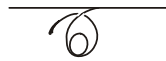


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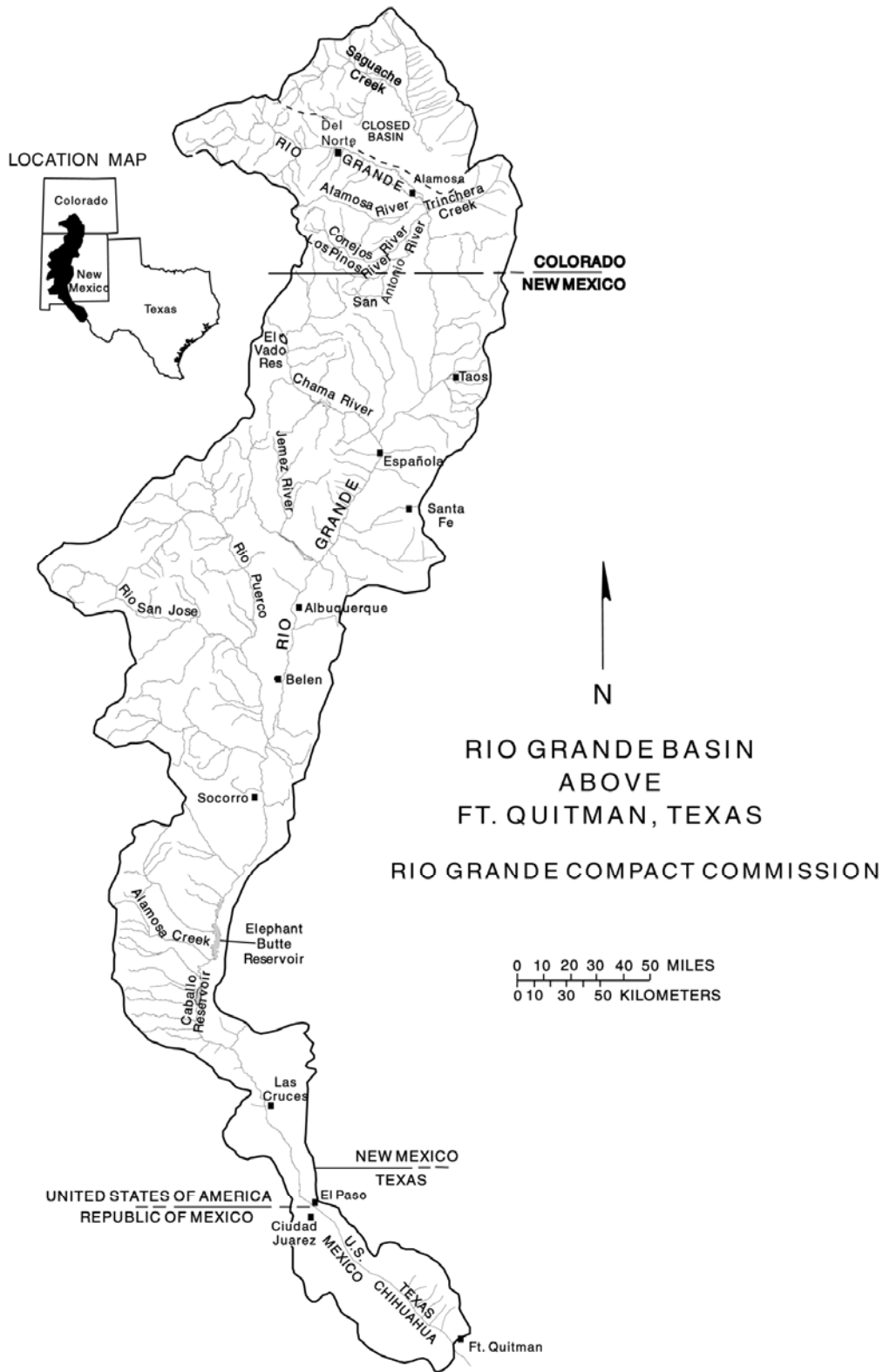
of the

**RIO GRANDE COMPACT
COMMISSION**

2011



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



CONTENTS

Seventy-Third Annual Report to the Governors	1
March 16, 2012 Report of the Engineer Advisers	3
New Mexico and Colorado Addendum to the Engineer Advisers Report.....	28
Texas Addendum to the 2012 Engineer Advisers Report	42
2011 Cost of Operations and 2013 Budget.....	51
Proposed Loss Rates on San Juan-Chama Water Routed to Elephant Butte Reservoir.....	52
July 1, 2012 Cooperative Agreement for Investigation of Water Resources.....	60
Resolution Rio Grande Compact Commission Honoring Donald J. Gallegos	65
Resolution Rio Grande Compact Commission Honoring John R. D’ Antonio, Jr.	66
2011 Water Resources Data	67
Acknowledgements.....	67
Accuracy of Records.....	68
Streamflow.....	69
Storage in Reservoirs	80
Transmountain Diversions	90
Evaporation and Precipitation	91
Rio Grande Compact	93
1948 Resolution Changing Gaging Stations and Measurement of Deliveries by New Mexico.....	102
Rules and Regulations for Administration of the Rio Grande Compact	105

ILLUSTRATIONS

Map, Rio Grande Basin above Ft. Quitman, Texas.....	Frontpiece
Map, Rio Grande Basin above Bernalillo, New Mexico.....	110

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

December 21, 2012

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

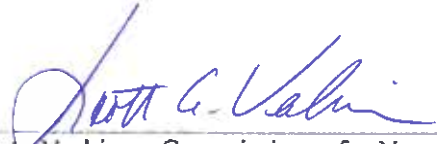
The Honorable John W. Hickenlooper
Governor of the State of Colorado
Denver, Colorado

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

Honorable Governors:

Enclosed herewith is the 2011 Report of the Rio Grande Compact Commission.

Respectfully,



Scott A. Verhines, Commissioner for New Mexico



Dick Wolfe, Commissioner for Colorado



Patrick R. Gordon, Commissioner for Texas

**REPORT OF THE ENGINEER ADVISERS
TO THE RIO GRANDE COMPACT COMMISSION
March 16, 2012**

The Engineer Advisers to the Rio Grande Compact Commission met in Albuquerque on January 17 and 18, 2012, and in Santa Fe and Albuquerque, New Mexico from February 27 through March 2, 2012, to prepare the 2011 Rio Grande Compact (Compact) water accounting, discuss continuing and new issues in preparation for the 2012 annual meeting of the Rio Grande Compact Commission (Commission) and prepare the Engineer Adviser' 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) to discuss in detail their specific water-related activities in the basin.

COMPACT ACCOUNTING –

The Engineer Advisers reviewed the streamflow and reservoir storage records and other pertinent data for calendar year 2011 and were unable to reach a consensus on the 2011 accounting. The lack of consensus arises from disagreement amongst the Texas Engineer Adviser and New Mexico and Colorado Engineer Advisers on certain actions taken by Reclamation in 2011 at Elephant Butte and Caballo reservoirs. In particular, the Engineer Advisers did not reach consensus on the reported record for the Rio Grande below Caballo Reservoir gage and on a method to account for accrued Credit Water and Usable Water in Rio Grande Project Storage during 2011. As a result, the Engineer Advisers were unable to reach consensus on how to finalize the 2011 Rio Grande Compact Delivery Tables for Colorado and New Mexico and the Release and Spill from Project Storage Table. The Engineer Advisers discussed several proposed accounting methods and decided to present them to the Rio Grande Compact Commission at its 2012 meeting. The proposed methods and/or the associated concerns and recommendations of the individual Engineer Advisers are outlined in two addenda to this report.

RIO GRANDE BASIN CONDITIONS

Snowmelt runoff levels in 2011 were below average in most of the basin in Colorado and New Mexico. Summer monsoon activity was below average throughout most of the basin. Usable Water in Project Storage was below the Article VII trigger of 400,000 acre-feet on January 1, 2011 and stayed below that level throughout the year. Platoro Reservoir reached 50 percent of capacity in June 2011. El Vado Reservoir was filled to approximately 80 percent of capacity near the end of May 2011. The San Juan-Chama Project (SJCP) delivered about 98,000 acre-feet through the Azotea Tunnel into the Rio Grande basin in 2011.

CONTINUING ISSUES

This section of the report summarizes issues previously addressed by the Engineer Advisers or the Commission. It reflects information obtained by the Engineer Advisers subsequent to the 2011 Commission meeting, including information obtained in the reports of the federal agencies at meetings with the Engineer Advisers or otherwise reported to the Engineer Advisers at the 2011 Engineer Adviser meeting. The term “reported” herein reflects information provided by various entities without analysis by the Engineer Advisers.

Federal Agency Responses to Rio Grande Compact Commission Requests -

In the 2010 Report of the Engineer Advisers to the Rio Grande Compact Commission, the Engineer Advisers made several specific requests of federal agencies for actions to be taken and/or information to be provided. The Rio Grande Compact Commission, at its 2011 meeting, approved the recommendations. The requests and resulting responses of the federal agencies are listed here:

Request:

- That the USGS and Reclamation cooperate to conduct discharge measurements at the Rio Grande below Elephant Butte gage this spring and fall for the normal range of stages experienced at the gage;

Response:

- The USGS conducted 42 discharge measurements in 2011 at various stages of flow. This is approximately twice the yearly number of measurements that have been made at this station in

recent years. These measurements were made at all ranges of stage experienced at the gage in 2011. Reclamation reported that they also made several measurements of flow at this gage during 2011. However, it is not clear what cooperation between the agencies occurred in regards to the discharge measurements at this site. The USGS did provide all their data regarding their measurements and shift adjustments during 2011 for the gage below Elephant Butte Reservoir.

Request:

- That the State of New Mexico and Reclamation continue to cooperate to verify reservoir stage at Caballo Reservoir during 2011 and 2012;

Response:

- The State of New Mexico and Reclamation have continued to verify that the reservoir stage at Caballo Reservoir is correct. See section on gaging station review.

Request:

- That Reclamation thoroughly document the procedures used to develop the gage record at the Rio Grande below Caballo gage including quality assurance, quality control, and data accessibility, and provide a report to the Engineer Advisers for review by September 30, 2011;

Response:

- Reclamation did not provide the Engineer Advisers with the requested information by September 2011. However, Reclamation did subsequently provide the Engineer Advisers with a plan, developed in concert with the USGS, documenting some of the procedures to be used in the future to develop the record at this gage. This plan included a quality assurance/quality control component. Reclamation did not indicate if this plan was used in the development of the 2011 Rio Grande below Caballo gage record.
- Request:
 - That Reclamation replace the F type chart recorder at the Rio Grande below Caballo gage with an A type chart recorder or a

second digital device such as a digital data recorder, and use the F type recorder only as a second back-up if needed. In addition, Reclamation should use the acoustic doppler velocity meter (ADVM) data to work out the final gage record;

Response:

- Reclamation reported that it has moved from using the F-type recorder as the primary record to using an electronic shaft encoder. Reclamation reported that an A-type recorder donated to Reclamation by Colorado is being used as a backup gage for daily operations. The ADVM was not functional in 2011.

Request:

- That Reclamation use the measurement data being collected during the current (March 2011) stable release from Caballo Reservoir and evaluate the measured data with the Caballo gage data. The comparison should be reported to the Engineer Advisers by May 1, 2011.

Response:

- As of this date, Reclamation has not provided a report to the Engineer Advisers. Reclamation has told the Engineer Advisers that the data was collected during the March 2011 stable release period by El Paso County Water Improvement District No. 1 (EP No. 1). However, this data apparently is still being reviewed. Reclamation assured the Engineer Advisers that a final report of this information would be forthcoming. The Engineer Advisers hope this information is available soon.

Request:

- That the USGS take regular discharge measurements at both the Rio Grande below Elephant Butte gage and Rio Grande below Caballo gage during the 2011 irrigation season (approximately once every two weeks and for a range of stages) and throughout the 2012 irrigation season, report the results to and coordinate with the Engineer Advisers, develop a shift relationship, and report gaged release volumes.

Response:

- The USGS conducted additional discharge measurements in 2011 at their gage below Elephant Butte Reservoir. The USGS also began developing a plan to make discharge measurements, develop a rating curve, and report gaged release volumes at the below Caballo gage. Following the lawsuit filed by the New Mexico Attorney General against Reclamation, the USGS reported that it was directed by the Department of Interior Solicitor in Salt Lake City not to proceed with a Joint Funding Agreement with New Mexico for this plan. Therefore, the USGS did not conduct work at the Rio Grande below Caballo gaging station during 2011. However, USGS employees have given training assistance to Reclamation employees to assist in the development of accurate discharge records for the Caballo gage. The USGS and Reclamation have collaborated on a joint proposal to increase the accuracy and reliability of the Elephant Butte and Caballo gaging stations. See section on gaging station review for additional details.

Request:

- That the USGS evaluate apparent changes to 2010 gage data for selected gages after the data had been approved as final and report back to the Engineer Advisers.

Response:

- The USGS reported their findings to the Engineer Advisers in March 2011 and indicated that the data will be finalized approximately every two months.

Request:

- That Reclamation evaluate the historical gain of San Juan-Chama water in El Vado and Abiquiu reservoirs for the period from 2002 through 2010 and report the results.

Response:

- Reclamation evaluated the increase of San Juan-Chama water in these reservoirs and reported their findings to the Engineer

Advisers in March 2011. See URGWOM Accounting Model section.

Request:

- The Colorado Engineer Adviser asked that Reclamation inform the Engineer Advisers of future meetings on the Operating Agreement.

Response:

- Reclamation did not provide notice to all of the Engineer Advisers of future dates or times for Reclamation's monthly allocation meetings until December of 2011. Reclamation has since provided notice to all of the Engineer Advisers of upcoming allocation team meetings. Meetings will be held on the second Tuesday of each month.

Additionally, the USGS New Mexico Director and Reclamation Albuquerque Area Manager participated in a portion of the February 2012 Engineer Adviser meeting and presented a draft proposal to help resolve the unresolved mass balance issues the Engineer Advisers and Rio Grande Compact Commission have been investigating for the past few years. The draft proposal is summarized in the gaging station review section below.

While not all of the information requested by the Rio Grande Compact Commission was provided, the Engineer Advisers were pleased with a number of the responses and thank the USGS Director and Reclamation Albuquerque Area Manager for their efforts to address the requests and stand ready to work with both agencies on the remaining unresolved requests.

Gaging Station Review --

The Engineer Advisers continue to monitor the water balance and gage records between Elephant Butte and Caballo reservoirs. The accuracy of stream gages in this reach is essential for compact accounting. The gage below Elephant Butte measures a portion of New Mexico's deliveries, and the gage below Caballo measures releases from Project Storage. Since 2005, the mass balance for that reach has indicated a significant deviation from historical characteristics (from 1940 to 2005). At its March 30, 2011 meeting, the Rio Grande Compact Commission approved several recommendations, as described above, to improve confidence in the gage records and the mass balance in that reach.

During 2011, the USGS and Reclamation developed the draft proposal for investigating the stream gages and the mass balance issue that was presented to the Engineer Advisers at the February 2012 meeting. The draft proposal describes a comprehensive study to investigate the unresolved gains and losses between the stream gages at San Marcial and Rio Grande below Caballo Reservoir. The Engineer Advisers expressed their appreciation to both agencies for their collaborative efforts to develop the proposal, supported moving forward, and recommended that the first priority be to improve gage records (infrastructure, measurement, analysis, review, transparency, and reporting) for the gages below Elephant Butte and Caballo reservoirs so the two sets of records can be evaluated in a consistent manner. The Texas Engineer Adviser recommends that a workgroup be established consisting of the USGS, Reclamation, the Engineer Advisers, and stakeholders who are asked to participate by any of the Engineer Advisers.

The USGS presented and discussed its gage record and process for developing the final record for the gage below Elephant Butte Reservoir for the 2011 calendar year and provided all station review materials to the Engineer Advisers.

Reclamation provided the USGS with its final below Caballo Reservoir gage record for 2011 but did not provide any back up information to support how the final record was developed. Reclamation did advise that the data was reviewed by several staff and by a USGS employee detailed to the Reclamation El Paso Office. While the review conducted by the USGS employee was not sanctioned by the USGS, Reclamation reported the reviewer has expertise in USGS data management, gage measurement methods, and gage operations and maintenance experience. Reclamation further reported that the review found some missing data but no significant errors and that the reviewer found the data to be approximately 1.3 percent different from what Reclamation had calculated with the data available. The documentation and data used in this review was not provided to the Engineer Advisers. The USGS reported that they do not conduct a technical review of the Caballo gage record, and in the past have simply published the data Reclamation provided them; but will no longer do so unless a detailed gage review is conducted by the USGS.

Because of the continuing unresolved questions about the Rio Grande below Caballo gage records described above, the New Mexico and Colorado Engineer Advisers cannot evaluate the gage record to determine its reliability at this time.

The Texas Engineer Adviser is unclear on exactly what specific errors or discrepancies the New Mexico and Colorado Engineer Advisers believe are occurring to make the Caballo gage completely unreliable at this time. The Texas Engineer Adviser understands the records of the Caballo gage do not undergo the typical USGS protocol; however, specific errors making the data unusable have not been identified.

The Engineer Advisers do recommend that Reclamation and the USGS collaborate as part of the refined draft proposal on data collection, that each conduct a technical review of the other's gage, and that they finalize their records for both gages approximately every two months to improve the accuracy of both the Rio Grande below Elephant Butte Reservoir and the Rio Grande gages below Caballo Reservoir gages and restore trust that the records are reliable. The Engineer Advisers are hopeful that such a collaborative process will address and resolve the questions about the mass balance issue.

During 2011, NMISC continued its survey of water level elevations in the reservoirs. The NMISC survey results matched the recorded elevations at Elephant Butte and Caballo Reservoirs.

As a result of the above issues, the mass balance on the reach between the gage below Elephant Butte Reservoir and Caballo Reservoir could not be developed for 2011. The New Mexico Engineer Adviser remains concerned about reported but as yet undocumented changes in the Rio Grande below Caballo gage methodology. The New Mexico and Colorado Engineer Advisers had hoped that use of the ADVN at the gage and measurements by the USGS using USGS methods (as requested by the Rio Grande Compact Commission in 2011) at both the Rio Grande below Elephant Butte gage and Rio Grande below Caballo gage would put the mass balance issue to rest. However, neither action occurred. New Mexico indicated it still has money allocated from its current budget to allow for consistent gaging at the Rio Grande below Elephant Butte and Rio Grande below Caballo gages and continues to be ready to allocate the funds for use by the USGS in cooperation with Reclamation.

The Texas Engineer Adviser remains concerned with the continued annual change in stream bed conditions associated with the gage below Elephant Butte Reservoir. This change involves vegetation growth every irrigation season. The Texas Engineer Adviser believes the conditions require the USGS to monitor frequently in order to produce an accurate record, and the vegetation results in the

need for the USGS to apply significantly large shifts to the data collected. The Texas Engineer Adviser would ask that if the analysis to be performed by the committee he recommended above results in errors in the streamflow record being identified, that the data be reviewed for the last 10 years and be referred to the Commission for an adjustment to the Compact accounting to correct any errors.

Zebra Mussels/Quagga Mussels –

The Engineer Advisers continue to be concerned about the recent infestation of Zebra and Quagga mussels in several locations in Colorado and other neighboring states, and the possibility of infestation in waters of the Upper Rio Grande basin. Sumner, El Vado and Navajo reservoirs are suspect due to recent positive microscopic veliger tests. However, the DNA tests were negative. Reservoirs will be monitored on a monthly basis from April to November. Reclamation has purchased and operates three mobile decontamination units to help control the spread of the mussels, although resources are limited for boat inspections and decontamination.

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

The Corps and Reclamation prepared separate draft biological assessments (BAs) for their discretionary water management and flood control activities in the Middle Rio Grande in 2011. The Corps submitted their biological assessment to the Service in late October 2011 and is requesting a separate consultation from that of Reclamation's. Neither the State of New Mexico nor any other party was included in the proposed actions by the Corps.

Reclamation provided a draft of their biological Assessment (BA) to the State of New Mexico and other parties for review in August 2011. The BA included San Juan Chama Project operations in New Mexico and Middle Rio Grande Project operations but did not include river maintenance activities or State of New Mexico or other nonfederal actions other than MRGCD river diversions. Reclamation requested input on any proposed actions from nonfederal entities that they wish to have considered for coverage.

Reclamation is currently preparing a second draft BA with the intent of including all MRGCD water related operations, Reclamation's river maintenance activities, and other activities, such as those the State of New Mexico is providing

for inclusion in its proposed action and for the effect analysis. Reclamation also plans to include conservation measures in their BA using actions identified in the Recovery Implementation Program (RIP) currently being developed by the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program). Reclamation intends to provide the refined BA to the Service in April 2012 and anticipates several months of discussions resulting in a final BA in July 2012. New Mexico reported that ESA coverage is anticipated to be afforded through the RIP and Reclamation's final biological opinion (BO) for middle Rio Grande water users.

The Service indicated it still plans to review the two draft biological assessments once both have been received and prepare a single draft biological opinion by the end of February 2013. The Corps indicated it wants to consult separately and receive a separate BO for their discretionary operations; however, they still intend to remain committed to the Collaborative Program and wish to continue to be part of a RIP. The Service maintains their desire for one single BO for this re-consultation.

Compliance by Federal and State Agencies with State Water Law –

The Commission has previously adopted resolutions that requested the Corps, Reclamation, and the Service comply with state law by obtaining permits from the appropriate state agencies for any water related actions, including habitat restoration, that result in new or additional river depletions. Federal agency representatives have acknowledged the need to comply with applicable state laws regarding these projects.

The NMISC continued to coordinate with New Mexico Office of the State Engineer (NMOSE) regarding habitat restoration projects that require offset of depletions, including projects conducted by the Corps, Reclamation and NMISC. New Mexico reported these offsets are being made. In October 2011, the State Engineer issued a depletions offset policy for Habitat Restoration Projects in the Middle Rio Grande Project that provides guidance for those parties constructing habitat restoration projects in the middle Rio Grande basin. Reclamation, the Corps, and the ISC are exempted from a permit requirement due to their responsibilities for flood control and conveyance for compact deliveries. However, offsets for depletions from their projects are still necessary and must be accounted and reported to the OSE.

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 NMISC committed \$250,000 for the initial portion of the project. Those funds were used to match \$750,000 from the Corps' Section 729 authority in the Water Resources Development Act of 2007. The first phase of 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 will begin funding the next portion of Phase 2 in 2012 to match additional Corps funds. A contract amendment with the Corps has been finalized and is being circulated for signatures. Texas has committed \$100,000 to continue Phase 2 and initiate Phase 3 of the project. It is anticipated that additional state funding from Texas in the amount of \$150,000 will be forthcoming to complete additional portions of the project.

URGWOM Accounting Model -

During 2011, representatives of Reclamation, Corps, and NMISC met every other month and conducted quality assurance on model input river flow and reservoir data and reviewed San Juan Chama contractor releases and water exchanges. The issues that were discussed are: accuracy of Heron Reservoir

releases; evaporation data for Elephant Butte and Caballo reservoirs and the releases from Caballo Reservoir. Evaporation data and Caballo Reservoir releases were not available in time to properly complete draft accounting.

The Corps reported on model updates and developments which include: updating the PowerSim monthly model; extending URGWOM to include the Rio Grande in Colorado; developing the Lower Rio Grande portion of URGWOM; developing methods for water quality modeling in RiverWare and continue working on model calibration. The Corps also reported that the National Weather Service (NWS) has developed real-time watershed models that will be integrated with URGWOM to perform real-time water operations. In addition, Reclamation is now using the Hydrologic Database (HDB) to populate model inputs. Reclamation reported that data is sometimes input into this data base before is considered official.

URGWOM accounting procedures allocate a portion of precipitation falling on the reservoirs to stored SJCP and relinquishment water. Reclamation reported on the historical accounting practices for precipitation that allow for gain on San Juan-Chama water in El Vado and Abiquiu reservoirs for the period from 2002 to 2010. The Engineer Advisers evaluated the practice and concluded that the method used for allocating precipitation was consistent with past practice and the increases were not significant enough to warrant proposing a change to the accounting practices.

Elephant Butte Pilot Channel Project -

The pilot channel was successful in conveying the low flows from the 2011 snowmelt runoff into the active reservoir pool at Elephant Butte Reservoir. During the fall of 2011, New Mexico reported that the NMISC, working cooperatively with Reclamation, repaired spoil bank levees and removed accumulated sediment from the channel. Work occurred primarily between Indian Springs and the top of the Narrows. Work is scheduled to continue through early 2012 in preparation for the spring 2012 snow melt runoff. To date, New Mexico has spent more than \$11 million to construct and maintain the pilot channel.

In partial fulfillment of the Service's biological opinion 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 to ensure compliance with the biological opinion.

Relinquishment Update –

Effective March 31, 2011, Colorado proposed and Texas accepted a relinquishment of 1,100 acre-feet of accrued credit in Elephant Butte Reservoir in exchange for 1,100 acre-feet of native water inadvertently stored in Platoro Reservoir.

During 2011, discussions were held and correspondence exchanged between the Engineer Advisers, Compact Commissioners, and Reclamation on a number of possible relinquishment proposals and credit water loan proposals of a portion of New Mexico's accrued Rio Grande credit water in Elephant Butte Reservoir. The first request was made in March, and discussions continued through the summer. However, none of the relinquishment requests or credit water loan proposals for use of New Mexico Accrued Credit Water were ultimately accepted by Texas.

Because of the lack of an agreement on the relinquishment or loan proposals by early July, the New Mexico Engineer Adviser assumed that all Rio Grande Project releases would cease soon thereafter. However, due to actions taken by Reclamation without prior approval of the Compact Commission, releases continued into September. The actions taken by Reclamation and the consequences of those actions, as viewed by each state, are outlined in the addenda to this report.

The Colorado and the New Mexico Engineer Advisers want to emphasize by mention in this report that relinquishment of Credit Water pursuant to the Rio Grande Compact is a discretionary decision of the upstream state having accrued Credit Water and as such is an integral and inseparable part of the agreement between the states that the Rio Grande Compact represents.

In 2011, both the United States and MRGCD stored relinquishment water in El Vado Reservoir. The United States stored a total of 20,000 acre-feet between May 8 and May 30, and MRGCD stored a total of 18,500 acre-feet between May 8 and May 25. The City of Santa Fe did not store any relinquishment water in 2011.

The total amount of accrued credit relinquished by New Mexico and accepted by Texas since 2003 is 380,500 acre-feet. Relinquishment water storage has occurred during 2003, 2004, 2006, 2010, and 2011 totaling 192,757 acre-feet. The majority of that relinquishment water has been released. At the end of 2011, there was a balance of 77,743 acre-feet of assigned relinquishment credit yet to be stored by MRGCD, the United States, or the City of Santa Fe in future years when

Article VII storage restrictions are in effect. The amount of unassigned relinquishment credit available for assignment and capture in future years totals 110,000 acre-feet.

YEAR 2011 OPERATIONS

Closed Basin Project -

The total production of the Closed Basin Project in 2011 was 15,167 acre-feet, with 11,579 acre-feet of that amount delivered to the Rio Grande. All of the water delivered to the Rio Grande in 2011 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 six wells in 2011 that were most affected by iron bacteria, and rehabilitated numerous other wells. To date, 65 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 Closed Basin Operating Committee continues to monitor groundwater levels and groundwater production and adjust project operations pursuant to the enabling legislation.

Platoro Reservoir Operations for 2011 –

Platoro Reservoir is a post-Compact Reservoir on the Conejos River. In the winter, Platoro Reservoir is nearly inaccessible. For this reason, the outflow gates are kept at a constant setting. At times, the inflow may exceed these gate settings, causing inadvertent storage of water. In November and December of 2011, approximately 400 acre-feet of native water was inadvertently stored while provisions of Article VII were in effect.

During May 2011, 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 the 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. All of the re-regulated water was accounted for and released during the summer of 2011, thereby not affecting the Conejos index supply. This re-regulation of pre-

Compact water rights has occurred previously while Article VII restrictions have been in place, and this practice has been discussed multiple times in previous Engineer Advisers reports and in Compact Commission meetings. At no previous time did either New Mexico or Texas object to this action.

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 is in the continuing process of developing 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 area's first groundwater subdistrict plan was approved by the district judge in the fall of 2010 and upheld by the Colorado Supreme Court in December 2011. That groundwater subdistrict will begin making replacements of injurious depletions May 1, 2012. Six other subdistricts are in various stages of formation.

Reclamation's Supplemental Water Program -

Reclamation's supplemental water program is intended to provide additional water, primarily obtained through the voluntary leasing of San Juan-Chama Project (SJCP) water, for endangered species needs and compliance with the 2003 Biological Opinion. In 2011, Reclamation reported it released a total of 20,415 acre-feet of leased SJCP water to assure compliance with the dry year flow targets of the 2003 Biological Opinion. Supplemental water releases were made from late March through October.

SJCP water leased for the program is released for diversion and use by the MRGCD, which, in turn, allows an equivalent amount of native Rio Grande water (less conveyance losses) to remain in the river.

Reclamation indicated it continued to maintain portable pumping stations at four locations in the San Acacia reach. The pumps were operated from late March through early November to pump 14,477 acre-feet from the Low Flow Conveyance Channel (LFCC) to the Rio Grande under a permit issued by the New Mexico Office of the State Engineer.

San Juan-Chama Project Water Conveyance Losses –

In 2009, the Engineer Advisers recommended that URGWOM be used to evaluate SJCP conveyance losses between Cochiti and Elephant Butte Reservoirs because the previously approved rates were based on LFCC use and thus were no longer valid. Based upon that evaluation, the Engineer Advisers recommended that a single loss rate value for each month of the year be developed for accounting of conveyance losses for future routing of SJCP water to storage in Elephant Butte Reservoir. And, until a loss rate value(s) was approved by the Commission, that routing loss rates between Cochiti Reservoir and Elephant Butte Reservoir be determined on a case-by-case basis.

In 2010 and 2011, the Engineer Advisers and Reclamation investigated different approaches to developing fixed monthly loss rates for routing water between Cochiti and Elephant Butte reservoirs and agreed on an acceptable option. The Engineer Advisers now recommend that the Compact Commission approve the San Juan-Chama conveyance loss rates described in the memo (copy attached) from Bureau of Reclamation dated March 2, 2012. These guidelines specify that no SJCP water can be moved while the USACE is in flood operations, that releases should not occur during river drying, that releases must end by November 30 of each calendar year, and that any SJCP water moved outside of the pre-determined loss rate parameters will have loss rates determined on a case-by-case basis. The Engineer Advisers thank the Reclamation staff that worked to develop the recommendation for a job well done.

Accounting of Evaporation as part of New Mexico Deliveries -

At the Engineer Adviser meeting in February 2012, New Mexico reported that it had identified a possible problem with the Rio Grande compact accounting methodology for evaporation from Elephant Butte Reservoir. New Mexico reported that, in a year such as 2011, it would be charged for approximately 110,000 acre-feet of evaporation loss from Elephant Butte Reservoir against its

delivery (through actual evaporation loss and the credit water compensation method in Article VI) in a year when recorded data indicates that approximately 70,000 acre-feet of water actually evaporated from the reservoir. New Mexico further reported that they do not believe that it makes sense for New Mexico to be charged for more evaporation than actually occurs. Therefore, the New Mexico Engineer Adviser requested that Colorado and Texas review their files concerning development of the 1948 resolution and coordinate with New Mexico to better understand the issue. And, at the request of the Texas Engineer Adviser, the New Mexico Engineer Adviser agreed to draft a paper outlining the issue in more detail.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, Corps, Service, IBWC, USGS, and BIA presented reports to the Engineer Advisers from February 27 through March 1, 2012.

2011 Rio Grande Project Operations and Storage -

Reclamation reported a final 2011 release from Caballo Reservoir of 396,444 acre-feet (approximately 50% of a full release) for all three Rio Grande Project water users: EP No. 1, Elephant Butte Irrigation District (EBID), and Mexico. During 2011, Mexico's diversion allocation was 25,649 acre-feet. Reclamation's allocation to EBID at the diversion headings was 77,104 acre-feet (which included 20,015 in its carryover account), and EP No.1's allocation at the diversion headings was 267,814 acre-feet (which included 224,348 acre-feet in its carryover account).

Reclamation reported that inflow to Elephant Butte Reservoir was 307,474 acre-feet (36% of the 97-year average). During the irrigation season (March 1 to September 9), Reclamation reported that 405,919 acre-feet of water was released from Elephant Butte Reservoir. Elephant Butte Reservoir peaked at about 504,808 acre-feet (elevation 4,341.03 feet) on March 1, 2011, and storage at Caballo Reservoir peaked at about 66,013 acre-feet (4,150.09 feet) on May 6, 2011. End-of-year storage at Elephant Butte Reservoir was about 294,518 acre-feet, which included 55,264 acre-feet of SJCP water. The end of year storage at Caballo Reservoir was 13,604 acre-feet. Reclamation further reported that Usable Water in Project Storage remained below the Article VII limit for the entire year.

At the 2011 Engineer Adviser meeting, New Mexico asked a number of questions about Reclamation's 2011 Rio Grande Project Allocation spreadsheets. The El Paso Office Manager of Reclamation promised to provide the Engineer Advisers Reclamation's final end -of-month Rio Grande Project Allocation Spreadsheets for each month during 2011 before the end of the Engineer Adviser meeting and to answer a question concerning an apparent discrepancy between the manner in which EP No. 1's 2011 allocation was reduced in March, April, and May of 2011 and that required in the Rio Grande Project Operations Manual. As of March 14, 2012, Reclamation had not provided the requested information to the Engineer Advisers or answered the question.

The Colorado Engineer Adviser asked Reclamation's Albuquerque Area Manager about the federal government's claim in the New Mexico adjudication case that the United States had a right to "all the unappropriated water of the Rio Grande and its tributaries," including tributary groundwater, with an appropriation date of either 1844 or 1890. The Area Manager stated that this claim for water from the Rio Grande did not extend into Colorado.

Reclamation's Rio Grande Project Operations Plan for 2012 –

Reclamation reported Rio Grande Project diversion allocations as of February 1, 2012. Reclamation estimates that Elephant Butte Reservoir storage would peak at 561,000 acre-feet in June, with a minimum storage of 257,000 acre-feet in October. Reclamation estimates that the maximum storage in Caballo Reservoir would be 55,000 acre-feet during June, with a minimum storage of 10,000 acre-feet in October.

Reclamation anticipates releases to begin from Caballo Reservoir for the Rio Grande Project in May or June 2012. Reclamation also reported that they anticipate Article VII restrictions will remain in effect for the entire year.

Vegetation Management at Elephant Butte and Caballo Reservoirs -

Reclamation continued vegetation management efforts at Elephant Butte and Caballo reservoirs in 2011 through a cooperative agreement funded by the NMISC. Reclamation reported that during the 2011 fiscal year, a total of 4,038 acres were treated at Elephant Butte and Caballo reservoirs under the program by mowing, mulching and/or grubbing. There were no herbicide applications in

2011. During the last seven years, approximately 6,931 acres (of mostly salt cedar) have been treated at both reservoirs.

Middle Rio Grande Project Channel Maintenance -

Reclamation provided a presentation regarding the status of its Middle Rio Grande Project river maintenance program. Reclamation is actively engaged in work on 19 priority sites. They have identified where bank erosion or reduced channel capacity could cause levee failure, resulting in flooding and reduction in water delivery, as well as damage to irrigation infrastructure. Five of the 19 priority sites require annual review of channel capacity and maintenance needs due to sediment accumulation. Since 2004, Reclamation has implemented long-term fixes at fifteen priority sites. In 2011, Reclamation completed work at two priority sites.

Cochiti Reservoir Deviation -

Previously, the Commission passed a motion approving, with certain conditions, the Corps proposal to implement a five-year water operations strategy at Cochiti Lake and Jemez Canyon Reservoir. The strategy includes 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. For the Corps to implement a deviation under the strategy:

- New Mexico must be in an accrued credit status at the beginning of the year,
- The Corps must coordinate with Reclamation, the Service, NMISC, Pueblo de Cochiti, Santa Ana Pueblo, and the Engineer Advisers on the implementation of a deviation, including determining if a deviation is possible and whether a recruitment or overbanking flow is determined beneficial,
- The Corps must secure water or water rights and assure their availability for offset of additional depletions projected to result from a deviation before those operations are conducted in a given year, and
- The Corps must secure the specific advice and consent of the Commission at its annual meeting during each year of the term of the proposed deviation to determine if the conditions of the Resolution are met before a deviation may occur.

The Corps did request a deviation from normal operations in 2011 and secured the advice and consent of the Commission at its March 30, 2011 meeting. However, the deviation was not executed due to the insufficient runoff volume to accommodate demand and deviation storage.

For 2012, the Corps does anticipate requesting the advice and consent of the Commission for a spring 2012 deviation at its March 21, 2012 meeting.

2011 Six Middle Rio Grande Pueblos Prior and Paramount Operations -

The BIA provided a report on 2011 Prior and Paramount storage and release activities, projected 2012 storage and release activities, and discussed additional details on the background and general methodology for Prior and Paramount storage operations and releases with the Engineer Advisers.

Reclamation and BIA individually reported that 16,500 acre-feet was stored in El Vado Reservoir for delivery of irrigation water (including estimated evaporation losses) to the Prior and Paramount lands of the six Middle Rio Grande Pueblos in 2011 in the event that natural flows were insufficient. The 16,500 acre-feet was stored in May when the Article VII storage restriction was in effect. None of the water was released for Prior and Paramount uses during 2011. It was held in storage until November when it was released for delivery to Elephant Butte Reservoir before the end of the calendar year. Based on the February 1, 2012 most probable snowmelt runoff forecast, the BIA reported that Reclamation will likely store between 16,500 and 21,500 acre-feet in 2012.

The Engineer Advisers remain concerned about the procedures for quantifying storage, release and delivery of water for the Prior and Paramount 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 Acacia Levee Project -

In November 2009, the Corps completed a Review Plan Limited Re-evaluation Report (Review Plan) for the San Acacia Levee Project. The project originally was intended to replace the existing 46 mile-long spoil bank levee from San Acacia to San Marcial with an engineered levee. The Review Plan reaffirmed

the economic justification, engineering design and alternative formulation for the project, as described in the 2009 Engineer Adviser report.

The Corps indicated the estimated total project cost is approximately \$140 million and will be complete in phases. Phase 1 will be construction of the Socorro portion of the levee, beginning at the Socorro North Diversion Channel proceeding south towards the Brown Arroyo outlet.

The Corps has prepared a reevaluation report and is preparing a supplemental EIS which they anticipate will be completed in 2012. The Corps indicated that the President's FY12 budget included \$10 million for this project, and they hope to award the construction contract in 2012. The New Mexico Engineer Adviser reported that the NMISC and the MRGCD have authorized the use of \$600,000 (\$300,000 each) towards Phase 1 of the project and that the MRGCD, in collaboration with the NMISC, was successful in receiving legislative authority to provide additional cost share for Phase 1 of the project through the New Mexico Water Trust Board.

Southwestern Willow Flycatcher –

Reclamation continues to conduct Southwestern willow flycatcher surveys and nest monitoring along the Rio Grande. In 2011, Reclamation reported 318 territories in the Elephant Butte Reservoir area. Riparian vegetation within the uppermost levels of the conservation pool of Elephant Butte Reservoir holds the largest breeding population of flycatchers in New Mexico. The flycatcher territories continue to move further south as the reservoir recedes.

The new Service proposal for critical habitat (August 2011) includes the Elephant Butte Reservoir pool. Reclamation, along with Texas, New Mexico and Colorado, have asked the Service to exclude Elephant Butte Reservoir from the final critical habitat designation. In addition, New Mexico has asked the Service to consider excluding the proposed critical habitat between Percha Diversion Dam and Leasburg Diversion Dam in the valley below Caballo Reservoir. The Service reported that it will soon publish a NEPA report and economic analysis for the proposed rule for public review and that they anticipate the final rule will be published in August 2012.

Reclamation reported it will initiate ESA Section 7 consultation associated with its Rio Grande Project operations in 2012. Reclamation indicated that a draft flycatcher management plan for the Rio Grande Project has been submitted to the

Service for consideration. The Engineer Advisers requested Reclamation provide a copy of the management plan, but it had not been received by the time this report was finalized.

Colorado reported that the Rio Grande Water Conservation District has submitted a Habitat Conservation Plan (HCP) for the Southwestern willow flycatcher in the San Luis Valley of Colorado. If approved by the Service, this plan could alleviate the need to designate the San Luis Valley as critical habitat for the flycatcher.

The Service indicated concerns over predation of flycatcher in the Elephant Butte area from feral hogs and raccoons.

Middle Rio Grande Endangered Species Act Collaborative Program -

The Collaborative Program continues to work to protect endangered species within the middle Rio Grande and aid federal agencies to comply with the 2003 Biological Opinion. Collaborative Program activities include, but are not limited to, water acquisition, LFCC pumping, Collaborative Program management actions, habitat restoration, silvery minnow augmentation, and numerous other projects. Cost share from non-federal signatories has been accounted, and the 25 percent match is being met.

As mentioned briefly earlier, the Collaborative Program is seeking to transition to a RIP within its program area. The goal of the RIP is to implement actions designed to conserve and contribute to the recovery of the endangered species and to protect water uses in the MRG by serving as the Endangered Species Act (ESA) compliance vehicle. It is anticipated that Reclamation's new MRG water operations programmatic BA, scheduled for completion in 2013 in a Service BO that Reclamation accepts, will identify the RIP as the conservation measure offsetting the effects of water uses in the MRG.

2003 Middle Rio Grande Programmatic Biological Opinion -

The Service reported that the 2003 Biological Opinion continued to provide ESA compliance for Reclamation and the Corps in 2011. Dry year flow targets were in effect, and as a result, a continuous flow was required in the middle valley through June 15, 2010 and 100 cubic feet per second at the Central Albuquerque gage for the remainder of the irrigation season. However, nine miles of river drying occurred in April 2011. Service Law enforcement investigated the incident.

The Service also reported that most elements of the BO have been or continue to be achieved, although progress on some elements has been limited. Outstanding elements required by the Biological Opinion are relocating the San Marcial railroad bridge and providing fish passage around in-stream barriers to up-stream silvery minnow movement.

Rio Grande Silvery Minnow -

The Service reported that they conducted silvery minnow rescue operations along 39.5 miles of the main channel of the Rio Grande in the Isleta and San Acacia reaches between June 25 and October 26, 2011. Those operations involved salvaging, transporting and releasing 10,387 silvery minnow. Incidental take was reported as 116 silvery minnow, which was well within the allowable incidental take limit.

The Service reported that 190,838 marked silvery minnow were released in the Isleta and San Acacia reaches during the November of 2011. The Service reported that during the October 2011 sampling effort, Rio Grande silvery minnow were present at 8 of the 20 sites monitored, compared to 15 of 20 sites in 2010. Silvery minnows catch rates were highest at the San Acacia reach monitoring sites and lowest at the Angostura reach sites. There was evidence of spawning in spring of 2011, but recruitment success throughout the Middle Rio Grande was fairly low in 2011 because of the poor spring runoff and low summer flows.

The Service reported there were 136,774 wild-caught eggs collected for propagation during the runoff in 2011. This met the Services target for egg collection in 2011.

Silvery Minnow Reintroduction in Big Bend-Texas -

The Service initiated reintroduction of silvery minnow in 2008. They reported releasing approximately 304,600 silvery minnow into the Big Bend reach of the Rio Grande in Texas in October 2011. The Service plans to release approximately 200,000 silvery minnow in 2013, the final year of the current program. Silvery minnow reintroduced in this reach are designated as experimental nonessential under Section 10(j) of the Endangered Species Act. The Service's continued monitoring documented adult silvery minnow at 14 of 57 sites, including one 17 miles upstream and one 70 miles downstream of release locations. The collections included all life stages of the silvery minnow.

International Boundary and Water Commission Activities -

The IBWC provided a report of its activities along the Rio Grande in New Mexico and Texas during 2011. IBWC discussed improvement activities at the American Dam, their 5-year dam safety inspections, and work activities related to remediation of IBWC lands affected by lead and arsenic contamination from the ASARCO plant.

IBWC discussed Rio Grande levee rehabilitation projects for improvements to meet Federal Emergency Management Agency (FEMA) accreditation standards. There were approximately 122 miles of levee construction projects in the upper Rio Grande including Mesilla Valley and Hatch in New Mexico, and Fabens, Canutillo, Sunland Park, and Tornillo areas in Texas. Several other levee design projects are also ongoing. Communities protected by FEMA accredited levees are not required to purchase flood insurance.

Numerous ongoing environmental restoration activities for the reach of the Rio Grande from Percha Diversion Dam to American Diversion Dam were discussed. The IBWC indicated that the current Service proposed critical habitat designation for the southwestern willow flycatcher in southern New Mexico threatens a voluntary water rights framework supported IBWC and its partners.

Other initiatives discussed by the IBWC included aerial surveys of the Rio Grande in 2011 using LIDAR and digital orthoimagery. The data collected will be used to produce maps of the Rio Grande to provide accurate elevation data for the river channel, floodplain, and levees to assist in hydraulic modeling of water conveyance.

They reported involvement in work associated with transboundary aquifers in the region since 2006.

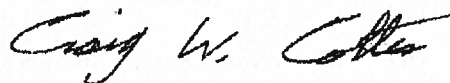
In 2011, IBWC reported that Mexico was provided 25,649 acre-feet of water at the International Diversion Dam heading. For 2012, the initial allotment to Mexico is 4,631 acre-feet. Mexico has raised concerns about the initial allotment and Bi-national monthly meetings are being held to discuss the issue.

IBWC and Reclamation conducted a bi-national tour of the Rio Grande in southern New Mexico and west Texas in June 2011. The tour covered Reclamation and IBWC dams and local irrigation infrastructure. Participants included congressional offices, Mexican Section of the IBWC, Mexican and United States water managers, TCEQ and the NMISC.

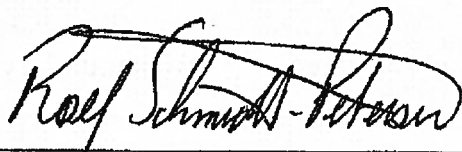
BUDGET –

The Engineer Advisers reviewed the cost of operation for the year ending June 30, 2011 and the budget for the fiscal year ending June 30, 2013. The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2011 were \$182,994. The United States federal government bore \$53,474 of this total, with the balance of \$129,520 borne equally by the three states.

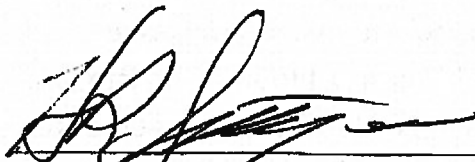
The proposed budget for the fiscal year ending June 30, 2013 indicates a total of \$186,337 will be spent for gaging and administration, with a proposed contribution by the United States federal government of \$53,142.



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New Mexico and Colorado Addendum to the 2012 Engineer Adviser Report to the Rio Grande Compact Commission

March 2012

At the 2012 Rio Grande Compact Commission (RGCC) Engineer Adviser meeting held in Santa Fe, NM on February 27-29, 2012 and in Albuquerque, NM on March 1-2, 2012, the Engineer Advisers were unable to reach consensus on a method by which to conduct the 2011 Rio Grande Compact Accounting. Releases from Elephant Butte Reservoir by the U.S. Bureau of Reclamation (Reclamation) exhausted all of the Usable Water in Project Storage by late July 2011. Reclamation continued to release water from Elephant Butte Reservoir in July, August, and September 2011 when there was no Usable Water in Project Storage. The lack of consensus stems from a disagreement regarding both the source of the water that Reclamation released and the appropriate accounting of 2011 New Mexico and Colorado deliveries that were affected by Reclamation's release beyond the available Usable Water (See the Method 1 and Method 2.b attachments, the Release and Spill from Project Storage Sheet of each, Columns 3 and 5). Regardless of this disagreement the RGCC must develop an accounting of the water deliveries, releases, and credits that resulted.

The Texas Engineer Adviser, joined by a Reclamation representative from its El Paso Office, took the position at the 2011 Engineer Adviser meeting that Reclamation released water that had been converted from accrued Credit Water to Usable Water in Project Storage during 2011 through monthly accounting to compensate for evaporation rather than the annual accounting defined in Article VI of the Compact. The Colorado and New Mexico Engineer Advisers disagreed and took the position that Reclamation's action contravened the method described in the last unnumbered paragraph of Article VI of the Compact to compensate for evaporation of Credit Water, that Reclamation also disregarded the 2006 direction of the Rio Grande Compact Commission with regard to the last unnumbered paragraph of Article VI, and that Reclamation made a release of New Mexico's and Colorado's accrued Credit Water in 2011 without the authorization of the RGCC or the states of Colorado or New Mexico. The New Mexico Engineer Adviser further took the position that the release harmed New Mexico farmers in the Lower Rio Grande because none of the water Reclamation took was available for diversion by the Elephant Butte Irrigation District for delivery to its farmers. The lawsuit filed by New Mexico in August 2011 against Reclamation addresses these issues, in part.

The Engineer Advisers discussed and developed alternatives for accounting for these actual and unauthorized releases of water by Reclamation, that reflect the differences in the position of the Texas Engineer Adviser and the position of the Colorado and New Mexico Engineer Advisers regarding the source of the water that Reclamation released and the 2006 direction of the

RGCC. Neither a relinquishment of Compact Credit Water nor a loan was authorized during the summer of 2011, even though both options were offered by New Mexico. However, Reclamation's unilateral and unauthorized action in July, August, and September 2011 may be accounted by the RGCC, retroactively, in a manner similar to that conducted for a relinquishment (Method 2.a., below) or a loan of Credit Water (Method 2.b.).

Two methods of accounting were developed and they can be described as follows:

- 1) Reduce Credit Water for evaporation monthly during the calendar year – as developed by Texas and Reclamation.
- 2) Reduce Credit Water for annual evaporation at the end of the calendar year – as developed by New Mexico and Colorado. Two options were put forward under this method:
 - a. New Mexico and Colorado Credit Water released during 2011 and accounted as being reduced in the month it was released.
 - b. New Mexico and Colorado Credit Water released during 2011, accounted as being reduced in the month it was released; but then exchanged back into storage in Elephant Butte Reservoir before the end of 2011 as new inflow arrived.

Method 1--Reduce Credit Water For Evaporation Monthly During the 2011 Calendar Year –

Method 1 (Attachment 1) was developed by the Texas Engineer Adviser and a Reclamation representative. Based on this method, the Accrued Credits for the 2012 calendar year would be 2,600 acre-feet for Colorado and 75,300 acre-feet for New Mexico. However, Method 1 contravenes the last unnumbered paragraph of Article VI of the Compact. At that 2006 RGCC meeting, the RGCC approved the consensus recommendations of the Engineer Advisers and directed that:

- (1) Accrued Credit Water be held constant during the year.
- (2) The Engineer Advisers meet and develop a recommendation(s) for Commission approval for the optimum use of water in Project Storage if 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 percent of Project Storage.
- (3) Reclamation release Credit Water only as directed by the RGCC.

The Colorado and New Mexico Engineer Advisers believe that approval of Method 1 would require that the RGCC disregard both the explicit language of the Compact and the RGCC 2006

directives. Therefore, Method 1 is not acceptable to the Colorado and New Mexico Engineer Advisers and it is not discussed further herein.

The accounting results of the Method 2 options are discussed below.

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

Both options developed by New Mexico and Colorado for this method 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) bear 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). Using this method, during 2011 Reclamation made an unauthorized release of a total of 32,825 acre-feet of New Mexico and Colorado accrued Credit Water during July, August, and September. The relative amounts of New Mexico and Colorado accrued Credit Water released were accounted by New Mexico and Colorado as proportional to the individual Credit Water pools: approximately 99% from New Mexico and 1% from Colorado.

At the 2012 Engineer Adviser meeting, New Mexico and Colorado outlined two options for accounting the unauthorized Credit Water release.

Method 2.a. (Attachment 2). Reclamation released accrued Credit Water from Elephant Butte Reservoir during July, August, and September 2011. The accounting for this option includes diminishing Credit Water by the amount of the release in proportion to the total amount of Credit Water held by New Mexico and Colorado. The New Mexico and Colorado Engineer Advisers attempted to reflect the release of Credit Water in the RGCC “Release and Spill from Project Storage” accounting sheet but were not able to do so because the calculations embedded in the spreadsheet allow for the conversion of Credit Water to Usable Water through the relinquishment process but are not configured to show the direct release and reduction of Credit Water without increasing Usable Water.

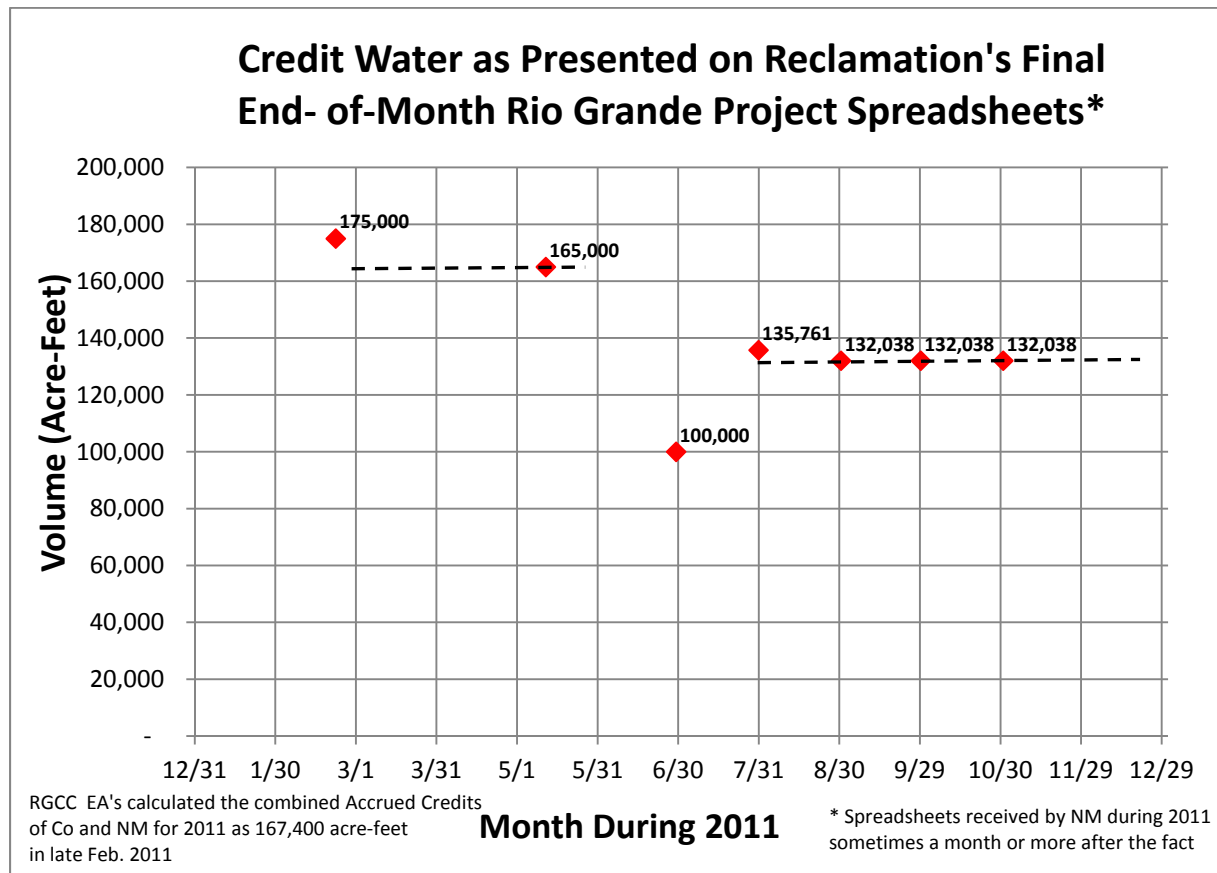
Using this method, the combined New Mexico and Colorado Credit Water accounts (166,300 acre-feet total for 2011 after an authorized relinquishment of 1,100 acre-feet by Colorado in April 2011) would be reduced by the amount of the Credit Water released by Reclamation (32,825 acre-feet total) proportional to the amount of Credit Water each state had in storage. Consequently, New Mexico’s Credit Water account would be reduced by 32,509 acre-feet and Colorado’s by 316 acre-feet during July, August, and September 2011. The Credit Water accounts would then be held constant at a combined total of 133,475 acre-feet for the remainder of the calendar year. Based on this method, the Accrued Credits for the 2012 calendar year would be 2,300 acre-feet for Colorado and 44,600 acre-feet for New Mexico. Unlike an authorized relinquishment, however, neither New Mexico nor Colorado received the

Article VII benefit of being able to store a like amount of water to that released in post-compact reservoirs in the future when the Article VII of the compact storage restriction is in effect.

Therefore, this method is unacceptable because it would reduce the accrued Credit Water of each state without authorization and without providing the benefits of relinquishment to the upstream states.

The New Mexico and Colorado Engineer Advisers note that accounting per Method 2.a. most closely approximates the results of Reclamation's incomplete and inconsistent accounting of accrued Credit Water during 2011 in its Rio Grande Project Allocation Spreadsheets provided to New Mexico.

The New Mexico Engineer Adviser developed the graph below that illustrates the inconsistent accounting of accrued Credit Water in storage in Elephant Butte Reservoir as reported by Reclamation. The Reclamation spreadsheets used to develop the graph were provided to New Mexico by Reclamation at various times in 2011, although often several months after the fact. While accounting Method 2.a. approximates the Credit Water values reported by Reclamation to New Mexico in 2011, none of the methods or options proposed by the Engineer Advisers to the RGCC matches the accrued Credits calculations reported by Reclamation.



At the 2011 Engineer Adviser meeting, the Reclamation representative indicated that Final End-Of-Month Allocation Spreadsheets had been developed by Reclamation for each month of 2011 and that he would provide them to the Engineer Advisers. As of the writing of this document, none of the reported additional 2011 allocation spreadsheets had been received from Reclamation.

Method 2.b. (Attachment 3). The accounting in this method reflects a “loan of credit water” solution such as that which New Mexico proposed to Texas in 2011, but which was rejected by Texas. Nonetheless, this accounting should be approved by the RGCC to account for the unilateral and unauthorized Reclamation actions in a manner that retains New Mexico’s and Colorado’s rightful accrued Credit Water. Further, the RGCC should again direct Reclamation to avoid similar unauthorized actions in the future.

As in Method 2.a., Reclamation released accrued Credit Water from Elephant Butte Reservoir during July, August, and September 2011. The accrued Credit Water is released from Elephant Butte Reservoir. However, in this option, the release is accounted (in Attachment 3, Sheet 3, Columns 3, 4, and 5) 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 inflowing water. This accounting option closely resembles the method approved for use in 1951 by the RGCC at the request of the Texas Commissioner. Based on this method, the Accrued Credits of Colorado for the 2012 calendar year would be 2,600 acre-feet and 76,300 acre-feet for New Mexico.

Summary of Method 2

Method 2.a. results in diminishment of New Mexico and Colorado accrued Credit Water without the benefit of a relinquishment to the upstream states, and therefore is not acceptable.

Method 2.b. is the only option that the New Mexico and Colorado Engineer Advisers find acceptable.

Recommendation

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

- 1) New Mexico and Colorado have sole and exclusive authority to decide the disposition of any of their respective accrued Credit Water; and

- 2) Reclamation's effective denial of the upstream states' benefits associated with relinquishments under the Compact and elimination of the Texas' incentive to accept a relinquishment during drought times. That incentive being the receipt of water that otherwise would not be available for use downstream of Elephant Butte Dam.

However, If Reclamation will agree to comply with the last unnumbered paragraph of Article VI of the Compact and the RGCC's 2006 directives regarding the accounting and release of Credit Water, the Colorado and the New Mexico Engineer Advisers recommend, **for 2011 only**, that Method 2.b. be adopted by the RGCC to account for the result of Reclamation's unauthorized release of Colorado and New Mexico accrued Credit Water during 2011.

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 Colorado and the New Mexico Engineer Advisers recommend that the RGCC not approve any compact accounting for 2011 until the underlying issues are resolved.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE

YEAR 2011 - Developed by Texas and Reclamation

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY													RIO GRANDE INDEX SUPPLY												
	MEASURED FLOW			ADJUSTMENTS			SUPPLY			RECORDED FLOW			ADJUSTMENTS			SUPPLY			DELIVERIES							
	CONJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL NORTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANS MOUNTAIN DIVERSIONS ^b	OTHER ADJUSTMENTS ^c	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	CONJOS RIVER AT MOUTH NEAR LASAUCES	RIO GRANDE LESS CONEJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS				
1																										
JAN	2.8			2.8	18.5	0.1		0.1	2.9	0.0	11.7	0.2	0.0			0.0	11.7	0.0	3.0	12.4	15.4	15.4				
FEB	2.4			2.4	18.6	0.0		0.0	2.4	5.3	9.3	0.2	0.0			0.0	9.3	21.0	3.3	12.2	15.5	30.9				
MAR	4.3			4.3	18.7	0.1		0.1	4.4	9.7	14.4	0.2	0.0			0.0	14.4	35.4	5.3	16.9	22.2	53.1				
APR	11.2	7.5	2.2	20.9	18.4	-0.3		-0.3	20.6	30.3	37.1	0.2	0.0			0.0	37.1	72.5	2.9	3.8	6.7	59.8				
MAY	29.8	23.8	3.3	56.9	18.5	0.1		0.1	57.1	87.4	95.6	0.2	0.0			0.0	95.6	168.1	7.1	7.2	14.3	74.1				
JUN	77.0	20.2	0.4	97.6	24.1	5.6		5.6	103.4	190.8	183.8	0.2	0.0			0.0	183.8	351.9	13.1	20.6	33.7	107.8				
JUL	29.4	2.5	0.0	31.9	19.0	-5.1		0.1	26.9	217.7	58.8	0.2	0.0	-0.7	0.3	-0.4	58.4	410.3	8.5	14.6	23.1	130.9				
AUG	11.3	1.6	0.1	13.0	16.4	-2.6		0.1	10.5	228.2	22.8	0.2	0.0			0.0	22.8	433.1	2.7	6.4	9.1	140.0				
SEPT	7.2	1.9	0.1	9.2	17.8	1.4		1.5	10.7	238.9	17.2	0.2	0.0			0.0	17.2	450.3	1.8	3.1	4.9	144.9				
OCT	12.8	2.2	0.2	15.2	13.7	-4.1		0.1	11.2	250.1	26.9	0.2	0.0			0.0	26.9	477.2	8.6	3.2	11.8	156.7				
NOV	7.4			7.4	11.7	-2.0		0.0	5.4	255.5	15.5	0.2	0.0			0.0	15.5	492.7	9.0	18.4	27.4	184.1				
DEC	2.7			2.7	12.1	0.4		0.4	3.1	258.6	9.6	0.2	0.0			0.0	9.6	502.3	3.9	12.0	15.9	200.0				
YEAR	198.3	59.7	6.3	264.3		-6.4		0.7	258.6		502.7		0.0	-0.7	0.3	-0.4	502.3		69.2	130.8	200.0					
SUMMARY OF DEBITS AND CREDITS																										
ITEM																										
C1 Balance at Beginning of Year																										
C2 Scheduled Delivery from Conejos River																										
C3 Scheduled Delivery from Rio Grande																										
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet																										
C5 Reduction of Debits c/c Evaporation																										
C6 Reduction of Credits c/c Evaporation ^d																										
C7 Accrued credit relinquished to project storage on Mar. 31, 2011.																										
C8 Balance at End of Year																										
DEBIT																										
CREDIT																										
BALANCE																										
Cr. 2.7																										
Dr. 78.1																										
Dr. 205.9																										
Cr. 4.1																										
Cr. 3.7																										
Cr. 2.6																										
Cr. 2.6																										

Remarks: Cols. 6 and 13 do not include transmountain water.
^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
^b 986 ac-ft minus 249 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.

APPROVED: _____ Date: _____
 Engineer Adviser for Colorado

APPROVED: _____ Date: _____
 Engineer Adviser for New Mexico

APPROVED: _____ Date: _____
 Engineer Adviser for Texas

Method 1 -- Reduce Credit Water For Evaporation Monthly During the 2011 Calendar Year -- Developed by Texas and Reclamation.
 RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
 YEAR 2011 - Developed by Texas and Reclamation

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY				
	RESERVOIRS: LOBATOS TO OTOWI					ADJUSTMENTS					STORAGE IN ELEPHANT BUTTE RESERVOIR		Effective Supply		
	Recorded Flow at Otowi Bridge	Storage End of Month a, b	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	Total Water Stored in New Mexico Above San Marcial at End of Month a, b	End of Month a	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		44.5								44.7	372.9				
JAN	39.7	42.6	-1.9	0.0	0.0	-2.1	-4.0	35.7	35.7	42.7	409.8	36.9	0.6	37.5	37.5
FEB	38.1	43.3	0.7	0.0	0.0	-2.6	-1.9	36.2	71.9	43.6	441.6	31.8	0.5	32.3	69.8
MAR	51.1	42.6	-0.7	0.2	0.2	-2.8	-3.3	47.8	119.7	42.6	404.5	-37.1	65.5	28.4	98.2
APR	58.1	53.9	11.3	0.4	0.4	-9.0	2.7	60.8	180.5	53.7	322.8	-81.7	94.0	12.3	110.5
MAY	77.4	98.3	44.4	0.5	0.5	-4.5	40.4	117.8	298.3	98.5	299.5	-23.3	38.6	15.3	125.8
JUN	92.9	91.4	-6.9	0.8	0.8	-5.1	-11.2	81.7	380.0	91.7	224.7	-74.8	95.5	20.7	146.5
JUL	70.1	64.5	-26.9	0.3	0.3	-7.2	-33.8	36.3	416.3	65.0	166.1	-56.6	66.3	7.7	154.2
AUG	53.3	36.5	-28.0	0.2	0.2	-4.9	-32.7	20.6	436.9	36.4	146.3	-19.8	30.2	10.4	164.6
SEPT	34.7	35.1	-1.4	0.2	0.2	-13.8	-15.0	19.7	456.6	34.9	145.7	-0.6	16.5	15.9	180.5
OCT	32.8	35.2	0.1	0.2	0.2	-3.6	-3.3	29.5	486.1	35.3	157.8	12.1	0.4	12.5	198.0
NOV	56.5	29.5	-5.7	0.2	0.2	-3.4	-8.9	47.6	533.7	29.6	191.2	33.4	0.1	33.5	226.5
DEC	50.3	20.3	-9.2	0.1	0.1	-3.0	-12.1	38.2	571.9	20.0	245.9	54.7	0.1	54.8	281.3
YEAR	655.0		-24.2	3.1	3.1	-82.0	-83.1	571.9				-127.0	408.3	281.3	

SUMMARY OF DEBITS AND CREDITS		
ITEM	DEBIT	CREDIT
NM1 Balance at Beginning of Year		
NM2 Scheduled Delivery at Elephant Butte	328.4	
NM3 Actual Elephant Butte Effective Supply		281.3
NM4 Reduction of Debits o/c Evaporation		
NM5 Reduction of Credits o/c Evaporation and Spill c	42.3	
NM6		
NM7		
NM8 Balance at End of Year		
		BALANCE
		Cr. 164.7
		Dr. 163.7
		Cr. 117.6
		Cr. 75.3
		Cr. 75.3

Remarks:
 a Cois. 3, 11, and 12 do not include transmountain water.
 Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits totaled 38,500 acre-feet in 2011.
 Storage of relinquished credit to date totaled 192,757 acre-feet; balance of assigned relinquishment credit remaining to be stored is 77,743 acre-feet.
 c Reduction of Credit for Evaporation calculated on a monthly basis.

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

Method 1 -- Reduce Credit Water For Evaporation Monthly During the 2011 Calendar Year -- Developed by Texas and Reclamation.

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2011 - Developed by Texas and Reclamation

Quantities in thousands of acre feet to nearest hundred

MONTH	USABLE WATER IN STORAGE				CREDIT WATER IN STORAGE				RIO GRANDE BELOW CABALLO DAM							USABLE RELEASE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	^a Total Project Storage Capacity Available at End of Month	Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Unfilled Capacity of Project Storage at End of Month	^c Colorado Credit Water	^c New Mexico Credit Water	Total at End of Month	Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Releases and Spill	Caballo Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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	2,225.0	2,055.5	220.0	2,275.5	1,997.5	2.7	164.7	167.4		394.9								0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
JAN	2,225.0	2,439.9	23.6	2,675.5	1,957.5	2.7	163.2	165.9		433.4	0.1	0.0	0.1				0.1	0.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
FEB	2,225.0	2,775.5	24.8	3,023.3	1,922.7	2.6	161.5	164.1		466.4	0.1	0.1	0.2				0.2	0.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
MAR	2,225.0	2,451.1	34.1	2,792.2	1,945.8	1.5	157.9	159.4		438.6	47.7	0.1	47.8				47.8	48.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
APR	2,200.0	1,685.5	63.2	2,317.7	1,968.3	1.4	152.9	154.3		386.0	54.8	0.1	54.9				54.9	103.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
MAY	2,200.0	1,508.8	53.0	2,038.8	1,996.2	1.4	147.3	148.7		352.5	44.0	0.2	44.2				44.2	147.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
JUN	2,200.0	83.7	37.5	121.2	2,078.8	1.3	139.7	141.0		262.2	103.7	0.4	104.1				104.1	251.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
JUL	2,200.0	31.2	32.2	63.4	2,136.6	1.3	133.6	134.9		198.3	69.7	0.4	70.1				70.1	321.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
AUG	2,200.0	15.6	7.3	22.9	2,177.1	1.2	129.5	130.7		153.6	58.0	0.2	58.2				58.2	379.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
SEPT	2,200.0	18.1	8.5	26.6	2,173.4	1.2	126.4	127.6		154.2	18.6	0.0	18.6				18.6	398.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
OCT	2,225.0	32.9	10.1	43.0	2,182.0	1.2	123.7	124.9		167.9	0.1	0.0	0.1				0.1	398.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
NOV	2,225.0	68.0	11.6	79.6	2,145.4	1.2	122.0	123.2		202.8	0.1	0.0	0.1				0.1	398.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
DEC	2,225.0	122.3	13.6	135.9	2,089.1	1.2	122.4	123.6		259.5	0.1	0.0	0.1				0.1	398.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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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 2,200,030 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1983 Termination of the Rio Grande Compact Commission 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.

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

Method 2.a -- Reduce Credit Water for Unauthorized Release and for Evaporation at the end of the Calendar Year
 RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
 YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY										DELIVERIES					
	MEASURED FLOW			ADJUSTMENTS				SUPPLY			RECORDED FLOW			ADJUSTMENTS				SUPPLY			CONJOS RIVER	RIO GRANDE LESS	RIO GRANDE AT	LOBATOS	ACCUMULATED	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
JAN	2.8				18.5				2.9	0.0		0.2						0.0								0.0
FEB	2.4				18.6	0.1		0.1	2.4	2.9	11.7	0.2	0.0			0.0	11.7	11.7	3.0	12.4	15.4				15.4	
MAR	4.3				18.7	0.1		0.1	4.4	5.3	9.3	0.2	0.0			0.0	9.3	21.0	3.3	12.2	15.5				30.9	
APR	11.2	7.5	2.2		18.4	-0.3		-0.3	20.6	30.3	14.4	0.2	0.0			0.0	14.4	35.4	5.3	16.9	22.2				53.1	
MAY	29.8	23.8	3.3		18.5	0.1		0.1	57.1	87.4	37.1	0.2	0.0			0.0	37.1	72.5	2.9	3.8	6.7				59.8	
JUN	77.0	20.2	0.4		24.1	5.6		0.2	103.4	190.8	95.6	0.2	0.0			0.0	95.6	168.1	13.1	20.6	33.7				107.8	
JUL	29.4	2.5			19.0	-5.1		0.1	26.9	217.7	58.8	0.2	0.0			-0.7	58.4	410.3	8.5	14.6	23.1				130.9	
AUG	11.3	1.6	0.1		16.4	-2.6		0.1	10.5	228.2	22.8	0.2	0.0			0.0	22.8	433.1	2.7	6.4	9.1				140.0	
SEPT	7.2	1.9	0.1		17.8	1.4		0.1	10.7	238.9	17.2	0.2	0.0			0.0	17.2	450.3	1.8	3.1	4.9				144.9	
OCT	12.8	2.2	0.2		13.7	-4.1		0.1	11.2	250.1	26.9	0.2	0.0			0.0	26.9	477.2	8.6	3.2	11.8				156.7	
NOV	7.4				11.7	-2.0		0.0	5.4	255.5	15.5	0.2	0.0			0.0	15.5	492.7	9.0	18.4	27.4				184.1	
DEC	2.7				12.1	0.4		0.4	3.1	258.6	9.6	0.2	0.0			0.0	9.6	502.3	3.9	12.0	15.9				200.0	
YEAR	198.3	59.7	6.3		264.3	-6.4		0.7	258.6	502.7	502.7	0.0	0.0			-0.7	502.3	69.2	130.8	200.0					200.0	
SUMMARY OF DEBITS AND CREDITS																										
ITEM																										
C1 Balance at Beginning of Year																										
C2 Scheduled Delivery from Conejos River																										
C3 Scheduled Delivery from Rio Grande																										
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet																										
C5 Unauthorized release of Credit Water																										
C6 Reduction of Credits of Evaporation ^d																										
C7 Accrued credit relinquished to project storage on Mar. 31, 2011.																										
C8 Balance at End of Year																										
DEBIT																										
CREDIT																										
BALANCE																										
Cr. 2.7																										
Dr. 78.1																										
Dr. 205.9																										
Cr. 4.1																										
210.0																										
Cr. 3.8																										
Cr. 3.4																										
Cr. 2.3																										
Cr. 2.3																										

Remarks: Cols. 6 and 13 do not include transmountain water.
^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
^b 986 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 as described in Article VI of the Rio Grande Compact, using Reclamation unauthorized release of 316 ac-ft of Credit Water.

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

Method 2.a -- Reduce Credit Water for Unauthorized Release and for Evaporation at the end of the Calendar Year
 RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
 YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY					
	RESERVOIRS:LOBATOS TO OTOWI					ADJUSTMENTS					INDEX SUPPLY	STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
	Recorded Flow at Otowi Bridge	Storage End of Month a, b	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	Total Water Stored in New Mexico Above San Marcial at End of Month a, b		End of Month	Change Gain (+) Loss (-)			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
JAN	39.7	44.5	-1.9	0.0			-4.0	35.7	35.7	44.7	372.9		36.9	0.6	37.5	
FEB	38.1	42.6	0.7	0.0		-2.1	-1.9	36.2	71.9	42.7	409.8		31.8	0.5	32.3	
MAR	51.1	42.6	-0.7	0.2		-2.8	-3.3	47.8	119.7	43.6	441.6		-37.1	65.5	69.6	
APR	58.1	53.9	11.3	0.4		-9.0	2.7	60.8	180.5	42.6	404.5		-81.7	94.0	98.2	
MAY	77.4	98.3	44.4	0.5		-4.5	40.4	117.8	298.3	53.7	322.8		-23.3	38.6	110.5	
JUN	92.9	91.4	-6.9	0.8		-5.1	-11.2	81.7	380.0	98.5	299.5		-74.8	95.5	125.8	
JUL	70.1	64.5	-26.9	0.3		-7.2	-33.8	36.3	416.3	91.7	224.7		-58.6	66.3	146.5	
AUG	53.3	36.5	-28.0	0.2		-4.9	-32.7	20.6	436.9	65.0	166.1		-19.8	30.2	154.2	
SEPT	34.7	35.1	-1.4	0.2		-13.8	-15.0	19.7	456.6	38.4	146.3		-0.6	10.4	164.6	
OCT	32.8	35.2	0.1	0.2		-3.6	-3.3	29.5	486.1	34.9	145.7		12.1	16.5	180.5	
NOV	56.5	29.5	-5.7	0.2		-3.4	-8.9	47.6	533.7	35.3	157.8		33.4	0.1	193.0	
DEC	50.3	20.3	-9.2	0.1		-3.0	-12.1	38.2	571.9	29.6	191.2		54.7	0.1	226.5	
YEAR	655.0		-24.2	3.1		-82.0	-83.1	571.9		20.0	245.9	-127.0	406.3	0.1	281.3	

SUMMARY OF DEBITS AND CREDITS		
ITEM	DEBIT	CREDIT
NM1 Balance at Beginning of Year		
NM2 Scheduled Delivery at Elephant Butte	328.4	
NM3 Actual Elephant Butte Effective Supply		281.3
NM4 Reduction of Debits o/c Evaporation		
NM5 Reduction of Credits o/c Evaporation and Spill ^d	40.5	
NM6 Unauthorized release of Credit Water	32.5	
NM7		
NM8 Balance at End of Year		
BALANCE		
	Cr. 164.7	
	Dr. 163.7	
	Cr 117.6	
	Cr 77.1	
	Cr. 44.6	
	Cr. 44.6	

Remarks:
 a Cols. 3, 11, and 12 do not include transmountain water.
 b Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits totaled 38,500 acre-feet in 2011.
 c Storage of relinquished credit to date totaled 192,757 acre-feet; balance of assigned relinquishment credit remaining to be stored is 77,743 acre-feet.
 d Elephant Butte Reservoir storage was below Credit Water Pool (166,300 ac-ft) during July, August, September, and October due to Bureau of Reclamation's unauthorized release of Credit Water.
 e Credit Water computed according to Article VI of the Rio Grande Compact, using Reclamation unauthorized release of 32,509 ac-ft of Credit Water.

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

Method 2.b -- Reduce Credit Water for Evaporation at the end of the Calendar Year with Unauthorized Release of Credit Water Replaced by Late Season Inflow
RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY										DELIVERIES			
	MEASURED FLOW			ADJUSTMENTS			SUPPLY		ADJUSTMENTS			SUPPLY		ADJUSTMENTS			SUPPLY		CONJOS RIVER AT MOUTH NEAR LASAUCES	RIO GRANDE LESS CONJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
JAN	2.8	18.5	2.8	18.6	0.1	0.1	0.1	0.1	2.9	2.9	11.7	0.2	0.0	0.0	0.0	0.0	11.7	0.0	3.0	12.4	15.4	0.0		
FEB	2.4	18.6	2.4	18.6	0.0	0.0	0.0	0.0	2.4	5.3	9.3	0.2	0.0	0.0	0.0	0.0	9.3	21.0	3.3	12.2	15.5	15.4		
MAR	4.3	18.7	4.3	18.7	0.1	0.1	0.1	0.1	4.4	9.7	14.4	0.2	0.0	0.0	0.0	0.0	14.4	35.4	5.3	16.9	22.2	30.9		
APR	11.2	20.9	2.2	20.9	18.4	-0.3	-0.3	-0.3	20.6	30.3	37.1	0.2	0.0	0.0	0.0	0.0	37.1	72.5	2.9	3.8	6.7	53.1		
MAY	29.8	23.8	3.3	56.9	18.5	0.1	0.1	0.2	57.1	87.4	95.6	0.2	0.0	0.0	0.0	0.0	95.6	168.1	7.1	7.2	14.3	59.8		
JUN	77.0	20.2	0.4	97.6	24.1	5.6	0.2	5.8	103.4	190.8	183.8	0.2	0.0	0.0	0.0	0.0	183.8	351.9	13.1	20.6	33.7	74.1		
JUL	29.4	2.5	0.0	31.9	19.0	-5.1	0.1	-5.0	26.9	217.7	58.8	0.2	0.0	-0.7	0.3	-0.4	58.4	410.3	8.5	14.6	23.1	107.8		
AUG	11.3	1.6	0.1	13.0	16.4	-2.6	0.1	-2.5	10.5	228.2	22.8	0.2	0.0	0.0	0.0	0.0	22.8	433.1	2.7	6.4	9.1	130.9		
SEPT	7.2	1.9	0.1	9.2	17.8	1.4	0.1	1.5	10.7	288.9	17.2	0.2	0.0	0.0	0.0	0.0	17.2	450.3	1.8	3.1	4.9	140.0		
OCT	12.8	2.2	0.2	15.2	13.7	-4.1	0.1	-4.0	11.2	280.1	26.9	0.2	0.0	0.0	0.0	0.0	26.9	477.2	8.6	3.2	11.8	144.9		
NOV	7.4	7.4	7.4	7.4	11.7	-2.0	0.0	-2.0	5.4	255.5	15.5	0.2	0.0	0.0	0.0	0.0	15.5	492.7	9.0	18.4	27.4	156.7		
DEC	2.7	2.7	2.7	2.7	12.1	0.4	0.4	0.4	3.1	258.6	9.6	0.2	0.0	0.0	0.0	0.0	9.6	502.3	3.9	12.0	15.9	184.1		
YEAR	198.3	59.7	6.3	264.3	502.7	-6.4	0.7	-5.7	258.6	502.7	502.7	0.0	0.0	-0.7	0.3	-0.4	502.3	69.2	69.2	130.8	200.0	200.0		

SUMMARY OF DEBITS AND CREDITS			
ITEM	DEBIT	CREDIT	BALANCE
C1 Balance at Beginning of Year	80.8		Cr. 2.7
C2 Scheduled Delivery from Conejos River	127.8		Dr. 78.1
C3 Scheduled Delivery from Rio Grande		210.0	Dr. 205.9
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet			Cr. 4.1
C5 Reduction of Debits o/c Evaporation	0.4		Cr. 3.7
C6 Reduction of Credits o/c Evaporation ^d	1.1		Cr. 2.6
C7 Accrued credit relinquished to project storage on Mar. 31, 2011.			Cr. 2.6
C8 Balance at End of Year			Cr. 2.6

Remarks: Cols. 6 and 13 do not include transmountain water.
^a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
^b 986 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 12.4% of Credit Water.

APPROVED: _____ Date: _____
 Engineer Adviser for Colorado

APPROVED: _____ Date: _____
 Engineer Adviser for New Mexico

APPROVED: _____ Date: _____
 Engineer Adviser for Texas

Method 2.b -- Reduce Credit Water for Evaporation at the end of the Calendar Year with Unauthorized Release of Credit Water Replaced by Late Season Inflow
 RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
 YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY				
	RESERVOIRS: LOBATOS TO OTOWI					ADJUSTMENTS					INDEX SUPPLY		STORAGE IN ELEPHANT BUTTE RESERVOIR		Effective Supply
	Recorded Flow at Otowi Bridge	Storage End of Month a, b	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	Total Water Stored in New Mexico Above San Marcial at End of Month a, b	End of Month a	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
1															
JAN	39.7	44.5	-1.9	0.0	0.0	-2.1	-4.0	35.7	44.7	372.9	409.8	36.9	0.6	37.5	37.5
FEB	38.1	43.3	0.7	0.0	-2.6	-2.6	-1.9	36.2	43.6	441.6	416.6	31.8	0.5	32.3	69.8
MAR	51.1	42.6	-0.7	0.2	-2.8	-2.8	-3.3	47.8	42.6	404.5	404.5	-37.1	65.5	28.4	98.2
APR	58.1	53.9	11.3	0.4	-9.0	-9.0	2.7	60.8	53.7	322.8	322.8	-81.7	94.0	12.3	110.5
MAY	77.4	98.3	44.4	0.5	-4.5	-4.5	40.4	117.8	98.5	299.5	299.5	-23.3	38.6	15.3	125.8
JUN	92.9	91.4	-6.9	0.8	-5.1	-5.1	-11.2	81.7	91.7	254.7	254.7	-74.8	95.5	20.7	146.5
JUL	70.1	64.5	-26.9	0.3	-7.2	-7.2	-33.8	36.3	65.0	166.1	166.1	-58.6	66.3	7.7	154.2
AUG	53.3	36.5	-28.0	0.2	-4.9	-4.9	-32.7	20.6	36.4	146.3	146.3	-19.8	30.2	10.4	164.6
SEPT	64.7	35.1	-1.4	0.2	-13.8	-13.8	-15.0	19.7	34.9	145.7	145.7	-0.6	16.5	15.9	180.5
OCT	32.8	35.2	0.1	0.2	-3.6	-3.6	-3.3	29.5	35.3	157.8	157.8	12.1	0.4	12.5	193.0
NOV	5.1	29.5	-5.7	0.2	-3.4	-3.4	-8.9	47.6	29.6	191.2	191.2	33.4	0.1	33.5	226.5
DEC	50.3	20.3	-9.2	0.1	-3.0	-3.0	-12.1	38.2	20.0	245.9	245.9	54.7	0.1	54.8	281.3
YEAR	655.0		-24.2	3.1	-62.0	-62.0	-89.1	571.9				-127.0	406.3	281.3	

SUMMARY OF DEBITS AND CREDITS			
ITEM	DEBIT	CREDIT	BALANCE
NM1 Balance at Beginning of Year			Cr. 164.7
NM2 Scheduled Delivery at Elephant Butte	328.4		Dr. 163.7
NM3 Actual Elephant Butte Effective Supply		281.3	Cr. 117.6
NM4 Reduction of Debits of Evaporation			
NM5 Reduction of Credits of Evaporation and Spill ^d	41.3		Cr. 76.3
NM6			
NM7			
NM8 Balance at End of Year			Cr. 76.3

Remarks:
 a Cols. 3, 11, and 12 do not include transmountain water.
 b Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits totaled 38,500 acre-feet in 2011. Storage of relinquished credit to date totaled 192,757 acre-feet; balance of assigned relinquishment credit remaining to be stored is 77,743 acre-feet.
 c Elephant Butte Reservoir storage was below Credit Water Pool (166,300 ac-ft) during July, August, September, and October due to Bureau of Reclamation's unauthorized release of Credit Water.
 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 Water.

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

Method 2.b -- Reduce Credit Water for Evaporation at the end of the Calendar Year with Unauthorized Release of Credit Water Replaced by Late Season Inflow

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	USABLE WATER IN STORAGE			CREDIT WATER IN STORAGE			RIO GRANDE BELOW CABALLO DAM ^e							USABLE RELEASE					
	^a Total Project Storage Capacity Available at End of Month	Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Capacity of Project Storage at End of Month	^c Colorado Credit Water	^c New Mexico Credit Water	Total at End of Month	Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	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	0.0
JAN	2,225.0	^b 205.5	22.0	^b 227.5	1,997.5	^b 2.7	^b 164.7	^b 167.4	394.9										
FEB	2,225.0	242.4	23.6	266.0	1,959.0	2.7	164.7	167.4	433.4										
MAR	2,225.0	274.2	24.8	299.0	1,926.0	2.7	164.7	167.4	466.4										
APR	2,200.0	237.1	34.1	271.2	1,953.8	1.6	164.7	166.3	438.6										
MAY	2,200.0	155.4	63.2	218.6	1,981.4	1.6	164.7	166.3	386.0										
JUN	2,200.0	132.1	53.0	185.1	2,014.9	1.6	164.7	166.3	352.5										
JUL	2,200.0	57.3	37.5	94.8	2,105.2	1.6	164.7	166.3	262.2										
AUG	2,200.0	-1.3	32.2	30.9	2,169.1	1.6	164.7	^c 166.3	198.3										
SEPT	2,200.0	^d -21.1	7.3	-13.8	2,213.8	1.6	164.7	^c 166.3	153.6										
OCT	2,225.0	^d -21.7	8.5	-13.2	2,213.2	1.6	164.7	^c 166.3	154.2										
NOV	2,225.0	-9.6	10.1	0.5	2,224.5	1.6	164.7	^c 166.3	167.9										
DEC	2,225.0	23.8	11.5	35.4	2,189.6	1.6	164.7	166.3	202.8										
YEAR	2,225.0	78.5	13.6	92.1	2,132.9	1.6	164.7	166.3	259.5										

ACCRUED DEPARTURE FROM NORMAL RELEASE			
ITEM	DEBIT	CREDIT	BALANCE
P1	Accrued Departure at Beginning of Year		
P2	Actual Release during Year		
P3	Normal Release for Year	790.0	
P4	Under Release in Excess of 150.0		
P5			
P6			
P7	Accrued Departure at End of Year		

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 2,200,030 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1998 Resolution of the Rio Grande Compact Commission 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 Commission in March 2006. Evaporation for Credit Water is accounted at end of calendar year in the proportion that the Credit Water bore to the total amount of water in Elephant Butte Reservoir during the year. If loan had been approved Credit Water would have been decreased by the amount of the negative Usable Water.

^d Cols. 3 and 5 - negative Usable Water in Elephant Butte due to Bureau of Reclamation unauthorized release of Credit Water.

^e Cols. 12-19 and Accrued Departure from Normal Release - Due to caballo releases discrepancy, data was not approved. See Texas developed accounting sheet for Bureau of Reclamation reported data.

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

Addendum Engineer Advisers Report
Texas Engineer Adviser
March 21, 2012

The Engineer Advisers to the Rio Grande Compact Commission (Commission) were unable to reach agreement on the Accounting of water deliveries for 2011. The issue centered on how the evaporation losses on credit water are calculated and tabulated.

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 credit water is held constant each month and the credit water only reduced at the end of the year, even though the calculation of credit water evaporation is a summation of monthly evaporation amounts. Also, there are times when the Commission approved the evaporation of credit water monthly. 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 water supply conditions for 2011 met the criteria described in the second recommendation. The Engineer Advisers did not agree on a recommendation and the Commission did not approve a proposal to optimize the use of water in Project Storage. As the irrigation season progressed, it was evident that there would not be enough Usable Water in storage to meet the irrigation allocation to the Rio Grande Project if the evaporation of credit water had to be absorbed by the Usable Water until the end of the year. 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. The results of this accounting are below. This resulted in no Credit Water being released from Elephant Butte Reservoir. The Texas Engineer Adviser agrees with this accounting method as the practical approach to optimize the use of water in Project Storage for 2011 as contemplated in the recommendation above.

COMPACT ACCOUNTING 2011

The Texas Engineer Adviser has reviewed the streamflow and reservoir storage records and other pertinent data for calendar year 2011. This method, recommended by the Texas Engineer Adviser, reduces the credit water for evaporation monthly. The scheduled and actual deliveries, release of Usable Water for the year 2011, and balances as of January 1, 2011, are as follows:

(a) Deliveries by Colorado at the State line:

Balance as of January 1, 2011	2,700 acre-feet
Scheduled delivery	208,600 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	210,000 acre-feet
Reduction of credit on account of evaporation	400 acre-feet
Accrued credit relinquishment to project storage on March 31, 2011	1,100 acre-feet
Accrued credit January 1, 2012	2,600 acre-feet

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

Balance as of January 1, 2011	164,700 acre-feet
Scheduled delivery	328,400 acre-feet
Actual delivery	281,300 acre-feet
Reduction of credit on account of evaporation	42,300 acre-feet
Accrued credit January 1, 2012	75,300 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2011	1,115,800 acre-feet
Actual release of Usable Water	398,500 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2012	1,265,800 acre-feet
Under release capped at 150,000	

The Texas Engineer Adviser also presents a tabulation of the accounting showing the results of holding the Credit Water constant until the end of the calendar year. The accounting showed that Usable Water went negative during the months of July, August, September, and October. Usable Water became positive in November. Thus, any "Credit Water" that may have been released under this scenario was restored prior to the end of year accounting. The accounting tabulation is listed below. The difference in the two accounting scenarios amounts to 1,000 acre-feet of additional credit water for New Mexico under this tabulation. There was no change for Colorado.

As determined by the Texas Engineer Adviser, the scheduled and actual deliveries, release of Usable Water for the year 2011, and balances as of January 1, 2012, are as follows:

(a) Deliveries by Colorado at the State line:

Balance as of January 1, 2011	2,700 acre-feet
Scheduled delivery	208,600 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	210,000 acre-feet
Reduction of credit on account of evaporation	400 acre-feet
Accrued credit relinquishment to project storage on March 31, 2011	1,100 acre-feet
Accrued credit January 1, 2012	2,600 acre-feet

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

Balance as of January 1, 2011	164,700 acre-feet
Scheduled delivery	328,400 acre-feet
Actual delivery	281,300 acre-feet
Reduction of credit on account of evaporation	41,300 acre-feet
Accrued credit January 1, 2012	76,300 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2011	1,115,800 acre-feet
Actual release of Usable Water	398,500 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2011	1,265,800 acre-feet
Under release capped at 150,000	

Texas Accounting based on Credit Water Evaporating Monthly
 RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
 YEAR 2011 - Developed by Texas

Quantities in thousands of acre feet to nearest hundred

MONTH	MEASURED FLOW						RIO GRANDE INDEX SUPPLY										DELIVERIES						
	CONEJOS AT MCGOFFE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE	ADJUSTMENTS OTHER	ADJUSTMENTS NET	SUPPLY IN MONTH	SUPPLY ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL NORTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	ADJUSTMENTS TRANSMOUNTAIN	ADJUSTMENTS OTHER	ADJUSTMENTS NET	SUPPLY IN MONTH	SUPPLY ACCUMULATED TOTAL	CONEJOS RIVER AT MOUTH NEAR LASAUCAS	RIO GRANDE LESS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS	
1																							
JAN	2.8				18.5	0.1		0.1	2.9	2.9	11.7	0.2	0.0			0.0	11.7	11.7	3.0	12.4	15.4	15.4	
FEB	2.4				18.6	0.0		0.0	2.4	5.3	9.3	0.2	0.0			0.0	9.3	21.0	3.3	12.2	15.5	30.9	
MAR	4.3				18.7	0.1		0.1	4.4	9.7	14.4	0.2	0.0			0.0	14.4	35.4	5.3	16.9	22.2	53.1	
APR	11.2	7.5	2.2	20.9	18.4	-0.3		-0.3	20.6	30.3	37.1	0.2	0.0			0.0	37.1	72.5	2.9	3.8	6.7	59.8	
MAY	29.8	23.8	3.3	56.9	18.5	0.1		0.1	57.1	87.4	95.6	0.2	0.0			0.0	95.6	188.1	7.1	7.2	14.3	74.1	
JUN	77.0	20.2	0.4	97.6	24.1	5.6		5.8	103.4	190.8	183.8	0.2	0.0			0.0	183.8	351.9	13.1	20.6	33.7	107.8	
JUL	29.4	2.5	0.0	31.9	18.0	-5.1		0.1	26.9	217.7	58.8	0.2	0.0			-0.7	58.4	410.3	8.5	14.6	23.1	130.9	
AUG	11.3	1.6	0.1	13.0	16.4	-2.6		0.1	10.5	228.2	22.8	0.2	0.0			0.0	22.8	433.1	2.7	6.4	9.1	140.0	
SEPT.	7.2	1.9	0.1	9.2	17.8	1.4		0.1	10.7	238.9	17.2	0.2	0.0			0.0	17.2	450.3	1.8	3.1	4.9	144.9	
OCT	12.8	2.2	0.2	15.2	13.7	-4.1		0.1	11.2	250.1	26.9	0.2	0.0			0.0	26.9	477.2	8.6	3.2	11.8	156.7	
NOV	7.4			7.4	11.7	-2.0		0.0	5.4	255.5	15.5	0.2	0.0			0.0	15.5	492.7	9.0	18.4	27.4	184.1	
DEC	2.7			2.7	12.1	0.4		0.4	3.1	258.6	9.6	0.2	0.0			0.0	9.6	502.3	3.9	12.0	15.9	200.0	
YEAR	198.3	59.7	6.3	264.3		-8.4		0.7	258.8		502.7		0.0			-0.7	502.3		69.2	130.8	200.0		
SUMMARY OF DEBITS AND CREDITS																							
ITEM																							
C1 Balance at Beginning of Year																							
C2 Scheduled Delivery from Conejos River																							
C3 Scheduled Delivery from Rio Grande																							
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet																							
C5 Reduction of Debits c/o Evaporation																							
C6 Reduction of Credits c/o Evaporation																							
C7 Accrued credit relinquished to project storage on Mar. 31, 2011.																							
C8 Balance at End of Year																							
DEBIT CREDIT BALANCE																							
Ct. 2.7																							
Dr. 78.1																							
Dr. 205.9																							
Cr. 4.1																							
Cr. 3.7																							
Cr. 2.8																							
Cr. 2.6																							

Remarks: Cols. 6 and 13 do not include transmountain water.
 a Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
 b 996 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.

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

Texas Accounting based on Credit Water Evaporating Monthly
RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
 YEAR 2011 - Developed by Texas

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY																																																																																																																																													
	ADJUSTMENTS										STORAGE IN ELEPHANT BUTTE RESERVOIR		Effective Supply																																																																																																																																											
	RESERVOIRS: LOBATOS TO OTOWI		Other Adjustments		Trans-mountain Diversions		Net Adjustments		During Month		Accumulated Total		During Month		Accumulated Total																																																																																																																																									
Recorded Flow at Otowi Bridge	Storage End of Month ^a	Change in Storage	Reservoir Evaporation	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	Total Water Stored in New Mexico Above San Marcial at End of Month ^{a, b}	End of Month ^a	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total																																																																																																																																									
1																																																																																																																																																								
		44.5								44.7	372.9																																																																																																																																													
JAN	39.7	42.6	-1.9	0.0		-2.1	-4.0	35.7	35.7	42.7	409.8	36.9	0.6	37.5	37.5																																																																																																																																									
FEB	38.1	43.3	0.7	0.0		-2.6	-1.9	36.2	71.9	43.6	441.6	31.8	0.5	32.3	69.8																																																																																																																																									
MAR	51.1	42.6	-0.7	0.2		-2.8	-3.3	47.8	119.7	42.6	404.5	-37.1	65.5	28.4	95.2																																																																																																																																									
APR	58.1	53.9	11.3	0.4		-9.0	2.7	60.8	180.5	53.7	322.8	-81.7	94.0	12.3	110.5																																																																																																																																									
MAY	77.4	98.3	44.4	0.5		-4.5	40.4	117.8	298.3	98.5	299.5	-23.3	38.6	15.3	125.8																																																																																																																																									
JUN	92.9	91.4	-6.9	0.8		-5.1	-11.2	81.7	380.0	91.7	224.7	-74.8	95.5	20.7	146.5																																																																																																																																									
JUL	70.1	84.5	-28.9	0.3		-7.2	-33.8	36.3	416.3	65.0	166.1	-53.6	66.3	7.7	154.2																																																																																																																																									
AUG	53.3	36.5	-28.0	0.2		-4.9	-32.7	20.6	436.9	36.4	146.3	-19.8	30.2	10.4	164.8																																																																																																																																									
SEPT	34.7	35.1	-1.4	0.2		-13.8	-15.0	19.7	456.6	34.9	145.7	-0.6	16.5	15.9	180.5																																																																																																																																									
OCT	32.8	35.2	0.1	0.2		-3.6	-3.3	29.5	486.1	35.3	157.8	12.1	0.4	12.5	193.0																																																																																																																																									
NOV	56.5	29.5	-5.7	0.2		-3.4	-8.9	47.6	533.7	29.5	191.2	33.4	0.1	33.5	226.5																																																																																																																																									
DEC	50.3	20.3	-9.2	0.1		-3.0	-12.1	38.2	571.9	20.0	245.9	54.7	0.1	54.8	281.3																																																																																																																																									
YEAR	655.0		-24.2	3.1		-62.0	-93.1	571.9				-127.0	468.3	281.3																																																																																																																																										
SUMMARY OF DEBITS AND CREDITS																																																																																																																																																								
ITEM																																																																																																																																																								
<table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">NM1</td> <td style="width: 10%;">Balance at Beginning of Year</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;">BALANCE</td> </tr> <tr> <td>NM2</td> <td>Scheduled Delivery at Elephant Butte</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cr. 184.7</td> </tr> <tr> <td>NM3</td> <td>Actual Elephant Butte Effective Supply</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Dr. 163.7</td> </tr> <tr> <td>NM4</td> <td>Reduction of Debits o/c Evaporation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cr. 117.6</td> </tr> <tr> <td>NM5</td> <td>Reduction of Credits o/c Evaporation and Spill^c</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cr. 75.3</td> </tr> <tr> <td>NM6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>NM7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>NM8</td> <td>Balance at End of Year</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cr. 75.3</td> </tr> </table>																	NM1	Balance at Beginning of Year															BALANCE	NM2	Scheduled Delivery at Elephant Butte															Cr. 184.7	NM3	Actual Elephant Butte Effective Supply															Dr. 163.7	NM4	Reduction of Debits o/c Evaporation															Cr. 117.6	NM5	Reduction of Credits o/c Evaporation and Spill ^c															Cr. 75.3	NM6																	NM7																	NM8	Balance at End of Year															Cr. 75.3
NM1	Balance at Beginning of Year															BALANCE																																																																																																																																								
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NM8	Balance at End of Year															Cr. 75.3																																																																																																																																								

Remarks:
 a. Cols. 3, 11, and 12 do not include transmountain water.
 b. Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits aggregated 0.0 acre-feet in 2009. Storage of relinquished credit to date aggregated 154,224 acre-feet; balance remaining is 146,276 acre-feet.
 c. Reduction of Credit for Evaporation calculated on a monthly basis.

APPROVED: _____ Date: _____
 Engineer Adviser for Colorado

_____ Date: _____
 Engineer Adviser for New Mexico

_____ Date: _____
 Engineer Adviser for Texas

Texas Accounting based on Credit Water Evaporating Monthly

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2011 - Developed by Texas

Quantities in thousands of acre feet to nearest hundred

MONTH	USABLE WATER IN STORAGE				CREDIT WATER IN STORAGE				RIO GRANDE BELOW CABALLO DAM							USABLE RELEASE		
	^a Total Project Storage Capacity Available at End of Month	Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Unfilled Capacity of Project Storage at End of Month	^c Colorado Credit Water	^b New Mexico Credit Water	Total at End of Month	Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	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
	2,225.0	^b 205.5	22.0	^b 227.5	1,997.5	^b 2.7	^b 164.7	^b 187.4		394.9								0.0
JAN	2,225.0	243.9	23.6	267.5	1,957.5	2.7	163.2	165.9		433.4	0.1	0.0	0.1				0.1	0.1
FEB	2,226.0	277.5	24.8	302.3	1,922.7	2.6	161.5	164.1		486.4	0.1	0.1	0.2				0.2	0.3
MAR	2,225.0	245.1	34.1	279.2	1,945.8	1.5	167.9	159.4		438.6	47.7	0.1	47.8				47.8	48.1
APR	2,200.0	168.5	63.2	231.7	1,968.3	1.4	162.9	154.3		386.0	54.8	0.1	54.9				54.9	103.0
MAY	2,200.0	150.8	53.0	203.8	1,996.2	1.4	147.3	148.7		352.5	44.0	0.2	44.2				44.2	147.2
JUN	2,200.0	83.7	37.5	121.2	2,078.8	1.3	138.7	141.0		262.2	103.7	0.4	104.1				104.1	251.3
JUL	2,200.0	31.2	32.2	63.4	2,136.6	1.3	133.6	134.9		198.3	69.7	0.4	70.1				70.1	321.4
AUG	2,200.0	15.6	7.3	22.9	2,177.1	1.2	129.5	130.7		163.6	66.0	0.2	66.2				66.2	379.6
SEPT	2,200.0	18.1	8.5	26.6	2,173.4	1.2	128.4	127.6		164.2	18.6	0.0	18.6				18.6	398.2
OCT	2,225.0	32.9	10.1	43.0	2,182.0	1.2	123.7	124.9		167.9	0.1	0.0	0.1				0.1	398.3
NOV	2,225.0	68.0	11.6	79.6	2,145.4	1.2	122.0	123.2		202.8	0.1	0.0	0.1				0.1	398.4
DEC	2,225.0	122.3	13.6	135.9	2,089.1	1.2	122.4	123.6		259.5	0.1	0.0	0.1				0.1	398.5
YEAR											397.0	1.6	398.5	0.0	0.0	0.0	398.5	
ACCRUED DEPARTURE FROM NORMAL RELEASE																		
ITEM																		
P1 Accrued Departure at Beginning of Year																		
P2 Actual Release during Year																		
P3 Normal Release for Year																		
P4 Under Release in Excess of 190.0																		
P5																		
P6																		
P7 Accrued Departure at End of Year																		
TIME OF HYPOTHETICAL SPILL Did not occur																		
BALANCE																		
Cr. 1115.8																		
Cr. 717.3																		
790.0																		
Cr. 1507.3																		
Cr. 1285.8																		
Cr. 1285.8																		

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 2,200,030 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1988 Resolution of the Rio Grande Compact Commission 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 NMF1).

^c Calculated on a monthly basis.

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

New Mexico and Colorado Accounting Using the Rio Grande Compact Commission 1951 Loan Methodology for Bureau of Reclamation's Unauthorized 2011 Credit Water Release
RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundredth

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY										DELIVERIES			
	MEASURED FLOW		ADJUSTMENTS				SUPPLY				ADJUSTMENTS				SUPPLY		CONJOS RIVER AT MOUTH NEAR LASAJUCES		RIO GRANDE LESS RIO GRANDE AT		RIO GRANDE AT LOBATOS			
	LOS PINOS NEAR MCGOTE	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE ^c	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL NORTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSAMOUNTAIN ^b DIVERSIONS	OTHER ADJUSTMENTS ^a	ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	CONJOS RIVER AT MOUTH NEAR LASAJUCES	RIO GRANDE LESS RIO GRANDE AT	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS		
1																								
JAN	2.8		2.8	18.5	0.1	0.1	0.1	2.9	2.9	11.7	0.2	0.0	0.0	0.0	0.0	0.0	11.7	11.7	3.0	12.4	15.4	15.4		
FEB	2.4		2.4	18.6	0.0	0.0	0.0	2.4	5.3	9.3	0.2	0.0	0.0	0.0	0.0	0.0	9.3	21.0	3.3	12.2	15.5	30.9		
MAR	4.3		4.3	18.7	0.1	0.1	0.1	4.4	9.7	14.4	0.2	0.0	0.0	0.0	0.0	0.0	14.4	35.4	5.3	16.9	22.2	53.1		
APR	11.2	7.5	22.2	20.9	-0.3	-0.3	-0.3	20.6	30.3	37.1	0.2	0.0	0.0	0.0	0.0	0.0	37.1	72.5	2.9	3.8	6.7	59.8		
MAY	29.8	23.8	33.3	56.9	18.5	0.1	0.1	57.1	87.4	95.6	0.2	0.0	0.0	0.0	0.0	0.0	95.6	166.1	7.1	7.2	14.3	74.1		
JUN	77.0	20.2	0.4	97.6	24.1	5.6	0.2	103.4	190.8	193.8	0.2	0.0	0.0	0.0	0.0	0.0	183.8	351.9	13.1	20.6	33.7	107.9		
JUL	29.4	2.5	0.0	31.9	19.0	-5.1	0.1	29.9	217.7	58.8	0.2	0.0	-0.7	0.3	-0.4	-0.4	58.4	410.3	8.5	14.6	23.1	130.9		
AUG	11.3	1.6	0.1	13.0	16.4	-2.6	0.1	10.5	228.2	22.8	0.2	0.0	0.0	0.0	0.0	0.0	22.8	433.1	2.7	6.4	9.1	140.0		
SEPT	7.2	1.9	0.1	9.2	17.8	1.4	0.1	1.5	238.9	17.2	0.2	0.0	0.0	0.0	0.0	0.0	17.2	450.3	1.8	3.1	4.9	144.9		
OCT	12.8	2.2	0.2	15.2	13.7	-4.1	0.1	-4.0	250.1	26.9	0.2	0.0	0.0	0.0	0.0	0.0	26.9	477.2	8.6	3.2	11.8	156.7		
NOV	7.4			7.4	11.7	-2.0	0.0	-2.0	255.5	15.5	0.2	0.0	0.0	0.0	0.0	0.0	15.5	492.7	9.0	18.4	27.4	184.1		
DEC	2.7			2.7	12.1	0.4	0.4	3.1	258.6	9.6	0.2	0.0	0.0	0.0	0.0	0.0	9.6	502.3	3.9	12.0	15.9	200.0		
YEAR	193.3	59.7	6.3	264.3	-6.4	0.7	0.7	258.6	502.7	502.7	0.0	0.0	-0.7	0.3	-0.4	-0.4	502.3	89.2	130.8	200.0	200.0			

Remarks: Cols. 8 and 13 do not include transmountain water.
^a Evaporation, less post-compact reservoirs; report of the Engineer Adviser for Colorado.
^b 986 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.

SUMMARY OF DEBITS AND CREDITS		
ITEM	DEBIT	CREDIT
C1 Balance at Beginning of Year		Cr. 2.7
C2 Scheduled Delivery from Conejos River	80.6	Dr. 78.1
C3 Scheduled Delivery from Rio Grande	127.8	Dr. 205.9
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet		210.0
C5 Reduction of Debits c/o Evaporation		
C6 Reduction of Credits c/o Evaporation ^d	0.4	Cr. 3.7
C7 Actual credit relinquished to project storage on Mar. 31, 2011.	1.1	Cr. 2.6
C8 Balance at End of Year		Cr. 2.6

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

New Mexico and Colorado Accounting Using the Rio Grande Compact Commission 1951 Loan Methodology for Bureau of Reclamation's Unauthorized 2011 Credit Water Release
RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
 YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY					
	RESERVOIRS: LOBATOS TO OTOWI					ADJUSTMENTS					Total Water Stored in New Mexico Above San Marcial at End of Month ^{a, b}	STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
	Recorded Flow at Otowi Bridge	Storage End of Month ^{a, b}	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	End of Month		Change Gain (+) Loss (-)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
JAN	39.7	44.5	-1.9	0.0	-2.1	-4.0	35.7	42.7	37.5	44.7	409.8	36.9	0.6	37.5	37.5	
FEB	38.1	43.3	0.7	0.0	-2.6	-1.9	36.2	71.9	71.9	43.6	441.6	31.8	0.5	32.3	69.8	
MAR	51.1	42.6	-0.7	0.2	-2.8	-3.3	47.8	119.7	119.7	42.6	404.5	-37.1	65.5	28.4	98.2	
APR	58.1	53.9	11.3	0.4	-9.0	2.7	60.8	180.5	180.5	53.7	322.8	-81.7	94.0	12.3	110.5	
MAY	77.4	98.3	44.4	0.5	-4.5	40.4	117.8	296.3	296.3	98.5	299.5	-23.3	36.6	15.3	125.8	
JUN	92.9	91.4	-6.9	0.8	-5.1	-11.2	81.7	380.0	380.0	91.7	224.7	-74.8	95.5	20.7	148.5	
JUL	70.1	64.5	-26.9	0.3	-7.2	-33.8	36.3	418.3	418.3	65.0	166.1	-58.6	86.3	7.7	154.2	
AUG	53.3	38.5	-29.0	0.2	-4.8	-32.7	20.6	436.9	436.9	36.4	146.3	-19.8	30.2	10.4	164.6	
SEPT	34.7	35.1	-1.4	0.2	-13.8	-15.0	19.7	456.6	456.6	34.9	145.7	-0.6	16.5	15.9	180.5	
OCT	32.8	35.2	0.1	0.2	-3.6	-3.3	29.5	486.1	486.1	35.3	157.8	12.1	0.4	12.5	193.0	
NOV	56.5	29.5	-6.7	0.2	-3.4	-8.9	47.6	533.7	533.7	29.6	191.2	33.4	0.1	33.5	226.5	
DEC	50.3	20.3	-9.2	0.1	-3.0	-12.1	38.2	571.9	571.9	20.0	245.9	54.7	0.1	54.8	281.3	
YEAR	655.0		-24.2	3.1	-62.0	-83.1	571.9					-127.0	408.3	281.3		

SUMMARY OF DEBITS AND CREDITS		
ITEM	DEBIT	CREDIT
NM1 Balance at Beginning of Year		Cr. 154.7
NM2 Scheduled Delivery at Elephant Butte	328.4	
NM3 Actual Elephant Butte Effective Supply		Cr. 133.7
NM4 Reduction of Debits c/o Evaporation		281.3
NM5 Reduction of Credits c/o Evaporation and Spill ^d	41.3	
NM6		Cr. 79.3
NM7		
NM8 Balance at End of Year		Cr. 76.3

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

Remarks:
 a Cols. 3, 11, and 12 do not include transmountain water.
 b Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits totaled 38,500 acre-feet in 2011. Storage of relinquished credit to date totaled 182,757 acre-feet; balance of assigned relinquishment credit remaining to be stored is 77,743 acre-feet.
 c Elephant Butte Reservoir storage was below Credit Water Pool (166,300 ac-ft) during July, August, September, and October due to Bureau of Reclamation's unauthorized release of Credit Water.
 d Evaporation of Credit Water compared 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.

New Mexico and Colorado Accounting Using the Rio Grande Compact Commission 1951 Loan Methodology for Bureau of Reclamation's Unauthorized 2011 Credit Water Release
RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
 YEAR 2011 - Developed by Colorado and New Mexico

Quantities in thousands of acre feet to nearest hundred

MONTH	USABLE WATER IN STORAGE					CREDIT WATER IN STORAGE					RIO GRANDE BELOW CABALLO DAM ^a							
	^a Total Project Storage Capacity Available at End of Month	Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month	Unfilled Capacity of Project Storage at End of Month	^c Colorado Credit Water	^c New Mexico Credit Water	Total at End of Month	Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	Measured Flow at Caballo Gaging Station	Intervening Divisions to Canals	Total Release and Spill	Caballo Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total
1																		
JAN	2,225.0	205.5	22.0	227.5	1,997.5	2.7	184.7	187.4		394.9								0.0
FEB	2,225.0	242.4	23.3	266.0	1,959.0	2.7	184.7	167.4		433.4								
MAR	2,225.0	274.2	24.8	299.0	1,926.0	2.7	184.7	167.4		466.4								
APR	2,225.0	237.1	34.1	271.2	1,953.8	1.6	164.7	166.3		438.6								
MAY	2,200.0	165.4	63.2	218.6	1,981.4	1.6	164.7	166.3		386.0								
JUN	2,200.0	132.1	53.0	185.1	2,014.9	1.6	164.7	166.3		352.5								
JUL	2,200.0	57.3	37.5	94.8	2,105.2	1.6	164.7	166.3		282.2								
AUG	2,200.0	-1.3	32.2	30.9	2,169.1	1.6	164.7	166.3		198.3								
SEPT	2,200.0	-21.1	7.3	-13.8	2,213.8	1.6	164.7	166.3		153.6								
OCT	2,225.0	-9.6	10.1	0.5	2,224.5	1.6	164.7	166.3		187.9								
NOV	2,225.0	23.8	11.6	35.4	2,189.6	1.6	164.7	166.3		202.8								
DEC	2,225.0	78.5	13.6	92.1	2,132.9	1.6	164.7	166.3		289.5								
YEAR																		

ACCUMULATED DEPARTURE FROM NORMAL RELEASE		DEBIT		CREDIT		BALANCE	
ITEM							
P1	Accrued Departure at Beginning of Year						
P2	Actual Release during Year						
P3	Normal Releases for Year					790.0	
P4	Under Release in Excess of 150.0						
P5							
P7	Accrued Departure at End of Year						

TIME OF HYPOTHETICAL SPILL Did not occur

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 2,200,000 acre-feet (April to September) and 2,225,000 acre-feet (October to March) as recognized by the September 9, 1988 Resolution of the Rio Grande Compact Commission 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 Balances at Beginning of Year (C1 and NM1).
^c Credit water held constant during the year in accordance with Article VI and per direction of Compact Commission in March 2006. Evaporation for credit water is accounted at end of calendar year in the proportion that the Credit Water bore to the total amount of water in Elephant Butte Reservoir during the year. If loan had been approved Credit Water would have been decreased by the amount of the negative usable water.
^d Cols. 3 and 5 - negative usable water in Elephant Butte due to Bureau of Reclamation unauthorized release of credit water.
^e Cols. 12-19 and Accrued Departure from Normal Release - Due to caballo releases discrepancy data was not approved. See Texas developed accounting sheet for Bureau of Reclamation reported data.

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

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2011

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado ¹	\$65,392		\$65,392		
In New Mexico, above Caballo Reservoir	\$72,174	\$39,559		\$32,615	
In New Mexico, Caballo Reservoir and below	\$29,180	\$7,040		\$3,130	\$19,010
Subtotal	\$166,746	\$46,599	\$65,392	\$35,745	\$19,010
ADMINISTRATION					
USGS Technical Services	\$16,625	\$6,875	\$3,250	\$3,250	\$3,250
Other expenses ²	\$3,928		\$1,309	\$1,309	\$1,309
Subtotal	\$20,553	\$6,875	\$4,559	\$4,559	\$4,559
GRAND TOTAL	\$187,299	\$53,474	\$69,951	\$40,304	\$23,569
EQUAL SHARES			\$44,608	\$44,608	\$44,608

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, 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.

RECLAMATION

Managing Water in the West

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: 3/2/2012

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

To	From		
	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.

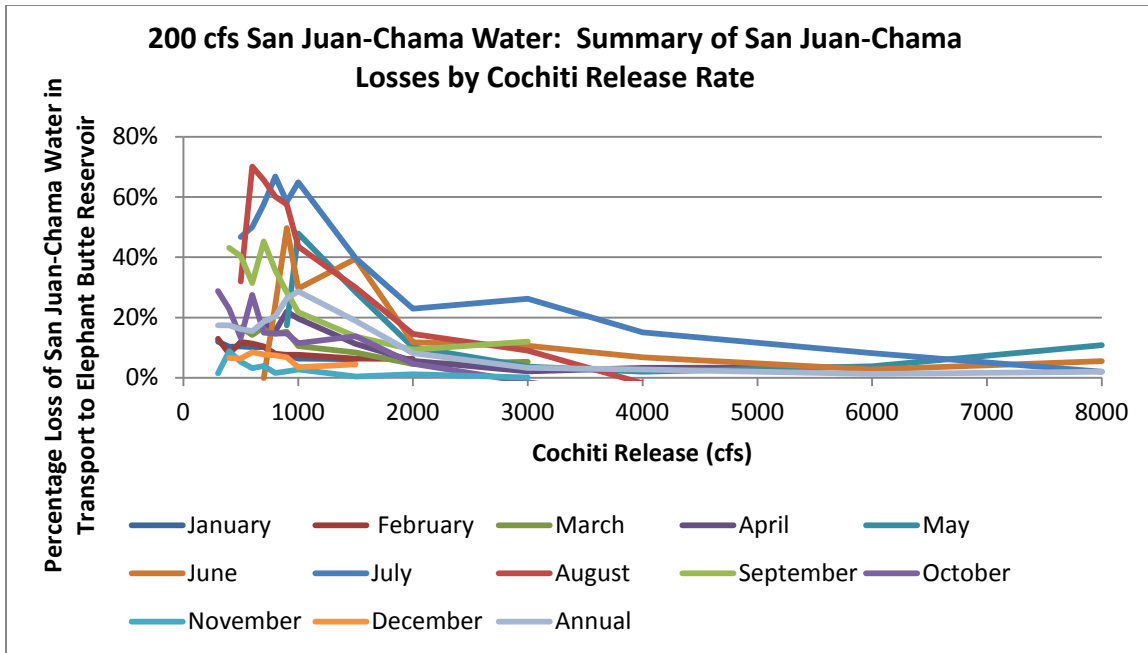


Figure 1. SJC loss rates from URGWOM Model at various native releases

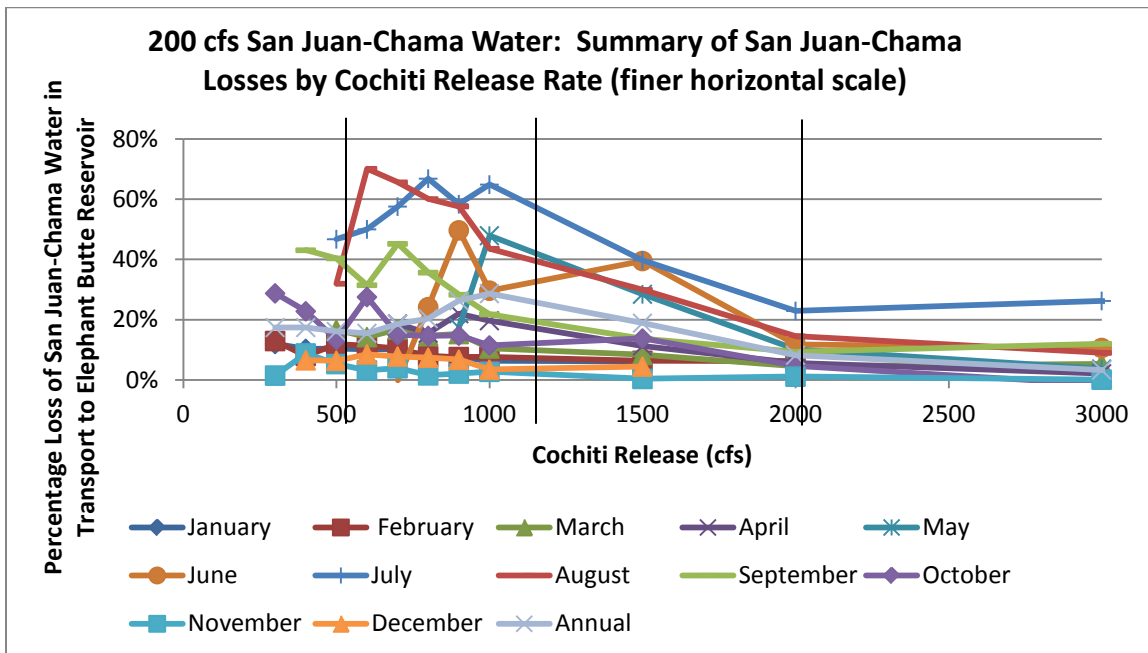


Figure 2. SJC loss rates from URGWOM Model at various native releases (finer horizontal scale)

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 Compact Commissioners 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%

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%

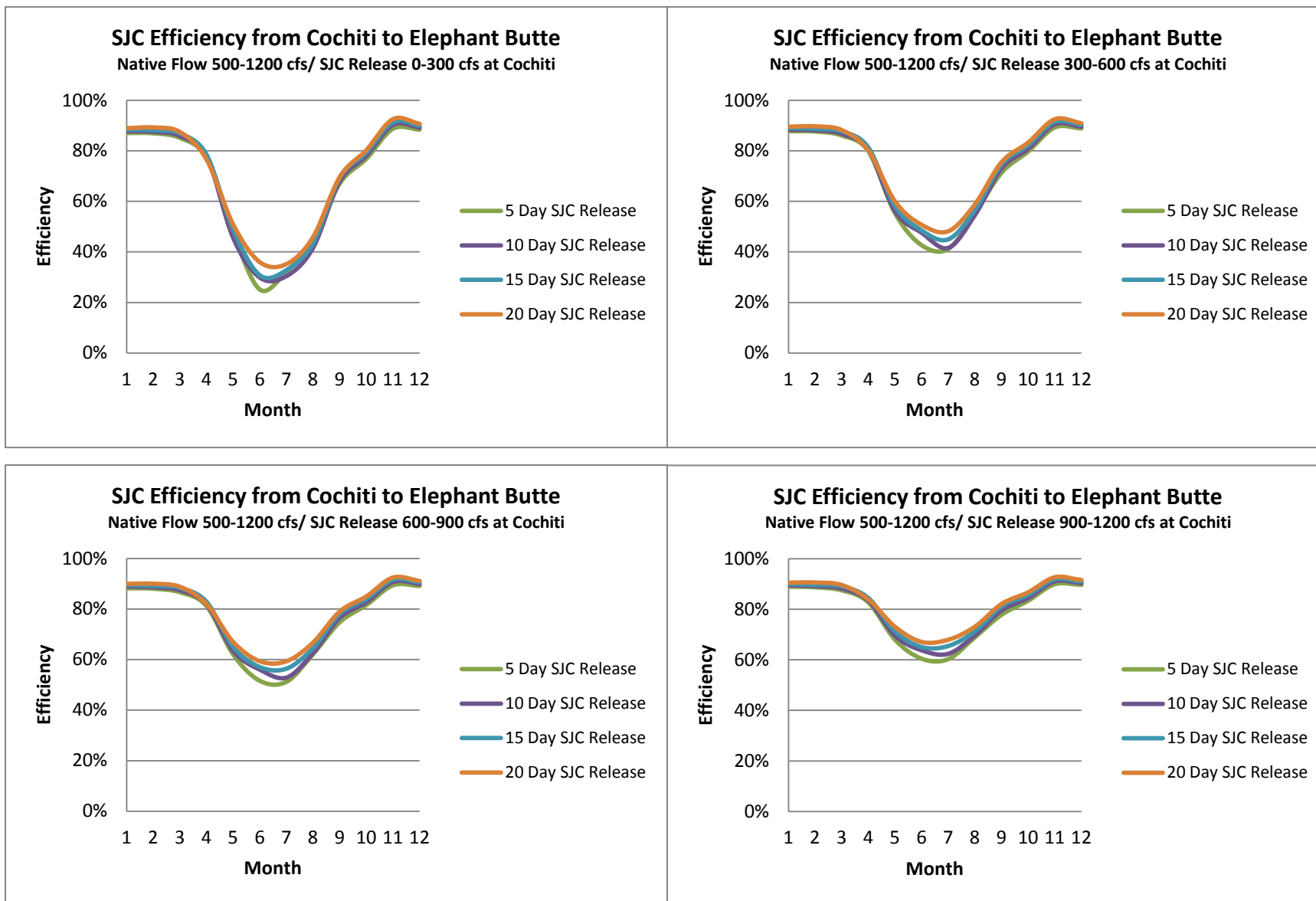


Figure 3. Efficiency graphs to show changes over months and SJC release, grouped by release rate

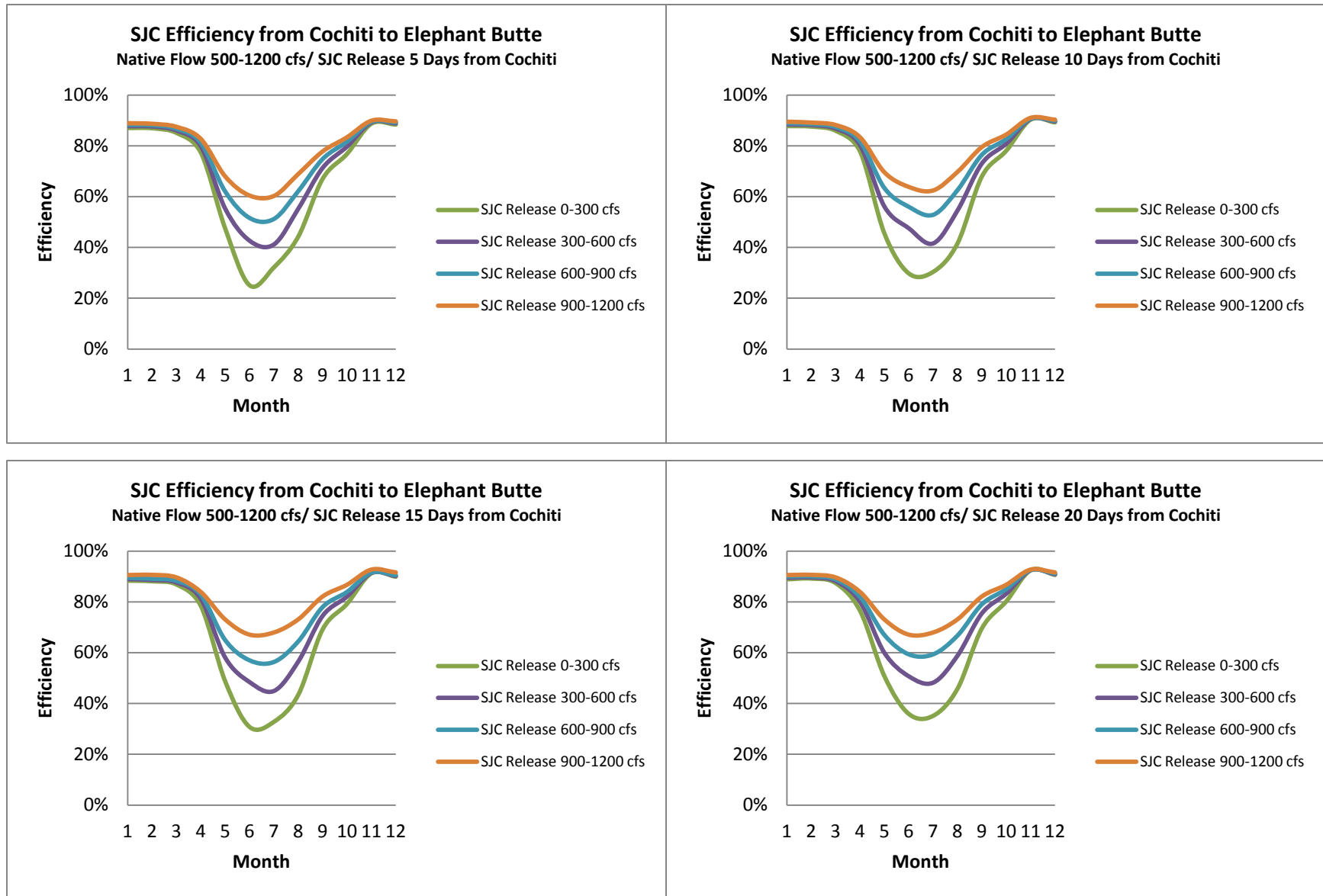


Figure 4. Efficiency graphs to show changes over months and SJC releases, grouped by length of release



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

April 16, 2012

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

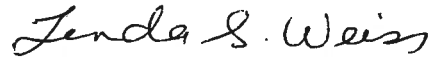
Dear Compact Commission:

Enclosed are five copies of the Joint Funding Agreement (JFA), 12CRNM000000017, for the period July 1, 2012 to June 30, 2013, 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 \$16,023 of which the U.S. Geological Survey portion will be \$5,883 and the State of Colorado, the State of New Mexico, and the State of Texas will each provide \$3,380.

If you concur, please sign and return all copies of the JFA to this office. Once all signatures are obtained, an original will be sent to each state. 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: 6000000320
Read File

Agreement No: 12CRNM000000017

Customer No: 6000000320

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, 2012 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, 2012 to June 30, 2013, the following amounts:

(a)	U.S. Geological Survey	\$5,883
(b)	State of Colorado	\$3,380
(c)	State of New Mexico	\$3,380
(d)	State of Texas	\$3,380

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, 2013, 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, 2013, 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 2013 and July 2013. 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 4-16-12
 Linda S. Weiss Date
 Director, New Mexico Water Science Center

RIO GRANDE COMPACT COMMISSION

Dick Wolf 5/31/12
 Commissioner for Colorado Date
John G. Kuhn 6/28/12
 Commissioner for New Mexico Date
Pat Gndm 6-22-12
 Commissioner for Texas Date

 Representative of the United States Date

**Statement of Work
for
12CRNM00000017**

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
RIO GRANDE COMPACT COMMISSION**

Honoring Donald J. Gallegos

March 21, 2012


WHEREAS, *Donald (Don) J. Gallegos for 31 years has been a valued employee of the Albuquerque District, U.S. Army Corps of Engineers, particularly in the Reservoir Control Branch; and*

WHEREAS, *during that time Mr. Gallegos did faithfully and conscientiously carry out his assigned duties to the overall benefit of not only the Corps but to the three states involved in the Rio Grande Compact; and*


WHEREAS, *during his tenure as a Corps employee, the Rio Grande Compact Commissioners and Engineer Advisers of the three states of Colorado, New Mexico and Texas did develop great admiration, respect, and appreciation for Mr. Gallegos and his work;*

NOW THEREFORE, BE IT RESOLVED *that the Rio Grande Compact Commission assembled in its 73rd annual meeting held in Austin, Texas acknowledges the devoted service of Donald J. Gallegos to the people of the Rio Grande basin which greatly benefited the Rio Grande Compact Commission, and this Commission extends to Mr. Gallegos its best wishes for a prosperous and enjoyable future; and*

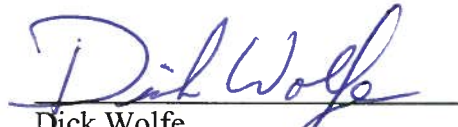
BE IT FURTHER RESOLVED, *that the New Mexico Engineer Adviser of the Rio Grande Compact Commission is hereby directed to furnish a copy of this unanimously adopted resolution to Donald J. Gallegos, and to cause said resolution to be included in the Minutes of the 73rd annual meeting of the Rio Grande Compact Commission.*



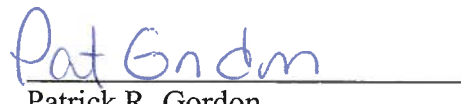
Hal Simpson
*Chairman and Commissioner
for the United States of America*



Scott Verhines
Commissioner for New Mexico



Dick Wolfe
Commissioner for Colorado



Patrick R. Gordon
Commissioner for Texas

RESOLUTION
RIO GRANDE COMPACT COMMISSION

Honoring John R. D'Antonio, Jr.

March 21, 2012

WHEREAS, *John R. D'Antonio, Jr. served as the New Mexico State Engineer and Secretary to the New Mexico Interstate Stream Commission from 2003 through 2011; and*

WHEREAS, *John R. D'Antonio, Jr. served as the Rio Grande Compact Commissioner for New Mexico from 2003 through 2011; and*

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

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

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

NOW, THEREFORE, BE IT RESOLVED, *that the Rio Grande Compact Commission, at its 73rd annual meeting held in Austin, Texas on March 21, 2012 does hereby express the gratitude and appreciation of the Commission and its staff for the untiring service and counsel rendered by John R. D'Antonio, Jr. in addressing the many technical and political water resource problems that have confronted the Commission during his tenure as the Commissioner for New Mexico; and*

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

BE IT FURTHER RESOLVED, *that the New Mexico Engineer Adviser of the Rio Grande Compact Commission is hereby directed to furnish copies of this unanimously adopted Resolution to John R. D'Antonio, Jr. and the Governor of the State of New Mexico, and to cause said resolution to be included in the Minutes of the 73rd 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

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.	Storage in Heron Reservoir near Los Ojos, N. Mex.
Willow Creek above Heron Res., near Los Ojos, N. Mex.	Willow Creek below Heron Dam, N. Mex.
Horse Lake Creek above Heron Res., near Los Ojos, N. Mex.	Storage in El Vado Reservoir near Tierra Amarilla, 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°41'22", long 106°27'38", in NW 1/4 sec. 29, T. 40 N., R. 5 E., on right bank, 20 ft downstream from county highway bridge, 6 mi west of Del Norte, and 18 mi upstream from Pinos Creek. Datum of gage is 7,980.25 ft above mean sea level, datum of 1929. Prior to May 16, 1908, staff gage at site 4 mi downstream.

Records are equivalent.

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

Average discharge. -- 122 years (1890-2011), 891 ft³/s (645,900 acre-ft per year).

Extremes. -- 1889-2011: 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, 69 ft³/s Aug. 21, 1902.

Remarks. -- Records good except those for winter months, which are fair. 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	5,905	210	160	190	11,710
February	4,695	180	140	168	9,310
March	7,281	329	165	235	14,440
April	18,710	983	368	624	37,110
May	48,174	3,810	521	1,554	95,550
June	92,640	4,140	2,250	3,088	183,800
July	29,655	2,290	429	957	58,820
August	11,487	569	276	371	22,780
September	8,652	382	246	288	17,160
October	13,577	630	247	438	26,930
November	7,810	416	180	260	15,490
December	4,860	175	130	157	9,640
Calendar year 2011	253,446	4,140	130	694	502,700

Conejos River below Platoro Reservoir, Colo.

Location. -- Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW 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 mean sea level (levels by Bureau of Reclamation).

Drainage area. -- 40 sq mi, approximately.

Average discharge. -- 59 years (1890-2011), 922 ft³/s (66,810 acre-ft per year).

Extremes. -- 1952-2011: 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	229	7.4	7.4	7.4	455
February	231	8.3	7.4	8.2	457
March	218	8.3	4.8	7.0	431
April	1,232	98	7.9	41	2,440
May	4,334	492	22	140	8,600
June	15,318	617	292	511	30,380
July	8,209	502	133	265	16,280
August	2,927	213	33	94	5,810
September	1,014	63	24	34	2,010
October	3,731	167	28.0	120	7,400
November	1,739	138	10.0	58	3,450
December	268	9.1	8.3	8.7	532
Calendar year 2011	39,449	617	4.8	108	78,250

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 right bank 25 ft upstream from bridge on State Highway 174, 0.4 mi downstream from Fox Creek, and 5.3 mi west of Mogote. Datum of gage is 8,271.54 ft above mean sea level.

Drainage area. -- 282 sq mi.

Average discharge. -- 101 years (1904, 1912-2011), 321 ft³/s (232,900 acre-ft per year).

Extremes. -- 1903-05, 1911-2011: 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.

Remarks. -- Records good except those for winter months, which are fair. 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	1,422	52	40	46	2,820
February	1,204	46	40	43	2,390
March	2,183	100	46	70	4,330
April	5,630	338	93	188	11,170
May	15,018	1,310	157	484	29,790
June	38,826	1,700	908	1,294	77,010
July	14,799	928	224	477	29,350
August	5,699	384	105	184	11,300
September	3,614	197	86	120	7,170
October	6,445	291	83	208	12,780
November	3,755	223	50	125	7,450
December	1,383	59	26	45	2,740
Calendar year 2011	99,978	1,700	26	274	198,300

San Antonio River at Ortiz, Colo

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

Drainage area. -- 110 sq mi.

Average discharge. -- 71 years (1941-2011), 24.8 ft³/s (17,950 acre-ft per year).

Extremes. -- 1920, 1925-2011: 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 those for winter months, which are fair. 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	39	2.0	0.2	1.2	76
February	78	3.9	1.6	2.8	155
March	304	26	3.7	9.8	602
April	1,094	80	12	37	2,170
May	1,685	114	25	54	3,340
June	190	22	0.2	6.3	377
July	1	0.7	0.0	0.0	2.2
August	48	14	0.0	1.5	95
September	48	6.5	0.3	1.6	96
October	91	7.0	0.9	2.9	180
November	70	4.5	0.8	2.3	139
December	50	2.1	1.3	1.6	99
Calendar year 2011	3,698	114	0.0	10	7,330

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.

Drainage area. -- 167 sq mi.

Average discharge. -- 93 years (1915-20, 1925-2011), 117 ft³/s (85,040 acre-ft per year).

Extremes. -- 1915-20, 1925-2011: 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, 4.0 ft³/s Dec. 17, 1945.

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	489	19	10	16	970
February	480	24	12	17	952
March	774	33	22	25	1,540
April	3,791	307	36	126	7,520
May	11,964	736	111	386	23,730
June	10,167	580	101	339	20,170
July	1,277	95	24	41	2,530
August	814	74	10	26	1,610
September	969	80	20	32	1,920
October	1,113	49	21	36	2,210
November	814	36	15	27	1,610
December	571	30	11	18	1,130
Calendar year 2011	33,223	736	10	91	65,900

Conejos River near Lasausas, Colo

Location. -- Water-stage recorder, lat 37°18'01", long 105°44'47", in secs. 2 and 11(two channels), T. 35 N., R. 11 E., on left bank of main channel 125 ft downstream from bridge on State Highway 158 and on left bank of secondary channel 230 ft upstream from bridge, 1.0 mi upstream from mouth, and 2.1 mi north of Lasausas. Datum of gage on main channel is 7,495.02 ft and on secondary (south) channel is 7,496.89 ft above main sea level (levels by Bureau of Reclamation).

Drainage area. -- 887 sq mi.

Average discharge. -- 90 years (1922-2011), 175 ft³/s (126,600 acre-ft per year).

Extremes. -- 1921-2011: Maximum discharge, 3,890 ft³/s May 15, 1941; no flow at times in some years.

Remarks. -- Records good except those for winter months, which are fair. 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	1,826	66	53	59	3,620
February	2,032	79	62	73	4,030
March	3,335	130	81	108	6,610
April	16,005	1,210	133	534	31,750
May	12,901	1,120	203	416	25,590
June	5,837	824	3.3	195	11,580
July	189	34	0.0	6.1	375
August	6.4	4.0	0.0	0.2	13
September	0.0	0.0	0.0	0.0	0.0
October	2.1	2.1	0.0	0.1	4.2
November	326	14	1.0	11	646
December	1,405	71	15	45	2,790
Calendar year 2011	43,864	1,210	0.0	120	87,000

STREAMFLOW

Rio Grande near Lobatos, Colo

Location. -- Water-stage recorder, lat 37°04'42", long 105°45'22", in sec. 22, T. 33 N., R. 11 E., on right bank at highway bridge, 6 mi north of Colorado-New Mexico State line, 10 mi east of Lobatos, and 14 mi east of Antonito. Datum of gage is 7,427.63 ft above mean sea level, 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); 81 years (1931-2011) 435 ft³/s (315,000 acre-ft per year).

Extremes. -- 1899-2011: 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 those for winter months, which are fair. 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	7,765	290	140	250	15,400
February	7,834	380	180	280	15,540
March	11,184	466	154	361	22,180
April	3,379	283	56	113	6,700
May	7,204	391	127	232	14,290
June	16,983	896	213	566	33,690
July	11,651	628	190	376	23,110
August	4,614	324	51	149	9,150
September	2,481	123	56	83	4,920
October	5,944	317	75	192	11,790
November	13,807	600	282	460	27,390
December	8,006	361	150	258	15,880
Calendar year 2011	100,852	896	51	276	200,000

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; 42 years (1970-2011) 136 ft³/s (98,660 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 Rutherford 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	0.0	0.0
March	1,405	115	0.0	45	2,787
April	7,832	430	137	261	15,535
May	11,698	894	82	377	23,202
June	21,477	988	407	716	42,600
July	4,805	395	28	155	9,531
August	961	126	1.0	31	1,906
September	1,041	178	4.0	35	2,064
October	2,469	143	2.5	80	4,897
November	655	54	9.1	22	1,299
December	26	11	0.0	0.8	51
Calendar year 2011	52,368	988	0.0	144	103,872

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 2011	---	---	---	---	---

Willow Creek below Heron Dam, N. Mex.

Location. -- Totalizing flowmeters, lat 36°39'56", long 106°42'12", 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. -- 41 years (1971-2011), 128 ft³/s (93,040 acre-ft per year).

Extremes. -- 1971-2011: 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	907	50	0.0	29	1,799
February	520	40	0.0	19	1,031
March	0.0	0.0	0.0	0.0	0.0
April	1,038	50	0.0	35	2,059
May	870	50	0.0	28	1,726
June	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0
August	14,600	550	0.0	471	28,959
September	17,199	710	0.0	573	34,114
October	0.0	0.0	0.0	0.0	0.0
November	7,100	400	31	237	14,083
December	1,618	90	0.0	52	3,208
Calendar year 2011	43,852	710	0.0	120	86,979

STREAMFLOW

Rio Chama below El Vado Dam, N. Mex

Location. -- Water-stage recorder with satellite telemetry, lat 36°34'48", long 106°43'24", 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; 41 years (1971-2011) 464 ft³/s (336,100 acre-feet per year).

Extremes. -- 1914-16, 1920-24, 1936-2011; 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	2,422	102	40	78	4,800
February	1,728	109	41	62	3,430
March	4,106	169	103	132	8,140
April	12,956	606	185	432	25,700
May	19,602	1,470	341	632	38,880
June	23,062	1,560	367	769	45,740
July	19,924	863	438	643	39,520
August	26,308	1,080	393	849	52,180
September	18,871	988	200	629	37,430
October	5,149	205	95	166	10,210
November	7,987	391	110	266	15,840
December	8,361	390	43	270	16,580
Calendar year 2011	150,476	1,560	40	412	298,500

Rio Chama below Abiquiu Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 36°14'12", long 106°24'59", in SE1/4SE1/4 sec. 8, T. 23 N., R. 5 E., 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), 376 ft³/s (272,400 acre-ft per year), prior to release of transmountain water; 41 years (1971-2011), 511 ft³/s (370,100 acre-feet per year).

Extremes. -- 1961-2011; 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	3,621	164	60	117	7,180
February	3,278	189	57	117	6,500
March	5,790	235	161	187	11,480
April	18,762	817	356	625	37,210
May	24,055	1,210	459	776	47,710
June	27,433	1,520	419	914	54,410
July	21,482	896	409	693	42,610
August	18,770	1,070	231	605	37,230
September	9,753	528	202	325	19,350
October	4,361	273	80	141	8,650
November	6,744	300	143	225	13,380
December	8,504	380	148	274	16,870
Calendar year 2011	152,553	1,520	57	418	302,600

STREAMFLOW

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

Location -- Water-stage recorder with satellite telemetry, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in 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 -- -- 33 years (1979-2011), 13 ft³/s (9,480 acre-feet per year).

Extremes -- 1979-2011; Maximum discharge, 312 ft³/s June 9, 1979 (gage height, 1.96 ft), at site 1,100 ft downstream; no flow December 31, 1994.

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	16	0.6	0.5	0.5	31
February	31	2.7	0.5	1.1	61
March	117	5.0	2.7	3.8	233
April	217	23	3.5	7.2	431
May	549	25	4.5	18	1,090
June	354	26	4.4	12	701
July	185	6.4	5.3	6.0	368
August	245	21	2.0	7.9	487
September	234	22	3.4	7.8	464
October	143	4.9	2.2	4.6	284
November	15	0.9	0.3	0.5	29
December	16	0.6	0.5	0.5	32
Calendar year 2011	2,123	26	0.3	5.8	4,210

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

Location -- Water-stage recorder with satellite telemetry, lat 35°52'29", long 106°08'30", in SW1/4SW1/4 sec. 18, T. 19 N., R. 8 E., 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 -- 112 years (1896-1905, 1910-2011), 1,499 ft³/s (1,086,000 acre-feet per year).

Extremes -- 1895-1905, 1910-2011; Maximum discharge, 24,400 ft³/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft³/s July 4, 5, 1902.

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	20,029	706	348	646	39,730
February	19,227	838	490	687	38,140
March	25,763	934	719	831	51,100
April	29,290	1,330	693	976	58,100
May	39,000	1,530	1,060	1,258	77,360
June	46,830	2,290	1,080	1,561	92,890
July	35,338	1,400	887	1,140	70,090
August	26,859	1,270	436	866	53,270
September	17,482	862	425	583	34,680
October	16,539	712	448	534	32,810
November	28,476	1,070	679	949	56,480
December	25,346	941	622	818	50,270
Calendar year 2011	330,179	2,290	348	905	654,920

STREAMFLOW

Santa Fe River near Santa Fe, N. Mex.

Location. -- Water-stage recorder with satellite telemetry and concrete control, lat 35°41'12", long 105°50'35", in NE1/4SE1/4 sec. 23, T. 17 N., R. 10 E., 0.4 mi downstream from McClure Dam, and 5.3 mi east of Santa Fe. 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. -- 99 years (1913-2011), 8.0 ft³/s (5,800 acre-feet per year).

Extremes. -- 1913-2011; 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	65	4.6	1.4	2.1	129
February	125	4.8	4.1	4.5	249
March	135	5	3.8	4.4	269
April	114	4	3.6	3.8	226
May	113	4	3.4	3.6	223
June	160	11	1.7	5.3	318
July	71	3	1.9	2.3	141
August	178	8	1.5	5.7	353
September	45	2	1.5	1.5	89
October	47	1.6	1.5	1.5	94
November	42	1.5	1.3	1.4	83
December	50	1.9	1.4	1.6	99
Calendar year 2011	1,145	11	1.3	3.1	2,270

Rio Grande below Cochiti Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°37'05", long 106°19'24", in SW1/4NE1/4 sec. 17, T. 16 N., R. 6 E., 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. 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. -- 41 years (1971-2011), 1,319 ft³/s (956,000 acre-feet per year).

Extremes. -- 1971-2011; 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	19,271	788	358	622	38,220
February	17,729	772	354	633	35,170
March	22,089	896	584	713	43,810
April	24,246	1,090	645	808	48,090
May	32,346	1,330	912	1,043	64,160
June	41,240	1,820	1,070	1,375	81,800
July	30,704	1,250	743	990	60,900
August	24,232	1,080	439	782	48,060
September	14,294	766	328	476	28,350
October	11,952	618	331	386	23,710
November	26,081	1,170	486	869	51,730
December	25,176	971	551	812	49,940
Calendar year 2011	289,360	1,820	328	793	573,900

STREAMFLOW

Galisteo Creek below Galisteo Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°27'53", long 106°12'49", in NE1/4NE1/4 sec. 8, T. 14 N., R. 7 E., 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. -- 597 sq mi.

Average discharge. -- --41 years (1971-2011), 5.1 ft³/s (3,681 acre-feet per year).

Extremes. -- 1970-2011; Maximum discharge, 3,460 ft³/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.

Remarks. -- Records poor. Flow partly regulated by uncontrolled outlet in Galisteo Dam. 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	0.0
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	0.0	0.0
July	88	48	0.0	2.8	174
August	184	54	0.0	5.9	364
September	85	35	0.0	2.8	169
October	41	28	0.0	1.3	81
November	0.0	0.0	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0
Calendar year 2011	397	54	0.0	1.1	788

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 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 5,162.60 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. -- 2 years (2011-2012), 34 ft³/s (24,450 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	190	10	1.2	6.1	376
February	557	36	3.7	20	1,110
March	920	41	4.8	30	1,820
April	928	52	11	31	1,840
May	835	41	6.2	27	1,660
June	24	5.0	0.0	0.8	48
July	8.4	7.5	0.0	0.3	17
August	97	40	0.0	3.1	193
September	60	31	0.0	2.0	118
October	71	31	0.0	2.3	141
November	209	15	0.5	7.0	414
December	459	60	0.1	15	910
Calendar year 2011	4,359	60	0.0	12	8,650

STREAMFLOW

Rio Grande below Elephant Butte Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 33°08'54", long 107°12'22", in SW1/4 sec. 25, T. 13 S., R. 4 W. (projected), in Pedro Armendariz Grant, 1.0 mi downstream from dam and 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. -- 97 years (1915-2011), 996 ft³/s (721,700 acre-feet per year).

Extremes. -- 1915-2011; Maximum daily discharge, 8,220 ft³/s May 22, 1942; no flow at times prior to 1929, March 2-4, 1979, and October 22-24 and November 17-21, 2011.

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	285	11	8.2	9.2	565
February	227	25	6.9	8.1	449
March	33,003	1,900	381	1,065	65,460
April	47,370	1,900	1,190	1,579	93,960
May	19,454	1,190	543	628	38,590
June	48,134	1,840	834	1,604	95,470
July	33,406	1,890	39	1,078	66,260
August	15,244	824	34	492	30,240
September	8,342	1,220	11	278	16,550
October	273	25	0.0	8.8	541
November	62	10	0.0	2.1	123
December	26	1.6	0.5	0.8	52
Calendar year 2011	205,825	1,900	0.0	564	408,300

Rio Grande below Caballo Dam, N. Mex.

Location. -- Water-stage recorder, lat 32°53'05", long 107°17'31", in NE1/4SW1/4 sec. 30, T. 16 S., R. 4 W., 2,000 ft upstream from Interstate Highway 25, 4,200 ft downstream from Caballo Dam, 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 Datum 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. -- 74 years (1938-2011), 921 ft³/s (667,000 acre-feet per year).

Extremes. -- 1938-2011; Maximum daily discharge, 7,650 ft³/s May 20, 1942; minimum daily, 0.1 ft³/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

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	31	1.0	1.0	1.0	61
February	28	1.0	1.0	1.0	56
March	24,069	1,700	2.0	776	47,740
April	27,632	1,170	699	921	54,810
May	22,169	1,660	405	715	43,970
June	52,290	2,130	1,510	1,743	103,700
July	35,150	2,120	561	1,134	69,720
August	29,216	1,120	857	942	57,950
September	9,354	1,040	1.0	312	18,550
October	31	1.0	1.0	1.0	61
November	30	1.0	1.0	1.0	60
December	31	1.0	1.0	1.0	61
Calendar year 2011	200,031	2,130	1.0	548	396,800

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	95.4
March	96.4
April	85.4
May	177.2
June	369.1
July	386.3
August	207.7
September	59.1
October	0.0
November	0.0
December	0.0
Calendar year 2011	1,476.6

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 2011

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

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

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

Calendar Year 2011

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	12.3	12.6	13.2	14.2	17.2	13.5	8.4	0.0	0.0	0.0	5.5	8.3	-
Contents	134	140	152	172	237	157	70	0.0	0.0	0.0	34	68	-
Change	+3	+6	+12	+20	+65	-80	-87	-70	0.0	0.0	+34	+34	-63

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, 2010	9,985.62	21,565	-
January 31, 2011	9,985.65	21,586	+21
February 28	9,985.66	21,592	+6
March 31	9,985.86	21,712	+120
April 30	9,985.37	21,422	-290
May 31	9,985.48	21,487	+65
June 30	9,994.39	27,104	+5,617
July 31	9,986.34	21,996	-5,108
August 31	9,981.96	19,439	-2,557
September 30	9,984.33	20,809	+1,370
October 31	9,977.05	16,756	-4,053
November 30	9,973.12	14,747	-2,009
December 31, 2011	9,973.82	15,098	+351
Calendar year 2011	-	-	-6,467

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 2011

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	23.6	23.3	22.8	22.7	22.7	22.7	22.6	22.6	-
Contents	738	738	738	738	777	790	751	751	764	790	764	738	-
Change	0.0	0.0	0.0	0.0	+39	+13	-39	0.0	+13	+26	-26	-26	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, 2010	7151.67	226680	-
January 31, 2011	7151.14	224430	-2250
February 28	7150.88	223328	-1102
March 31	7151.43	225660	+2332
April 30	7154.12	237265	+11605
May 31	7158.39	256398	+19133
June 30	7167.02	297648	+41250
July 31	7168.4	304554	+6906
August 31	7162.58	276005	-28549
September 30	7155.43	243043	-32962
October 31	7156.33	247058	+4015
November 30	7153.23	233386	-13672
December 31, 2011	7152.39	229761	-3625
Calendar year 2011	-	-	+3081

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, 2010	6,872.59	108,611	-	65,649
January 31, 2011	6,872.39	108,158	-453	65,973
February 28	6,872.95	109,430	+1272	66,674
March 31	6,872.61	108,656	-774	66,511
April 30	6,877.36	119,920	+11264	66,320
May 31	6,892.96	162,799	+42879	65,668
June 30	6,890.40	155,182	-7,617	64,128
July 31	6,877.76	120,910	-34,272	56,589
August 31	6,868.28	99,195	-21,715	62,863
September 30	6,868.19	99,006	-189	63,998
October 31	6,865.57	93,609	-5,397	58,633
November 30	6,866.86	96,239	+2630	67,441
December 31, 2011	6,862.03	86,655	-9,584	67,332
Calendar year 2011	-	-	-21,956	-

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, 2010	6,220.02	183,962	-	179,012
January 31, 2011	6,219.45	181,677	-2,285	177,849
February 28	6,218.80	179,088	-2,589	175,155
March 31	6,217.78	175,071	-4,017	171,276
April 30	6,215.03	164,478	-10,593	160,773
May 31	6,213.59	159,086	-5,392	154,516
June 30	6,211.43	151,112	-7,974	147,245
July 31	6,210.77	148,700	-2,412	145,034
August 31	6,214.52	162,561	+13861	158,843
September 30	6,218.92	179,565	+17004	175,858
October 31	6,219.17	180,558	+993	176,695
November 30	6,219.47	181,757	+1199	177,492
December 31, 2011	6,219.43	181,597	-160	177,025
Calendar year 2011	-	-	-2,365	-

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, 2010	6,820.67	1,599	-
January 31, 2011	6,824.19	1,784	+185
February 28	6,826.33	1,904	+120
March 31	6,826.60	1,920	+16
April 30	6,824.42	1,797	-123
May 31	6,811.00	1,156	-641
June 30	6,802.07	830	-326
July 31	6,803.50	877	+47
August 31	6,803.83	888	+11
September 30	6,799.79	758	-130
October 31	6,801.94	825	+67
November 30	6,807.98	1,037	+212
December 31, 2011	6,812.57	1,221	+184
Calendar year 2011	-	-	-378

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, 2010	7,861.68	1,601	-	0	1,601
January 31, 2011	7,860.82	1,550	-51	0	1,550
February 28	7,857.98	1,390	-160	0	1,390
March 31	7,855.70	1,280	-110	0	1,280
April 30	7,854.56	1,220	-60	0	1,220
May 31	7,854.92	1,240	+20	0	1,240
June 30	7,850.39	1,030	-210	0	1,030
July 31	7,849.22	984	-46	0	984
August 31	7,847.24	903	-81	0	903
September 30	7,847.55	915	+12	0	915
October 31	7,848.06	931	+16	0	931
November 30	7,847.81	926	-5	0	926
December 31, 2011	7,847.91	929	+3	0	929
Calendar year 2011	-	-	-672	-	-

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, 2010	151.59	310	-	0	310
January 31, 2011	145.92	216	-94	1	215
February 28	150.41	287	+71	0	287
March 31	155.84	394	+107	16	378
April 30	160.77	512	+118	74	438
May 31	158.46	455	-57	37	418
June 30	160.21	497	+42	0	497
July 31	149.05	264	-233	0	264
August 31	156.61	412	+148	198	214
September 30	159.41	477	+65	275	202
October 31	162.39	555	+78	369	186
November 30	162.53	559	+4	368	191
December 31, 2011	162.28	552	-7	364	188
Calendar year 2011	-	-	+242	-	-

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, 2010	5,155.00	0	-	0
January 31, 2011	5,155.00	0	0	0
February 28	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, 2011	5,155.00	0	0	0
Calendar year 2011	-	-	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 2011

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 2011.

STORAGE IN RESERVOIRS

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

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

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

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2010	4,335.68	437,172	-	45,011
January 31, 2011	4,338.67	474,226	+37054	45,604
February 28	4,340.99	504,286	+30060	45,652
March 31	4,338.05	466,384	-37,902	45,406
April 30	4,331.06	383,663	-82,721	45,009
May 31	4,328.82	359,318	-24,345	50,274
June 30	4,321.26	283,121	-76,197	60,756
July 31	4,314.43	222,987	-60,134	60,367
August 31	4,311.76	202,227	-20,760	59,666
September 30	4,311.59	200,959	-1,268	58,995
October 31	4,312.53	208,053	+7094	58,544
November 30	4,316.60	241,004	+32951	58,122
December 31, 2011	4,322.45	294,518	+53514	64,257
Calendar year 2011	-	-	-142,654	-

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, 2010	4,137.21	21,981	-
January 31, 2011	4,137.89	23,563	+1582
February 28	4,138.40	24,790	+1227
March 31	4,141.86	34,143	+9353
April 30	4,149.49	63,167	+29024
May 31	4,147.19	53,040	-10,127
June 30	4,142.93	37,478	-15,562
July 31	4,141.19	32,166	-5,312
August 31	4,129.22	7,256	-24,910
September 30	4,130.02	8,460	+1204
October 31	4,131.07	10,141	+1681
November 30	4,131.91	11,554	+1413
December 31, 2011	4,133.07	13,604	+2050
Calendar year 2011	-	-	-8,377

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, 2010	459,153	-
January 31, 2011	497,789	+38636
February 28	529,076	+31287
March 31	500,527	-28,549
April 30	446,830	-53,697
May 31	412,358	-34,472
June 30	320,599	-91,759
July 31	255,153	-65,446
August 31	209,483	-45,670
September 30	209,419	-64
October 31	218,194	+8775
November 30	252,558	+34364
December 31, 2011	308,122	+55564
Calendar year 2011		-151,031

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

TRANSMOUNTAIN DIVERSIONS

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

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

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

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

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

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

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

Imported quantities, in acre-feet, 2011

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	2,008
April	0	0	0	11	0	0	13,570
May	0	0	0	87	1	0	22,315
June	283	299	283	309	262	236	42,779
July	24	0	96	81	33	26	8,404
August	0	0	16	57	0	0	1,594
September	0	0	0	33	0	0	1,852
October	0	0	0	12	0	0	4,452
November	0	0	0	0	0	0	1,295
December	0	0	0	0	0	0	52
Calendar year	307	299	395	590	296	262	98,321

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
2011

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
Airport	Precip.	0.06	0.39	0.02	0.13	0.18	0	0.14	1.27	1.15	0.48	0.51	0.27	4.60
Platoro	Evap.	-	-	-	-	1.68	6.84	5.28	4.20	2.76	2.40	-	-	-
Dam	Precip.	-	-	-	-	-	.47	2.47	3.91	2.78	2.64	-	-	-
Heron	Evap.	-	-	-	5.40	6.89	10.81	8.89	8.71	5.18	3.35	-	-	-
Dam	Precip.	0.05	0.42	0.89	1.96	0.95	0.00	0.58	1.62	2.65	2.26	1.29	1.14	13.81
El Vado	Evap.	-	-	-	6.41	8.02	11.32	8.61	8.79	5.72	3.81	-	-	-
Dam	Precip.	0.05	0.22	0.56	2.12	0.55	0.01	1.65	1.04	3.55	2.35	1.19	0.79	14.08
Abiquiu	Evap.	-	-	-	8.63	11.38	15.22	10.79	9.09	7.22	5.59	-	-	-
Dam	Precip.	0.03	0.07	0.00	1.43	0.73	0.00	0.72	0.74	1.98	1.49	0.07	0.78	8.04
Nambe	Evap.	-	-	-	7.71	10.54	13.95	11.22	10.26	6.88	5.21	-	-	-
Canyon Dam	Precip.	0.00	0.37	0.00	0.38	0.22	0.00	1.41	2.40	1.25	2.20	0.52	1.40	10.15
Cochiti	Evap.	-	-	-	10.12	11.53	12.35	10.15	10.2	7.07	5.88	-	-	-
Dam	Precip.	0.00	0.04	0.03	0.06	0.00	0.00	0.32	1.82	1.30	1.75	0.15	1.32	6.79
Jemez	Evap.	-	-	-	9.53	12.62	14.33	13.92	11.84	9.37	6.01	-	-	-
Canyon Dam	Precip.	0.00	0.00	0.04	0.02	0.03	0.00	1.17	1.99	0.50	0.91	0.18	1.09	5.93
Elephant	Evap.	5.78	6.53	12.74	16.53	18.98	21.91	18.37	14.64	11.57	9.74	7.81	1.79	146.39
Butte Dam	Precip.	0.00	0.01	0.00	0.00	0.00	0.04	0.66	1.87	1.26	0.61	0.58	2.63	7.66
Caballo	Evap.	-	-	11.33	13.88	15.44	15.10	14.56	13.16	11.15	8.31	5.07	1.67	-
Dam	Precip.	-	-	-	0.00	-	0.03	1.72	1.44	0.79	0.80	1.07	2.19	-
State	Evap.	-	-	9.11	12.48	14.09	15.31	13.28	10.01	10.17	6.92	4.13	-	-
University	Precip.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.04	0.27

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	M. C. Hinderlider
For the State of New Mexico	Thomas M. McClure
For the State of Texas	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

RESOLUTION

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. Hinderlinder

Commissioner for Colorado

(Signed) THOMAS M. McCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

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

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

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 Lasausas
- 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

