, the sentence, paragraph or any portion or all of these rules to which any such objection shall be made, shall stand abrogated and shall thereafter have no further force and effect; it being the intent and purpose of the Commission to permit these rules to obtain and be effective only so long as the same may be satisfactory to each and all of the Commissioners.

(1) GAGING STATIONS /1, /2

Responsibility for the equipping, maintenance and operation of the stream gaging stations and reservoir gaging stations required by the provisions of Article II of the Compact shall be divided among the signatory States as follows:

(a) Gaging stations on streams and reservoirs in the Rio Grande Basin above the Colorado-New Mexico boundary shall be equipped, maintained, and operated by Colorado in cooperation with the U.S. Geological Survey.

(b) Gaging stations on streams and reservoirs in the Rio Grande Basin below Lobatos and above Caballo Reservoir shall be equipped, maintained and operated by New Mexico in cooperation with the U.S. Geological Survey to the extent that such stations are not maintained and operated by some other Federal agency.

(c) Gaging stations on Elephant Butte Reservoir and on Caballo Reservoir, and the stream gaging station on the Rio Grande below Caballo Reservoir shall be equipped, maintained and operated by or on behalf of Texas through the agency of the U.S. Bureau of Reclamation.

The equipment, method and frequency of measurements at each compact stream gaging station shall be sufficient to obtain stream flow records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. The stream flow records for each compact stream gaging station shall be reviewed annually by the U.S. Geological Survey to ensure accuracy. Water-stage recorders on the reservoirs specifically named in Article II of the Compact shall have sufficient range below maximum reservoir level to record major fluctuations in storage. Staff gages may be used to determine fluctuations below the range of the water-stage recorders on these and other large reservoirs, and staff gages may be used upon approval of the Commission in lieu of water-stage recorders on small reservoirs, provided that the frequency of observation is sufficient in each case to establish any material changes in water levels in such reservoirs.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.

/2 Amended at Seventy-Seventh Annual Meeting, March 31, 2016.

RULES AND REGULATIONS

(2) RESERVOIR CAPACITIES /1

Colorado shall file with the Commission a table of areas and capacities for each reservoir in the Rio Grande Basin above Lobatos constructed after 1937; New Mexico shall file with the Commission a table of areas and capacities for each reservoir in the Rio Grande Basin between Lobatos and San Marcial constructed after 1929; and Texas shall file with the Commission tables of areas and capacities for Elephant Butte Reservoir and for all other reservoirs actually available for the storage of water between Elephant Butte and the first diversion to lands under the Rio Grande Project.

Whenever it shall appear that any table of areas and capacities is in error by more than five per cent, the Commission shall use its best efforts to have a re-survey made and a corrected table of areas and capacities to be substituted as soon as practicable. To the end that the Elephant Butte effective supply may be computed accurately, the Commission shall use its best efforts to have the rate of accumulation and the place of deposition of silt in Elephant Butte Reservoir checked at least every three years.

(3) ACTUAL SPILL /2, /3, /4, /6

(a) Water released from Elephant Butte in excess of Project requirements, which is currently passed through Caballo Reservoir, prior to the time of spill, shall be deemed to have been Usable Water released in anticipation of spill, or Credit Water if such release shall have been authorized.

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood purposes, i.e., 1,999,600 acre-feet in the months of October through March inclusive, and 1,974,600 acre-feet in the months of April through September, inclusive, as determined from the 2009 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

(c) All water actually spilled at Elephant Butte Reservoir, or released therefrom, in excess of Project requirements, which is currently passed through Caballo Reservoir, after the time of spill, shall be considered as Actual Spill, provided that the total quantity of water then in storage in Elephant Butte Reservoir exceeds the physical capacity of that reservoir at the level of the sill of the spillway gates, i.e. -1,830,000 acre-ft in 1942.

(d) Water released from Caballo Reservoir in excess of Project requirements and in excess of water currently released from Elephant Butte Reservoir, shall be deemed Usable Water released, excepting only flood water entering Caballo Reservoir from tributaries below Elephant Butte Reservoir.

(4) DEPARTURES FROM NORMAL RELEASES /5

For the purpose of computing the time of Hypothetical Spill required by Article VI and for the purpose of the adjustment set forth in Article VII, no allowance shall be made for the difference between Actual and Hypothetical Evaporation, and any under-release of usable water from Project Storage in excess of 150,000 acre-ft in any year shall be taken as equal to that amount.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.

/2 Adopted at Fourth Annual Meeting, February 24, 1943.

/3 Amended September 9, 1998.

/4 Amended March 22, 2001; made effective January 1, 2001.

/5 Adopted June 2, 1959; made effective January 1, 1952.

/6 Adopted March 31, 2009; made effective January 1, 2010.

RULES AND REGULATIONS

(5) EVAPORATION LOSSES /6, /7, /8

The Commission shall encourage the equipping, maintenance and operation, in cooperation with the U.S. Weather Bureau or other appropriate agency, of evaporation stations at Elephant Butte Reservoir and at or near each major reservoir in the Rio Grande Basin within Colorado constructed after 1937 and in New Mexico constructed after 1929. The net loss by evaporation from a reservoir surface shall be taken as the difference between the actual evaporation loss and the evapo-transpiration losses which would have occurred naturally, prior to the construction of such reservoir. Changes in evapo-transpiration losses along stream channels below reservoirs may be disregarded.

Net losses by evaporation, as defined above, shall be used in correcting Index Supplies for the operation of reservoirs upstream from Index Gaging Stations as required by the provisions of Article III and Article IV of the Compact.

In the application of the provisions of the last unnumbered paragraph of Article VI of the Compact:

(a) Evaporation losses for which accrued credits shall be reduced shall be taken as the difference between the gross evaporation from the water surface of Elephant Butte Reservoir and rainfall on the same surface.

(b) Evaporation losses for which accrued debits shall be reduced shall be taken as the net loss by evaporation as defined in the first paragraph.

(6) ADJUSTMENT OF RECORDS

The Commission shall keep a record of the location, and description of each gaging station and evaporation station, and, in the event of change in location of any stream gaging station for any reason, it shall ascertain the increment in flow or decrease in flow between such locations for all stages. Wherever practicable, concurrent records shall be obtained for one year before abandonment of the previous station.

(7) NEW OR INCREASED DEPLETIONS

In the event any works are constructed which alter or may be expected to alter the flow at any of the Index Gaging Stations mentioned in the Compact, or which may otherwise necessitate adjustments in the application of the schedules set forth in the Compact, it shall be the duty of the Commissioner specifically concerned to file with the Commission all available information pertaining thereto, and appropriate adjustments shall be made in accordance with the terms of the Compact; provided, however, that any such adjustments shall in no way increase the burden imposed upon Colorado or New Mexico under the schedules of deliveries established by the Compact.

(8) TRANSMOUNTAIN DIVERSIONS

In the event any works are constructed for the delivery of waters into the drainage basin of the Rio Grande from any stream system outside of the Rio Grande Basin, such waters shall be measured at the point of delivery into the Rio Grande Basin and proper allowances shall be made for losses in transit from such points to the Index Gaging Station on the stream with which the imported waters are comingled.

/6 Amended at Tenth Annual Meeting, February 15, 1949.

/7 Amended at Twelfth Annual Meeting, February 24, 1951.

/8 Amended June 2, 1959.

RULES AND REGULATIONS

(9) QUALITY OF WATER

In the event that delivery of water is made from the Closed Basin into the Rio Grande, sufficient samples of such water shall be analyzed to ascertain whether the quality thereof is within the limits established by the Compact.

(10) SECRETARY /8, /9, /10

The Commission may, on a yearly basis, employ appropriate entities to render such engineering and clerical aid as may reasonably be necessary for administration of the Compact. The entities may be employed to:

(1) Collect and correlate all factual data and other records having a material bearing on the administration of the Compact and keep each Commissioner advised thereof.

(2) Inspect all gaging stations required for administration of the Compact and make recommendations to the Commission as to any changes or improvements in methods of measurement or facilities for measurement which may be needed to insure that reliable records be obtained.

(3) Report to each Commissioner in writing within thirty days after the end of each quarter a summary of all hydrographic data then available for the current year - on forms prescribed by the Commission - pertaining to:

- (a) Deliveries by Colorado
- (b) Deliveries by New Mexico
- (c) Operation of Project Storage

(4) Make such investigations as may be requested by the Commission in aid of its administration of the Compact.

(5) Act as Secretary to the Commission and submit to the Commission at its regular meeting a report on its activities and a summary of all data needed for determination of debits and credits and other matters pertaining to administration of the Compact.

(11) COSTS /1, /2, /3

At its annual meeting, the Commission shall adopt a budget for the ensuing fiscal year beginning July first.

Such budget shall set forth the total cost of maintenance and operating of gaging stations, of evaporation stations, the cost of engineering and clerical aid, and all other necessary expenses excepting the salaries and personal expenses of the Rio Grande Compact Commissioners.

Contributions made directly by the United States and the cost of services rendered by the United States without cost shall be deducted from the total budget amount; the remainder shall then be allocated equally to Colorado, New Mexico and Texas.

/8 The substitution of this section for the section titled "Reports to Commissioners" was adopted at Ninth Annual Meeting, February 22, 1948.

/9 Amended March 31, 2009.

/10 Amended at Seventy-Seventh Annual Meeting, March 31, 2016.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.

/2 Amended March 31, 2009.

/3 Amended at Seventy-Seventh Annual Meeting, March 31, 2016.

RULES AND REGULATIONS

Expenditures made directly by any State for purposes set forth in the budget shall be credited to that State; contributions in cash or in services by any State under a cooperative agreement with any federal agency shall be credited to such State, but the amount of the federal contribution shall not so be credited; in event any State, through contractual relationships, causes work to be done in the interest of the Commission, such State shall be credited with the cost thereof, unless such cost is borne by the United States.

Costs incurred by the Commission under any cooperative agreement between the Commission and any U.S. Government Agency, not borne by the United States, shall be apportioned equally to each State, and each Commissioner shall arrange for the prompt payment of one-third thereof by his State.

The Commissioner of each State shall report at the annual meeting each year the amount of money expended during the year by the State that the Commissioner represents, as well as the portion thereof contributed by all cooperating federal agencies, and the Commission shall arrange for such proper reimbursement in cash or credits between States as may be necessary to equalize the contributions made by each State in the equipment, maintenance and operation of all gaging stations authorized by the Commission and established under the terms of the Compact.

It shall be the duty of each Commissioner to endeavor to secure from the Legislature of the State represented by the Commissioner an appropriation of sufficient funds with which to meet the obligations of that State, as provided by the Compact.

(12) MEETING OF COMMISSION /1, /10, /11

The Commission shall meet each year for the consideration and adoption of the annual report for the calendar year preceding, and for the transaction of any other business consistent with its authority. Other meetings as may be deemed necessary shall be held at any time and place set by mutual agreement, for the consideration of data collected and for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approved by the Commissioner from each of the three signatory States.

(Signed) M. C. HINDERLIDER

M. C. Hinderlinder

Commissioner for Colorado

(Signed) THOMAS M. McCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.

/10 Amended at Thirteenth Annual Meeting, February 25, 1952.

/11 Amended at Seventy-Seventh Annual Meeting, March 31, 2016.

Revised October 2016

RIO GRANDE BASIN

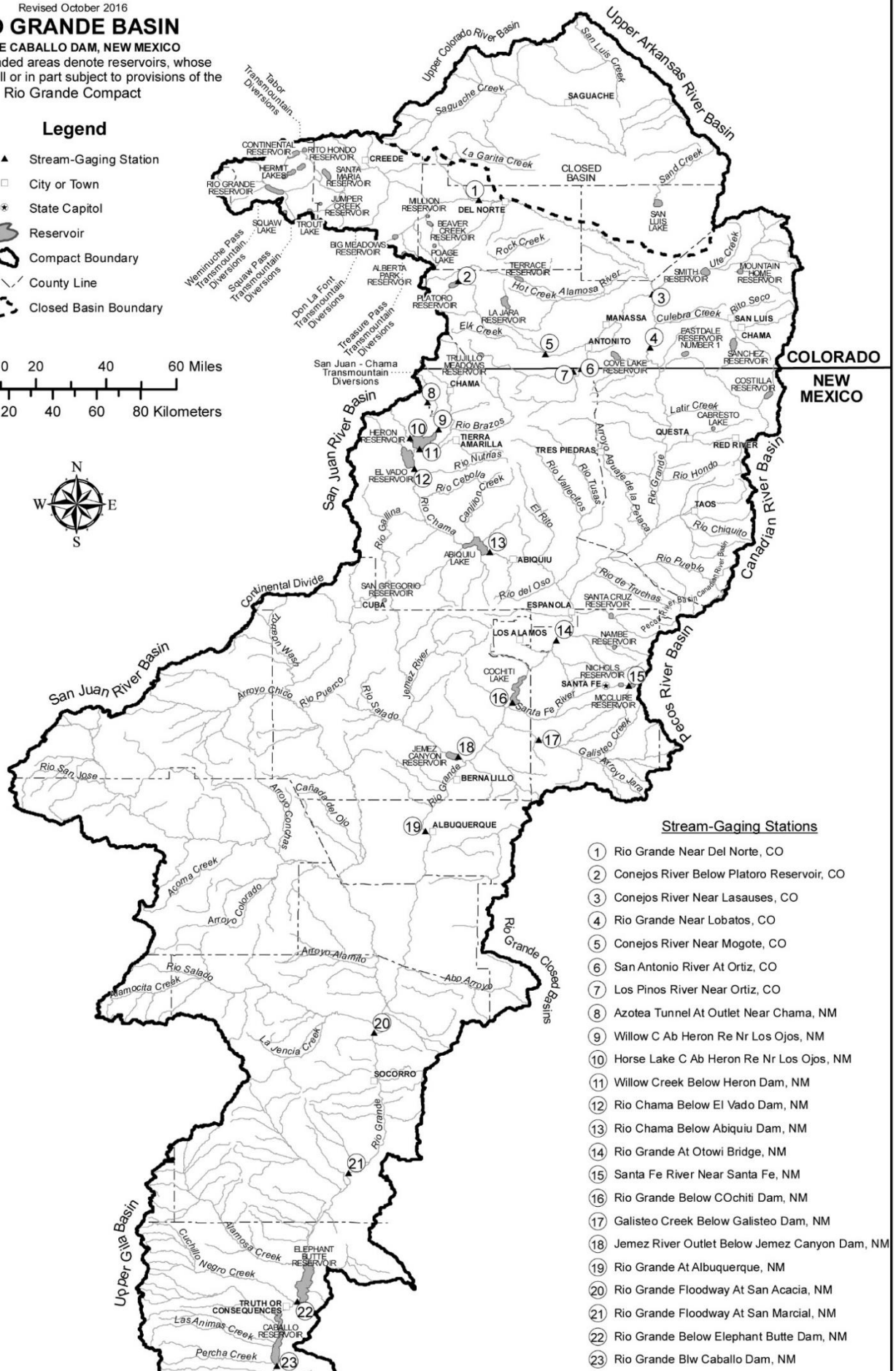
ABOVE CABALLO DAM, NEW MEXICO

NOTE: Shaded areas denote reservoirs, whose capacity is all or in part subject to provisions of the Rio Grande Compact

Legend

- ▲ Stream-Gaging Station
- City or Town
- ★ State Capitol
- Reservoir
- Compact Boundary
- County Line
- Closed Basin Boundary

0 10 20 40 60 Miles
0 10 20 40 60 80 Kilometers



Stream-Gaging Stations

- 1 Rio Grande Near Del Norte, CO
- 2 Conejos River Below Platoro Reservoir, CO
- 3 Conejos River Near Lasauces, CO
- 4 Rio Grande Near Lobatos, CO
- 5 Conejos River Near Mogote, CO
- 6 San Antonio River At Ortiz, CO
- 7 Los Pinos River Near Ortiz, CO
- 8 Azotea Tunnel At Outlet Near Chama, NM
- 9 Willow C Ab Heron Re Nr Los Ojos, NM
- 10 Horse Lake C Ab Heron Re Nr Los Ojos, NM
- 11 Willow Creek Below Heron Dam, NM
- 12 Rio Chama Below El Vado Dam, NM
- 13 Rio Chama Below Abiquiu Dam, NM
- 14 Rio Grande At Otowi Bridge, NM
- 15 Santa Fe River Near Santa Fe, NM
- 16 Rio Grande Below COchiti Dam, NM
- 17 Galisteo Creek Below Galisteo Dam, NM
- 18 Jemez River Outlet Below Jemez Canyon Dam, NM
- 19 Rio Grande At Albuquerque, NM
- 20 Rio Grande Floodway At San Acacia, NM
- 21 Rio Grande Floodway At San Marcial, NM
- 22 Rio Grande Below Elephant Butte Dam, NM
- 23 Rio Grande Blw Caballo Dam, NM