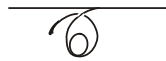
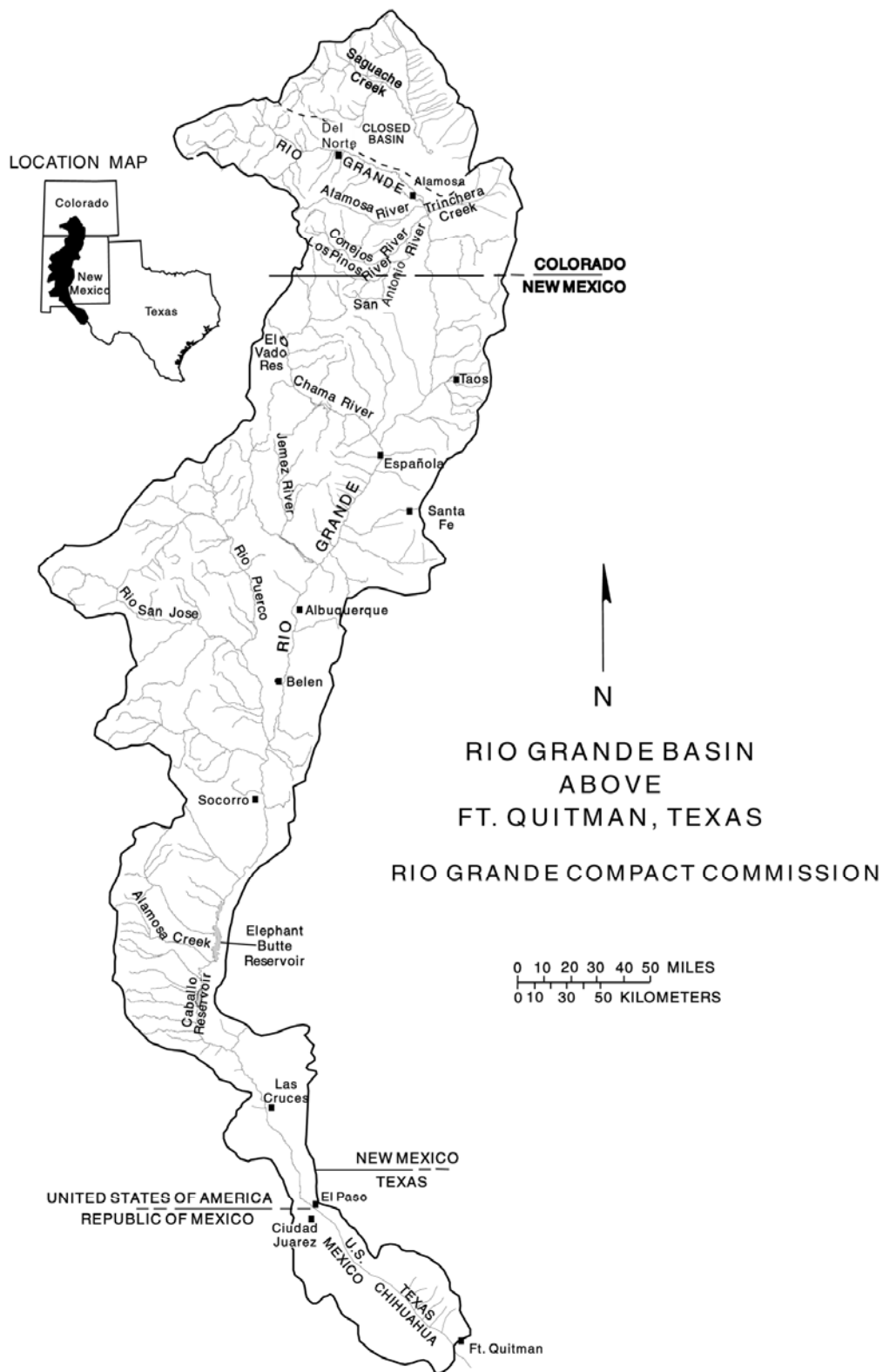


**REPORT
of the
RIO GRANDE COMPACT
COMMISSION
2013**



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



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**RIO GRANDE COMPACT COMMISSION
COLORADO TEXAS NEW MEXICO**

March 20, 2014

The Honorable Susana Martinez
Governor of the State of New Mexico
Santa Fe, New Mexico

The Honorable John W. Hickenlooper
Governor of the State of Colorado
Denver, Colorado

The Honorable Rick Perry
Governor of the State of Texas
Austin, Texas

Honorable Governors:

The 75th Annual Meeting of the Rio Grande Compact Commission was held in Santa Fe, New Mexico on March 20, 2014.

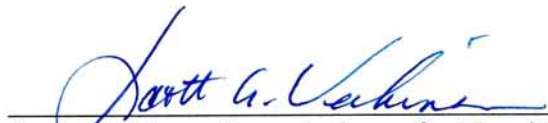
The Commission reviewed the cost of operation and found that the expenses for the administration of the Rio Grande Compact were \$186,337 in the fiscal year ending June 30, 2013. The United States bore \$53,142 of this total; the balance of \$133,195 was borne equally by the three States party to the Compact.

Enclosed herewith is the 2013 Report of the Rio Grande Compact Commission.

Respectfully,



Patrick R. Gordon, Commissioner for Texas



Scott Verhines, Commissioner for New Mexico



Dick Wolfe, Commissioner for Colorado

**REPORT OF THE ENGINEER ADVISERS
TO THE RIO GRANDE COMPACT COMMISSION
March 20, 2014**

The Engineer Advisers to the Rio Grande Compact Commission met in Albuquerque on January 9 and 10, 2014, and in Santa Fe and Albuquerque, New Mexico from February 24 through February 28, 2014, to 1) receive reports, 2) prepare the 2013 Rio Grande Compact (Compact) water accounting, 3) discuss continuing and new issues in preparation for the 2014 annual meeting of the Rio Grande Compact Commission (Commission), and 4) prepare the Engineer Advisers' report. The Engineer Advisers requested and 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 meeting. The federal agencies each presented information about their specific water-related activities in the basin during the previous calendar year.

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 2013 and are again unable to reach a consensus on the 2013 accounting. The lack of consensus arises from a disagreement that began in 2011 amongst the Texas Engineer Adviser and New Mexico and Colorado Engineer Advisers on the release of 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, 2012, and 2013 Rio Grande Compact Delivery Tables for Colorado and New Mexico and the Release and Spill from Project Storage Table.

For 2013, as in 2012, each of the Engineer Advisers developed accounting procedures described in the addenda to this report. At the 2013 meeting, the Commission did not approve any of the proposed accounting scenarios. The Engineer Advisers used the accounting scenarios they individually presented last year to carry forward Compact accounting for the 2013 calendar year.

RIO GRANDE BASIN CONDITIONS

Snowmelt runoff levels in 2013 were again below average in most of the basin in Colorado and New Mexico. Drought conditions persisted with little to no precipitation occurring between January and June 2013. However, summer monsoon precipitation was average to well above average in the basin. During September 2013, historic monsoon rains and flood flows occurred, resulting in sediment plugs forming at several locations in the channel of the Rio Grande. About 26,000 acre-feet of flood water was stored in Cochiti Reservoir due to a sediment plug that blocked the Rio Grande channel a few miles downstream. The flood water was released during October 2013 after Reclamation excavated a pilot channel through the plug. The flood flows also contributed to an approximately 70,000 acre-feet gain in storage at Elephant Butte Reservoir and about 35,000 acre-feet at Caballo Reservoir in September alone. McClure Reservoir, located above the City of Santa Fe, filled in a short period of time. The rains were not as significant a factor north of Santa Fe; no significant gains in storage occurred in reservoirs on the Rio Chama or the Colorado portion of the Rio Grande.

Usable Water in Rio Grande Project Storage was below the Article VII trigger of 400,000 acre-feet all year. Platoro Reservoir reached a high of 19 percent of capacity during June 2013 as part of the Colorado direct flow storage regulation operation. Reclamation stored Rio Grande water in El Vado Reservoir as part of its six Middle Rio Grande Pueblo Prior and Paramount operation

reaching approximately 24 percent of capacity in late May 2013. Due to extremely low runoff, no relinquishment credit water was stored in 2013 in New Mexico reservoirs. The San Juan-Chama Project (SJCP) delivered 45,760 acre-feet through the Azotea Tunnel into the Rio Grande basin during the year. By July of 2013, Reclamation had allotted a full supply to its SJCP contractors for the year.

Since the historic drought of 2002, the annual water supply at the index gages in Colorado and New Mexico has been significantly below the long-term average. This has led to declining water supplies and reservoir storage throughout the Rio Grande basin. At the beginning of 2014, there was almost no native Rio Grande water in storage upstream of Elephant Butte Reservoir in New Mexico and native water storage in Elephant Butte Reservoir was approximately 13 percent of capacity.

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 2014 Commission meeting, including information obtained from the reports of the federal agencies at meetings with the Engineer Advisers or otherwise reported to the Engineer Advisers at the 2014 Engineer Adviser meetings. The terms “reported and indicated” herein reflect information provided by various entities without analysis by the Engineer Advisers.

Middle Rio Grande Endangered Species Act Collaborative Program

Reclamation, the Corps, and the New Mexico Interstate Stream Commission (NMISC) individually reported that the Collaborative Program prepared and endorsed documents needed to transition to the planned Recovery Implementation

Program (RIP) in 2013. The goal of the RIP is to implement actions designed to conserve and contribute to the recovery of the endangered species while also protecting water uses in the Middle Rio Grande by serving as the Endangered Species Act (ESA) compliance vehicle. The RIP is planned to be the major conservation measure for the new Middle Rio Grande Water Operations BiOp.

In addition to the efforts to create a successful spawn, the current focus of work is to complete the new biological opinions; continue collective water management planning and management activities through the Minnow Action Team (MAT) and daily water operations teams, respectively; and continue minnow monitoring, propagation and augmentation, genetics monitoring activities, and habitat restoration construction and maintenance. NMISC reported the cost share from non-federal signatories has been accounted, and the 25 percent match continues to be met.

2003 Middle Rio Grande Programmatic BiOp

Reclamation reported that the 2003 BiOp was extended during the consultation for the new biological opinion. Dry year flow targets were in effect in 2013. Those flow targets include a continuous flow in the Middle Valley through June 15 and 100 cfs at the Albuquerque gage for the remainder of the irrigation season. Reclamation reported that due to exceptional drought and a limited water supply, it was not possible to meet the flow targets throughout the year.

Reclamation reported that Middle Rio Grande water management agencies adopted the MAT recommendations to “achieve the best possible plan for the silvery minnow” in 2013. This involved reducing supplemental water releases in early June, starting the river recession and dropping flows at the Albuquerque gage below 100 cfs in order to maintain wetted habitat in other areas. The Service reported that, due to staffing shortages, their ability to engage in regular

consultations will be limited in the near future. Further, the Service reported that they will not be able to complete the BiOP without participation of all the parties in the consultation, including the Corps.

At the 2014 Engineer Adviser meeting, Colorado, the Corps, Reclamation, and the Service each indicated they had received 60-day notices of intent to sue by the Wild Earth Guardians over endangered species act issues associated with the Rio Grande silvery minnow. The first 60-day notice ends the second week of March 2014 after which a suit can be filed.

Federal Agencies' Efforts towards a New Middle Rio Grande Water Operations Biological Opinion

Formal Section 7 consultation under the Endangered Species Act (ESA) toward a new Biological Opinion (BiOp) was initiated on February 25, 2013. Reclamation, the Corps, and the Bosque del Apache Fish and Wildlife Refuge each submitted separate biological assessments to the Service. Reclamation's biological assessment includes proposed actions and effects analyses for the Middle Rio Grande Conservancy District and the State of New Mexico as well as some conservation commitments from the Albuquerque-Bernalillo County Water Utility Authority (Authority).

The Corps reported they terminated their formal consultation with the Service on November 26, 2013 because of issues concerning the draft Corps specific BiOp and new guidance from Corps headquarters regarding endangered species consultations. The Corps indicated it is reassessing its water management actions and revising its biological assessment and will re-initiate formal consultation as necessary. The Service reported it cannot complete the Programmatic BiOp without the participation of all water management entities, including the Corps, because they are dependent upon one another.

URGWOM Accounting Model

During 2013, representatives of Reclamation, the Corps, and NMISC met two times. They conducted quality assurance on model input river flow and reservoir data for the middle and upper Rio Grande in New Mexico and reviewed San Juan Chama contractor releases and water exchanges. Issues discussed included: importing final USGS data for gages below the reservoirs, accuracy of Heron Reservoir releases, and pan evaporation data for Elephant Butte and Caballo Reservoirs. The NMISC indicated that pan evaporation measurements at Elephant Butte Reservoir site are noticeably higher than pan evaporation readings at the Caballo Reservoir site.

During 2013, NMISC staff visited both pan sites and reported that the Elephant Butte pan is located on a hill about 100 feet above the spillway elevation and the Caballo pan about 40 feet above the Caballo spillway elevation. Both pans did not appear to have characteristics consistent with a standard Class A evaporation pan. During the January 2014 meeting, the Engineer Advisers asked Reclamation to bring both pans to standard conditions. Reclamation later reported they are installing new weather stations near both dams which will include Class A pans. The weather stations will be run concurrently with the existing pans for a year to compare the records.

The Corps reported on model updates and developments which include: completing the Middle Valley calibration; extending URGWOM to include the Rio Grande in Colorado; developing the Lower Rio Grande portion from below Caballo to the El Paso and Hudspeth county line; continuing to develop methods for water quality modeling in RiverWare; and developing watershed models with the National Weather Service (NWS). The Corps added that URGWOM was updated to include the most recent Middle Valley crop survey. In addition, the Corps reported that during 2013 the first versions of the Colorado and the below

Caballo portions of the model were completed.

Compliance by Federal and State Agencies with State Water Law

The NMISC tracks habitat restoration projects implemented by various federal and state agencies and accounts and reports for depletions related to them 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 project sponsors. Due to below average spring snowmelt runoff flows in 2013, very few of the habitat restoration sites received water at that time. Consequently, only a very limited volume of depletions needed to be offset.

San Acacia Levee Project

The NMISC reported they continue to work with the Corps and the MRGCD on the first segment of the San Acacia Levee Project, located near the City of Socorro. The Segment will be constructed in three phases. The Corps anticipates awarding the construction contract for Phase 1 of the segment in the fall of 2014. The Corps indicated it may have sufficient budget next fiscal year to also award a contract for Phase 2 of the segment. The MRGCD and NMISC are local and cost share sponsors, respectively. The sponsors' non-federal cost share requirement will be approximately 15 percent of the total project cost, including money the Corps has spent to date.

Elephant Butte Pilot Channel Project

The pilot channel was successful in conveying the low flows from the 2013 snowmelt runoff into the active reservoir pool at Elephant Butte Reservoir. Monsoonal precipitation in the Middle Rio Grande in middle to late September caused high flow conditions through the pilot channel with only minor overtopping

of the pilot channel berms. During February and March of 2013, NMISC's contractor worked from the Low Flow Conveyance Channel (LFCC) outfall downstream to the top of the Narrows on general channel maintenance and to repair areas of bank erosion. Since 2003, New Mexico has spent more than \$16 million to construct and maintain the pilot channel.

In partial fulfillment of the Service's BiOp for the pilot channel, NMISC continues to coordinate with Reclamation, New Mexico State Parks, and other stakeholders on a Southwestern willow flycatcher habitat restoration project below the reservoir. The initial term for the pilot channel BiOp ended in July 2013. Reclamation coordinated with the Service to maintain compliance as part of the extended 2003 Middle Rio Grande Programmatic Water Operations BiOp.

Evaluation of Loss Rates for Routing SJCP Water from Cochiti to Elephant Butte Reservoir

During 2011 Reclamation developed estimated loss rates for routing of SJCP water at any time of year from Cochiti Dam to Elephant Butte Reservoir. The estimated loss rates were reviewed by the Engineer Advisers and approved by the Commission as documented in the 2011 Rio Grande Compact Commission report.

The SJCP loss rates were developed based on a range of flows of Rio Grande water released from Cochiti dam during different times of year. However, during the 2013 runoff, it became clear that the estimated SJCP loss rates were not realistic during periods of low natural flow. The Engineer Advisers coordinated with Reclamation on the issue during the fall and recommend that the estimated SJCP loss rates be used only when Rio Grande flows out of Cochiti Dam are equal to or greater than 800 cfs. In cases where an entity wishes to route SJCP water to Elephant Butte Reservoir when Rio Grande flows are less than 800 cfs, the

Engineer Advisers recommend the use of URGWOM by difference to compute the SJCP loss rate at that time. The Engineer Advisers have included a draft resolution for Compact Commission action during the annual meeting that reflects the revised recommendations.

Relinquishment Update

Effective May 31, 2013, Colorado proposed and Texas accepted a relinquishment of 3,000 acre-feet of Colorado's Accrued Credit in Elephant Butte Reservoir. Colorado placed this water into a relinquishment account to cover future post-compact native water storage while in Article VII restrictions. In 2013 533 acre-feet was stored in Platoro Reservoir, leaving a balance of 2,467 acre-feet in the relinquishment account.

The total amount of accrued credit relinquished by New Mexico and accepted by Texas since 2003 is 380,500 acre-feet. Due to insufficient snowmelt runoff in 2013, no relinquishment water was stored in New Mexico. Relinquishment water storage occurred during 2003, 2004, 2006, 2010, 2011, and 2012 totaling 223,270 acre-feet. All of that relinquishment water has been stored and released. At the end of 2013, there was a balance of 157,230 acre-feet available to be stored in future years when Article VII storage restrictions are in effect.

Rio Grande Water Accounting Issue under Articles IV and VI

In 2012 the New Mexico Engineer Adviser indicated a concern to the Colorado and Texas Engineer Advisers about double accounting of evaporation on New Mexico credit water stored in Elephant Butte Reservoir. In short, New Mexico pays for all the evaporation on native Rio Grande water in the reservoir, both Usable Water and Credit Water plus when Article IV accounting, as listed in

the 1948 Resolution, is conducted and again on Credit Water when the last unnumbered paragraph of Article VI is applied. The New Mexico Engineer Adviser requested but did not receive information concerning development of the 1948 resolution during 2013. Consequently, the issue is not fully understood.

Gaging Station Review and Caballo Reservoir Mass Balance

Reclamation and the USGS continued to improve their coordination regarding stream flow records below Elephant Butte and Caballo Dams. During 2013, the USGS reported that they cooperated with Reclamation to: 1) complete upgrading the equipment at the Caballo gaging station, 2) approve the rating curve for the range of flows that occurred, and 3) review and approve the 2013 flow records. Reclamation indicated it followed the USGS method, using spreadsheets, to finalize the stream flow records for the gage. Reclamation provided the Engineer Advisers with its 2013 gaging records, rating curves and QA/QC analysis of the gage record for the below Caballo gage. Further, Reclamation indicated it purchased AQUARIUS software and is planning to use it for the stream flow records in 2014.

The USGS provided Reclamation with its stream flow records for the below Elephant Butte gage in 2013. The USGS reported that the impact of vegetation growth on the shift at the gage was reduced due to the short (about six week) and relatively steady release from the reservoir. They also reported that, because of variable velocities measured in the river channel below Elephant Butte Dam, the ADCP measurement method provides higher accuracy than a standard AA metering method.

The Engineer Advisers appreciate the work Reclamation and the USGS conducted for the Caballo and Elephant Butte river gaging during 2013 and recommend they continue to collaborate in 2014.

During 2013, the NMISC continued its survey of water level elevations in Elephant Butte and Caballo Reservoirs. The results indicated that Reclamation's reservoir stage elevations were within the agreed upon threshold criteria (< 0.05 ft) at both reservoirs.

The NMISC again conducted a mass balance analysis for the Rio Grande between the Elephant Butte and Caballo gages for the calendar year. They used the gaging information described above to do so. The mass balance analysis indicates that the reach gained water in eleven out of twelve months with a total calculated gain of about 46,300 acre-feet. Most of the gain occurred during the September rainy period.

Rio Grande Salinity Management Coalition

The Engineer Advisers continued to work with the Rio Grande Salinity Management Coalition (Coalition) evaluating the feasibility of salinity capture and treatment in the Rio Grande from San Acacia, New Mexico to Fort Quitman, Texas, with emphasis on the Rio Grande Project region. The primary objective of the Coalition is to identify and implement salinity reduction strategies that will reduce impacts, improve Rio Grande water quality, and extend existing water supplies in the fast-growing Rio Grande Project area.

The Coalition seeks to meet these goals through four phases of work:

- Phase 1 – Rio Grande Project Salinity Assessment;
- Phase 2 - Develop Salinity Management Alternatives and Feasibility;
- Phase 3 - Implement Pilot-Scale Salinity Control Project Testing;
- Phase 4 - Full Scale Control Project Implementation, Monitoring and Evaluation.

The work is being done with the Corps under its Section 729 authority in the Water Resources Development Act (WRDA) of 2007. New Mexico contributed

\$250,000 toward the 25% non-federal cost share for the first phase of work. That work, completed in early 2010, resulted in three deliverables: a geospatial salinity database; a USGS Rio Grande Salinity Assessment and Plan of Study; and a Rio Grande Economic Impact Assessment study.

Phase 2 of the project commenced in 2010 with feasible pilot project sites and alternative control strategies being identified. Texas is providing \$250,000 as non-federal cost share towards the work. To date, the evaluation continues. Salinity management alternatives and strategies have been identified and described in a report. Soon, work will begin on further economic analysis of the proposed alternative projects. The state funds are being matched by the Corps under WRDA Section 729. The Corps reported that a contract amendment is being executed to complete the work and will also include a salinity study on the Pecos River. The Texas Engineer Adviser reported that the initial cost share portion of the Pecos River project will be provided by Texas.

YEAR 2013 OPERATIONS

On June 5, 2013, a lightning strike started the West Fork Fire in the Upper Rio Grande Basin in Colorado, and led to the second largest wildfire in Colorado history. The West Fork Fire Complex consisted of three separate wildfires, the West Fork, Papoose, and Windy Peak fires. The fire eventually burned over 110,000 acres of mainly heavily timbered pine and spruce lands. Even though no houses were destroyed in the blaze, the fire caused a significant impact to the Upper Rio Grande watershed. In New Mexico, the Silver Fire burned for much of the summer in the Black Range near Hillsboro. Currently, there is concern regarding flooding and debris flow potential from these areas as well as from areas burned over the last few years.

Closed Basin Project

Reclamation reported the total production of the Closed Basin Project in 2013 was 11,401 acre-feet, with 7,979 acre-feet of that amount delivered to the Rio Grande. 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 of the water delivered to the Rio Grande in 2013 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. Reclamation replaced five wells in 2013 that were most affected by iron bacteria, and rehabilitated numerous other wells. To date, 75 of the 150 original wells have been replaced. Wells will continue to be replaced as budgetary constraints allow in an effort to help maintain production of the project. The new replacement wells and one additional existing well have been equipped with variable frequency drive pumps. This is another effort to maximize efficiency of the Project. The Closed Basin Operating Committee continues to monitor groundwater levels and groundwater production and adjust project operations pursuant to the enabling legislation.

Platoro Reservoir Operations

The Colorado Engineer Adviser reported that, during May and early June 2013, the Conejos Water Conservancy District stored pre-compact direct flow water by exchange in Platoro Reservoir. This pre-Compact water was re-regulated and released later in the summer to better meet crop irrigation requirements. This operation is done routinely pursuant to a Colorado Water Court decree which allows pre-compact irrigation water, which otherwise would have been diverted to irrigate crops, to be stored for a short time in Platoro Reservoir and then released later in the same season to meet irrigation demands. The Colorado Engineer

Adviser indicated all of the re-regulated water was accounted for and released during the summer of 2013, thereby not affecting the Conejos index supply.

The Engineer Adviser for Texas points out that while this action has occurred and been reported historically, Article VII of the Compact says “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...”

Colorado Groundwater Regulations

The State Engineer of Colorado continues to develop rules and regulations concerning the use of groundwater in the Upper Rio Grande Basin in Colorado. These rules will require the owners of most large capacity wells in the Rio Grande Basin in Colorado to develop a plan to augment any injurious depletions, which their wells may cause to other water rights. In the alternative, the owners may enter into an agreement with a subdistrict to replace those depletions through a groundwater management plan. The rules and regulations are scheduled to be completed in the spring of 2014. As an integral part of these rules, the State Engineer is completing the development 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.

Nichols Reservoir Outlet Reconstruction

In 2013, the City of Santa Fe began reconstruction of the outlet works at Nichols Reservoir. By the end of August 2013, the reservoir had been completely evacuated to accommodate the reconstruction activities. It is anticipated that the project will be completed in the spring of 2014. Santa Fe anticipates undertaking a similar project at McClure Reservoir in 2014.

Abiquiu Reservoir Area Capacity Survey

The Corps reported it has completed a bathymetry study at Abiquiu Reservoir, using Lidar, to determine elevations of the bottom of the reservoir. The Corps is using the bathymetry data to develop a new area-capacity curve for the reservoir. The curve will be implemented in the accounting model retroactive to January 1, 2014 once the work is completed.

Middle Rio Grande Water Management During Drought Conditions

Because of the ongoing drought and seeking to initiate adaptive management for Middle Rio Grande water operations, the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) formed a workgroup, the MAT. The initial purpose of the MAT was to evaluate and report on options to best utilize water available last spring to create spawning conditions for the silvery minnow while meeting existing demands. The MAT includes representatives from MRGCD, NMISC, Reclamation, Corps, Service, Bosque del Apache National Wildlife Refuge, Authority, and Santa Ana Pueblo. The group worked from December 2012 through May 2013 to evaluate possible alternatives as the water supply outlook changed. They developed recommendations to the Collaborative Program Executive Committee (EC). The EC endorsed the MAT's recommendations, the water management agencies agreed to implement them and the Service concurred.

At the 2014 Engineer Adviser meeting, both the Service and Reclamation indicated it is critical the silvery minnow have a successful spawn in 2014. However, based on the February 1, 2014 snowmelt runoff forecast, natural flow conditions for such a spawn are not anticipated. NMISC reported that the MAT has started meeting to develop alternatives and has discussed a new low flow runoff alternative to create a spawn. The alternative would be to create a

hydrograph near Albuquerque this May that doubles the base flow and has a descending limb that extends for 7 days. The MRGCD and Water Authority river diversion dams would be used to help create the localized increases in downstream flow. For optimal recruitment, the Service recommended the river channel remain wet for a minimum of 60 days after the spawn.

In addition to silvery minnow egg collection and monitoring to assess operations, the MAT is discussing activities that could be conducted to help during periods of low water supply, such as creating additional aquatic habitat. The workgroup will make recommendations in March and continue, as necessary. The workgroup will provide a report to the Collaborative Program on the effects of the actions ultimately taken.

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 2003 BiOp. In 2013, Reclamation reported it released a total of 45,980 acre-feet of leased SJCP water to assure compliance with the modified flow and wetted habitat parameters described earlier. Supplemental water releases were made from late March through early September.

Reclamation indicated it continued to maintain portable pumping stations at four locations on the LFCC in the San Acacia reach. The pumps were operated from late May through the first day of November to pump 14,926 acre-feet from the LFCC to the Rio Grande under a permit issued by the NMOSE.

Cochiti Reservoir Deviation

Previously, the Commission passed a Resolution approving, with certain

conditions, the Corps proposal to implement a five-year water operations strategy at Cochiti Lake and Jemez Canyon Reservoir. The proposal included requesting deviations from normal operations at Cochiti Lake and/or Jemez Canyon Reservoir to provide downstream recruitment and overbank flows for the benefit of the Rio Grande silvery minnow and the Southwestern willow flycatcher.

The Corps requested the advice and consent of the Commission for a deviation from normal operations in 2013. The Commission approved the request at its annual meeting. However, due to the well below average spring snowmelt runoff, the Corps was unable to execute the planned deviation. At the 2014 Engineer Adviser meeting, the Corps reported that their “spawning and recruitment deviation authority” expired in 2013 and they have no discretion to request a deviation in 2014.

Six Middle Rio Grande Pueblos Prior and Paramount Operations

Reclamation and BIA individually reported that their 2013 projected storage volume for the six Middle Rio Grande Pueblo Prior and Paramount (P&P) operation was 38,000 acre-feet. Because of the low runoff, Reclamation stored a total of 17,855 acre-feet in El Vado Reservoir in 2013 in the event that natural flows were insufficient to meet demand later in the year. The 17,855 acre-feet were stored between January and May 2013 when the Article VII storage restriction was in effect. During the 2013 irrigation season, 4,121 acre-feet were released for the operation. The stored water suffered 1,151 acre-feet of evaporative loss. The remaining 12,583 acre-feet were released and stored in Abiquiu Reservoir as part of a San Juan Chama Project water exchange at Elephant Butte Reservoir, described below.

Based on the February 1, 2014 most probable snowmelt runoff forecast, the BIA reported that Reclamation will likely store about 25,000 acre-feet for their

P&P operation in 2014, should the snowmelt runoff be sufficient. Reclamation reported that the Pueblos have requested a carryover storage option; however Reclamation reported they do not support that position. The BIA reported that it has not taken a position on the issue and is discussing the matter with Department of Interior officials. The Engineer Advisers do not support the carryover of unused stored water from the P&P operations.

The Engineer Advisers remain concerned about the procedures for quantifying storage, release and delivery of water for the P&P lands of the six Middle Rio Grande Pueblos. The Texas Engineer Adviser remains concerned about the storage of native Rio Grande water in El Vado Reservoir by Reclamation when the storage restrictions of Article VII are in effect.

San Juan Chama Water Exchange at Elephant Butte

During November 2013, Reclamation proposed an exchange of approximately 12,500 acre-feet of SJCP water stored in Elephant Butte Reservoir, for an identical amount of Rio Grande water then stored in El Vado. The purpose of the exchange was to provide water managers with the flexibility to enhance flows in the middle Rio Grande. Release of the water from Abiquiu during the spring of 2014 may help facilitate a spawn of the endangered Rio Grande silvery minnow should drought conditions persist. The Engineer Advisers reviewed the procedures and ensured there were no negative impacts to Compact accounting. A detailed description of the exchange accounting and conditions is contained in an ISC File Memo dated February 21, 2014.

Rio Grande Project Operations and Storage

Reclamation reported a final 2013 release from Caballo Reservoir of 168,638 acre-feet for all three Rio Grande Project water users: El Paso County

Water Improvement District No. 1 (EP No. 1), Elephant Butte Irrigation District (EBID), and Mexico. Reclamation indicated it used the 2008 Operating Agreement methodology to make end of year allocations to EBID at the diversion headings of 57,035 acre-feet (54,002 acre-feet were delivered, resulting in a carryover of 3,033 acre-feet to 2014), and to EP No.1 of 47,061 acre-feet (53,530 acre-feet were delivered resulting in a carryover of negative 6,469 acre-feet). During 2013, Mexico's diversion allocation was 3,665 acre-feet; 3,709 acre-feet were delivered. Reclamation indicated no data had been reported to them for flows into Hudspeth County Water Conservation and Reclamation District No. 1 during 2013. They did not report on deliveries by EP No.1 to the City of El Paso.

The inflow to Elephant Butte Reservoir computed by the URGWOM accounting model for 2013 was 331,670 acre-feet.

Reclamation reported that releases from Elephant Butte Reservoir started on May 23, 2013 and continued through July 8, 2013 with a total release during this period of 166,778 acre-feet. In comparison, the USGS reported the total annual flow at the gage below Elephant Butte dam was 168,700 acre-feet. Elephant Butte Reservoir peaked at about 279,000 acre-feet (elevation 4,320.83 feet) on December 31, 2013, and storage at Caballo Reservoir peaked at about 39,745 acre-feet (4,143.62 feet) on December 31, 2013. End-of-year storage at Elephant Butte Reservoir was about 279,000 acre-feet, which included 17,480 acre-feet of SJCP water. The end of year storage at Caballo Reservoir was 39,745 acre-feet. Reclamation further reported that Usable Water in Project Storage remained below the Article VII limit for the entire year.

At the 2014 Engineer Adviser meeting, New Mexico asked Reclamation for the final 2013 Rio Grande Project allocation, diversion and charges spreadsheets. Reclamation provided end of July 2013 records via email and reported that these were the final Rio Grande Project records for the year. The New Mexico Engineer

Adviser noted that the end of 2012 carryover allocations did not match the beginning of 2013 carryover allocations and expressed concern that it is unclear what procedures are being used to develop Project allocations.

At the 2011 annual meeting, the Colorado Engineer Adviser requested to be informed about future meetings on the Operating Agreement. In response Reclamation indicated that the “Allocation Committee” meetings would be held on the second Tuesday of each month and the Engineer Advisers are welcome to attend the meetings but only if they attend in person. Further, in a May 2012 letter to the New Mexico Engineer Adviser (cc’d to Texas and Colorado), Reclamation indicated that they, EBID and EP#1 had agreed to attendance by the Engineer Advisers and that Reclamation would provide a week’s notice by email to scheduled meetings. At the 2014 annual meeting, the New Mexico Engineer Adviser reported that the NMISC had made a number of efforts to be informed about and participate in “Allocation Committee” meetings with no success. Reclamation’s written presentation at the 2014 Engineer Adviser meeting stated that:

- Allocation Committee meets monthly to discuss Project allocations
- Information distributed within three days of meeting
- Distributed to three Compact Commissioners and Engineer Advisers, EBID and EPCWD#1, Albuquerque Area Office, and IBWC
- Reclamation to host annual meeting at start and end of irrigation season with above parties to discuss Project operations and allocations
- Questions may be presented to Reclamation and Allocation Committee at any time.

The Colorado Engineer Adviser asked for clarification regarding participation at the “Allocation Committee” meetings. The New Mexico and Colorado Engineer Advisers understand from Reclamation’s response that the Engineer Advisers are

now specifically not invited to the monthly meetings. The New Mexico and Colorado Engineer Advisers are concerned about this development and the continued lack of transparency in Rio Grande Project operations and accounting.

ADDITIONAL FEDERAL AGENCY REPORTED INFORMATION

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

Corps Rio Grande Environmental Management and Planning and Assistance to States Study

The Corps reported that the WRDA 2013 Bill is in conference committee after somewhat different bills were passed by the Senate and House in 2013. The draft bills contain language that would extend the authorization for the Rio Grande Environmental Management Program through 2024.

Further, the Corps reported they are working with the Colorado Division of Water Resources to address comments on the cost sharing agreement for the Planning and Assistance to the States Study that the three States and the Corps are hoping to conduct. That study is intended to result in a report that would provide support for a Corps FY 2016 Budget request for the Rio Grande Environmental Management Program.

Zebra Mussels/Quagga Mussels

The Engineer Advisers continue to be concerned about the possible infestation of Zebra and Quagga mussels in the Upper Rio Grande basin and their possible spread throughout the entire basin. Three reservoirs in New Mexico; Sumner, El Vado and Navajo, had been suspect in the past due to positive microscopic veliger tests. However, fortunately, subsequent testing has been

negative. Reclamation has sampled its New Mexico reservoir bodies since 2009. Sampling in 2013 revealed no positive tests.

Seven mussel decontamination station locations have been designated at Heron, El Vado, Elephant Butte Main Ferry, Elephant Butte Hot Springs, Sumner, and two sites at Brantley Reservoir. Reclamation also continues education, outreach and training efforts aimed at protecting New Mexico's water bodies.

Rio Grande Silvery Minnow

In 2013, the Service reported that silvery minnow spawning was documented in May at all three monitoring locations, yielding 63,000 eggs which were sufficient to meet both propagation and broodstock needs for the year.

The Service reported that 36.5 miles of the main channel of the river in the Middle Rio Grande dried resulting in the need for salvage of silvery minnow. Drying occurred in the Isleta reach (9.7 miles) and San Acacia reach (26.8 miles). Rescue operations were conducted on 32 days during 2013 between June 3 and August 23. A total of 1,141 silvery minnow were salvaged, transported and released alive in the river.

The Service reported that in October and November 2013 they released 292,927 tagged fish in the Angostura, Isleta and San Acacia reaches. More than 2 million silvery minnows have been released in the Middle Rio Grande since 2002.

The Service reported that during the October 2013 sampling effort, Rio Grande silvery minnow were found at 3 of the 20 sites monitored. In comparison, no silvery minnow were found at any of the 20 sites in October 2012 and silvery minnow were found at 8 of 20 sites in October 2011. The Service reported that the October 2013 sampling indicates poor survival of hatchery-reared silvery minnow and poor recruitment.

Middle Rio Grande Project Channel Maintenance

Reclamation indicated it continues to pursue work at 16 active priority sites along the Middle Rio Grande Project reach where bank erosion or reduced channel capacity could cause levee failure resulting in shallow overland flooding, reduction of water delivery, or destruction of canals and drains. Of the active priority sites, six require an annual review of channel capacity and possible maintenance due to sediment accumulation. In 2013, Reclamation completed work at two sites (San Ildelfonso Pond and San Felipe RM 215.5) and started work at one existing site (Santo Domingo RM 224.6).

Additionally, in mid-September 2013 New Mexico experienced intense and widespread monsoonal precipitation that caused varying degrees of flooding in river basins across the State. The Rio Grande basin experienced flash flooding in some areas as well as longer developing flood level flows. The resulting high flow events necessitated maintenance work at Peralta Canyon arroyo confluence, the Drain Unit 7 extension levee system (near La Joya and San Acacia Diversion Dam), and in the river channel immediately below Elephant Butte Dam associated with the Mescal and Cuchillo Negro arroyos in order to maintain acceptable conveyance capacities.

Vegetation Management at Elephant Butte and Caballo Reservoirs

Reclamation continued vegetation management efforts at Elephant Butte and Caballo Reservoirs in 2013 through a cooperative agreement funded by the NMISC. Reclamation reported that during the 2013 fiscal year, a total of 4,451 acres were treated at Caballo Reservoir under the program by mowing, mulching, grubbing, and extracting. There were no herbicide applications in 2013.

Southwestern Willow Flycatcher

In 2013 the Service issued a new critical habitat designation for the Southwestern willow flycatcher. The rule became effective on February 4, 2013. The rule designates new critical habitat in the Rio Grande Basin from Colorado south to the upper reaches of Elephant Butte Reservoir in New Mexico. New areas of critical habitat were designated in the Service's Upper and Middle Rio Grande management units including the upper nine miles within Elephant Butte Reservoir. Reclamation reported they are using an ESA Section 7(a)1 approach (a voluntary approach) to address flycatcher issues at Elephant Butte Reservoir and have developed a plan to do so.

The Reclamation "Flycatcher Management Plan" was submitted to the Service in April 2013. In addition, Reclamation reported they may address critical habitat in the reservoir pool as part of the Rio Grande Project Operations Environmental Impact Statement. The Service reported they advised Reclamation to conduct a Section 7 consultation and receive an Incidental Take Statement prior to the reservoir level rising significantly.

At the 2013 annual meeting, the Engineer Advisers requested that Reclamation complete its plan and the consultation with the Service by October 1, 2013. Further, the Engineer Advisers requested that Reclamation provide status reports on their progress by June 1 and September 1, 2013. Reclamation did not complete the plan or consultation but indicated at the 2014 Engineer Adviser meeting they are planning to begin consultation with the Service over Rio Grande Project operations.

Reclamation's Rio Grande Project Operations Plan for 2014

Reclamation reported that no Rio Grande Project diversion allocations had been finalized to date for 2014. Reclamation's initial draft allocations as of

February 1, 2014 are 85,385 acre-feet for EBID, 60,185 acre-feet for EP#1, and 10,515 acre-feet for Mexico. Reclamation indicated that both districts and Mexico anticipate beginning to take water on June 1, 2014. Reclamation estimates, based on the February 1, 2014 most probable snowmelt runoff forecast, that inflow to Elephant Butte Reservoir during the March through July time period will be approximately 15-30% of the 30-year average. Reclamation also reported that they anticipate Article VII restrictions will remain in effect for the entire year.

Silvery Minnow 10(j) Reintroduction in Big Bend-Texas

No systematic monitoring of the Big Bend 10(j) population in Texas is occurring, although the Service reported that 150,000 silvery minnow were released in 2013.

Additional Listing Information Provided by the Service

The Service reported on the status of work on issues for three additional species: the New Mexico Meadow Jumping Mouse, the Yellow-Billed Cuckoo, and the Rio Grande Cutthroat Trout. The Jumping Mouse has been proposed to be listed as endangered with critical habitat. Final Service decisions are anticipated in June 2014. A decision on listing the Yellow-Billed Cuckoo as threatened and associated critical habitat is expected this year. And, a species status assessment is being conducted on the Rio Grande Cutthroat Trout which the Service will use to base its finding on whether or not a listing is warranted.

International Boundary and Water Commission Activities

The IBWC provided a report of its activities along the Rio Grande in New Mexico and Texas during 2013. IBWC discussed their channel maintenance plans to ensure the Rio Grande is ready for the irrigation season. Sediment removal has

been completed upstream of the Hatch siphon and the Rincon siphon. Additional maintenance is scheduled for completion this spring at the Rincon Arroyo, Placitas Arroyo, Montoya Arroyo, Anapra Bridge to American Dam and upstream of the International dam.

Mexico was allocated 3,665 acre-feet and provided 3,709 acre-feet of water at the International Diversion Dam heading in 2013. For 2014, no allotments have been made to the Districts or Mexico as of the date of this report. Mexico has agreed to begin taking water in June 2014 when the two districts will begin taking water.

The IBWC discussed their Rio Grande flood control projects at eight sites in the Mesilla and El Paso Valley areas. They also discussed their rectification levee projects and their levee rehabilitation projects to meet FEMA accreditation standards. Numerous ongoing environmental restoration activities for the reach of the Rio Grande from Percha Diversion Dam to American Diversion Dam were discussed.

IBWC conducted a Water Budget Study to provide information for making future operational decisions on water releases and delivery scenarios. The study found that delayed and shorter release periods provide decreases in channel seepage during drought years. Improvements in data collection are also needed.

BUDGET

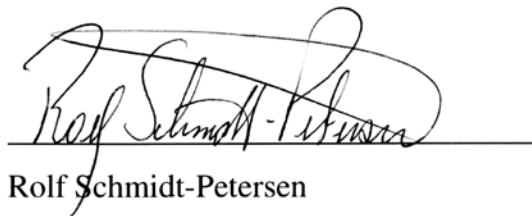
The Engineer Advisers reviewed the cost of operation for the year ending June 30, 2013 and the budget for the fiscal year ending June 30, 2015. The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2013 were \$186,337. The United States federal government bore \$53,142 of this total, with the balance of \$133,195 borne equally by the three states.

The proposed budget for the fiscal year ending June 30, 2015 indicates a total of \$201,072 will be spent for gaging and administration, with a proposed contribution by the United States federal government of \$54,390.



Craig W. Cotten

Engineer Adviser for Colorado



Rolf Schmidt-Petersen

Engineer Adviser for New Mexico



Herman R. Settemeyer

Engineer Adviser for Texas

The Colorado Engineer Adviser's Addendum to the 2014 Engineer Advisers' Report

March 20, 2014

At the 2014 Rio Grande Compact Commission (RGCC) Engineer Advisers' meeting held in Santa Fe, New Mexico on February 24-26, 2014 and in Albuquerque, New Mexico on February 27-28, 2014, the Engineer Advisers did not reach consensus on the 2013 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 and possibly in 2012, the appropriate accounting of 2011 and 2012 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 2013 and the Engineer Advisers did reach consensus on the accounting of the 2013 streamflow numbers. However, because of the effects of the releases of credit water in previous years, the accrued credits of Colorado and New Mexico in 2013 could not be agreed upon or finalized.

The Colorado Engineer Adviser presents for the Commission's consideration two methods of accounting for the 2013 calendar year Compact Accounting:

1. Method 2: (This method was referred to as method 2a in Colorado's 2013 addendum). Colorado and New Mexico Credit Water released during 2011, and accounted as being reduced in the month it was released, as in a relinquishment.
2. Method 3: (This method was referred to as method 2b in Colorado's 2013 addendum). Colorado and New Mexico Credit Water released during 2011 and 2012, accounted as being reduced in the month it was released; but then exchanged back into storage in Elephant Butte Reservoir before the end of the year as new inflow arrived.

In both instances, 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 2012 accounting results for the particular Method used through the 2013 calendar year. Both methods comply 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." The results for 2013 for both methods are summarized below.

Method 2:

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. This unauthorized release coupled with normal compact accounting resulted in 2013 Accrued Credits for Colorado that are less than those calculated in the Texas accounting method (Method 1). Method 2 results in Colorado having an Accrued Credit status for the end of year 2013 of 5,100 acre-feet.

The difference in Compact compliance status between the Texas method and Method 2 (minus 200 acre-feet for Colorado) illustrates the effect of Reclamation's 2011 release of Credit Water on Colorado Compact compliance carried forward through 2013. 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.

Method 3:

The accounting in this method reflects a "loan of credit water." This accounting option closely resembles the method approved for use in 1951 by the RGCC when Colorado loaned a portion of its credit water at the request of the Texas Commissioner.

In this Method of accounting, Reclamation released accrued Credit Water from Elephant Butte Reservoir during the summer of 2011 (approximately 33,000 acre-feet total) and summer of 2012 (approximately 12,000 acre-feet total). The release is accounted as being negative Usable Water. Then, as additional water flowed into Elephant Butte Reservoir and releases from the reservoir ceased, the Credit Water would be accounted as being replenished by the inflowing water. Based on this method, the Accrued Credits of Colorado for the end of calendar year 2013 would be 5,400 acre-feet.

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 and 2012 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 two methods proposed above are suggestions 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 2014 Engineer Advisers' Report to the Rio Grande Compact Commission

March 2014

At the 2014 Rio Grande Compact Commission (RGCC) Engineer Advisers' meeting held in Santa Fe, New Mexico on February 24-26, 2014 and in Albuquerque, New Mexico on February 27-28, 2014, the Engineer Advisers did not reach consensus on a method by which to conduct some portions of Rio Grande Compact (Compact) Accounting. The lack of consensus stems from the continuing disagreement, raised in litigation brought by New Mexico against the U.S. Bureau of Reclamation (Reclamation), regarding New Mexico and Colorado Credit Water that Reclamation released in 2011; the appropriate accounting of 2011, 2012, and 2013 New Mexico and Colorado deliveries that were affected by Reclamation's unilateral and unauthorized release beyond the available Usable Water; and the directly relevant 2006 direction of the RGCC to Reclamation regarding the accounting and release of accrued Credit Water.

The Texas Engineer Adviser conducted Compact accounting for the 2013 calendar year using a method (referred to as Method 1, below) that reduces Credit Water for evaporation monthly during the calendar year. The method was put forward to the Commission by Texas and Reclamation in 2012 but is contrary to Article VI of the Compact and the 2006 direction of the RGCC to Reclamation.

The New Mexico Engineer Adviser conducted Compact accounting for the 2013 Calendar year using the same method (referred to as Method 2, below) that he and the Colorado Engineer Adviser proposed in 2012 (see the 2012 New Mexico and Colorado addendum to the 2012 Engineer Adviser Report). The method reduces Credit Water 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 for Method 2 through the 2012 and 2013 calendar years. The results for 2013 for both methods are summarized below.

Method 1--Reduce Credit Water For Evaporation Monthly During the 2013 Calendar Year --

Method 1 (See Table of Methods: Method 1) was used by the Texas Engineer Adviser. Based on this method, the Compact credit status of Colorado and New Mexico at the beginning of 2014 would be 5,300 acre-feet and 77,700 acre-feet, respectively. However, as described in the 2012 New Mexico and Colorado addendum to the 2012 Engineer Adviser Report, Method 1 contravenes the last unnumbered paragraph of Article VI of the Compact and the unanimous direction of the RGCC to Reclamation in 2006.

The New Mexico Engineer Adviser believes that approval of Method 1 would require the RGCC to disregard the explicit language of the Compact and is contradictory to the unanimous RGCC directive in 2006. Therefore, Method 1 is not acceptable to the New Mexico Engineer Adviser.

Method 2--Reduce Credit Water for Evaporation at the end of the 2013 Calendar Year -

Method 2 (See Table of Methods: Method 2) was used by the New Mexico Engineer Adviser. Method 2 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”. Accrued Credit Water is held constant during the calendar year and Usable Water is then accounted during the year as defined in Article I(I).

This method acknowledges the physical act and reality that Reclamation released some of New Mexico and Colorado’s accrued Credit Water from Elephant Butte Reservoir during the summer of 2011 unilaterally and without the permission of New Mexico or Colorado. This unauthorized release coupled with normal -Compact accounting resulted in 2013 Accrued Credits for Colorado and New Mexico that are less than those calculated in Method 1. Method 2 resulted in Accrued Credits at the beginning of 2013 of 6,100 acre-feet for Colorado and 3,000 acre-feet for New Mexico. The New Mexico Adviser used those values as input for the 2013 Compact accounting. Consequently, the Compact compliance status for Colorado and New Mexico at the beginning of 2014 would be 5,100 acre-feet and 62,400 acre-feet, respectively.

The difference in Compact compliance status between Method 1 and Method 2 (minus 1,000 acre-feet for Colorado and minus 15,300 acre-feet for New Mexico) depicts the effect of Reclamation’s 2011 release of Credit Water on Colorado and New Mexico Compact compliance accounting carried forward through 2013.

If Reclamation’s 2011 release had been an authorized relinquishment, New Mexico and Colorado would have received Article VII benefits, to which they are entitled under the Compact. However, neither New Mexico nor Colorado received the Article VII benefit of being able to store a like amount of water to the Credit Water released by Reclamation in 2011 (33,825 acre-feet) in the future when the Article VII of the compact storage restriction is in effect. New Mexico and Colorado were denied Article VII benefits because the releases by Reclamations were unauthorized.

Summary

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

- 1) New Mexico has sole authority to offer to relinquish any of its respective accrued Credit Water; and
- 2) Reclamation's continued denial of the upstream states' benefits associated with relinquishments under the Compact (the right to store water in certain reservoirs upstream of Elephant Butte when otherwise prohibited to do so under Article VII) and elimination of the Texas' incentive to meet with either Colorado or New Mexico and accept a relinquishment during drought times. That incentive being the ability of downstream users to receive water from Elephant Butte Reservoir that otherwise would not be available under the Compact.

Absent an explicit agreement by Reclamation to abide by the last unnumbered paragraph of Article VI of the Compact and the RGCC's 2006 directives regarding the accounting and release of accrued Credit Water, the New Mexico Engineer Adviser recommends that the RGCC not approve any compact accounting for 2011, 2012, and 2013 until the underlying issues are resolved.

**Addendum Engineer Advisers Report
Texas Engineer Adviser
March 20, 2014**

The Engineer Advisers to the Rio Grande Compact Commission (Commission) were unable to reach agreement on the Accounting of water deliveries for 2013. 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 2013 and labeled as Method 1, 2, and 3. The Texas Engineer Adviser proposes that Method 1 be accepted and thus bases his 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. As described in the memorandum, the Commission has been inconsistent in the way it has tabulated Credit Water in storage based on evaporation losses during the year. There are times when the Commission has approved an accounting where Credit Water is held constant each month and the Credit Water is 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 go negative and Credit Water was released, those amounts were repaid immediately as inflows occur. Also, there are times when the Commission has approved the evaporation of Credit Water monthly (Method 1). That is, Credit Water and Usable Water are subject to evaporation as it occurs. Under this method, the Texas Engineer Adviser understands that Usable Water has not gone 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 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 Engineer Advisers presented recommendations to the Commission on this issue in 2006. The Commission approved three recommendations. The recommendations were:

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 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 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.

COMPACT ACCOUNTING 2013 - METHOD 1

The Texas Engineer Adviser has reviewed the streamflow and reservoir storage records and other pertinent data for calendar year 2013. This method, recommended by the Texas Engineer Adviser, reduces the Credit Water evaporation monthly. The scheduled and actual deliveries, release of Usable Water for the year 2013, and balances as of January 1, 2014 are as follows:

(a) Deliveries by Colorado at the State line:

Balance as of January 1, 2013	6,300 acre-feet
Scheduled delivery	136,000 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	139,600 acre-feet
Reduction of credit water on account of evaporation	1,600 acre-feet
Accrued credit relinquished to Project Storage May 31, 2013	3,000 acre-feet
Accrued credit January 1, 2014	5,300 acre-feet

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

Balance as of January 1, 2013	24,700 acre-feet
Scheduled delivery	249,800 acre-feet
Actual delivery	310,100 acre-feet
Reduction of credit on account of evaporation	7,300 acre-feet
Accrued credit January 1, 2014	77,700 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2013	1,415,800 acre-feet
Actual release of Usable Water	169,500 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2014	1,565,800 acre-feet
Under release capped at 150,000	

The Texas Engineer Adviser also reviewed a tabulation of the accounting showing the results of holding the Credit Water constant (Method 3) until the end of the calendar year. That accounting showed that total Usable Water did not become negative throughout the year. Thus, no Credit Water was released.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2013 - 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 OF MONTH ^e	CHANGE IN STORAGE ^c	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN DIVERSIONS ^b	OTHER ADJUSTMENTS ^a	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	
	-----	-----	-----	-----	5.8	-----	-----	-----	-----	0.0	-----	0.2	-----	-----	-----	-----	-----	0.0	-----	-----	-----	0.0	
JAN	2.3	-----	-----	2.3	5.8	0.0		0.0	2.3	2.3	7.7	0.2	0.0			0.0	7.7	7.7	1.5	7.6	9.1	9.1	
FEB	2.1	-----	-----	2.1	5.8	0.0		0.0	2.1	4.4	7.2	0.2	0.0			0.0	7.2	14.9	2.2	8.5	10.7	19.8	
MAR	3.8	-----	-----	3.8	5.8	0.0		0.0	3.8	8.2	11.8	0.2	0.0			0.0	11.8	26.7	3.8	15.4	19.2	39.0	
APR	7.6	5.2	1.1	13.9	6.1	0.3		0.3	14.2	22.4	26.2	0.2	0.0			0.0	26.2	52.9	0.2	8.5	8.7	47.7	
MAY	39.8	13.3	0.8	53.9	6.5	0.4	0.1	0.5	54.4	76.8	120.4	0.2	0.0			0.0	120.4	173.3	0.2	5.1	5.3	53.0	
JUN	22.3	3.2	0.0	25.5	7.9	1.4	0.1	1.5	27.0	103.8	51.3	0.2	0.0			0.0	51.3	224.6	0.1	2.9	3.0	56.0	
JUL	8.4	1.0	0.1	9.5	5.8	-2.1	0.0	-2.1	7.4	111.2	21.0	0.2	0.0	-1.6	0.3	-1.3	19.7	244.3	0.0	1.8	1.8	57.8	
AUG	10.0	1.6	0.1	11.7	5.7	-0.1	0.0	-0.1	11.6	122.8	45.5	0.2	0.0			0.0	45.5	289.8	0.0	4.6	4.6	62.4	
SEPT	10.4	2.0	0.3	12.7	5.8	0.1	0.1	0.2	12.9	135.7	80.1	0.2	0.0			0.0	80.1	369.9	0.0	12.5	12.5	74.9	
OCT	7.8	1.7	0.2	9.7	5.4	-0.4	0.1	-0.3	9.4	145.1	54.1	0.2	0.0			0.0	54.1	424.0	0.0	15.7	15.7	90.6	
NOV	4.2		-----	4.2	5.9	0.5	0.0	0.5	4.7	149.8	21.2	0.2	0.0			0.0	21.2	445.2	1.4	20.2	21.6	112.2	
DEC	2.8	-----	-----	2.8	6.3	0.4		0.4	3.2	153.0	13.1	0.2	0.0			0.0	13.1	458.3	3.9	13.5	17.4	129.6	
YEAR	121.5	28.0	2.6	152.1	-----	0.5	0.4	0.9	153.0	-----	459.6	-----	0.0	-1.6	0.3	-1.3	458.3	-----	13.3	116.3	129.6	-----	
Remarks: Cols. 6 and 13 do not include transmountain water. ^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado. ^b 1,832 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado. ^c See Engineer Adviser report in regards to change of storage. ^d Reduction of Credit for Evaporation calculated on a monthly basis. ^e Note: Storage of relinquishment credit accrued in Platoro Reservoir during 2013. Storage of relinquished credit to date has totaled 533 acre-feet; balance remaining is 2,467 acre-feet.												SUMMARY OF DEBITS AND CREDITS											
												ITEM		DEBIT	CREDIT	BALANCE							
												C1	Balance at Beginning of Year	-----	-----	Cr. 6.3							
												C2	Scheduled Delivery from Conejos River	21.5	-----	Dr. 15.2							
												C3	Scheduled Delivery from Rio Grande	114.5	-----	Dr. 129.7							
												C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	-----	139.6	Cr. 9.9							
												C5	Reduction of Debits o/c Evaporation	-----									
												C6	Reduction of Credits o/c Evaporation ^a	1.6	-----	Cr. 8.3							
												C7	Accrued credit relinquished to project storage on May 31, 2013.	3.0									
C8	Balance at End of Year	-----	-----	Cr. 5.3																			

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

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2013 - 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, b}	ELEPHANT BUTTE EFFECTIVE SUPPLY				
	Recorded Flow at Otowi Bridge	ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	Effective Supply	
		RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments ^d	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, b}	Change in Storage	Reservoir Evaporation											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	-----	0.0	-----	-----	-----	-----	-----	-----	-----	-1.4	120.2	-----	-----	-----	-----
JAN	29.7	2.3	2.3	0.0		-3.4	-1.1	28.6	28.6	1.6	146.6	26.4	0.1	26.5	26.5
FEB	29.6	4.6	2.3	0.0		-1.9	0.4	30.0	58.6	3.2	171.3	24.7	0.7	25.4	51.9
MAR	40.6	9.5	4.9	0.0		-3.6	1.3	41.9	100.5	8.2	184.8	13.5	0.4	13.9	65.8
APR	54.9	12.9	3.4	0.1		-15.3	-11.8	43.1	143.6	12.5	188.6	3.8	0.0	3.8	69.6
MAY	68.7	17.6	4.7	0.1		-23.8	-19.0	49.7	193.3	17.5	160.3	-28.3	34.7	6.4	76.0
JUN	66.1	16.5	-1.1	0.0		-50.9	-52.0	14.1	207.4	16.2	48.1	-112.2	112.8	0.6	76.6
JUL	27.9	15.0	-1.5	0.0		-5.3	-6.8	21.1	228.5	14.7	42.8	-5.3	19.8	14.5	91.1
AUG	29.5	12.9	-2.1	0.2		-7.1	-9.0	20.5	249.0	12.9	59.9	17.1	0.0	17.1	108.2
SEPT	57.6	18.2	5.3	0.2		-2.7	2.8	60.4	309.4	44.1	132.4	72.5	0.1	72.6	180.8
OCT	48.9	13.0	-5.2	0.1		-3.1	-8.2	40.7	350.1	13.8	161.7	29.3	0.1	29.4	210.2
NOV	50.3	9.8	-3.2	0.1	2.7	-3.5	-3.9	46.4	396.5	10.1	208.3	46.6	0.0	46.6	256.8
DEC	42.8	0.1	-9.7	0.0	9.7	-1.8	-1.8	41.0	437.5	-0.1	261.6	53.3	0.0	53.3	310.1
YEAR	546.6	-----	0.1	0.8		-122.4	-109.1	437.5	-----	-----	-----	141.4	168.7	310.1	-----
Remarks: a Cols. 3, 11, and 12 do not include transmountain water. b Note: No storage of relinquishment credit under previous relinquishment agreements occurred in El Vado Reservoir in 2013. Storage of relinquished credit to date has totaled 223,270 acre-feet; balance remaining is 157,230 acre-feet. c Reduction of Credit for Evaporation calculated on a monthly basis. d Adjustment for San Juan Chama exchange operation in November and December 2013 to account for native water that would have passed the Otowi gage had the exchange not occurred (ISC File Memo, 2/21/14).										SUMMARY OF DEBITS AND CREDITS					
										ITEM		DEBIT	CREDIT	BALANCE	
										NM1	Balance at Beginning of Year	-----	-----	Cr. 24.7	
										NM2	Scheduled Delivery at Elephant Butte	249.8	-----	Dr. 225.1	
										NM3	Actual Elephant Butte Effective Supply	-----	310.1	Cr. 85.0	
										NM4	Reduction of Debits o/c Evaporation	-----			
										NM5	Reduction of Credits o/c Evaporation and Spill ^c	7.3	-----	Cr. 77.7	
										NM6			-----		
										NM7					
										NM8	Balance at End of Year	-----	-----	Cr. 77.7	

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

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2013 - Method 1

Quantities in thousands of acre feet to nearest hundred

MONTH	^a Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	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		^c Colorado Credit Water	^c New Mexico Credit 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	
	1,999.6	^b 89.2	7.5	^b 96.7	1,902.9	^b 6.3	^b 24.7	^b 31.0		127.7	-----	-----	-----	-----	-----	-----	-----	0.0	
JAN	1,999.6	115.9	8.4	124.3	1,875.3	6.2	24.5	30.7		155.0	0.0	0.0	0.0				0.0	0.0	
FEB	1,999.6	140.9	9.7	150.6	1,849.0	6.2	24.2	30.4		181.0	0.0	0.0	0.0				0.0	0.0	
MAR	1,999.6	155.1	10.6	165.7	1,833.9	6.0	23.7	29.7		195.4	0.0	0.1	0.1				0.1	0.1	
APR	1,974.6	159.9	10.2	170.1	1,804.5	5.8	22.9	28.7		198.8	0.0	0.1	0.1				0.1	0.2	
MAY	1,974.6	132.8	36.1	168.9	1,805.7	5.6	21.9	27.5		196.4	0.0	0.1	0.1				0.1	0.3	
JUN	1,974.6	27.1	21.2	48.3	1,926.3	1.9	19.1	21.0		69.3	127.0	0.1	127.1				127.1	127.4	
JUL	1,974.6	22.5	8.6	31.1	1,943.5	1.8	18.5	20.3		51.4	41.1	0.2	41.3				41.3	168.7	
AUG	1,974.6	40.1	11.8	51.9	1,922.7	1.8	18.0	19.8		71.7	0.1	0.1	0.2				0.2	168.9	
SEPT	1,974.6	112.6	39.6	152.2	1,822.4	1.8	18.0	19.8		172.0	0.1	0.1	0.2				0.2	169.1	
OCT	1,999.6	142.4	38.6	181.0	1,818.6	1.7	17.6	19.3		200.3	0.1	0.1	0.2				0.2	169.3	
NOV	1,999.6	189.2	39.0	228.2	1,771.4	1.7	17.4	19.1		247.3	0.1	0.0	0.1				0.1	169.4	
DEC	1,999.6	242.5	39.7	282.2	1,717.4	1.7	17.4	19.1		301.3	0.1	0.0	0.1				0.1	169.5	
YEAR	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	168.6	0.9	169.5	0.0	0.0	0.0	169.5	-----	
Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte and Caballo Reservoirs, effective Jan 1, 2009 ^a Project Storage Capacity is 1,974,600 acre-feet (April to September) and 1,999,600 acre-feet (October to March) as adopted by the Rio Grande Compact Commission on March 31, 2009 with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March. ^b Based on 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.1415.8		
											P2	Actual Release during Year			169.5	-----	Cr. 1246.3		
											P3	Normal Release for Year			-----	790.0	Cr. 2036.3		
											P4	Under Release in Excess of 150.0			470.5	-----	Cr. 1565.8		
											P5				-----				
											P6								
											P7	Accrued Departure at End of Year			-----	-----	Cr.1565.8		

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

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2013 - 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 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 OF MONTH ^e	CHANGE IN STORAGE ^c	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN DIVERSIONS ^b	OTHER ADJUSTMENTS ^a	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				
	-----	-----	-----	-----	5.8	-----	-----	-----	-----	0.0	-----	0.2	-----	-----	-----	-----	-----	0.0	-----	-----	-----	0.0				
JAN	2.3	-----	-----	2.3	5.8	0.0		0.0	2.3	2.3	7.7	0.2	0.0			0.0	7.7	7.7	1.5	7.6	9.1	9.1				
FEB	2.1	-----	-----	2.1	5.8	0.0		0.0	2.1	4.4	7.2	0.2	0.0			0.0	7.2	14.9	2.2	8.5	10.7	19.8				
MAR	3.8	-----	-----	3.8	5.8	0.0		0.0	3.8	8.2	11.8	0.2	0.0			0.0	11.8	26.7	3.8	15.4	19.2	39.0				
APR	7.6	5.2	1.1	13.9	6.1	0.3		0.3	14.2	22.4	26.2	0.2	0.0			0.0	26.2	52.9	0.2	8.5	8.7	47.7				
MAY	39.8	13.3	0.8	53.9	6.5	0.4	0.1	0.5	54.4	76.8	120.4	0.2	0.0			0.0	120.4	173.3	0.2	5.1	5.3	53.0				
JUN	22.3	3.2	0.0	25.5	7.9	1.4	0.1	1.5	27.0	103.8	51.3	0.2	0.0			0.0	51.3	224.6	0.1	2.9	3.0	56.0				
JUL	8.4	1.0	0.1	9.5	5.8	-2.1	0.0	-2.1	7.4	111.2	21.0	0.2	0.0	-1.6	0.3	-1.3	19.7	244.3	0.0	1.8	1.8	57.8				
AUG	10.0	1.6	0.1	11.7	5.7	-0.1	0.0	-0.1	11.6	122.8	45.5	0.2	0.0			0.0	45.5	289.8	0.0	4.6	4.6	62.4				
SEPT	10.4	2.0	0.3	12.7	5.8	0.1	0.1	0.2	12.9	135.7	80.1	0.2	0.0			0.0	80.1	369.9	0.0	12.5	12.5	74.9				
OCT	7.8	1.7	0.2	9.7	5.4	-0.4	0.1	-0.3	9.4	145.1	54.1	0.2	0.0			0.0	54.1	424.0	0.0	15.7	15.7	90.6				
NOV	4.2		-----	4.2	5.9	0.5	0.0	0.5	4.7	149.8	21.2	0.2	0.0			0.0	21.2	445.2	1.4	20.2	21.6	112.2				
DEC	2.8	-----	-----	2.8	6.3	0.4		0.4	3.2	153.0	13.1	0.2	0.0			0.0	13.1	458.3	3.9	13.5	17.4	129.6				
YEAR	121.5	28.0	2.6	152.1	-----	0.5	0.4	0.9	153.0	-----	459.6	-----	0.0	-1.6	0.3	-1.3	458.3	-----	13.3	116.3	129.6	-----				
Remarks: Cols. 6 and 13 do not include transmountain water. ^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado. ^b 1,832 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado. ^c See Engineer Adviser report in regards to change of storage. ^d Evaporation of credit water accounted as described in Article VI of the Rio Grande Compact. ^e Note: Storage of relinquishment credit accrued in Platoro Reservoir during 2013. Storage of relinquished credit to date has totaled 533 acre-feet; balance remaining is 2,467 acre-feet.												SUMMARY OF DEBITS AND CREDITS														
												ITEM												DEBIT	CREDIT	BALANCE
												C1	Balance at Beginning of Year											-----	-----	Cr. 6.1
												C2	Scheduled Delivery from Conejos River											21.5	-----	Dr. 15.4
												C3	Scheduled Delivery from Rio Grande											114.5	-----	Dr. 129.9
												C4	Actual Delivery at Lobatos plus 10,000 Acre Feet											-----	139.6	Cr. 9.7
												C5	Reduction of Debits o/c Evaporation											-----		
												C6	Reduction of Credits o/c Evaporation ^d											1.6	-----	Cr. 8.1
												C7	Accrued credit relinquished to project storage on May 31, 2013.											3.0		
C8	Balance at End of Year											-----	-----	Cr. 5.1												

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

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2013 - 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, b}	ELEPHANT BUTTE EFFECTIVE SUPPLY				
	Recorded Flow at Otowi Bridge	ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	Effective Supply	
		RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments ^d	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, b}	Change in Storage	Reservoir Evaporation											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	-----	0.0	-----	-----	-----	-----	-----	-----	-----	-1.4	120.2	-----	-----	-----	-----
JAN	29.7	2.3	2.3	0.0		-3.4	-1.1	28.6	28.6	1.6	146.6	26.4	0.1	26.5	26.5
FEB	29.6	4.6	2.3	0.0		-1.9	0.4	30.0	58.6	3.2	171.3	24.7	0.7	25.4	51.9
MAR	40.6	9.5	4.9	0.0		-3.6	1.3	41.9	100.5	8.2	184.8	13.5	0.4	13.9	65.8
APR	54.9	12.9	3.4	0.1		-15.3	-11.8	43.1	143.6	12.5	188.6	3.8	0.0	3.8	69.6
MAY	68.7	17.6	4.7	0.1		-23.8	-19.0	49.7	193.3	17.5	160.3	-28.3	34.7	6.4	76.0
JUN	66.1	16.5	-1.1	0.0		-50.9	-52.0	14.1	207.4	16.2	48.1	-112.2	112.8	0.6	76.6
JUL	27.9	15.0	-1.5	0.0		-5.3	-6.8	21.1	228.5	14.7	42.8	-5.3	19.8	14.5	91.1
AUG	29.5	12.9	-2.1	0.2		-7.1	-9.0	20.5	249.0	12.9	59.9	17.1	0.0	17.1	108.2
SEPT	57.6	18.2	5.3	0.2		-2.7	2.8	60.4	309.4	44.1	132.4	72.5	0.1	72.6	180.8
OCT	48.9	13.0	-5.2	0.1		-3.1	-8.2	40.7	350.1	13.8	161.7	29.3	0.1	29.4	210.2
NOV	50.3	9.8	-3.2	0.1	2.7	-3.5	-3.9	46.4	396.5	10.1	208.3	46.6	0.0	46.6	256.8
DEC	42.8	0.1	-9.7	0.0	9.7	-1.8	-1.8	41.0	437.5	-0.1	261.6	53.3	0.0	53.3	310.1
YEAR	546.6	-----	0.1	0.8		-122.4	-109.1	437.5	-----	-----	-----	141.4	168.7	310.1	-----
Remarks: ^a Cols. 3, 11, and 12 do not include transmountain water. ^b Note: No storage of relinquishment credit under previous relinquishment agreements occurred in El Vado Reservoir in 2013. Storage of relinquished credit to date has totaled 223,270 acre-feet; balance remaining is 157,230 acre-feet. ^c Evaporation of credit water accounted as described in Article VI of the Rio Grande Compact. ^d Adjustment for San Juan Chama exchange operation in November and December 2013 to account for native water that would have passed the Otowi gage had the exchange not occurred (ISC File Memo, 2/21/14).										SUMMARY OF DEBITS AND CREDITS					
										ITEM		DEBIT	CREDIT	BALANCE	
										NM1	Balance at Beginning of Year	-----	-----	Cr. 3.0	
										NM2	Scheduled Delivery at Elephant Butte	249.8	-----	Dr. 246.8	
										NM3	Actual Elephant Butte Effective Supply	-----	310.1	Cr. 63.3	
										NM4	Reduction of Debits o/c Evaporation	-----			
										NM5	Reduction of Credits o/c Evaporation and Spill ^c	0.9	-----	Cr. 62.4	
										NM6			-----		
										NM7					
										NM8	Balance at End of Year	-----	-----	Cr. 62.4	

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

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2013 - Method 2

Quantities in thousands of acre feet to nearest hundred

MONTH	^a Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	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		^c Colorado Credit Water	^c New Mexico Credit 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	
	1,999.6	^b 111.1	7.5	^b 118.6	1,881.0	^b 6.1	^b 3.0	^b 9.1		127.7	-----	-----	-----	-----	-----	-----	-----	0.0	
JAN	1,999.6	137.5	8.4	145.9	1,853.7	6.1	3.0	9.1		155.0	0.0	0.0	0.0				0.0	0.0	
FEB	1,999.6	162.2	9.7	171.9	1,827.7	6.1	3.0	9.1		181.0	0.0	0.0	0.0				0.0	0.0	
MAR	1,999.6	175.7	10.6	186.3	1,813.3	6.1	3.0	9.1		195.4	0.0	0.1	0.1				0.1	0.1	
APR	1,974.6	179.5	10.2	189.7	1,784.9	6.1	3.0	9.1		198.8	0.0	0.1	0.1				0.1	0.2	
MAY	1,974.6	151.2	36.1	187.3	1,787.3	6.1	3.0	9.1		196.4	0.0	0.1	0.1				0.1	0.3	
JUN	1,974.6	42.0	21.2	63.2	1,911.4	3.1	3.0	6.1		69.3	127.0	0.1	127.1				127.1	127.4	
JUL	1,974.6	36.7	8.6	45.3	1,929.3	3.1	3.0	6.1		51.4	41.1	0.2	41.3				41.3	168.7	
AUG	1,974.6	53.8	11.8	65.6	1,909.0	3.1	3.0	6.1		71.7	0.1	0.1	0.2				0.2	168.9	
SEPT	1,974.6	126.3	39.6	165.9	1,808.7	3.1	3.0	6.1		172.0	0.1	0.1	0.2				0.2	169.1	
OCT	1,999.6	155.6	38.6	194.2	1,805.4	3.1	3.0	6.1		200.3	0.1	0.1	0.2				0.2	169.3	
NOV	1,999.6	202.2	39.0	241.2	1,758.4	3.1	3.0	6.1		247.3	0.1	0.0	0.1				0.1	169.4	
DEC	1,999.6	255.5	39.7	295.2	1,704.4	3.1	3.0	6.1		301.3	0.1	0.0	0.1				0.1	169.5	
YEAR	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	168.6	0.9	169.5	0.0	0.0	0.0	169.5	-----	
Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte and Caballo Reservoirs, effective Jan 1, 2009 ^a Project Storage Capacity is 1,974,600 acre-feet (April to September) and 1,999,600 acre-feet (October to March) as adopted by the Rio Grande Compact Commission on March 31, 2009 with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March. ^b Based on 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 Commissson 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 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 and 2013 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			169.5	-----	Cr.		
											P3	Normal Release for Year			-----	790.0	Cr.		
											P4	Under Release in Excess of 150.0			470.5	-----	Cr.		
											P5				-----				
											P6								
											P7	Accrued Departure at End of Year			-----	-----	Cr.		

APPROVED:
Engineer Adviser for Colorado_____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: _____

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2013 - Method 3

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 OF MONTH ^e	CHANGE IN STORAGE ^c	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN DIVERSIONS ^b	OTHER ADJUSTMENTS ^a	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
	-----	-----	-----	-----	5.8	-----	-----	-----	-----	0.0	-----	0.2	-----	-----	-----	-----	-----	0.0	-----	-----	-----	0.0
JAN	2.3	-----	-----	2.3	5.8	0.0		0.0	2.3	2.3	7.7	0.2	0.0			0.0	7.7	7.7	1.5	7.6	9.1	9.1
FEB	2.1	-----	-----	2.1	5.8	0.0		0.0	2.1	4.4	7.2	0.2	0.0			0.0	7.2	14.9	2.2	8.5	10.7	19.8
MAR	3.8	-----	-----	3.8	5.8	0.0		0.0	3.8	8.2	11.8	0.2	0.0			0.0	11.8	26.7	3.8	15.4	19.2	39.0
APR	7.6	5.2	1.1	13.9	6.1	0.3		0.3	14.2	22.4	26.2	0.2	0.0			0.0	26.2	52.9	0.2	8.5	8.7	47.7
MAY	39.8	13.3	0.8	53.9	6.5	0.4	0.1	0.5	54.4	76.8	120.4	0.2	0.0			0.0	120.4	173.3	0.2	5.1	5.3	53.0
JUN	22.3	3.2	0.0	25.5	7.9	1.4	0.1	1.5	27.0	103.8	51.3	0.2	0.0			0.0	51.3	224.6	0.1	2.9	3.0	56.0
JUL	8.4	1.0	0.1	9.5	5.8	-2.1	0.0	-2.1	7.4	111.2	21.0	0.2	0.0	-1.6	0.3	-1.3	19.7	244.3	0.0	1.8	1.8	57.8
AUG	10.0	1.6	0.1	11.7	5.7	-0.1	0.0	-0.1	11.6	122.8	45.5	0.2	0.0			0.0	45.5	289.8	0.0	4.6	4.6	62.4
SEPT	10.4	2.0	0.3	12.7	5.8	0.1	0.1	0.2	12.9	135.7	80.1	0.2	0.0			0.0	80.1	369.9	0.0	12.5	12.5	74.9
OCT	7.8	1.7	0.2	9.7	5.4	-0.4	0.1	-0.3	9.4	145.1	54.1	0.2	0.0			0.0	54.1	424.0	0.0	15.7	15.7	90.6
NOV	4.2		-----	4.2	5.9	0.5	0.0	0.5	4.7	149.8	21.2	0.2	0.0			0.0	21.2	445.2	1.4	20.2	21.6	112.2
DEC	2.8	-----	-----	2.8	6.3	0.4		0.4	3.2	153.0	13.1	0.2	0.0			0.0	13.1	458.3	3.9	13.5	17.4	129.6
YEAR	121.5	28.0	2.6	152.1	-----	0.5	0.4	0.9	153.0	-----	459.6	-----	0.0	-1.6	0.3	-1.3	458.3	-----	13.3	116.3	129.6	-----
Remarks: Cols. 6 and 13 do not include transmountain water. ^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado. ^b 1,832 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado. ^c See Engineer Adviser report in regards to change of storage. ^d Evaporation of Credit Water computed according to Article VI of the Rio Grande Compact using the Annual Method applied by the Rio Grande Compact Commission for the 1951 Loan of Credit ^e Note: Storage of relinquishment credit accrued in Platoro Reservoir during 2013. Storage of relinquished credit to date has totaled 533 acre-feet; balance remaining is 2,467 acre-feet.												SUMMARY OF DEBITS AND CREDITS										
												ITEM		DEBIT	CREDIT	BALANCE						
												C1	Balance at Beginning of Year	-----	-----	Cr. 6.4						
												C2	Scheduled Delivery from Conejos River	21.5	-----	Dr. 15.1						
												C3	Scheduled Delivery from Rio Grande	114.5	-----	Dr. 129.6						
												C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	-----	139.6	Cr. 10.0						
												C5	Reduction of Debits o/c Evaporation	-----								
												C6	Reduction of Credits o/c Evaporation ^d	1.6	-----	Cr. 8.4						
												C7	Accrued credit relinquished to project storage on May 31, 2013.	3.0								
C8	Balance at End of Year	-----	-----	Cr. 5.4																		

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

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2013 - Method 3

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, b}	ELEPHANT BUTTE EFFECTIVE SUPPLY				
	Recorded Flow at Otowi Bridge	ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	Effective Supply	
		RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments ^d	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, b}	Change in Storage	Reservoir Evaporation											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	-----	0.0	-----	-----	-----	-----	-----	-----	-----	-1.4	120.2	-----	-----	-----	-----
JAN	29.7	2.3	2.3	0.0		-3.4	-1.1	28.6	28.6	1.6	146.6	26.4	0.1	26.5	26.5
FEB	29.6	4.6	2.3	0.0		-1.9	0.4	30.0	58.6	3.2	171.3	24.7	0.7	25.4	51.9
MAR	40.6	9.5	4.9	0.0		-3.6	1.3	41.9	100.5	8.2	184.8	13.5	0.4	13.9	65.8
APR	54.9	12.9	3.4	0.1		-15.3	-11.8	43.1	143.6	12.5	188.6	3.8	0.0	3.8	69.6
MAY	68.7	17.6	4.7	0.1		-23.8	-19.0	49.7	193.3	17.5	160.3	-28.3	34.7	6.4	76.0
JUN	66.1	16.5	-1.1	0.0		-50.9	-52.0	14.1	207.4	16.2	48.1	-112.2	112.8	0.6	76.6
JUL	27.9	15.0	-1.5	0.0		-5.3	-6.8	21.1	228.5	14.7	42.8	-5.3	19.8	14.5	91.1
AUG	29.5	12.9	-2.1	0.2		-7.1	-9.0	20.5	249.0	12.9	59.9	17.1	0.0	17.1	108.2
SEPT	57.6	18.2	5.3	0.2		-2.7	2.8	60.4	309.4	44.1	132.4	72.5	0.1	72.6	180.8
OCT	48.9	13.0	-5.2	0.1		-3.1	-8.2	40.7	350.1	13.8	161.7	29.3	0.1	29.4	210.2
NOV	50.3	9.8	-3.2	0.1	2.7	-3.5	-3.9	46.4	396.5	10.1	208.3	46.6	0.0	46.6	256.8
DEC	42.8	0.1	-9.7	0.0	9.7	-1.8	-1.8	41.0	437.5	-0.1	261.6	53.3	0.0	53.3	310.1
YEAR	546.6	-----	0.1	0.8		-122.4	-109.1	437.5	-----	-----	-----	141.4	168.7	310.1	-----
Remarks: a Cols. 3, 11, and 12 do not include transmountain water. b Note: No storage of relinquishment credit under previous relinquishment agreements occurred in El Vado Reservoir in 2013. Storage of relinquished credit to date has totaled 223,270 acre-feet; balance remaining is 157,230 acre-feet. c Evaporation of Credit Water computed according to Article VI of the Rio Grande Compact using the Annual Method applied by the Rio Grande Compact Commission for the 1951 Loan of Credit. d Adjustment for San Juan Chama exchange operation in November and December 2013 to account for native water that would have passed the Otowi gage had the exchange not occurred (ISC File Memo, 2/21/14).							SUMMARY OF DEBITS AND CREDITS								
							ITEM					DEBIT	CREDIT	BALANCE	
							NM1	Balance at Beginning of Year				-----	-----	Cr. 26.1	
							NM2	Scheduled Delivery at Elephant Butte				249.8	-----	Dr. 233.7	
							NM3	Actual Elephant Butte Effective Supply				-----	310.1	Cr. 86.4	
							NM4	Reduction of Debits o/c Evaporation				-----			
							NM5	Reduction of Credits o/c Evaporation and Spill ^c				7.8	-----	Cr. 78.6	
							NM6						-----		
							NM7								
NM8	Balance at End of Year				-----	-----	Cr. 78.6								

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

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2013 - Method 3

Quantities in thousands of acre feet to nearest hundred

MONTH	Total Project Storage Capacity Available at End of Month ^a	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	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		^c Colorado Credit Water	^c New Mexico Credit 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
	1,999.6	87.7	7.5	95.2	1,904.4	^b 6.4	^b 26.1	^b 32.5		127.7	-----	-----	-----	-----	-----	-----	-----	0.0
JAN	1,999.6	114.1	8.4	122.5	1,877.1	6.4	26.1	32.5		155.0	0.0	0.0	0.0				0.0	0.0
FEB	1,999.6	138.8	9.7	148.5	1,851.1	6.4	26.1	32.5		181.0	0.0	0.0	0.0				0.0	0.0
MAR	1,999.6	152.3	10.6	162.9	1,836.7	6.4	26.1	32.5		195.4	0.0	0.1	0.1				0.1	0.1
APR	1,974.6	156.1	10.2	166.3	1,808.3	6.4	26.1	32.5		198.8	0.0	0.1	0.1				0.1	0.2
MAY	1,974.6	127.8	36.1	163.9	1,810.7	6.4	26.1	32.5		196.4	0.0	0.1	0.1				0.1	0.3
JUN	1,974.6	18.6	21.2	39.8	1,934.8	3.4	26.1	29.5		69.3	127.0	0.1	127.1				127.1	127.4
JUL	1,974.6	13.3	8.6	21.9	1,952.7	3.4	26.1	29.5		51.4	41.1	0.2	41.3				41.3	168.7
AUG	1,974.6	30.4	11.8	42.2	1,932.4	3.4	26.1	29.5		71.7	0.1	0.1	0.2				0.2	168.9
SEPT	1,974.6	102.9	39.6	142.5	1,832.1	3.4	26.1	29.5		172.0	0.1	0.1	0.2				0.2	169.1
OCT	1,999.6	132.2	38.6	170.8	1,828.8	3.4	26.1	29.5		200.3	0.1	0.1	0.2				0.2	169.3
NOV	1,999.6	178.8	39.0	217.8	1,781.8	3.4	26.1	29.5		247.3	0.1	0.0	0.1				0.1	169.4
DEC	1,999.6	232.1	39.7	271.8	1,727.8	3.4	26.1	29.5		301.3	0.1	0.0	0.1				0.1	169.5
YEAR	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	168.6	0.9	169.5	0.0	0.0	0.0	169.5	-----
Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte and Caballo Reservoirs, effective Jan 1, 2009. a Project Storage Capacity is 1,974,600 acre-feet (April to September) and 1,999,600 acre-feet (October to March) as adopted by the Rio Grande Compact Commission on March 31, 2009 with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March. ^b Based on 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 Commisssion 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. ^d Due to Caballo release discrepancies during 2011, data was not approved for 2011; consequently, the accrued departure at the beginning of 2012 and 2013 could not be computed.										ACCRUED DEPARTURE FROM NORMAL RELEASE								
										ITEM			DEBIT		CREDIT	BALANCE		
										P1	Accrued Departure at Beginning of Year			-----		-----	Cr.	
										P2	Actual Release during Year			169.5		-----	Cr.	
										P3	Normal Release for Year			-----		790.0	Cr.	
										P4	Under Release in Excess of 150.0			470.5		-----	Cr.	
										P5				-----				
										P6								
										P7	Accrued Departure at End of Year			-----		-----	Cr.	
										TIME OF HYPOTHETICAL SPILL								

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

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2013

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado ¹	\$66,673		\$66,673		
In New Mexico, above Caballo Reservoir	\$75,060	\$41,141		\$33,919	
In New Mexico, Caballo Reservoir and below	\$24,314	\$6,117		\$3,256	\$14,941
Subtotal	\$166,047	\$47,258	\$66,673	\$37,175	\$14,941
ADMINISTRATION					
USGS Technical Services	\$17,290	\$5,884	\$3,802	\$3,802	\$3,802
Other expenses ²	\$3,000		\$1,000	\$1,000	\$1,000
Subtotal	\$20,290	\$5,884	\$4,802	\$4,802	\$4,802
GRAND TOTAL	\$186,337	\$53,142	\$71,475	\$41,977	\$19,743
EQUAL SHARES			\$44,398	\$44,398	\$44,398

¹Includes \$4,305 to Colorado USGS for review and publication of Colorado Rio Grande Compact gage records.

²Includes cost of court reporter and publication of Annual Report.

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2015

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado	\$73,050		\$73,050		
In New Mexico, above Caballo Reservoir	\$75,062	\$41,142		\$33,920	
In New Mexico, Caballo Reservoir and below	\$30,546	\$7,364		\$3,256	\$19,926
Subtotal	\$178,658	\$48,506	\$73,050	\$37,176	\$19,926
ADMINISTRATION					
U.S.G.S. Technical Services	\$19,414	\$5,884	\$4,510	\$4,510	\$4,510
Other expenses ¹	\$3,000		\$1,000	\$1,000	\$1,000
Subtotal	\$22,414	\$5,884	\$5,510	\$5,510	\$5,510
GRAND TOTAL	\$201,072	\$54,390	\$78,560	\$42,686	\$25,436
EQUAL SHARES			\$48,894	\$48,894	\$48,894

¹Includes cost of court reporter and publication of Annual Report.



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
New Mexico Water Science Center
DUNS 02 528 7520

5338 Montgomery Blvd NE, Suite 400
Albuquerque, NM 87109-1311

March 14, 2014

Mr. Dick Wolfe
Rio Grande Compact Commissioner for Colorado
1313 Sherman Street, Room 818
Denver, CO 80203
303-866-3581

Mr. Patrick Gordon
Rio Grande Compact Commissioner for Texas
P.O. Box 1917
El Paso, TX 79950-1917
915-834-7075

Mr. Scott A. Verhines
Rio Grande Compact Commissioner for New Mexico
Bataan Building
P.O. Box 25102
Santa Fe, NM 87504-5102
505-827-6091

Dear Compact Commission:

Enclosed are five copies of the Joint Funding Agreement (JFA), 14CRNM000000012, for the period July 1, 2014 to June 30, 2015, for assistance from the U.S. Geological Survey as described on the Statement of Work for the Rio Grande Compact Commission. The agreement provides for a total expenditure of \$19,414 of which the U.S. Geological Survey portion will be \$5,884 and the State of Colorado, the State of New Mexico, and the State of Texas will each provide \$4,510.

If you concur, please sign and return a copy of the JFA to this office. Work performed with funds from this agreement will be conducted on a fixed-price basis. The States of Colorado, New Mexico, and Texas will be billed for work completed as part of the agreement via a DI-1040 on a semi-annual basis.

On behalf of the USGS, I sincerely appreciate your participation in our Cooperative Program. If you have any questions concerning the work on this project, please call Ms. Anne Marie Matherne at (505) 830-7971. Administrative questions should be addressed to Ms. Susan Kell at (505) 830-7904.

Sincerely,



Linda S. Weiss
Director

Enclosure

cc: BFS

Project File: RG209L7

Project Chief: Gunn, Matherne

Customer File: 6000001029/6000001775/60000000631

Read File

Agreement No: 14CRNM000000012

Customer No:

6000001029/6000001775/6000000631

Project No: RG209L7

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, 2014 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, 2014 to June 30, 2015, the following amounts:

(a)	U.S. Geological Survey	\$5,884
(b)	State of Colorado	\$4,510
(c)	State of New Mexico	\$4,510
(d)	State of Texas	\$4,510

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, 2015, 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, 2015, 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 2015 and July 2015. 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

Linda S. Weiss 3/14/14
Linda S. Weiss Date
Director, New Mexico Water Science Center

RIO GRANDE COMPACT COMMISSION

Dick Wolfe 3/20/14
Commissioner for Colorado Date
Scott G. Valina 3.20.14
Commissioner for New Mexico Date
Pat Gndm 3/20/14
Commissioner for Texas Date
Al D. Lynn 3/20/14
Representative of the United States Date

**Statement of Work
for
14CRNM000000012**

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
REGARDING LOSS RATES ON SAN JUAN-CHAMA WATER
ROUTED FROM COCHITI DAM TO ELEPHANT BUTTE RESERVOIR

March 27, 2014

WHEREAS, *the states of Colorado, New Mexico, and Texas, in 1938, entered into the Rio Grande Compact apportioning the waters of the Rio Grande above Fort Quitman, Texas; and*

WHEREAS, *The Rio Grande Compact was passed as Public Act No. 96 by the 76th Congress of the United States and approved by the President on May 31, 1939; and*

WHEREAS, *Reclamation collects relevant data and prepares an annual accounting report of San Juan Chama and native Rio Grande water for review and use by the Engineer Advisers to the Rio Grande Compact Commission in preparing the annual Rio Grande Compact accounting; and*

WHEREAS, *The Rio Grande Compact Commission approved conveyance loss rates in 1985 for routing San Juan Chama water from Cochiti dam to Elephant Butte Reservoir via the Rio Grande and, in the San Acacia Reach, the Low Flow Conveyance Channel; and*

WHEREAS, *The Low Flow Conveyance Channel is not fully operational, and, therefore, the conveyance loss rates approved by the Rio Grande Compact Commission in 1985 are no longer valid; and*

WHEREAS, *At the direction of the Rio Grande Compact Commission, since 2009 Reclamation has used the most recent version of the Upper Rio Grande Water Operations Model (URGWOM) to develop model estimates, using a difference modeling methodology, of the loss suffered by San Juan Chama water routed from Cochiti Dam to Elephant Butte Reservoir; and*

WHEREAS, *The Engineer Advisers and Reclamation coordinated to develop fixed monthly loss rates for various San Juan Chama water releases and native Rio Grande flows using URGWOM;*

WHEREAS, *Reclamation conducted modeling and developed a memorandum on the subject titled "Proposed Loss Rates on San Juan-Chama Water Routed to Elephant Butte Reservoir", from the Water Operations Group – Bureau of Reclamation, Albuquerque Area Office, dated 3/2/2012 ("Memorandum");*

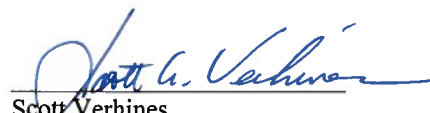
WHEREAS, *at its annual meeting on March 20, 2014, the Rio Grande Compact Commission adopted this Resolution subject to an amendment to the Memorandum; and,*

WHEREAS, *on March 27, 2014 Reclamation amended the Memorandum ("Amended Memorandum") to reflect the change requested by the Commission.*

NOW, THEREFORE, BE IT RESOLVED, *that the Rio Grande Compact Commission hereby approves the use of the loss rates described in the Amended Memorandum (attached). However, these loss rates may only be used when native Rio Grande flows out of Cochiti dam equal to or above 800 cfs and the flow at San Marcial is greater than 100 cfs.*

BE IT FURTHER RESOLVED, *that the Reclamation is hereby directed to furnish copies of this unanimously adopted Resolution and the Amended Memorandum to all San Juan Chama water contractors and to cause said resolution to be included in the Minutes of the 75th annual meeting of the Rio Grande Compact Commission.*


Hal Simpson
Chairman and Commissioner
For the United States of America


Scott Verhines
Commissioner for New Mexico


Dick Wolfe
Commissioner for Colorado


Patrick R. Gordon
Commissioner for Texas

RECLAMATION

Managing Water in the West

AMENDED MEMORANDUM

TO: ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSION
FROM: WATER OPERATIONS GROUP- BUREAU OF RECLAMATION
ALBUQUERQUE AREA OFFICE
SUBJECT: PROPOSED LOSS RATES ON SAN JUAN-CHAMA WATER ROUTED TO
ELEPHANT BUTTE RESERVOIR
DATE: 3/27/2014

Routing of San Juan-Chama (SJ-C) water to Elephant Butte Reservoir requires valid loss rates through the middle valley between Cochiti and Elephant Butte reservoirs. In 1985, the Rio Grande Compact Commission approved loss rates for routing SJ-C water through the middle valley (Table 1). The approved use assumed that the Low Flow Conveyance Channel (LFCC) was in operation. The following limitations applied, and do not match current conditions or operations:

- Loss rates were approved only for the months of October through May; that is, no loss rates are approved for the summer months of June through September, which are shaded blue below.
- They are only valid for Rio Grande flows between 400 cfs to 1400 cfs, and SJ-C flows of 0 cfs to 2000 cfs, and the combined flow must be less than 3000 cfs.
- In the event that the routing of SJ-C water to Elephant Butte was made via the river, the SJ-C water was to be accounted as the first water diverted to the river and was to absorb all those initial losses required to prime the river channel. This condition assumed that the LFCC would be used to route all flows below San Acacia.

Table 1. Loss Rates Approved in 1985 for Routing SJ-C Water to Elephant Butte

	From		
To	Heron & El Vado	Abiquiu	Cochiti
Elephant Butte	(5-day lag)	(4-day lag)	(3-day lag)
Jan	5.60%	4.50%	3.30%
Feb	6.10%	5.00%	3.80%
Mar	7.50%	6.40%	5.20%
Apr	8.80%	7.70%	6.50%
May	9.50%	8.30%	7.20%
Jun			
Jul			
Aug			
Sep			
Oct	6.90%	5.80%	4.60%
Nov	6.00%	4.90%	3.70%
Dec	5.60%	4.50%	3.30%

Note that, while Table 1 lists loss rates for movement of water from Heron, El Vado, Abiquiu, and Cochiti, the only loss rates in question are those for water moved from Cochiti to Elephant Butte. Reclamation therefore only modeled the movement of water between these two reservoirs.

In 2010, the Engineer Advisors (EAs) asked the Bureau of Reclamation (Reclamation) for a recommendation to establish reasonable loss rates through the middle valley. This memorandum summarizes the method used to develop monthly loss rates using the middle valley portion of the Upper Rio Grande Water Operations Model (URGWOM).

The data used for modeling is from 1990 - 2007. In 2010, the New Mexico Interstate Stream Commission used this model to determine loss rates on a case-by-case basis for SJ-C water moved in that year. Reclamation reviewed that work, and then began their modeling with the same model and dataset. The loss rates that were used until 2010 assumed that the LFCC would be used to convey flows up to 2000 cfs. The LFCC is no longer operated, so new loss rates reflect actual conditions, and therefore the dataset begins in 1990 without influence of LFCC operations. The dataset ends in 2007 because this is the most recent year with a full, calibrated URGWOM dataset.

Reclamation found noticeable changes in SJC losses by month, SJC release rate, and native (Rio Grande Basin) flow out of Cochiti. Figures 1 and 2 are graphs of data derived from the modeling by NMISC. Figure 2 is a finer horizontal scale than Figure 1, and shows where Reclamation saw distinct changes in the loss rates computed. From this data, Reclamation determined that there should be separate loss rates for three native flow ranges: 500 - 1200 cfs, 1200 - 2000 cfs, and greater than 2000 cfs.

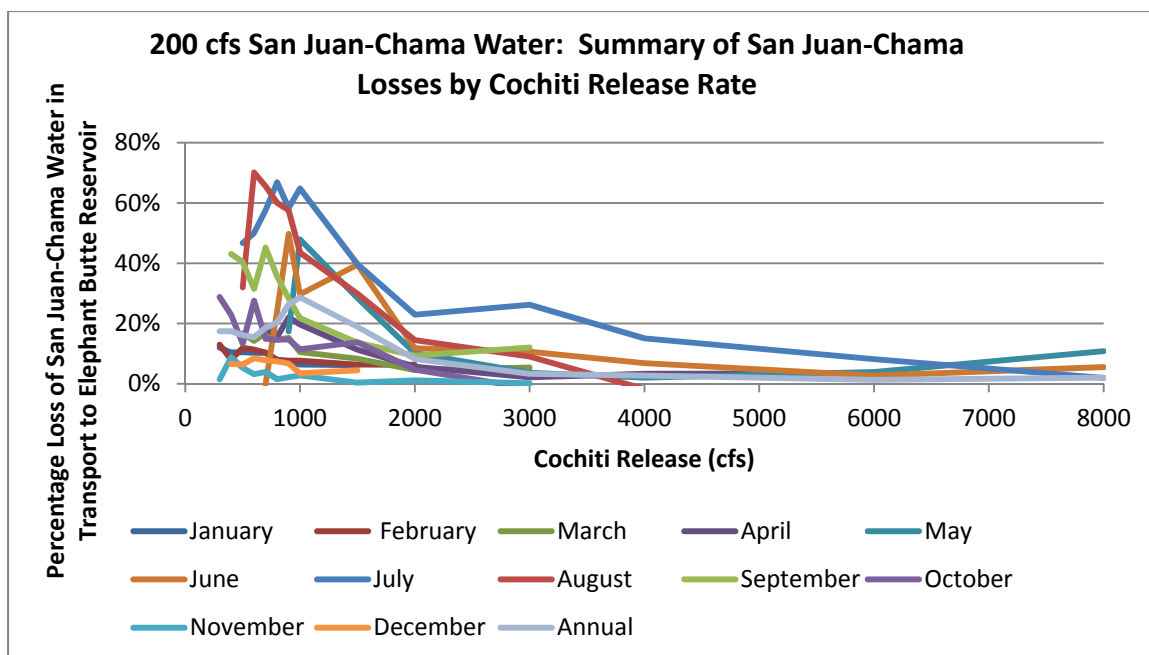


Figure 1. SJC loss rates from URGWOM Model at various native releases

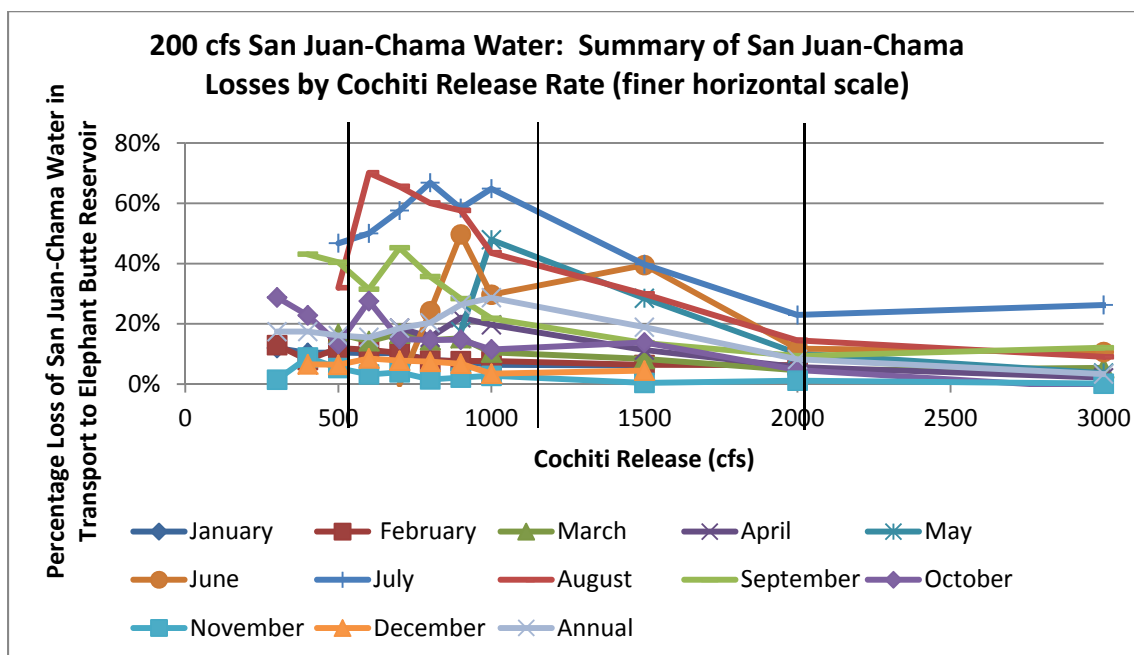


Figure 2. SJC loss rates from URGWOM Model at various native releases (finer horizontal scale)

In this modeling, an SJC block release was modeled, which reflects current practice. Reclamation modeled four block release periods of five days, ten days, 15 days, and 20 days to determine if length of the release periods within typical, practical ranges would result in significantly different loss rates.

Based on analysis of these runs, Reclamation proposes four distinct SJC release ranges for loss rates, with the loss rate determined by modeling the average flow within the range. These ranges are: less than 300 cfs, 300 - 600 cfs, 600 cfs - 900 cfs, and 900 cfs - 1500 cfs.

In modeling, SJC releases of the average flow in each range were placed on blocks of days in a historical month that had native flows with an average in the desired native flow range to be modeled. For example, loss rates for a five day SJC block release less than 300 cfs and within the native flow bracket of 500 - 1200 cfs were determined from a modeled release of 150 cfs of SJC water released from 1/15-19/1990, when the native flow ranged from 619 – 686 cfs. This was done for all months and flow ranges required for the native and SJC flow ranges.

To calculate the loss rates, inflow into Elephant Butte Reservoir is cut off at 30 days from the end of the block release or 1 cfs, whichever comes first. The inflow to Elephant Butte was then compared to the release from Cochiti. For a given set of conditions, loss rates were determined by averaging loss rates for the same SJC release rate and duration at a variety of different native flow rates within the range.

The results of this modeling are presented in Tables L1- L3. Figures 3 and 4 graphically show the efficiency of water movement equivalent to the loss rates in Table L-1.

Reclamation recommends that the modeling results be used as fixed loss rates for moving SJC water from Cochiti to Elephant Butte. Reclamation recommends that the model-determined loss rates be used for accounting. Reclamation recommends that SJC contractors' water be moved under conditions stipulated by the loss rate tables and other guidelines as discussed by Reclamation and the Compact Engineer Advisors and listed below.

SJC water movement from Cochiti to Elephant Butte guidelines:

- Pre-determined loss rates will only apply to water moved within the parameters of the Commission approved tables
- Releases should not occur during river drying
- Releases should end on or before November 30 of each calendar year
- Contractors can request specific flow rates and times, but must be aware that while water will be moved, exact dates and flow rates may not be met due to system constraints (Article VII, flooding, Dam safety, ramp up and ramp down, etc.)
- SJC water cannot be moved during flood operations out of any of the reservoirs
- SJC water can be moved outside of the pre-determined loss rate parameters with approval of Engineer Advisors of the Rio Grande Compact Commission and Reclamation or in cases of emergency
- SJC water moved outside of the pre-determined loss rate parameters will have loss rates determined on a case by case basis

Table L-1 SJC Loss from Cochiti to Elephant Butte, Native Flow at Cochiti 500-1200 cfs

	SJC Release Rate (cfs)	SJC Release Length (days)			
		5	10	15	20
January	0-300	13%	12%	12%	11%
	300-600	12%	12%	11%	10%
	600-900	12%	11%	10%	10%
	900-1500	11%	10%	10%	9%
February	0-300	13%	12%	12%	11%
	300-600	12%	12%	11%	10%
	600-900	12%	11%	11%	10%
	900-1500	11%	11%	10%	9%
March	0-300	15%	14%	13%	13%
	300-600	14%	13%	12%	12%
	600-900	13%	13%	12%	11%
	900-1500	13%	12%	11%	10%
April	0-300	23%	22%	22%	23%
	300-600	20%	20%	19%	20%
	600-900	19%	18%	17%	18%
	900-1500	17%	17%	16%	16%
May	0-300	53%	54%	51%	49%
	300-600	45%	44%	42%	40%
	600-900	38%	37%	35%	33%
	900-1500	32%	30%	29%	27%
June	0-300	75%	70%	69%	64%
	300-600	57%	52%	52%	49%
	600-900	48%	44%	43%	41%
	900-1500	40%	36%	35%	33%
July	0-300	68%	70%	67%	65%
	300-600	59%	58%	55%	52%
	600-900	49%	47%	44%	41%
	900-1500	40%	38%	35%	32%
August	0-300	56%	58%	57%	54%
	300-600	45%	45%	43%	41%
	600-900	38%	37%	35%	33%
	900-1500	31%	30%	29%	27%
September	0-300	33%	32%	31%	30%
	300-600	29%	27%	25%	24%
	600-900	25%	23%	22%	21%
	900-1500	22%	20%	19%	18%
October	0-300	23%	22%	21%	20%
	300-600	20%	19%	18%	17%
	600-900	18%	17%	16%	15%
	900-1500	17%	16%	14%	13%
November	0-300	11%	10%	9%	7%
	300-600	11%	9%	9%	7%
	600-900	11%	9%	8%	7%
	900-1500	10%	9%	8%	7%

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Table L-2 SJC Loss from Cochiti to Elephant Butte, Native Flow at Cochiti 1200-2000 cfs

	SJC Release Rate (cfs)	SJC Release Length (days)			
		5	10	15	20
March	0-300	13%	12%	12%	11%
	300-600	12%	12%	11%	11%
	600-900	12%	11%	11%	11%
	900-1500	11%	11%	10%	10%
April	0-300	14%	14%	15%	14%
	300-600	13%	14%	14%	14%
	600-900	13%	13%	13%	13%
	900-1500	12%	12%	13%	12%
May	0-300	29%	37%	45%	21%
	300-600	27%	32%	39%	19%
	600-900	24%	28%	34%	18%
	900-1500	22%	24%	28%	16%
June	0-300	42%	41%	42%	34%
	300-600	34%	32%	32%	25%
	600-900	30%	28%	28%	22%
	900-1500	26%	24%	24%	19%
July	0-300	31%	31%	32%	33%
	300-600	26%	25%	25%	25%
	600-900	23%	23%	21%	21%
	900-1500	21%	20%	19%	18%
August	0-300	21%	19%	20%	20%
	300-600	19%	17%	18%	18%
	600-900	18%	16%	17%	16%
	900-1500	17%	15%	15%	15%
September	0-300	17%	15%	15%	16%
	300-600	15%	15%	14%	14%
	600-900	15%	14%	13%	13%
	900-1500	14%	13%	12%	12%

Table L-3 SJC Loss from Cochiti to Elephant Butte, Native Flow at Cochiti >2000 cfs

	SJC Release Rate (cfs)	SJC Release Length (days)			
		5	10	15	20
April	0-300	9%	8%	8%	8%
	300-600	9%	8%	8%	8%
	600-900	9%	8%	8%	8%
	900-1500	8%	8%	8%	8%
May	0-300	9%	8%	8%	8%
	300-600	9%	8%	8%	8%
	600-900	9%	8%	8%	8%
	900-1500	8%	7%	8%	8%
June	0-300	10%	10%	8%	7%
	300-600	9%	9%	7%	7%
	600-900	9%	9%	7%	7%
	900-1500	8%	9%	7%	6%

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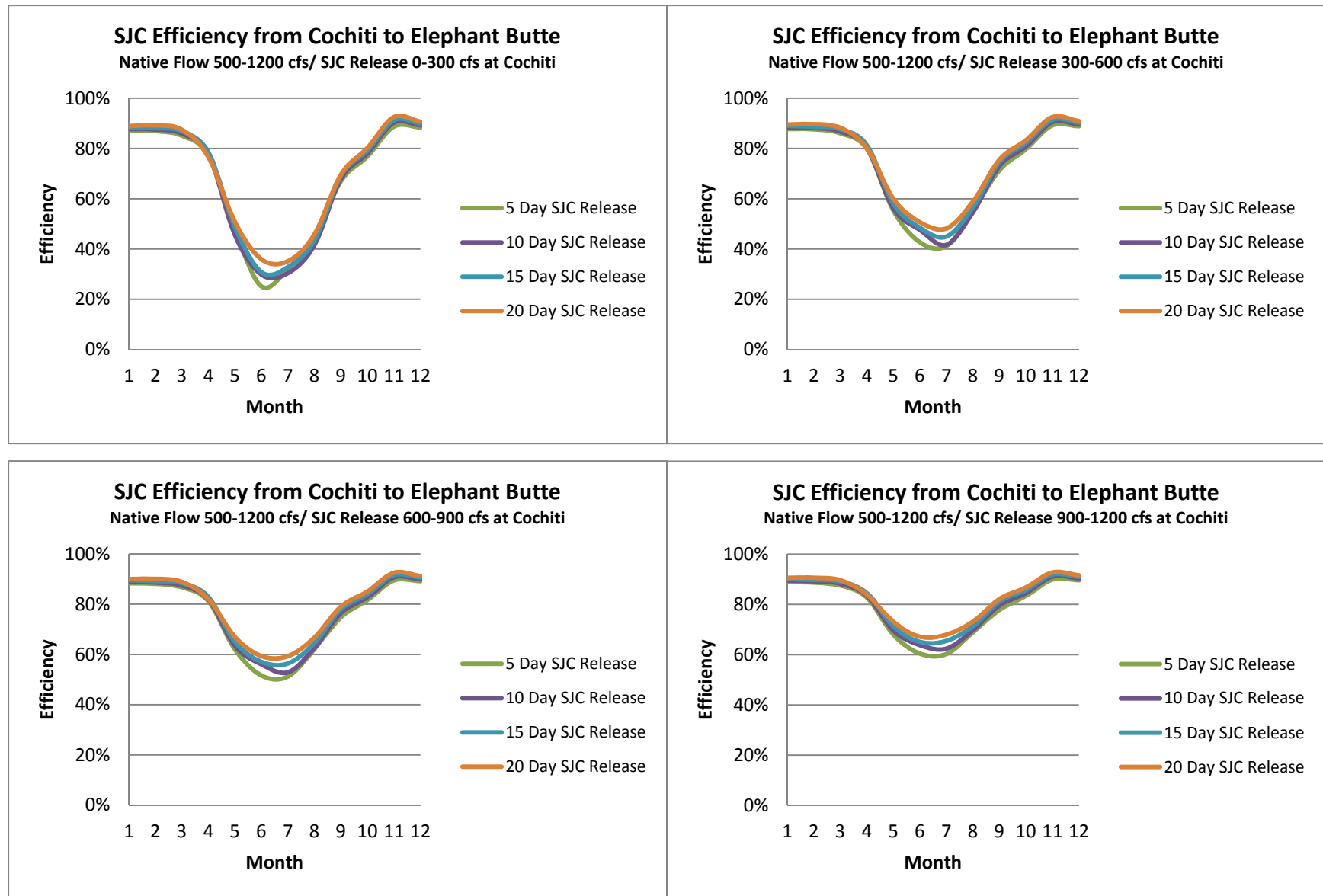


Figure 3. Efficiency graphs to show changes over months and SJC release, grouped by release rate

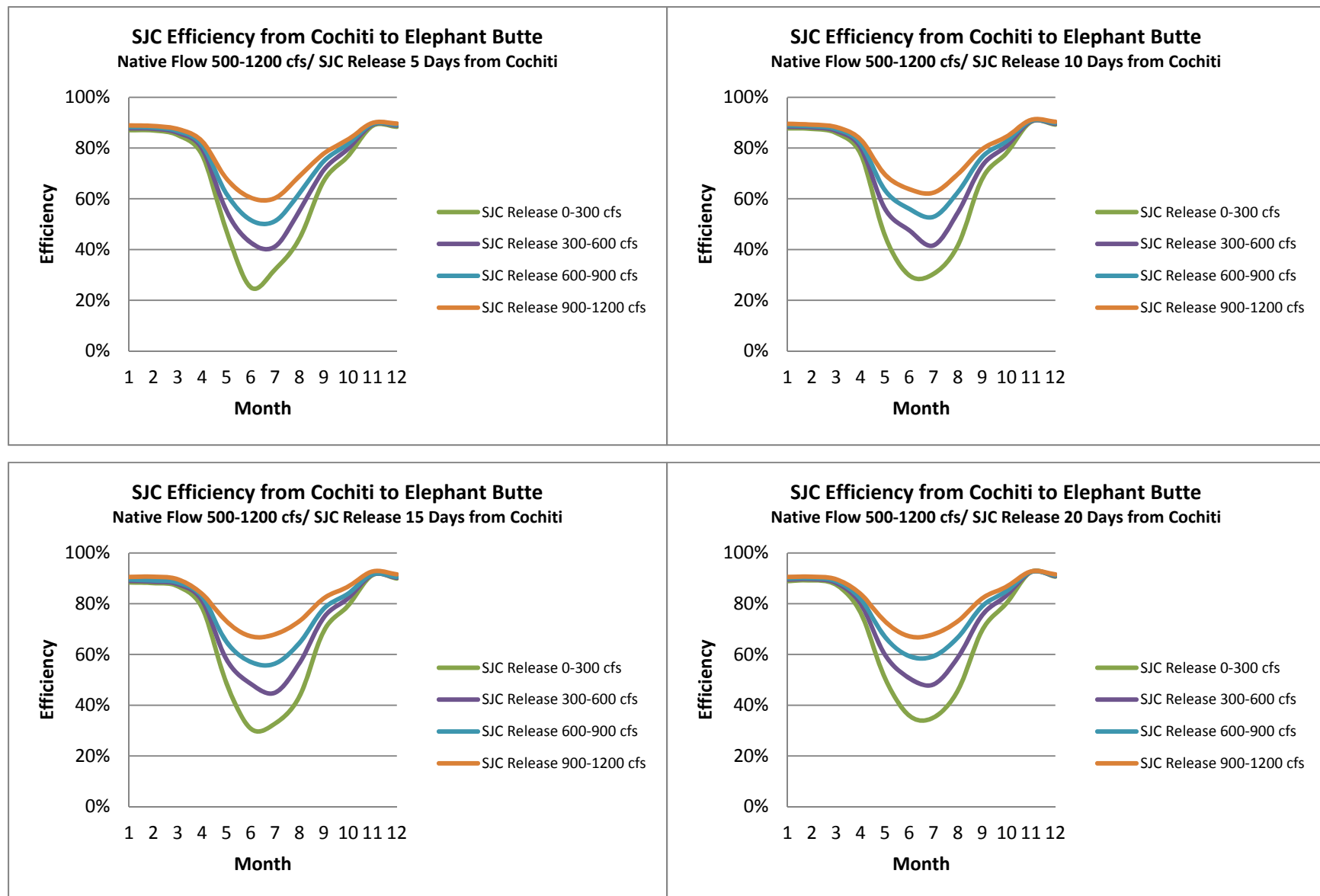


Figure 4. Efficiency graphs to show changes over months and SJC releases, grouped by length of release

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Report of the Legal Advisors to the Rio Grande Compact Commission

March 20, 2014

As directed by the Commission at its last annual meeting, the Legal Advisors for the three states have discussed the circumstances under which the Commission may hold special meetings by telephonic or other remote electronic means under the terms of the Rio Grande Compact and the Rules and Regulations for Administration of the Rio Grande Compact.

The Rules and Regulations provide that a special meeting may be held by the Commission at any time and place set by mutual agreement, for the transaction of any business consistent with the Commission's authority.

Moreover, each of the Commissioners has expressed a strong preference that any special meeting be conducted in person.

Therefore, given the Commission's desire for in person special meetings, combined with the allowance for such special meetings in the Rules and Regulations for the Administration of the Rio Grande Compact, we do not at this time recommend the adoption of a resolution on the holding of special meetings by way of telephonic or other remote electronic means.

WATER RESOURCES DATA

ACKNOWLEDGMENTS

This report was prepared by the U.S. Geological Survey, secretary 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 Lasauses, 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 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 Laguna Agency, Bureau of Indian Affairs, Laguna, N. Mex., supplied 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, 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 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, staff gage at site 4 mi downstream at different datum. Records are equivalent.

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

Average discharge. -- 124 years (1890-2013), 887 ft³/s (642,400 acre-ft per year).

Extremes. -- 1889-2013: 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 those for the period from Nov.11 to Dec.8, which are fair, and estimated daily discharges, which are poor. Flow regulated by four reservoirs, total capacity 126,100 acre-ft, and by several smaller ones. Six transmountain diversions import water into basin 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	3,900	140	120	126	7,730
February	3,660	140	125	131	7,270
March	5,940	279	135	192	11,780
April	13,200	1,570	273	440	26,190
May	60,700	3,050	890	1,960	120,400
June	25,900	1,910	341	862	51,300
July	10,600	440	263	341	20,950
August	22,900	1,210	361	740	45,480
September	40,400	2,640	452	1,350	80,140
October	27,300	1,470	625	879	54,080
November	10,700	630	220	356	21,210
December	6,620	260	165	214	13,130
Calendar year 2013	232,000	3,050	120	633	460,000

Conejos River below Platoro Reservoir, Colo.

Location. -- Water-stage recorder and concrete control, lat 37°21'17.65", long 106°32'39", in SW 1/4NW 1/4 sec. 22, T. 36

N., R. 4 E., on left bank 1,100 ft downstream from valve house 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. -- 61 years (1890-2013), 91 ft³/s (66,070 acre-ft per year).

Extremes. -- 1952-2013: 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 good except those for winter months, which are fair. No diversions above station. Flow completely regulated by Platoro Reservoir (capacity, 59,570 acre-ft).

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	217	7.3	6.7	7.0	431
February	194	7	6.7	6.9	384
March	214	7	7	7	424
April	766	130	7	26	1,520
May	7,020	442	55	226	13,900
June	4,340	259	30	145	8,610
July	1,880	111	23	61	3,740
August	1,660	108	22	53	3,280
September	1,540	116	15.0	51	3,060
October	1,170	80	25.0	38	2,310
November	384	22.0	5.8	13.0	761
December	251	9	7.6	8	497
Calendar year 2013	19,600	442	5.8	54	38,900

STREAMFLOW

Conejos River near Mogote, Colo

Location. -- Water-stage recorder, 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. -- 103 years (1904, 1912-2013), 319 ft3/s (230,900 acre-ft per year).

Extremes. -- 1903-05, 1911-2013: 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. Diversions above station for irrigation of about 500 acres. Since 1951 flow partly regulated by Platoro Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,180	42	34	38	2,330
February	1,070	42	34	38	2,120
March	1,900	103	39	61	3,760
April	3,810	352	91	127	7,570
May	20,100	1,160	261	648	39,800
June	11,200	684	113	375	22,300
July	4,240	195	96	137	8,420
August	5,060	331	82	163	10,000
September	5,230	352	76	174	10,400
October	3,910	192	101	126	7,760
November	2,150	96	48	72	4,260
December	1,410	58	30	45	2,790
Calendar year 2013	61,300	1,160	30	168	122,000

San Antonio River at Ortiz, Colo

Location. -- Water-stage recorder, lat 36°59'35", long 106°02'17", in New Mexico in NE1/4 SE1/4, 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.

Average discharge. -- 73 years (1941-2013), 24 ft3/s (17,620 acre-ft per year).

Extremes. -- 1920, 1925-2013: 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 good except for discharges less than 3.0 ft3/s, and estimated daily discharges, which are poor. A few small diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	66	2.8	1.6	2.1	130
February	87	4	2.6	3	173
March	214	15	3	7	424
April	576	49	11.0	19	1,140
May	395	42.0	1.7	13.00	783
June	22	2.4	0.0	0.73	43
July	24	4.9	0.00	0.8	49
August	27	2.6	0.0	0.89	54
September	171	31.0	0.42	5.7	338
October	76	3.8	1.5	2.5	151
November	75	3.4	1.9	2.5	149
December	69	4	1.2	2	136
Calendar year 2013	1,802	49	0	5	3,570

STREAMFLOW

Los Pinos River near Ortiz, Colo

Location. -- Water-stage recorder, 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. -- 95 years (1915-20, 1925-2013), 116 ft³/s (84,120 acre-ft per year).

Extremes. -- 1915-20, 1925-2013: 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 those for winter months, which are fair. Diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	363	15	10	12	720
February	391	15	12	14	776
March	644	38	16	21	1,280
April	2,630	305	45	88	5,210
May	6,680	317	146	216	13,260
June	1,620	136	15	54	3,220
July	520	29	11.0	17	1,030
August	791	55	11.0	56	1,570
September	1,010	73	13.0	34	2,010
October	873	43	23.0	28	1,730
November	514	25	8.0	17	1,020
December	427	19	10.0	14	847
Calendar year 2013	16,500	317	8	45	32,700

Conejos River near Lasauses, Colo

Location. -- Water-stage recorder, lat 37°18'01", long 105°44'47", inSW 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 Lasauses, 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 Lasauses. Datum of gage on main channel is 7,495.02 ft and on secondary (south) channel is 7,499.86 ft above main sea level (levels by Bureau of Reclamation).

Drainage area. -- 887 sq mi.

Average discharge. -- 92 years (1922-2013), 172 ft³/s (124,300 acre-ft per year).

Extremes. -- 1921-2013: Maximum discharge, 3,890 ft³/s May 15, 1941; no flow at times in some years.

Remarks. -- Records good except for estimated daily discharge, which are poor. Diversions above station for irrigation of about 75,000 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	756	37	19	24	1,500
February	1,120	44	34	40	2,210
March	1,930	122	23.0	62	3,830
April	72	24	0.3	2	143
May	100	8.5	1.5	3.2	198
June	48.0	4.0	0.1	1.6	94.0
July	0.1	0.1	0.0	0.0	0.2
August	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	0.0	0.0
October	0.0	0.0	0.0	0	0.0
November	714	90	0.0	24	1,420
December	1,970	77	43.0	64	3,920
Calendar year 2013	6,710	122	0	18.4	13,300

STREAMFLOW

Rio Grande near Lobatos, Colo

Location. -- Water-stage recorder, lat 37°04'43", long 105°45'25", in NE1/4 NW1/4 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. -- 32 years (1900-30), 846 ft3/s (612,900 acre-ft per year); 83 years (1931-2013) 429 ft3/s (310,500 acre-ft per year).

Extremes. -- 1899-2013: 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 estimated daily discharges, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow 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	4,580	175	135	148	9,090
February	5,380	200	175	192	10,700
March	9,680	443	195	312	19,200
April	4,390	329	46	146	8,710
May	2,680	151	38	87	5,320
June	1,510	108	19	50	2,990
July	900	77	6	29	1,780
August	2,320	139	33	75	4,600
September	6,330	576	41	211	12,600
October	7,920	589	89	256	15,700
November	10,900	468	93	363	21,600
December	8,740	340	230	282	17,400
Calendar year 2013	65,300	589	6	179	130,000

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 (1963-69), 11.5 ft³/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 44 years (1970-2013) 133 ft3/s (96,540 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes. -- 1962-2011: Maximum discharge, 1,610 ft3/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.

Remarks. -- Records good except those for winter months, which are fair. 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	0.0	0.0	0.0
February	0	0	0.0	0	0
March	878	113	0	28	1,740
April	4,430	371	56	148	8,790
May	8,960	495	85.0	289	17,800
June	4,660	380	1.0	155	9,240
July	393	83	1.0	12.7	779
August	1,730	233	1.0	56.0	3,430
September	2,770.0	388.0	0.5	92.0	5,490.00
October	1,380.0	101.0	21.0	45.0	2,740.0
November	457.0	22.0	8.1	15.0	907.0
December	30	16	0.0	1	59
Calendar year 2013	25,700	495	0.0	70.0	51,000.0

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 (1963-73,1986), 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 2013	---	---	---	---	---

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. -- 43 years (1971-2013), 130 ft³/s (94,040 acre-ft per year).

Extremes. -- 1971-2012: Maximum daily discharge, 2,780 ft³/s Dec. 18, 19, 1982; no flow at times each year.

Remarks. -- Records excellent. 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	5,620.0	203.0	100.0	181.0	11,100.0
February	5,610	202	200.0	200.0	11,100
March	6,150	200	197.0	198	12,200
April	3,470	299	49.0	116	6,890
May	9,260	299	296.0	299	18,400
June	8,960	299	298	299	17,800
July	10,100	400	296	326	20,100
August	11,800	404	42	381	23,400
September	753	42	0	25	1,490
October	54	42	0	2	108
November	583	50	0	19	1,160
December	1,860	68	50.0	60	3,680
Calendar year 2013	64,200	404	0.0	176	127,000

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 and October 1935 to September 1938, at site 1.1 mi upstream at different datums.

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

Average discharge. -- 4 years (1914, 1921-23), 444 ft3/s (321,700 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-70), 372 ft3/s (269,500 acre-feet per year), prior to release of transmountain water; 43 years (1971-2013) 459 ft3/s (332,900 acre-feet per year).

Extremes. -- 1914-16, 1920-24, 1936-2013; Maximum discharge observed, 9,000 ft3/s May 22, 1920 (gage height, 12 ft); no flow Mar. 25, 26, 31, 1955.

Remarks. -- Records good. Diversions above station for irrigation of about 10,600 acres. Since 1935 flow regulated by El Vado Reservoir and since October 1970 flow partly regulated by Heron Reservoir. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,970	162	159	52	9,850
February	4,490	162	159	61	8,910
March	3,620	159	104	170	7,180
April	10,400	756	133	434	20,600
May	21,900	853	501	612	43,400
June	22,100	807	588	951	43,900
July	12,400	610	252	698	24,600
August	11,400	615	243	672	22,600
September	6,590	618	105	668	13,100
October	3,120	190	71	167	6,180
November	4,730	304	79	232	9,390
December	8,830	356	114	352	17,500
Calendar year 2013	115,000	853	71	423	227,210

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 (1962-70), 384 ft³/s (278,200 acre-ft per year), prior to release of transmountain water; 43 years (1971-2013), 506 ft3/s (366,300 acre-feet per year).

Extremes. -- 1961-2013; 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. Flow regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 17,600 acres. Subsequent to May 1971 flow affected by the release of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2,060	75	56	66	4,080
February	1,560	57	55	56	3,090
March	3,300	317	54	106	6,550
April	17,800	762	316	592	35,200
May	27,900	1,030	784	899	55,300
June	29,700	1,090	822	989	58,900
July	6,330	834	36	204	12,600
August	9,510	541	195	307	18,900
September	6,600	311	103	220	13,100
October	7,160	297	109	231	14,200
November	4,470	197	97	149	8,860
December	3,340	196	76	108	6,630
Calendar year 2013	120,000	1,090	36	327	237,000

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. -- 35 years (1979-2013), 13 ft³/s (9,280 acre-feet per year).

Extremes. -- 1979-2013; Maximum discharge, 250 ft³/s June 9, 1979 at site 1,100 ft downstream; no flow December 31, 1993.

Remarks. -- Records good. 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	13.0	0.62	0.37	0.42	26
February	12	0.6	0.36	0.4	24
March	29	3	0	1	58
April	257	14	6	9	510
May	559	21	15.0	18	1,110
June	419	28	4.2	14	832
July	156	7	4.2	5.0	309
August	314	24.0	4.1	10.0	622
September	287	24.0	3.2	9.6	568
October	340	16.0	7.70	11.00	674
November	293	15.00	7.50	9.80	581
December	214	11	5.30	6.9	424
Calendar year 2013	2,890	28	0	8	5,740

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 5,488.48 ft above National Geodetic Vertical Datum of 1929. 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. -- 114 years (1896-1905, 1910-2013), 1,488 ft³/s (1,078,000 acre-feet per year).

Extremes. -- 1895-1905, 1910-2013; 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. Flow partly regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	15,000	550	428	483	29,700
February	15,000	558	500	534	29,600
March	20,500	763	524	660	40,600
April	27,700	1,100	771	922	54,900
May	34,600	1,200	1,030	1,120	68,700
June	33,300	1,230	936	1,110	66,100
July	14,100	1,080	232	453	27,900
August	14,900	700	362	480	29,500
September	29,100	3,430	350	968	57,600
October	24,600	1,100	595	795	48,900
November	25,300	948	580	845	50,300
December	21,600	866	631	696	42,800
Calendar year 2013	276,000	3,430	232	756	547,000

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. -- 101 years (1913-2013), 7.9 ft3/s (5,700 acre-feet per year).

Extremes. -- 1913-2013; Maximum discharge, 1,500 ft3/s Aug. 14, 1921 (gage height, 5.17 ft); from rating curve extended above 150 ft³/s; minimum, no flow Aug. 2-10, 2000.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	17	0.8	1.7	0.6	34
February	14	0.7	1.7	0.5	29
March	23	1.0	1.6	0.8	46
April	17	0.7	1.7	0.6	34
May	19	0.7	9.6	0.6	38
June	22	0.8	9.1	0.7	44
July	75	4.2	8.4	2.4	150
August	57	3.5	4.2	1.8	113
September	70	4.3	1.3	2.3	138
October	306	13.0	1.2	9.9	607
November	91	5.6	1.30	3.00	180
December	153	9.7	0.79	4.9	303
Calendar year 2013	864	13	1	2	1,720

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 5,226.08 ft above National Geodetic Vertical Datum of 1929. 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. -- 43 years (1971-2013), 1,291 ft3/s (935,000 acre-feet per year).

Extremes. -- 1971-2013; 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. Since Nov. 12, 1973, flow completely regulated by Cochiti Dam. Cochiti Eastside Main Canal on left bank and Sili Main Canal on right bank bypass station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	12,100	499	285	389	23,900
February	14,200	634	443	506	28,100
March	15,700	591	398	508	31,200
April	21,600	907	570	721	42,900
May	29,500	1,020	891	951	58,500
June	27,000	977	816	899	53,500
July	11,000	864	235	353	21,700
August	11,200	594	235	362	22,300
September	13,100	820	230	438	26,100
October	30,500	2,530	497	983	60,400
November	24,200	960	449	807	48,000
December	20,600	955	539	666	41,000
Calendar year 2013	230,700	2,530	230	632	458,000

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. -- 43 years (1971-2013), 5.2 ft³/s (3,755 acre-feet per year).

Extremes. -- 1970-2012; Maximum discharge, 3,460 ft³/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.

Remarks. -- Records poor. Flow regulated by Galisteo Reservoir 0.4 mi upstream. Capacity of outlet, 5,000 ft³/s when reservoir is full. 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	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.1
March	0.0	0.0	0.0	0.0	0.0
April	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0
June	0	0	0.0	0.0	1
July	723	435	0.0	23.0	1,430
August	182	75	0.0	5.9	361
September	3,490.00	1,820.00	0.0	116.0	6,920.00
October	0.2	0.1	0.0	0.0	0.4
November	0.2	0.1	0.0	0.0	0.4
December	0	0	0.0	0.0	1
Calendar year 2013	4,390	1,820	0	12.0	8,710

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. Datum 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. -- 4 years (2010-2013), 31 ft³/s (22,060 acre-feet per year).

Extremes. -- 2011; Maximum discharge, 2,790 cfs Jan. 8, 2011, gage height 1.90; no flow many days each year.

Remarks. -- Records good. 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	129	11	1.1	4	255
February	307	15	7	11	609
March	564	50	4	18	1,120
April	566	42	0.24	19	1,120
May	318.0	37.00	0.1	10.00	631.0
June	2	1	0.00	0	4
July	1,180	511	0.0	38.0	2,330
August	517	247	0.0	17.0	1,020
September	5,280.0	498.0	0.2	176.00	10,500.0
October	333	42.0	1.0	11.0	661
November	888	81.0	11.00	30.0	1,760
December	676	49	0.8	22	1,340
Calendar year 2013	10,800	511	0.0	30	21,300

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 4,241.09 ft above National Geodetic Vertical Datum of 1929. Prior to April 23, 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. -- 99 years (1915-2013), 983 ft3/s (712,500 acre-feet per year).

Extremes. -- 1915-2013; Maximum daily discharge, 8,220 ft3/s May 22, 1942; no flow at times prior to 1929, 4, 1979; October 22-24 and November 17-21, 2011; October 16, 2012.

Remarks. -- Records good. 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	27	1	0.59	0.9	53
February	340	91	1	12	675
March	220	37	0	7	437
April	5	0	0	0	11
May	17,500	1,950	0	564	34,700
June	56,900	2,150	1,650	1,900	113,000
July	10,000	2,100	0	323	19,800
August	12	2	0	0	24
September	54	17	0.44	2	108
October	27	1.10	0.8	0.88	54
November	7	0.9	0.05	0.2	14
December	4	0.3	0.01	0.1	7
Calendar year 2013	85,100	2,150	0.0	234	169,000

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 4,140.90 ft above National Geodetic Vertical Dam of 1929. 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. -- 76 years (1938-2013), 906 ft3/s (656,600 acre-feet per year).

Extremes. -- 1938-2012; 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	10	0.4	0.3	0.3	20
February	11	0.4	0.4	0.4	22
March	14	0.5	0.4	0	28
April	13	0	0	0	27
May	11	0	0.3	0	21
June	64,000	2,410	1,040	2,130	127,000
July	20,700	1,920	2	668	41,100
August	51	2	1	2	101
September	49	3	1.10	2	96
October	28.0	1.00	0.8	0.9	56
November	31.0	1.10	0.94	1.0	62
December	35.0	1.20	1.10	1.1	70
Calendar year 2013	85,000	2,410	0.3	234	169,000

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 U.S.G.S. 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	0.0
February	0.0
March	130.0
April	95.0
May	107.0
June	128.0
July	241.0
August	90.0
September	50.0
October	104.0
November	0.0
December	0.0
Calendar year 2013	945.0

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

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

[illegible]

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

[illegible]

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

[illegible]

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

[illegible]

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

Calendar Year 2013

Calendar Year 2013Calendar Year 2013Calendar Year 2013[illegible]

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 2013

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	-
<u>Change</u>	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 2013

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	12.4	14.6	16.6	17.2	15.6	9.2	8.3	8.3	7.9	7.3	9.8	11.7	-
Contents	135	180	225	237	202	82	69	69	63	55	91	122	-
<u>Change</u>	+44	+45	+45	+12	-35	-120	-13	0	-6	-8	+36	+31	

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, 2012	9,960.03	8,782	-
January 31, 2013	9,960.07	8,797	+15
February 29	9,960.07	8,799	+2
March 31	9,960.14	8,826	+27
April 30	9,960.96	9,125	+299
May 31	9,962.01	9,569	+444
June 30	9,965.01	10,877	+1308
July 31	9,960.19	8,806	-2071
August 31	9,959.89	8,681	-125
September 30	9,960.14	8,784	+103
October 31	9,959.36	8,467	-317
November 30	9,960.47	8,923	+456
December 31, 2013	9,961.41	9,315	+392
<u>Calendar year 2013</u>			+533

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 2013

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	22.6	22.6	22.6	22.6	24.1	23.5	23.4	24.5	24.2	23.5	23.3	23.3	-
Contents	738	738	738	738	836	796	790	863	843	796	783	783	-
Change	0	0	0	0.0	+98	-40	-6	73	-20	-47	-13	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, 2012	7136.84	167,274	-
January 31, 2013	7133.76	156,604	-10,670
February 28	7130.49	145,812	-10,792
March 31	7127.41	136,146	-9,666
April 30	7127.37	136,023	-123
May 31	7126.82	134,348	-1,675
June 30	7123.49	124,522	-9,826
July 31	7116.45	105,594	-18,928
August 31	7107.9	86,029	-19,565
September 30	7109.93	90,345	+4316
October 31	7111.03	92,768	+2423
November 30	7110.86	92,390	-378
December 31, 2013	7108.88	88,087	-4,303
Calendar year 2013			-79,187

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, 2012	6800.30	10,463	-	10,463
January 31, 2013	6806.02	14,372	+3909	12,179
February 28	6811.70	18,840	+4468	14,212
March 31	6822.11	28,562	+9722	19,370
April 30	6827.57	34,461	+5899	21,547
May 31	6834.19	42,509	+8048	24,827
June 30	6813.41	20,305	-22,204	3,172
July 31	6810.56	17,893	-2,412	3,787
August 31	6817.02	23,579	+5686	10,702
September 30	6812.05	19,135	-4,444	5,538
October 31	6810.85	18,132	-1,003	5,512
November 30	6806.80	14,949	-3,183	5,444
December 31, 2013	6791.34	5,345	-9,604	5,309
Calendar year 2013			-5,118	

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, 2012	6212.73	155,897	-	151,934
January 31, 2013	6214.30	161,736	+5,839	157,701
February 28	6215.92	167,864	+6,128	163,888
March 31	6216.28	169,246	+1,382	164,991
April 30	6212.30	154,308	-14,938	150,329
May 31	6208.90	141,957	-12,351	137,979
June 30	6204.17	125,440	-16,517	122,014
July 31	6208.00	138,759	+13,319	133,827
August 31	6209.82	145,258	+6,499	141,190
September 30	6211.50	151,367	+6,109	142,684
October 31	6209.20	143,031	-8,336	138,567
November 30	6209.38	143,675	+644	139,247
December 31, 2013	6212.38	154,603	+10,928	150,413
<u>Calendar year 2013</u>			-1,294	

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, 2012	6,815.09	1,332	-
January 31, 2013	6,818.88	1,510	+177.76
February 28	6,821.92	1,663	+153.37
March 31	6,826.70	1,925	+262
April 30	6,827.02	1,944	+19
May 31	6,819.28	1,529	-415
June 30	6,809.26	1,086	-443
July 31	6,815.73	1,361	+275
August 31	6,807.83	1,031	-330
September 30	6,826.91	1,938	+907
October 31	6,827.39	1,966	+28
November 30	6,825.66	1,866	-100
December 31, 2013	6,825.25	1,843	-23
<u>Calendar year 2013</u>	-	-	+511.13

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 7,790 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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, 2012	7,839.79	640	-	0	640
January 31, 2013	7,840.16	651	+11	0	651
February 28	7,840.44	660	+9	0	660
March 31	7,841.95	709	+49	0	709
April 30	7,844.83	811	+102	0	811
May 31	7,849.47	994	+183	12	982
June 30	7,849.68	1,000	+6	18	982
July 31	7,850.30	1,030	+30	48	982
August 31	7,850.24	1,000	-30	18	982
September 30	7,880.08	2,830	+1,830	1061	982
October 31	7,877.24	2,610	-220	1061	982
November 30	7,877.53	2,630	+20	1061	982
December 31, 2013	7,876.11	2,530	-100	961	1,569
<u>Calendar year 2013</u>			+1890		

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 7,313.2 feet above National Geodetic Vertical Datum of 1929. 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, 2012	162.28	640	-	298	342
January 31, 2013	160.77	451	-189	120	331
February 28	154.69	479	+28	157	322
March 31	148.17	500	+21	227	273
April 30	149.70	492	-8	321	171
May 31	158.15	284	-208	284	0
June 30	158.57	199	-85	199	0
July 31	158.87	169	-30	169	0
August 31	160.20	0	-169	0	0
September 30	154.84	0	0	0	0
October 31	152.19	0	0	0	0
November 30	155.23	0	0	0	0
December 31, 2013	157.02	0	0	0	0
<u>Calendar year 2013</u>			-640		

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

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

Galisteo Reservoir. – Water-stage recorder above elevation 5,500.3 ft, nonrecording below, lat 35°27'44", long 106°12'30", in NW1/4 sec. 9, T. 14 N., R. 7 E., on Galisteo Creek. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Storage records begin in October 1970. Capacity 88,990 acre-ft at elevation 5,608.0 ft (crest of spillway). No dead storage. Reservoir is operated by Corps of Engineers for flood control and sediment storage. *New Area-Capacity curve was applied January 1, 2013

Calendar Year 2013

[illegible]

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, 2012	5,155.00	0	-	0
January 31, 2013	5,155.00	0	0	0
February 29	5,155.00	0	0	0
March 31	5,155.00	0	0	0
April 30	5,155.00	0	0	0
May 31	5,155.00	0	0	0
June 30	5,155.00	0	0	0
July 31	5,155.00	0	0	0
August 31	5,155.00	0	0	0
September 30	5,155.00	0	0	0
October 31	5,155.00	0	0	0
November 30	5,155.00	0	0	0
December 31, 2013	5,155.00	0	0	0
Calendar year 2013			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 2013

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 2013.

STORAGE IN RESERVOIRS

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

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, 2012	4305.86	161,138	-	40,973
January 31, 2013	4309.1	183,064	+21926	36,418
February 29	4312.41	207,139	+24075	35,878
March 31	4314.08	220,176	+13037	35,333
April 30	4314.44	223,067	+2891	34,505
May 31	4310.62	193,841	-29,226	33,571
June 30	4291.3	80,576	-113,265	32,435
July 31	4289.88	74,456	-6,120	31,690
August 31	4293.54	90,872	+16416	30,938
September 30	4306.23	163,572	+72700	31,127
October 31	4310.43	192,471	+28899	30,766
November 30	4316.03	236,171	+43700	27,905
December 31, 2013	4320.83	279,060	+42889	
<u>Calendar year 2013</u>			+117922	

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, 2012	4129.00	7,461	-
January 31, 2013	4129.98	8,400	+939
February 28	4130.80	9,700	+1300
March 31	4131.33	10,570	+870
April 30	4131.11	10,210	-360
May 31	4142.49	36,080	+25870
June 30	4136.88	21,240	-14,840
July 31	4130.11	8,600	-12,640
August 31	4132.03	11,760	+3160
September 30	4143.57	39,580	+27820
October 31	4143.27	38,580	-1,000
November 30	4143.39	38,980	+400
December 31, 2013	4143.62	39,740	+760
<u>Calendar year 2013</u>			+32279

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, 2012	168,599	-
January 31, 2013	191,464	+22865
February 29	216,839	+25375
March 31	230,746	+13907
April 30	233,277	+2531
May 31	229,921	-3,356
June 30	101,816	-128,105
July 31	83,056	-18,760
August 31	102,632	+19576
September 30	203,152	+100520
October 31	231,051	+27899
November 30	275,151	+44100
December 31, 2013	318,800	+43649
Calendar year 2013		+150201

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.

l quantities, in acre-feet, 2012

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	1,036
April	0	0	0	0	0	0	7,068
May	149	144	24	63	114	57	16,844
June	54	130	133	67	119	71	8,387
July	0	0	15	51	1	0	511
August	13	12	42	56	62	5	3,115
September	308	433	82	123	13	47	4,930
October	68	78	0	121	0	8	2,761
November	0	0	0	0	0	0	1,049
December	0	0	0	0	0	0	59
Calendar year	592	797	296	481	309	188	45,760

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. Mex. 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
2013

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precip.	0.07	0.15	0.34	0.32	0.18	0.55	0.8	2.47	2.98	0.53	1.63	0.17	10.19
Platoro Dam	Evap.	-	-	-	-	4.31	8.56	6.37	4.65	4.36	1.33	-	-	-
	Precip.	-	-	-	-	0.37	0.58	4.77	3.82	3.96	0.63	-	-	-
Heron Dam	Evap.	-	-	-	5.88	8.03	10.77	7.98	6.86	5.25	3.94	-	-	-
	Precip.	1.10	0.87	0.25	0.55	0.43	0.00	3.37	3.12	3.56	1.00	1.26	0.14	15.65
El Vado Dam	Evap.	-	-	-	6.74	9.04	11.54	8.29	7.44	5.7	4.14	-	-	-
	Precip.	0.79	0.5	0.14	0.4	0.22	0.07	2.66	4.37	3.05	1.06	0.91	0.18	14.35
Abiquiu Dam	Evap.	2.47	3.59	6.13	7.92	9.47	13.44	9.98	8.92	6.56	5.79	3.63	2.22	80.12
	Precip.	0.33	0.20	0.30	0.22	0.24	0.09	2.42	1.85	3.62	0.55	1.23	0.30	11.35
Nambe Canyon Dam	Evap.	-	-	-	7.75	10.18	12.84	9.68	9.28	6.68	4.33	-	-	-
	Precip.	0.19	0.26	0.00	0.29	0.14	0.43	4.06	2.46	3.32	0.14	2.29	0.20	13.78
Cochiti Dam	Evap.	2.79	4.14	7.05	6.74	9.33	11.79	7.66	6.83	5.33	4.02	3.3	2.83	71.81
	Precip.	0.15	0.00	0.00	0.31	0.08	0.22	3.16	1.19	7.14	0.73	2.12	0.24	15.34
Jemez Canyon Dam	Evap.	3.1	4.42	7.66	9.53	12.53	14.33	13.68	11.84	9.66	6.02	4.25	3.14	100.16
	Precip.	0.25	0.00	0.07	0.12	0.04	0.03	2.64	0.66	3.12	0.57	1.03	0.23	8.76
Elephant Butte Dam	Evap.	3.46	5.84	9.93	14.44	17.38	21.3	13.09	11.96	9.38	10.03	4.66	2.99	124.46
	Precip.	0.08	0.01	0.00	0.00	0.10	0.00	3.40	1.49	7.63	0.14	0.74	0.33	13.92
Caballo Dam	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precip.	-	-	-	-	-	-	-	-	-	-	-	-	-
State University	Evap.	3.32	4.65	9.54	11.4	13.32	15.81	11.91	11.23	8.51	7.30	4.20	2.33	103.52
	Precip.	0.14	0.08	0.00	0.00	0.09	0.04	1.36	1.20	3.08	0.00	0.27	0.16	6.42

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 proportionally 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.

RIO GRANDE COMPACT

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.

GAGING STATIONS /1

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 stations on the Rio Grande below those reservoirs 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 gaging station shall be sufficient to obtain records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. 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.

RULES AND REGULATIONS

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.

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.

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

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.

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.

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.

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

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.

SECRETARY /8, /9

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 by letter on or before the fifteenth day of each month, except January, 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 in February 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.

COSTS /1, /2

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.

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

/2 Amended March 31, 2009.

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 which he 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 his State an appropriation of sufficient funds with which to meet the obligations of his State, as provided by the Compact.

MEETING OF COMMISSION /1, /10

The Commission shall meet in Santa Fe, New Mexico, on the third Thursday of February of 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; provided that the Commission may agree to meet elsewhere. 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. Hinderlider

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.

LEGEND

- ▲ STREAM-GAGING STATION
- CITY OR TOWN
- BASIN BOUNDARY
- - - COUNTY LINE
- - - CLOSED BASIN BOUNDARY
- TABOR TRANSMOUNTAIN DIVERSION

EXPLANATION

RIO GRANDE COMPACT STREAM-GAGING STATIONS

- ① Rio Grande near Del Norte
- ② Conejos River below Platoro Reservoir
- ③ Conejos River near Mogote
- ④ San Antonio River at Ortiz
- ⑤ Los Pinos River near Ortiz
- ⑥ Conejos River near Lasasues
- ⑦ Rio Grande near Lobatos
- ⑧ Azotea Tunnel at South Portal
- ⑨ Willow Creek above Heron Reservoir
- ⑩ Horse Lake Creek above Heron Reservoir
- ⑪ Willow Creek below Heron Reservoir, near Parkview
- ⑫ Rio Chama below El Vado Dam
- ⑬ Rio Chama below Abiquiu Dam
- ⑭ Rio Grande at Otowi Bridge
- ⑮ Santa Fe River near Santa Fe
- ⑯ Rio Grande below Cochiti Dam
- ⑰ Galisteo Creek below Galisteo Dam
- ⑱ Jemez River below Jemez Canyon Dam

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

Revised March 1989

RIO GRANDE BASIN ABOVE BERNALILLO, NEW MEXICO

0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS

