

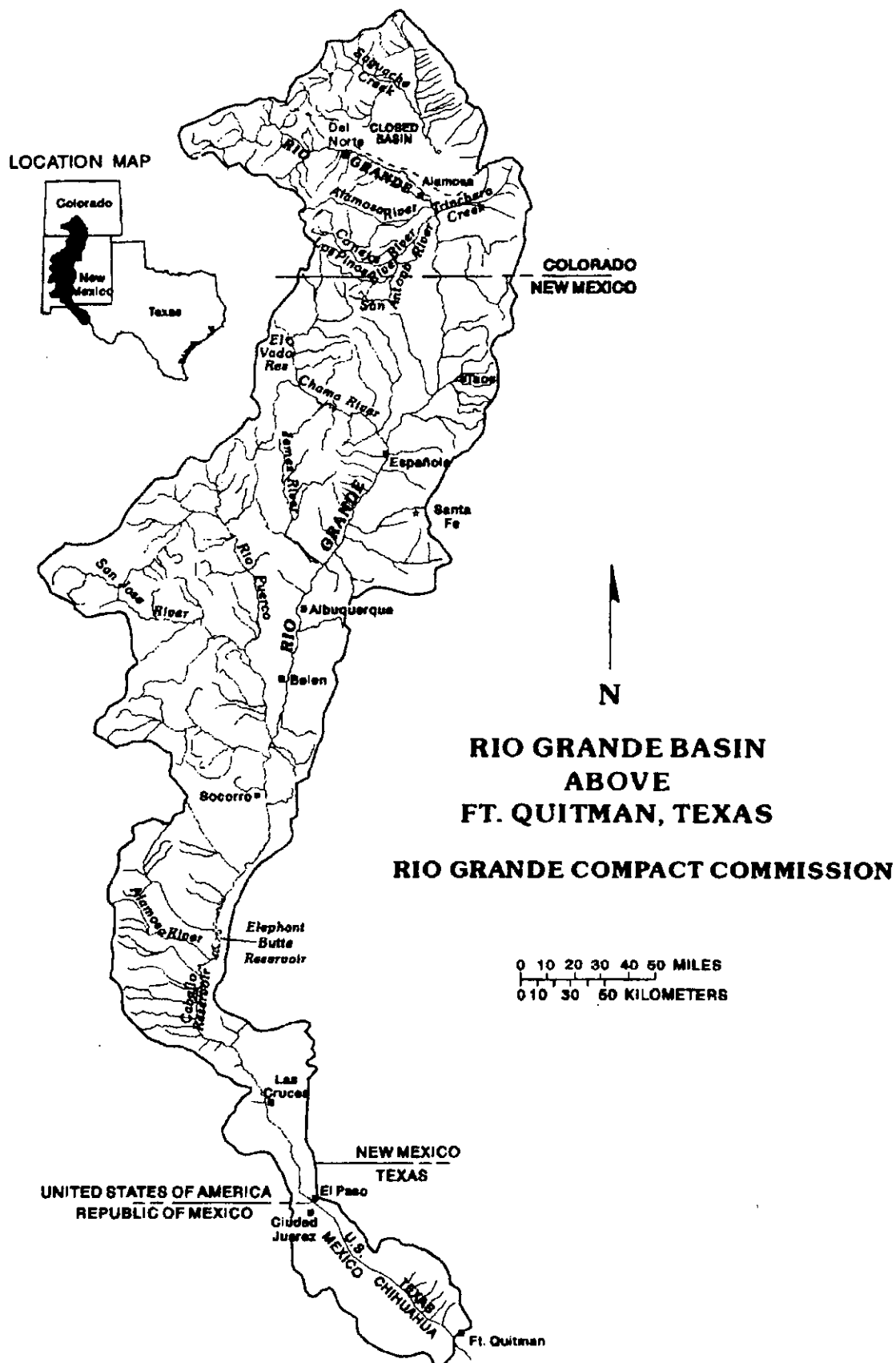
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**REPORT  
of the**

**RIO GRANDE COMPACT  
COMMISSION  
2000**



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



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

March 22, 2001

The Honorable Bill Owens  
Governor of the State of Colorado  
Denver, Colorado

The Honorable Gary Johnson  
Governor of the State of New Mexico  
Santa Fe, New Mexico

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

**Honorable Governors:**

The 62nd Annual Meeting of the Rio Grande Compact Commission was held in Alamosa, Colorado, on March 22, 2001.

The Commission reviewed its prior reports and the current reports of the Secretary and the Engineer Advisers relative to streamflow at Compact gaging stations and storage in reservoirs in 2000. The Commission found that:

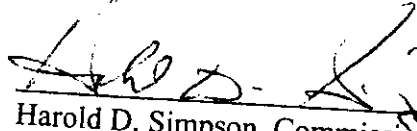
- (a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 124,200 acre-feet in 2000 and the scheduled delivery for the year was 112,800 acre-feet.
- (b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 353,600 acre-feet in 2000 and the scheduled delivery for the year was 233,300 acre-feet.
- (c) The actual release of usable water from Project Storage was 752,400 acre-feet.

The Commission agreed to the accounting of accrued credits for 2000, as follows:

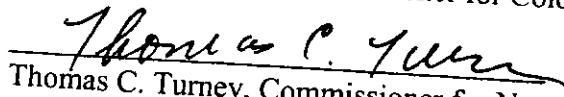
- (1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 27,000 acre-feet on January 1, 2001.
- (2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 270,800 acre-feet on January 1, 2001.
- (3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2001 was a credit of 75,900 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were \$161,838 in the fiscal year ending June 30, 2000. The United States bore \$53,984 of this total; the balance of \$107,854 was borne equally by the three States party to the Compact.

Respectfully,



Harold D. Simpson, Commissioner for Colorado



Thomas C. Turney, Commissioner for New Mexico



Joe G. Hanson, Commissioner for Texas

# REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSIONERS

March 2, 2001

## COMPACT ACCOUNTING

The Engineer Advisers to the Rio Grande Compact Commissioners have reviewed the streamflow and reservoir storage records and other pertinent data and have determined the scheduled and actual deliveries, and release of usable water during calendar year 2000.

As determined by the Engineer Advisers, the scheduled and actual deliveries, and release of usable water for the year 2000 are summarized as follows:

(a) Deliveries by Colorado at the State line:

Balance as of January 1, 2000	17,700 acre-feet
Scheduled delivery	112,800 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	124,200 acre-feet
Reduction of credit on account of evaporation	2,100 acre-feet
Accrued credit January 1, 2001	27,000 acre-feet

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

Balance as of January 1, 2000	170,700 acre-feet
Scheduled delivery	233,300 acre-feet
Actual delivery	353,600 acre-feet
Reduction of credit on account of evaporation	20,200 acre-feet
Accrued credit January 1, 2001	270,800 acre-feet

(c) Project Storage and releases:

Accrued departure (credit) as of January 1, 2000	38,300 acre-feet
Actual release of usable water	752,400 acre-feet
Accrued departure (credit) as of January 1, 2001	75,900 acre-feet

## CONTINUING ISSUES

### Engineer Advisers Meetings

The unusual water operations of 2000 and incomplete business of the Engineer Advisers with federal agencies caused the Engineer Advisers to schedule two meetings to prepare for the Commission's 2001 meeting. The first meeting was held January 19, 2001, in Albuquerque. The Engineer Advisers requested and received the participation of federal agencies in part of that meeting for the principal purpose of identifying issues that were agreed to be discussed in detail at the February Engineer Advisers meeting. The second meeting was held February 27 through March 2 in Santa Fe.

### Sedimentation in Middle Rio Grande Reservoirs

Sediment surveys were conducted in 1998 for Abiquiu, Cochiti, and Jemez Canyon Reservoirs, which are primarily flood control reservoirs owned and operated by the U.S. Army Corps of Engineers (Corps). On the basis of the sediment surveys, the U.S. Bureau of Reclamation (Reclamation) revised the sediment accumulation equations for use in daily operations and accounting models. The area-capacity tables derived from the 1998 surveys were made effective January 1, 1999. Reclamation's 1999 Rio Grande water accounting reflected the revised area-capacity tables but did not reflect the revised sediment accumulation equations. Reclamation and the Engineer Advisers agreed the new sediment accumulation equations were to be applied retroactively to January 1, 1999, as part of Reclamation's 2000 accounting work. Reclamation did not implement this direction until December 2000, at which time it coordinated with the Corps for the release of excess native Rio Grande storage, some of which carried over into January 2001. The total amount of water that was released from the three reservoirs was approximately 5,000 acre-feet. The amount of water that was released in 2000 was approximately 1,000 acre-feet. An additional 4,000 acre-feet was released in January and February of 2001. Formal accounting by Reclamation and the Engineer Advisers of the retroactive application of the sediment accumulation equations must now be deferred to the 2001 accounting.

### Sedimentation in Rio Grande Project Reservoirs

Sediment surveys were conducted in 1999 and 2000 for Elephant Butte and Caballo Reservoirs. On the basis of the sediment surveys, the U.S. Bureau of Reclamation (Reclamation) revised the area-capacity tables for the two reservoirs effective January 1, 2001.

Decreased project storage capacity due to sedimentation was 41,652 acre-feet (top of conservation pool) for Elephant Butte Reservoir and 4,838 acre-feet (top of conservation pool) for Caballo Reservoir. The Engineer Advisers recommend that the Rio Grande Compact Commission (Commission) adopt changes, effective January 1, 2001, to the Rules and Regulations of the Compact (Paragraph b of the section entitled "Actual Spill") to reflect the decrease in storage capacity in Elephant Butte and Caballo Reservoirs. In addition, the Engineer Advisers recommend that the remarks in the report of the Commission in the section entitled "Storage in Reservoirs, Reservoirs in Rio Grande Basin in New Mexico" for Elephant Butte and Caballo Reservoirs be revised to reflect the reduction in storage capacity.

### Evaporation Accounting

Reclamation reported that a review of evaporation data at Elephant Butte, Heron, and El Vado Reservoirs for the period 1993 through 1998 found arithmetic and transcription errors. The accounting procedures use gross evaporation rates and precipitation on the reservoir surface, in accordance with the Rules and Regulations of the Compact, to adjust the amounts of Colorado's and New Mexico's credit water in storage in Elephant Butte Reservoir for evaporative losses. Consequently, the calculations of credit water and usable water in Project Storage are in error for the periods 1993 to 1995 and 1997 to 1999. No credit water was in storage in 1996 due to spill in 1995. The total amount of error is still being quantified, but appears small for each state in relation to the amounts of credit water in storage at the end of 2000. The error did not affect Rio Grande operations or Compact administration in 2000. Reclamation did not honor its commitment to provide the Engineer Advisers in 2000 with documentation and quantification of the amount of the error. The Engineer Advisers will continue to work with Reclamation to quantify the amount of error through 1999 and will



develop an appropriate correction to the accrued credits of Colorado and New Mexico existing at the beginning of 2001 when they meet to perform the Compact accounting for 2001.

#### Compact Accounting Documentation

The Engineer Advisers decided at its 2000 meeting to concurrently review and document, with the commitment of the Upper Rio Grande Water Operations Model (URGWOM) modeling team, the procedures for Compact accounting of Rio Grande and San Juan-Chama Project water. The Engineer Advisers and URGWOM representatives agreed to meet as necessary during 2000 to complete this review. One meeting on this subject was held in April 2000. A subsequent meeting was set for May 10, 2000 but was cancelled by Reclamation without rescheduling. Other meetings during 2000 were requested by the Engineer Advisers and agreed to, but never were scheduled by Reclamation management. The Engineers Advisers met with Reclamation on January 19, 2001 and discussed this issue. Reclamation at that time proposed to contract with Garry Rowe, former Area Manager of Reclamation's Albuquerque office, for this purpose. Additional detail was provided at the Engineer Advisers meeting. Reclamation committed to provide the scope of work and anticipated schedule for Mr. Rowe's work to the Engineer Advisers prior to the March 2001 meeting of the Commission. Reclamation stated its expectation of completion of the documentation project by Fall 2001.

#### URGWOM Accounting Model

At the 2000 meeting of the Engineer Advisers the URGWOM project team leader agreed that the Compact accounting produced by URGWOM would be validated against historic Compact accounting and the 2000 accounting produced by Reclamation's current accounting methods prior to consideration by the Commission for approval for use in Compact accounting. The Commission concurred with this approach at its 2000 meeting.

Reclamation presented initial results of this comparison for years 1995, 1996, and 2000 to the Engineer Advisers at their January and February 2001 meetings. The Engineer Advisers requested additional documentation prior to the March 22 meeting of the

Commission. The Engineer Advisers asked Reclamation to include with that documentation Reclamation's written recommendation and request to implement the URGWOM accounting model to perform functions now performed by Reclamation's daily programs for reservoir accounting starting with the year 2001 accounting and specific provisions for prospective contemporaneous availability of the accounting model and data for review and use by the Engineer Advisers. The Engineer Advisers anticipate receiving and reviewing this information prior to the 2001 Commission meeting and providing a recommendation to the Commission at the March 22, 2001 meeting regarding the Commission's approval of the URGWOM accounting model.

#### YEAR 2000 OPERATIONS

##### Supplemental Water Use

At the meeting of the Engineer Advisers, Reclamation staff presented a summary of a presentation handout entitled "Summary of Rio Grande Water Operations for the Calendar Year 2000." This presentation and handout, which was specifically requested by the Engineer Advisers at their January 19, 2001 meeting with Reclamation, provides substantial detail regarding Reclamation's acquisition and use of supplemental water in 2000 for the purpose of creating river flow for the endangered Rio Grande silvery minnow throughout the Middle Rio Grande. The handout states that total San Juan-Chama Project water used in 2000 for the supplemental water program was 159,922 acre-feet. Of this amount, approximately 95,000 acre-feet was acquired early in 2000 and was stored in Heron, El Vado, and Abiquiu Reservoirs. Reclamation representatives reported to the Engineer Advisers that at the beginning of 2000 they were actively seeking reservoir storage space for supplemental water they acquired in 1999 but did not use due to the wet conditions at the end of 1999. The remainder of the 159,922 acre-feet of supplemental water became available via the Agreed Order and Supplemental Agreed Order that resulted from mediation in the Endangered Species Act (ESA) lawsuit *Minnow. v. Martinez* (discussed below). San Juan-Chama Project water from the supplemental water program was exchanged for native Rio Grande water under an informal arrangement between Reclamation and the Middle Rio Grande Conservancy

District (MRGCD), with the result that native Rio Grande water was used for river flow purposes below the San Acacia Diversion Dam. Questions and discussion with the Engineer Advisers revealed that the total supplemental water quantity reported by Reclamation was inaccurate. The reported total did not include water resulting from partial draining of the sediment control pool in Jemez Canyon Reservoir. In addition, Reclamation reported that additional supplemental water was made available by MRGCD in exchange for approval by Reclamation of delaying delivery of part of MRGCD's 1999 contract allocation of San Juan-Chama Project water until after the snowmelt runoff season in 2000. Reclamation reported that delayed delivery was made of 6,000 acre-feet of water to El Vado Reservoir and that Reclamation received one-half of that water for the supplemental water program purposes. This is inconsistent with Table 4 (San Juan-Chama Water Released from Heron Reservoir) of Reclamation's draft annual report entitled "2000 Water Accounting Report to the Rio Grande Compact Commission Engineer Advisers," which shows that all 1999 waived MRGCD San Juan-Chama Project water was delivered by the end of April 2000. Reclamation also reported that they have not acquired sufficient supplemental water in 2001 to satisfy Reclamation's obligations to pay back water to the MRGCD that was used in 2000 and that the Agreed Order requires be repaid in 2001.

Reclamation's draft annual report entitled "2000 Calendar Year Report to the Rio Grande Compact Commission," provided to the Engineer Advisers on February 27, 2001, does not address the 2000 supplemental water program. The Engineer Advisers requested that the information in the presentation handout entitled "Summary of Rio Grande Water Operations for the Calendar Year 2000" be expanded to include all the extraordinary water acquisitions and uses by Reclamation in 2000. The Engineer Advisers also requested that Reclamation modify their draft report "2000 Calendar Year Report to the Rio Grande Compact Commission" to include complete information regarding the supplemental water program and Rio Grande water operations in 2000, including the information presented orally and as a handout at the Engineer Advisers meeting with the federal agencies.

### Jemez Canyon Reservoir Sediment Control Pool

As a result of the partial draining of the sediment control pool, Jemez Canyon Reservoir was drawn down to a level of approximately 4,500 acre-feet at the end of 2000. The agreements between the New Mexico Interstate Stream Commission (NMISC) and the Corps and between the NMISC and the City of Albuquerque governing the existence and operation of the sediment control pool expired as of December 31, 2000 and the ownership of the remaining water in the sediment control pool reverted back to the City of Albuquerque as of January 1, 2001. Corps representatives stated the Corps currently anticipates that this water will be released during 2001 and the reservoir will thereafter be operated as a normally dry flood control facility.

### San Juan-Chama Project Water Storage in Elephant Butte Reservoir

Reclamation routed San Juan-Chama Project water owned by the City of Albuquerque for storage in the authorized recreation pool in Elephant Butte reservoir in March and October 2000. The March operation consisted of the storage of 3,700 acre-feet of San Juan-Chama water in the recreation pool. This routing was completed using Commission approved loss rates. In October 2000 Reclamation routed 8,473 acre-feet of the City of Albuquerque's San Juan-Chama Project water to Elephant Butte Reservoir for storage in the authorized recreational pool. There was no Commission approved loss rate for this routing due to low natural flow conditions. Reclamation and the NMISC calculated losses associated with this routing using a water budget approach that incorporated prevailing conditions. These losses resulted in the delivery of 5,496 acre-feet of the routed water to the recreation pool. The Engineer Advisers reviewed and accepted the calculations.

### REPORTS OF THE FEDERAL AGENCIES

The second and third days of the Engineer Advisers meeting was attended by representatives of the U.S. Army Corps of Engineers (Corps), U.S. Fish and Wildlife Service (Service), Reclamation, and U.S. Geological Survey. Details on the items discussed during the meetings are provided below.

Endangered Species Issues

River operations to create continuous flow in the Middle Rio Grande from Cochiti Dam to Elephant Butte Reservoir were the focus of substantial effort and extraordinary uses of water in 2000. Much of this effort was associated with mediation and an Agreed Order and Supplemental Agreed Order in the ESA lawsuit filed in the U.S. District Court for the State of New Mexico by a coalition of environmental advocacy groups against Reclamation and the Corps. The lawsuit is styled *Minnow v. Martinez*. The State of New Mexico through the New Mexico State Engineer, the NMISC, and the New Mexico Attorney General, the MRGCD, and the City of Albuquerque are defendant-intervenors. The mediated agreed orders resulted from a motion for preliminary injunction filed by the plaintiffs. The resulting operations were primarily responsible for record amounts, approximately 255,000 acre feet, of San Juan-Chama Project water flowing past the Otowi gage. These operations also resulted in significant reduction in storage in Heron, Abiquiu, and Jemez Canyon Reservoirs.

The State of New Mexico, through the same three agencies identified above, and the MRGCD, sued the Service in 1999 in U.S. District Court for the State of New Mexico (*MRGCD et al. v. Babbitt et al.*) over its complaints of the inadequacies of the Service's process and contents of its critical habitat rule for the Rio Grande silvery minnow. Senior U.S. District Judge Mechem ruled on November 21, 2000. His ruling, at page 42, states: "Remarkably, FWS reaches a determination of 'no impact' without any definition of the meaning of 'continuous flow,' any estimate of how much water will be required or any explanation of the source of this water should it not be made available by the fortuities of the season. Given the region's history and the river's morphology, reaching a 'no impact' conclusion without identifying how much water could be required and where that water will come from appears to be the essence of arbitrary and capricious." Judge Mechem required that the Service develop an Environmental Impact Statement (EIS) regarding the impacts of the critical habitat rule and participate in the mediation in the *Minnow v. Martinez* lawsuit. Representatives of the Service told the Engineer Advisers that the EIS will be prepared. Its completion is expected to take 20 months. The Service has appealed Judge Mechem's ruling to the 10<sup>th</sup> Circuit U.S. Court of Appeals.

Representatives of the Service informed the Engineer Advisers that the status of the Rio Grande silvery minnow remains unimproved from 1999. They said there are essentially no individuals found upstream from San Acacia and limited numbers below. They further indicated that 250 individuals were found in one location in a special effort to provide stock for captive breeding programs but that regular sampling efforts were finding only a few individuals.

Corps and Reclamation representatives were asked regarding the status of ESA Section 7 consultations, in reference to the Commission's resolution passed at the 2000 meeting. That resolution requested Reclamation and the Corps conclude those consultations. Reclamation replied that it submitted a revised biological assessment (BA) to the Service on January 8, 2001. Service representatives stated that formal consultation is proceeding. Service representatives were not able to provide an expected date for conclusion of the Reclamation consultation nor were they able to report on whether the Service had determined if they were in agreement with the sufficiency of the BA and its description of Reclamation's discretionary authorities. The Corps District Engineer indicated the Corps had determined it would proceed independently of Reclamation to consult with the Service on Corps activities. He said the Corps BA was in preparation and anticipated its completion in approximately one month. He further indicated he understood the Corps Section 7 consultation would not commence until the Reclamation consultation was concluded.

The New Mexico Engineer Adviser reported that the Middle Rio Grande Endangered Species Act Workgroup (ESA Workgroup) had fulfilled its commitments as described in the Memorandum of Understanding (MOU) signed early in 2000 by the NMISC, the New Mexico Attorney General's Office, the New Mexico Department of Game and Fish, the MRGCD, the Alliance for Rio Grande Heritage, the City of Albuquerque, the National Association of Industrial and Office Properties, Reclamation, the Corps, and the Service. The signatories to this MOU agreed to develop a Middle Rio Grande ESA Collaborative Program for the purpose of protecting and improving the status of endangered species, while protecting existing and future water uses in compliance with all applicable laws. The program is limited geographically to the Middle Rio Grande basin. The MOU commits the signatories to work

together to develop a detailed program, initiate recovery of the Rio Grande silvery minnow and secure initial funding. The detailed program document has been negotiated and completed and is currently being reviewed by the signatories' decision-makers.

#### Proposed Conversion of Rio Grande Project Water to M&I Uses

The Engineer Advisers discussed with Reclamation the additional conversion of approximately 29,000 acre-feet of Rio Grande Project water to M&I purposes. The 29,000 acre-feet is based a study which has not been reviewed by the Engineer Advisers. Reclamation provided the Engineer Advisers with a draft copy of an Environmental Assessment of this proposed conversion.

#### Low Flow Conveyance Channel EIS

Reclamation released a draft Environmental Impact Statement (DEIS) regarding the physical configuration of the Low Flow Conveyance Channel (LFCC) on September 8, 2000. The DEIS evaluated alternatives, including no-action and discontinue maintenance alternatives, and two alternatives to relocate the LFCC and the Rio Grande floodway in the reach from downstream of the San Marcial railroad bridge to Elephant Butte Reservoir. The two relocation alternatives were evaluated due to the sedimentation and aggradation of the floodway in this reach, which has caused the elevation of the floodway bed to exceed by several feet the elevation of the adjacent floodplain, and the inevitable avulsion of the river in this reach through the spoil bank levee that currently confines the elevated floodway. Reclamation previously deferred decisions regarding the operation of the LFCC by removing those decisions from the scope of the LFCC EIS and including them in the scope of the Upper Rio Grande Basin Water Operations Review and Environmental Impact Statement.

Reclamation's DEIS explicitly reconfirmed the essential water conveyance, sediment transport, and drainage functions that the existing facilities were constructed to provide and the importance of maintaining those essential functions with new facilities. All three states provided written comments. Reclamation informed the Engineer Advisers at the February 2001 meeting that a record-of-decision is expected to be completed in 2001. The Engineer



Advisers recommend the Commission pass a resolution at its 2001 meeting requesting Reclamation proceed as rapidly as possible to initiation of construction and completion of the realigned facilities with a design that will preserve the essential water conveyance, sediment transport, and drainage functions.

#### Water Resources Development Act Section 729

The Commission passed a resolution at its 2000 meeting stating its support of "...the State of New Mexico's initiative for a comprehensive federal study of the San Acacia to Elephant Butte Reservoir reach of the Rio Grande under the Water Resources Development Act, Section 729, to prepare a plan for physical improvements to habitat, the river and associated water conveyance, drainage, and salvage facilities in order to comply with the ESA while managing water depletions and sediment, conveying New Mexico Compact deliveries, minimizing unnecessary evapotranspiration and waste of water, and continuing irrigation uses of water in this critical reach." New Mexico reported to the Engineer Advisers that it prepared a detailed scope-of-work for initial water resources investigations in this reach of the Rio Grande and is currently discussing with the Corps the implementation of this initial scope of work in 2001 using funds appropriated for Section 729 work in New Mexico.

The Corps District Engineer reported to the Engineer Advisers that the Corps may be willing to proceed with the investigation and plan requested by New Mexico but intends that a second phase incorporating a river basin wide planning scope subsequently be performed.

The Engineer Adviser for Texas requested that the Corps District Engineer provide to the Texas Engineer Adviser contact information for the representatives of the Texas agencies with whom representatives of the Corps Ft. Worth and Galveston Districts have been discussing potential Section 729 work in the Lower Rio Grande.

#### Federal Restoration Project Permitting

The Engineer Advisers discussed with the Corps, Reclamation, and Service permitting and water rights issues related to creation and restoration of wetlands and related environmental projects. Federal agency representatives acknowledged the need to comply with applicable state laws regarding these projects. The Engineer Advisers recommend to the



Commission that it pass a resolution stating the requirement for federal agencies to comply with state laws that are applicable to creation and restoration of wetlands and related environmental projects.

#### Water Operations Review and EIS

The Upper Rio Grande Basin Water Operations Review and EIS were briefly discussed. Reclamation, the Corps, and the ISC signed a Memorandum of Agreement in January 2000 to conduct the review and EIS. This project is a five-year effort that will evaluate alternatives for more efficient operations of Federal water storage and flood control facilities under existing authorities to meet the increasing demands on the upper Rio Grande and that will provide compliance with the National Environmental Policy Act and the ESA. A scoping report for the EIS will be issued soon. Determination of alternatives to be reviewed is underway.

#### Caballo Dam Structural Repairs

Reclamation informed the Engineer Advisers at the 2000 meeting of its concerns at Caballo Dam associated with concrete cracking of the spillway structure center pier and design deficiencies in the radial gate structures. These structural problems resulted in Reclamation's Dam Safety Office placing a temporary restriction on Caballo Reservoir operating levels in December 2000 due to concerns for the safety of operating the spillway gates under static and dynamic loading. This restriction results in a temporary reduction in Project Storage capacity of 93,244 acre-feet, which will be implemented in the 2001 Compact accounting. Reclamation's Denver Technical Services Center is currently preparing design drawings for in-house repair work to be commenced this fall. Repairs are scheduled to be completed next winter, barring funding problems. Reclamation believes they have enough funds available under an existing authorization to fund the project and complete it by 2002.

### Abiquiu Dam Emergency Gate Repairs

Corps representatives reported that repair work to correct defective installation of the emergency gates at Abiquiu dam started November 1, 2000 and was completed February 17, 2001. Testing of the gates is scheduled for March 2001.

### Rio Grande Project Storage Projections

Reclamation presented projections of reservoir operations for Elephant Butte and Caballo Reservoirs based on February 1, 2001 snowmelt runoff forecasts for March-July 2001. The projections indicate that Elephant Butte Reservoir storage would be drawn down to approximately 900,000 acre-feet by the fall of 2001, assuming average conditions for the remainder of the winter. This level of Elephant Butte Reservoir storage would be the lowest since 1983. Approximately 300,000 acre-feet of this storage is accrued credit of New Mexico and Colorado. Reclamation stated that if 2001 and 2002 streamflow conditions are normal that the 2002 irrigation allotment from Project Storage would be less than a full allotment for the first time in more than two decades.

### Elephant Butte Pilot Channel

Maintaining an active river channel from San Marcial through the sediment delta to Elephant Butte Reservoir is crucial to New Mexico's ability to make Compact deliveries. The Engineer Advisers recommended and the Commission approved a resolution in 2000 requesting Reclamation to continuously extend and maintain a pilot channel through this reach as the reservoir recedes. Reclamation commenced this project in the fall of 2000 completed about 4,000 linear feet of the channel just prior to the Engineer Advisers meeting. Reclamation committed to the Engineer Advisers that its channel excavation through the sediment delta would be sufficient to connect the river channel to the active reservoir pool for 2001 spring runoff. Reclamation stated its work would be sufficient because Elephant Butte Reservoir extends farther upstream than was anticipated and the river channel retains its definition farther downstream. The total anticipated channel project length to be completed

30-508  
prior to the 2001 spring runoff is approximately 7,000 linear feet (original design was 19,000 linear feet).

### MISCELLANEOUS

The Engineer Advisers want to make the Commission aware of two existing initiatives involving review of Rio Grande operations and river restoration. The first initiative is the Rio Grande/Rio Bravo Bi-National Symposium. The stated intent of this initiative is to provide enhanced flow in the Rio Grande below Ft. Quitman to Amistad Reservoir within existing institutional constraints. The second initiative, entitled "A Physical Assessment of the Opportunities for Improved Management of the Water Resources of the Bi-National Rio Grande Basin," appears to be an effort to evaluate water management operations of the entire basin for purposes of reallocating existing supplies of the Rio Grande.

The Engineer Advisers discussed and agreed to continue discussing storage options upstream of Elephant Butte Reservoir.

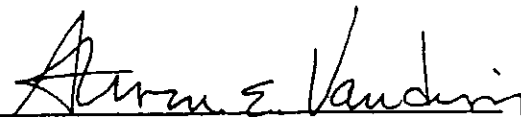
### REPORTING

The Engineer Advisers recommend that in the future the Commission consider the inclusion of the report of the Engineer Advisers and any resolutions passed by the Commission in the report of the Commission.

It was determined that errata for the 1996 report of the Commission, published in the 1997 report of the Commission, had not been incorporated in subsequent reports. The Engineer Advisers recommend that this be corrected starting with the 2000 report of the Commission.

BUDGET

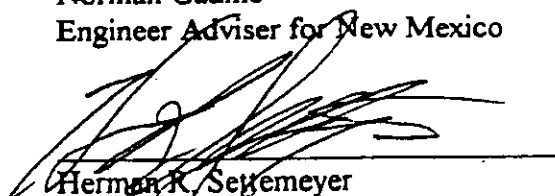
The Engineer Advisers reviewed the Cost of Operation for the year ending June 30, 2000 and the Budget for Fiscal Year ending June 30, 2002. The Engineer Advisers found that the expenses for the administration of the Rio Grande Compact for the year ending June 30, 2000 were \$161,838. The United States bore \$53,984 of this total, with the balance of \$107,854 borne equally by the three states. The proposed budget for the fiscal year ending June 30, 2002 indicates a total of \$175,494 will be spent for administration.



Steven E. Vandiver  
Engineer Adviser for Colorado



Norman Gaume  
Engineer Adviser for New Mexico



Herman R. Settemeyer  
Engineer Adviser for Texas

RIO GRANDE COMPACT COMMISSION REPORT  
RIO GRANDE COMPACT

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

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

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

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

ARTICLE I

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

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

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

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

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

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

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

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

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

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

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

## RIO GRANDE COMPACT

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

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

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

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

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

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

## ARTICLE II

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

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

(b) On the Conejos River near Mogote;

(c) On the Los Pinos River near Ortiz;

(d) On the San Antonio River at Ortiz;

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

(f) On the Rio Grande near Lobatos;

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

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

(i) On the Rio Grande near San Acacia;

(j) On the Rio Grande at San Marcial;

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

(l) On the Rio Grande below Caballo Reservoir.

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

# RIO GRANDE COMPACT COMMISSION REPORT

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 COMMISSION REPORT  
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 trans-mountain 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 COMMISSION REPORT

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 COMMISSION REPORT

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## ARTICLE XV

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

## ARTICLE XVI

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

## ARTICLE XVII

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

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

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

(Sgd.) M. C. HINDERLIDER

(Sgd.) THOMAS M. McCLURE

(Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

Colorado, February 21, 1939

New Mexico, March 1, 1939

Texas, March 1, 1939

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

Approved by the President May 31, 1939

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

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.



## RESOLUTION OF COMMISSION

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").



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RIO GRANDE COMPACT COMMISSION REPORT  
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

(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 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 control purposes, i.e., 2,040,000 acre-feet in the months of October through March, inclusive, and 2,015,000 acre-feet in the months of April through September, inclusive, as determined from the 1988 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 4

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

## RIO GRANDE COMPACT COMMISSION REPORT

### EVAPORATION LOSSES <sup>15</sup>, <sup>16</sup>, <sup>17</sup>

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 commingled.

<sup>15</sup> Amended at Tenth Annual Meeting, February 15, 1949.

<sup>16</sup> Amended at Twelfth Annual Meeting, February 24, 1951.

<sup>17</sup> 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

The Commission, subject to the approval of the Director, U.S. Geological Survey, to a cooperative agreement for such purposes, shall employ the U.S. Geological Survey on a yearly basis, to render such engineering and clerical aid as may reasonably be necessary for administration of the Compact. Said agreement shall provide that the Geological Survey shall:

(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

In February of each year, 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.

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

## RIO GRANDE COMPACT COMMISSION REPORT

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, 9

The Commission shall meet in Santa Fe, New Mexico, on the third Thursday of February of each year for the consideration and adoption of the annual report for the calendar year preceding, and for the transaction of any other business consistent with its authority; provided that the Commission may agree to meet elsewhere. Other meetings as may be deemed necessary shall be held at any time and place set by mutual agreement, for the consideration of data collected and for the transaction of any business consistent with its authority.

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

(Signed) M. C. HINDERLIDER

M. C. Hinderlider

Commissioner for Colorado

(Signed) THOMAS M. McCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

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

9 Amended at Thirteenth Annual Meeting, February 25, 1952.

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## RIO GRANDE COMPACT COMMISSION REPORT RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 22, 2001, the records of deliveries and releases and computations of debits and credits for calendar year 2000 were reported. The records and computations as approved by the Commission are reproduced on the next three pages.

The delivery of water in the Rio Grande at the Colorado-New Mexico State line was obtained from the record of streamflow near Lobatos, Colorado; the scheduled delivery was computed as prescribed in Article III.

The delivery of water by New Mexico to Elephant Butte was computed from the record of streamflow below Elephant Butte Dam and the record of operation of Elephant Butte Reservoir; the scheduled delivery was computed as prescribed in the Resolution of the Commission adopted at the Ninth Annual Meeting held February 22-24, 1948, and published in this report.

The actual release from Project Storage during the year was measured at gaging stations below Caballo Dam. During 2000 the Commissioners found that the actual release of usable water was 752,400 acre-feet. This resulted in an accrued credit of 75,900 acre-feet as of January 1, 2001.



# RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE YEAR 2000

Quantities in thousands of acre feet to nearest hundredth

YEAR 2000

Quantities in thousands of acre feet to nearest hundred

CONEJOS INDEX SUPPLY

MEASURED FLOW

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

OTHER ADJUSTMENTS

NET ADJUSTMENTS

SUPPLY IN MONTH

ACCUMULATED TOTAL

CONEJOS RIVER AT MOUTHS NEAR LOS SAUCES

RIO GRANDE LESS CONEJOS RIVER

RIO GRANDE AT LOBATOS

ACCUMULATED TOTAL AT LOBATOS

DELIVERIES

DEBIT

CREDIT

BALANCE

Cr 17.7

Cr 0.7

Dr 95.1

Cr 29.1

Cr 27.0

Cr 27.0

Cr 27.0

Cr 27.0

Cr 27.0

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Remarks: Col. 6 does not include transmountain water.

Evaporation less post-compact reservoirs; report of the Engineer Adviser for Colorado.  
884 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.

\* Remarks: Col. 6 does not include transmountain water.

\* Evaporation loss post compact reservoirs; report of the Engineer Adviser for Colorado.  
b 884 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.

## RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE

YEAR 2000

Quantities in thousands of acre feet to nearest hundred

Quantities in thousands of acre feet to nearest hundred																	
ELEPHANT BUTTE EFFECTIVE SUPPLY																	
MONTH	OTOWI INDEX SUPPLY										STORAGE IN ELEPHANT BUTTE RESERVOIR					Effective Supply	
	ADJUSTMENTS					INDEX SUPPLY					Total Water Stored in New Mexico Above San Marcial at End of Month <sup>a</sup>	End of Month <sup>a</sup>	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total	
	RESERVOIRS: LOBATOS TO OTOWI			Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total									
	Recorded Flow at Otowi Bridge	Storage End of Month <sup>a</sup>	Change in Storage						Reservoir Evaporation								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
JAN	47.5	82.1	0.2	0.1	-1.7	-1.4	46.1	46.1	85.0	84.3	1,706.1	30.1	14.5	44.6	44.6		
FEB	45.9	82.3	0.0	0.2	-1.6	-1.4	44.5	90.6	83.5	1,676.4	-59.8	105.8	46.0	90.6	90.6		
MAR	60.7	70.6	-11.7	0.3	-11.4	-22.8	37.9	128.5	72.0	1,617.6	-58.8	100.9	42.1	132.7	132.7		
APR	66.8	91.0	20.4	0.4	-7.4	-13.4	80.2	208.7	92.5	1,559.9	-57.7	88.8	31.1	163.8	163.8		
MAY	82.0	84.3	-6.7	0.6	-28.2	-34.3	47.7	256.4	84.2	1,510.4	-49.5	65.4	15.9	179.7	179.7		
JUN	95.4	52.3	-32.0	0.5	-42.8	-74.3	21.1	277.5	53.0	1,424.1	-86.3	102.3	16.0	195.7	195.7		
JUL	90.4	25.8	-26.5	0.2	-45.6	-71.9	18.5	296.0	25.4	1,346.2	-77.9	95.3	17.4	213.1	213.1		
AUG	82.8	17.0	-8.8	0.0	-57.3	-66.1	16.7	312.7	16.8	1,258.7	-87.5	106.3	18.8	231.9	231.9		
SEPT	69.3	4.7	-12.3	-0.1	-45.1	-57.5	11.8	324.5	4.6	1,193.5	-85.2	76.3	11.1	243.0	243.0		
OCT	33.9	6.1	1.4	0.2	-9.9	-8.3	25.6	350.1	7.5	1,196.8	3.3	28.2	31.5	274.5	274.5		
NOV	27.7	8.6	2.5	0.1	-2.8	-0.2	27.5	377.6	8.8	1,235.8	39.0	1.0	40.0	314.5	314.5		
DEC	32.3	8.8	0.2	0.0	-0.9	-0.7	31.6	409.2	8.1	1,274.2	38.4	0.7	39.1	353.6	353.6		
YEAR	734.7	-73.3	2.5		-325.5	-254.7	409.2				-431.9	785.5		353.6			
SUMMARY OF DEBITS AND CREDITS																	
ITEM																	
DEBIT																	
CREDIT																	
BALANCE																	
a																	
Colis. 3, 11, and 12 do not include transmountain water.																	
Colis. 3 and 11 reflect implementation of revised area capacity tables for Abiquiu, Cochiti, and Jemez Canyon Reservoirs, effective January 1, 1999.																	

Remarks: Storage in recreational reservoirs not included.

<sup>a</sup> Cols. 3, 11, and 12 do not include transmountain water.

Cols. 3 and 11 reflect implementation of revised area-capacity tables for Abiquiu, Cochiti, and Jemez Canyon Reservoirs, effective January 1, 1999.



RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE  
YEAR 2000

YEAR 2000

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		
	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	Colorado Credit Water	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 Gauging 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
JAN	2,271.5	1,517.7	42.3	1,560.0	711.5	171.7	170.7	188.4		1,748.4								
FEB	2,271.5	1,548.8	50.5	1,599.3	672.2	17.6	169.8	187.4		1,786.7	6.3	0.0	6.3				6.3	6.3
MAR	2,271.5	1,490.5	126.5	1,617.0	554.5	17.5	168.4	185.9		1,802.9	17.0	0.1	17.1				17.1	23.4
APR	2,246.5	1,433.2	117.8	1,551.0	720.5	17.3	167.1	184.4		1,735.4	102.4	0.1	102.5				102.5	125.9
MAY	2,246.5	1,378.1	120.6	1,498.7	747.8	17.1	164.7	181.8		1,680.5	78.2	0.1	78.3				78.3	204.2
JUN	2,246.5	1,322.4	74.5	1,406.9	839.6	16.7	161.3	178.0		1,584.9	102.6	0.1	102.7				102.7	306.9
JUL	2,246.5	1,248.5	71.0	1,319.5	927.0	16.5	159.1	175.6		1,495.1	106.8	0.1	106.9				106.9	413.8
AUG	2,246.5	1,173.4	44.6	1,218.0	1028.5	16.2	156.6	172.8		1,390.8	121.3	0.2	121.5				121.5	535.3
SEPT	2,246.5	1,088.2	38.8	1,127.0	1119.5	16.0	154.5	170.5		1,297.5	112.0	0.2	112.2				112.2	647.5
OCT	2,271.5	1,029.7	33.9	1,059.7	1186.8	15.8	151.9	167.7		1,227.4	75.2	0.1	75.3				75.3	722.8
NOV	2,271.5	1,069.0	40.3	1,109.3	1162.2	15.7	151.4	167.1		1,233.0	29.4	0.1	29.5				29.5	752.3
DEC	2,271.5	1,108.1	42.8	1,150.9	1120.6	15.6	150.5	165.1		1,276.1	0.0	0.0	0.0				0.0	752.3
YEAR	2,271.5	1,108.1	42.8	1,150.9	1120.6	15.6	150.5	165.1		1,317.0	751.3	1.1	752.4	0.0	0.0	0.0	0.1	752.4
Remarks: a Project storage capacity 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 NM1)																		
											ACCUMULATED DEPARTURE FROM NORMAL RELEASE							
											ITEM							
											P1							
											P2							
											P3							
											P4							
											P5							
											P6							
											P7							
											Accrued Departure at End of Year							
											Accrued Departure at Beginning of Year							
											P1							
											P2							
											P3							
											P4							
											P5							
											P6							
											P7							
											Accrued Departure during Year							
											P1							
											P2							
											P3							
											P4							
											P5							
											P6							
											P7							
											Normal Release for Year							
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											Accrued Departure at End of Year							
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											Normal Release for Year							
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											P5							
											P6							
											P7							
											Accrued Departure at End of Year							
											Accrued Departure at Beginning of Year							
											P1							
											P2							

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## BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2000

Item	Total Cost	Borne by United States	Borne by		
			Coloradc	New Mexicc	Texas
GAGING STATIONS					
In Colorado	\$53,481	\$6,203	\$47,278		
In New Mexico, above Caballo Reservoir	\$60,800	\$36,670		\$24,130	
In New Mexico, Caballo Reservoir and below	\$20,145	\$4,882		\$1,680	\$13,583
Subtotal	\$134,426	\$47,755	\$47,278	\$25,810	\$13,583
ADMINISTRATION					
U.S.G.S. Contract	\$24,916	\$6,229	\$6,229	\$6,229	\$6,229
Other expenses	\$2,496		\$832	\$832	\$832
Subtotal	\$27,412	\$6,229	\$7,061	\$7,061	\$7,061
GRAND TOTAL	\$161,838	\$53,984	\$54,339	\$32,871	\$20,644
EQUAL SHARES			\$35,951	\$35,951	\$35,951

## BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2002

Item	Total Cost	Borne by United States	Borne by		
			Coloradc	New Mexicc	Texas
GAGING STATIONS					
In Colorado	\$ 57,562	\$ 6,710	\$ 50,852		
In New Mexico, above Caballo Reservoir	\$ 67,090	\$ 40,975		\$ 26,115	
In New Mexico, Caballo Reservoir and below	\$ 21,190	\$ 5,330		\$ 1,820	\$ 14,040
Subtotal	\$ 145,842	\$ 53,015	\$ 50,852	\$ 27,935	\$ 14,040
ADMINISTRATION					
U.S.G.S. Contract	\$ 26,952	\$ 6,738	\$ 6,738	\$ 6,738	\$ 6,738
Other expenses	\$ 2,700		\$ 900	\$ 900	\$ 900
Subtotal	\$ 29,652	\$ 6,738	\$ 7,638	\$ 7,638	\$ 7,638
GRAND TOTAL	\$ 175,494	\$ 59,753	\$ 58,490	\$ 35,573	\$ 21,678
EQUAL SHARES			\$ 38,580	\$ 38,580	\$ 38,580

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## 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 discharge for the following:

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

Records of six transmountain diversions and of storage in Squaw and Shaw Lakes, Rito Hondo, Hermit Lakes Reservoir No. 3, Troutvale No. 2, Jumper Creek, Alberta Park, Big Meadows, Mill Creek, Fuchs, and Trujillo Meadows Reservoirs were also provided by the Office of the State Engineer of Colorado.

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

- Storage in Platoro Reservoir at Platoro, Colo.
- Azotea tunnel at outlet, near Chama, N. Mex.
- Willow Creek above Heron Res., near Los Ojos, N. Mex.
- Horse Lake Creek above Heron Res., near Los Ojos, N. Mex.
- Storage in Heron Reservoir near Los Ojos, N. Mex.
- Willow Creek below Heron Dam, N. Mex.
- Storage in El Vado Reservoir near Tierra Amarilla, N. Mex.
- 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.
- Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.
- Storage in McClure Reservoir near Santa Fe, N. Mex.
- Santa Fe River near Santa Fe, N. Mex.
- Storage in Nichols 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 records of storage in Abiquiu, Galisteo, and Jemez Canyon Reservoirs and in Cochiti Lake.

The Southern Pueblos Agency, Bureau of Indian Affairs, Albuquerque, N. Mex., supplied the records of storage in Acomita Reservoir.

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 these agencies.

## RIO GRANDE COMPACT COMMISSION REPORT 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 NW1/4 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.--111 years (1890-2000), 903 ft<sup>3</sup>/s (654,200 acre-ft per year).

Extremes.--1889-2000: Maximum discharge, 18,000 ft<sup>3</sup>/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft<sup>3</sup>/s; minimum daily, 69 ft<sup>3</sup>/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	5,810	210	160	187	11,520
February	5,826	216	189	201	11,560
March	7,033	335	181	227	13,950
April	24,452	2,090	265	815	48,500
May	73,010	3,400	1,390	2,355	144,800
June	34,341	2,430	458	1,145	68,120
July	9,791	443	208	316	19,420
August	8,271	367	173	267	16,410
September	7,480	339	220	249	14,840
October	10,241	462	229	330	20,310
November	5,987	356	155	200	11,880
December	5,010	180	140	162	9,940
Calendar year 2000	197,252	3,400	140	539	391,200

## Conejos River below Platoro Reservoir, Colo.

Location.--Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW1/4NW1/4 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.--48 years (1890-2000), 93.3 ft<sup>3</sup>/s (67,600 acre-ft per year).

Extremes.--1952-2000: Maximum discharge, 1,160 ft<sup>3</sup>/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	226.3	7.3	7.3	7.30	449
February	208.8	7.2	7.2	7.20	414
March	220.1	7.1	7.1	7.10	437
April	1,730.6	223	7.1	57.7	3,430
May	7,438	594	76	240	14,750
June	5,820	422	90	194	11,540
July	3,392	153	41	109	6,730
August	2,680	135	39	86.5	5,320
September	762.4	42	6.7	25.4	1,510
October	995.6	66	7.6	32.1	1,970
November	321.7	23	7.0	10.7	638
December	217.0	7.0	7.0	7.00	430
Calendar year 2000	24,012.5	594	6.7	65.6	47,630

## RIO GRANDE COMPACT COMMISSION REPORT

## Conejos River near Mogote, Colo.

Location.--Water-stage recorder, lat 37°03'14", long 106°11'13", in SE1/4SE1/4 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.--90 years (1904, 1912-2000), 327 ft<sup>3</sup>/s (236,900 acre-ft per year).

Extremes.--1903-05, 1911-2000: Maximum discharge, 9,000 ft<sup>3</sup>/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft<sup>3</sup>/s; minimum daily determined, 10 ft<sup>3</sup>/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	1,178	43	32	38.0	2,340
February	1,342	53	41	46.3	2,660
March	1,934	104	46	62.4	3,840
April	7,049	562	70	235	13,980
May	21,447	1,330	327	692	42,540
June	11,605	902	207	387	23,020
July	5,357	255	90	173	10,630
August	4,489	212	101	145	8,900
September	1,917	89	37	63.9	3,800
October	2,726	136	45	87.9	5,410
November	1,915	94	40	63.8	3,800
December	1,315	54	35	42.4	2,610
Calendar year 2000	62,274	1,330	32	170	123,500

## 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.--60 years (1941-2000), 25.7 ft<sup>3</sup>/s (18,620 acre-ft per year).

Extremes.--1920, 1925-2000: Maximum discharge, 1,750 ft<sup>3</sup>/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft<sup>3</sup>/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	33.45	2.0	0.35	1.08	66
February	91.9	3.9	2.6	3.17	182
March	330.8	31	3.8	10.7	656
April	1,249	68	10	41.6	2,480
May	491.2	49	1.6	15.8	974
June	10.33	1.2	.00	.34	20
July	2.76	1.2	.00	.09	5.5
August	8.27	1.5	.00	.27	16
September	1.89	.59	.00	.06	3.7
October	154.25	23	.95	4.98	306
November	105.9	4.7	2.9	3.53	210
December	79.6	3.2	2.0	2.57	158
Calendar year 2000	2,559.35	68	100	6.99	5,080

## 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.--82 years (1915-20, 1925-2000), 120 ft<sup>3</sup>/s (86,940 acre-ft per year).

Extremes.--1915-20, 1925-2000: Maximum discharge, 3,160 ft<sup>3</sup>/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft<sup>3</sup>/s; minimum observed, 4.0 ft<sup>3</sup>/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	373	14	10	12.0	740
February	469	19	13	16.2	930
March	670	36	16	21.6	1,330
April	4,832	369	27	161	9,580
May	6,055	330	87	195	12,010
June	1,040	77	18	34.7	2,060
July	446	27	11	14.4	885
August	408.3	22	8.9	13.2	810
September	276	15	5.7	9.20	547
October	603.2	38	9.6	19.5	1,200
November	654	30	12	21.8	1,300
December	504	28	10	16.3	1,000
Calendar year 2000	16,330.5	369	5.7	44.6	32,390

## Conejos River near Lasauces, Colo.

Location.--Water-stage recorders, 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 Lasauces. Datum of gage on main channel is 7,495.02 ft and on secondary (south) channel is 7,496.89 ft above mean sea level (levels by Bureau of Reclamation).

Drainage area.--887 sq mi.

Average discharge.--79 years (1922-2000), 182 ft<sup>3</sup>/s (131,900 acre-ft per year).

Extremes.--1921-2000: Maximum discharge, 3,890 ft<sup>3</sup>/s May 15, 1941; no flow at times in some years.

Remarks.--Records good except those for winter months, which are fair. Diversions 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	1,893	86	45	61.1	3,750
February	2,063	79	63	71.1	4,090
March	1,558	83	17	50.3	3,090
April	670.9	84	5.4	22.4	1,330
May	567.0	72	4.0	18.3	1,120
June	98.76	14	.35	3.29	196
July	0.56	.21	.00	.02	1.1
August	1.48	.74	.00	.03	2.9
September	0.88	.38	.00	.03	1.7
October	0.98	.32	.00	.03	1.9
November	260.6	28	.05	8.69	5.7
December	698	33	15	22.5	1,380
Calendar year 2000	7,813.2	86	.00	21.3	15,500

## RIO GRANDE COMPACT COMMISSION REPORT

## 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.--31 years (1900-30), 846 ft<sup>3</sup>/s (612,900 acre-ft per year); 70 years (1931-2000) 449 ft<sup>3</sup>/s (325,300 acre-ft per year).

Extremes.--1899-2000: Maximum discharge observed, 13,200 ft<sup>3</sup>/s June 8, 1905 (gage height, 9.1 ft), from rating curve extended above 8,000 ft<sup>3</sup>/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	11,000	440	280	355	21,820
February	11,336	435	340	391	22,480
March	7,499	407	128	242	14,870
April	5,790	277	132	193	11,480
May	6,278	323	145	203	12,450
June	3,480	254	59	116	6,900
July	947	76	16	30.5	1,880
August	344.0	16	7.0	11.1	682
September	407.0	31	8.4	13.6	807
October	1,303	88	13	42.0	2,580
November	3,678	235	60	123	7,300
December	5,510	210	120	178	10,930
Calendar year 2000	57,572.0	440	7.0	157	114,200

## 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 ft<sup>3</sup>/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 31 years (1970-2000), 136 ft<sup>3</sup>/s (98,530 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes.--1962-2000: Maximum discharge, 1,610 ft<sup>3</sup>/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.

Remarks.--Records good except those for winter months, which are fair. Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in Rutheron Drain included prior to Apr. 1, 1971.

## Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0.00	0.00	0.00	0.00	0.00
February	.00	.00	.00	.00	.00
March	367.00	98	.00	11.8	728
April	8,773	560	43	292	17,400
May	10,550	535	100	340	20,930
June	2,595.2	307	3.5	86.5	5,150
July	55.10	25	.00	1.78	109
August	64.20	41	.00	2.07	127
September	.00	.00	.00	.00	100
October	.00	.00	.00	.00	.00
November	58.99	2.9	.38	1.97	117
December	57.84	2.9	.72	1.87	115
Calendar year 2000	22,521.33	560	.00	61.5	44,670



# STREAMFLOW

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## 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 mean sea level. 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 ft<sup>3</sup>/s (848 acre-ft per year).

Extremes.--1963-2000: Maximum discharge, 3,960 ft<sup>3</sup>/s July 30, 1968 (gage height, 4.9 ft); no flow most of time.

Remarks.--Records good. Diversions above station for irrigation of meadows and for off-channel stock tanks.

### 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	0.00	0.00	0.00	--	--
August	.00	.00	.00	0.00	0.00
September	.00	.00	.00	.00	.00
October	.00	.00	.00	.00	.00
November	--	--	--	.00	.00
December	--	--	--	--	--
Calendar year 2000	--	--	--	--	--

## 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.--30 years (1971-2000), 125 ft<sup>3</sup>/s (90,560 acre-ft per year).

Extremes.--1971-2000: Maximum daily discharge, 2,780 ft<sup>3</sup>/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	1,550	50	50	50.0	3,070
February	1,450	50	50	50.0	2,880
March	15,350	500	350	495	30,450
April	13,899	700	200	463	27,570
May	5,357.00	700	.00	173	10,630
June	8,081.00	700	.00	269	16,030
July	1,456.00	325	.00	47.0	2,890
August	7,010.00	650	.00	226	13,900
September	14,071.00	850	.00	469	27,910
October	1,882.00	150	.00	60.7	3,730
November	4,496.00	400	.00	150	8,920
December	3,128.00	200	.00	101	6,200
Calendar year 2000	77,730.00	850	.00	212	154,200

## RIO GRANDE COMPACT COMMISSION REPORT

## Rio Chama below El Vado Dam, N. Mex.

Location.—Water-stage recorder, 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 mean sea level, 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 ft<sup>3</sup>/s (321,700 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-70), 372 ft<sup>3</sup>/s (269,500 acre-ft per year), prior to release of transmountain water; 30 years (1971-2000) 485 ft<sup>3</sup>/s (351,400 acre-ft per year).

Extremes.—1914-16, 1920-24, 1936-2000: Maximum discharge observed, 9,000 ft<sup>3</sup>/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	2,793	106	82	90.1	5,540
February	3,039	106	104	105	6,030
March	12,315	758	187	397	24,430
April	15,641	1,110	295	521	31,020
May	19,384	1,250	402	625	38,450
June	29,944	1,250	688	998	59,390
July	26,466	1,210	593	854	52,500
August	20,811	990	237	671	41,280
September	22,120	1,110	186	737	43,880
October	9,638	509	134	311	19,120
November	4,223	520	74	141	8,380
December	3,276	121	81	106	6,500
Calendar year 2000	169,650	1,250	74	464	336,500

## Rio Chama below Abiquiu Dam, N. Mex.

Location.—Water-stage recorder, 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 (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 ft<sup>3</sup>/s (272,400 acre-ft per year), prior to release of transmountain water; 30 years (1971-2000), 543 ft<sup>3</sup>/s (393,400 acre-ft per year).

Extremes.—1961-2000: Maximum discharge, 2,990 ft<sup>3</sup>/s July 1, 1965 (gage height, 6.69 ft); minimum, about 0.5 ft<sup>3</sup>/s Mar. 17, 1966, Jan. 28, 1972.

Remarks.—Records good. Flow regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 17,600 acres. Subsequent to May 1971 flow affected by the release of transmountain water from Heron Reservoir.

## Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2,836	124	73	91.5	5,630
February	3,059	123	80	105	6,070
March	12,800	960	118	413	25,390
April	16,795	820	394	560	33,310
May	30,289	1,250	489	977	60,080
June	42,330	1,560	1,060	1,411	83,960
July	39,269	1,500	716	1,267	77,890
August	35,190	1,440	742	1,135	69,800
September	30,145	1,330	527	1,005	59,790
October	7,162	559	52	231	14,210
November	1,848	142	39	61.6	3,670
December	1,654	56	52	53.4	3,280
Calendar year 2000	223,377	1,560	39	610	443,100

## STREAMFLOW

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

Location.--Totalizing flowmeters, 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.

Drainage area.--34.1 sq mi.

Average discharge.--22 years (1979-2000), 15.0 ft<sup>3</sup>/s (10,870 acre-ft per year).

Extremes.--1979-2000: Maximum discharge, 312 ft<sup>3</sup>/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	83.49	10	0.59	2.69	166
February	209.2	10	6.8	7.21	415
March	107.7	6.9	1.8	3.47	214
April	279.5	14	6.4	9.32	554
May	568	21	11	18.3	1,130
June	446.6	26	4.4	14.9	886
July	166.0	20	2.5	5.35	329
August	102.2	9.4	2.4	3.30	203
September	181.1	18	2.4	6.04	359
October	140.5	9.3	2.5	4.53	279
November	104.0	7.2	1.2	3.47	206
December	39.4	1.3	1.2	1.27	78
Calendar year 2000	2,427.69	26	.59	6.63	4,820

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

Location.--Water-stage recorder, lat 35°52'29", long 106°08'30", in San Ildefonso Pueblo Grant, 400 ft downstream from bridge on State Highway 4, 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 mean sea level, 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.--101 years (1896-1905, 1910-2000), 1,537 ft<sup>3</sup>/s (1,114,000 acre-ft per year).

Extremes.--1895-1905, 1910-2000: Maximum discharge, 24,400 ft<sup>3</sup>/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft<sup>3</sup>/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	23,928	982	672	772	47,460
February	23,146	838	719	798	45,910
March	30,589	1,520	684	987	60,670
April	33,687	1,530	857	1,123	66,820
May	41,330	1,530	1,090	1,333	81,980
June	48,100	1,740	1,500	1,603	95,410
July	45,580	1,950	1,020	1,470	90,410
August	41,748	1,740	998	1,347	82,810
September	34,933	1,610	670	1,164	69,290
October	17,111	1,310	321	552	33,940
November	13,957	558	398	465	27,680
December	16,278	588	416	525	32,290
Calendar year 2000	370,387	1,950	321	1,012	734,700

## RIO GRANDE COMPACT COMMISSION REPORT

## Santa Fe River near Santa Fe, N. Mex.

Location.--Water-stage recorder 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 7,718 ft. 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.--88 years (1913-2000), 8.18 ft<sup>3</sup>/s (5,926 acre-ft per year).

Extremes.--1913-2000: Maximum discharge, 1,500 ft<sup>3</sup>/s Aug. 14, 1921; 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	40.92	1.6	0.94	1.32	81
February	174.93	32	.98	6.03	347
March	17.93	13	.10	.58	36
April	344.59	29	.07	11.5	683
May	375.54	48	.15	12.1	745
June	223.41	16	.02	7.45	443
July	208.57	15	.06	6.73	414
August	112.13	9.1	.00	3.62	222
September	92.49	8.5	.00	3.08	183
October	118.52	16	.02	3.82	235
November	4.56	.33	.09	.15	9.0
December	3.22	.12	.06	.10	6.4
Calendar year 2000	1,716.74	48	.00	4.69	3,410

## Rio Grande below Cochiti Dam, N. Mex.

Location.--Water-stage recorder, 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 mean sea level, datum of 1929. Prior to Nov. 14, 1973, at site 2.4 mi downstream at altitude 5,210 ft. 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.--30 years (1971-2000), 1,422 ft<sup>3</sup>/s (1,030,000 acre-ft per year).

Extremes.--1971-2000: Maximum discharge, 10,300 ft<sup>3</sup>/s July 26, 1971, at site 2.4 mi downstream prior to closure of Cochiti Dam; minimum discharge, 0.51 ft<sup>3</sup>/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	25,070	967	634	809	49,730
February	25,346	997	786	874	50,270
March	26,346	1,150	705	850	52,260
April	30,984	1,180	802	1,033	61,460
May	39,330	1,390	1,140	1,269	78,010
June	44,050	1,540	1,310	1,468	87,370
July	37,770	1,440	1,090	1,218	74,920
August	32,589	1,180	928	1,051	64,640
September	25,911	1,050	547	864	51,390
October	12,090	615	125	390	23,980
November	10,960	611	190	365	21,740
December	16,315	641	405	526	32,360
Calendar year 2000	326,761	1,540	125	893	648,100

## STREAMFLOW

## Galisteo Creek below Galisteo Dam, N. Mex.

Location.--Water-stage recorder, lat 35°27'56", long 106°12'57", in SE1/4SE1/4 sec. 5, T. 14 N., R. 7 E., 0.6 mi downstream from Galisteo Dam, and 5.5 mi northwest of Cerrillos. Altitude of gage is 5,450 ft.

Drainage area.--597 sq mi.

Average discharge.--30 years (1971-2000), 6.16 ft<sup>3</sup>/s (4,463 acre-ft per year).

Extremes.--1970-2000: Maximum discharge, 2,000 ft<sup>3</sup>/s July 27, 1971 (gage height, 7.00 ft); maximum gage height, 7.33 ft July 20, 1971; no flow many days each year.

Remarks.--Records poor. Flow partly regulated by uncontrolled outlet in Galisteo Dam. Capacity of outlet, 5,000 ft<sup>3</sup>/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	8.92	0.54	0.18	0.29	18
February	6.56	1.6	.12	.23	13
March	29.64	5.0	.00	.96	59
April	19.46	6.5	.00	.65	39
May	.00	.00	.00	.00	.00
June	695.03	266	.00	23.2	1,380
July	21.00	21	.00	.68	42
August	627.92	310	.00	20.3	1,250
September	.00	.00	.00	.00	.00
October	214.28	111	.00	6.91	425
November	2.58	2.2	.00	.086	5.1
December	1.70	.47	.00	.055	3.4
Calendar year 2000	1,627.09	310	.00	4.45	3,230

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

Location.--Water-stage recorder, lat 35°23'24", long 106°32'03", in NE1/4 sec. 5, T. 13 N., R. 4 E., 0.8 mi downstream from Jemez Canyon Dam, 2.0 mi upstream from mouth, and 6 mi north of Bernalillo. Datum of gage is 5,095.60 ft above mean sea level, datum of 1929. Prior to April 24, 1951, at site three-quarters mi upstream at datum 24.51 ft higher. April 24, 1951 to June 25, 1958, at site 37 ft upstream at datum 4.40 ft higher.

Drainage area.--1,038 sq mi.

Average discharge.--58 years (1937, 1944-2000), 62.8 ft<sup>3</sup>/s (46,220 acre-ft per year).

Extremes.--1937, 1944-2000: Maximum discharge, 16,300 ft<sup>3</sup>/s Aug. 29, 1943 (gage height, 5.62 ft); no flow at times.

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	208.5	8.1	5.6	6.73	414
February	240.3	9.7	6.7	8.29	477
March	418.6	59	6.5	13.5	830
April	2,512	145	16	83.7	4,980
May	1,432.6	152	8.5	46.2	2,840
June	70.47	5.2	.81	2.35	140
July	81.1	2.7	2.6	2.62	161
August	193.7	51	2.5	6.25	384
September	2,780.3	300	7.8	92.7	5,510
October	3,722.8	289	2.5	120	7,380
November	1,159.5	194	1.8	38.7	2,300
December	1,028.7	48	.81	33.2	2,040
Calendar year 2000	13,848.57	300		37.8	27,470

## RIO GRANDE COMPACT COMMISSION REPORT

## Rio Grande below Elephant Butte Dam, N. Mex.

Location--Water-stage recorder, 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 4,242.09 ft above mean sea level, 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--86 years (1915-2000, 1,010 ft<sup>3</sup>/s (731,700 acre-ft per year).

Extremes--1915-2000: Maximum daily discharge, 8,220 ft<sup>3</sup>/s May 22, 1942; no flow at times prior to 1929 and March 2-4, 1979.

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	7,342.5	669	5.0	237	14,560
February	53,351	2,830	583	1,840	105,800
March	50,850	1,680	1,520	1,640	100,900
April	44,771	1,660	728	1,492	88,800
May	32,963	1,640	490	1,063	65,380
June	51,580	2,180	1,130	1,719	102,300
July	48,031	2,140	70	1,549	95,270
August	53,600	2,120	1,290	1,729	106,300
September	38,458	1,720	825	1,282	76,280
October	13,871	1,650	20	447	27,510
November	507	22	14	16.9	1,010
December	370.4	14	8.5	11.9	735
Calendar year 2000	395,694.9	2,830	5.0	1,081	784,900

## 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 mean sea level, 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--63 years (1938-2000) 938 ft<sup>3</sup>/s (679,600 acre-ft per year).

Extremes--1938-2000: Maximum daily discharge, 7,650 ft<sup>3</sup>/s May 20, 1942; minimum daily, 0.1 ft<sup>3</sup>/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 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	3,149.0	512	1.0	102	6,250
February	8,581.0	1,190	2.0	296	17,020
March	51,640	2,100	1,040	1,666	102,400
April	39,450	1,740	1,050	1,315	78,250
May	51,710	2,040	1,260	1,668	102,600
June	53,830	2,420	1,240	1,794	106,800
July	61,150	2,470	1,180	1,973	121,300
August	56,460	2,010	1,430	1,821	112,000
September	37,935	1,720	903	1,264	75,240
October	14,809.0	1,030	2.0	478	29,370
November	19.50	.70	.60	.65	39
December	44.60	2.7	.70	1.44	88
Calendar year 2000	378,778.10	2,470	.60	1,035	751,300

## STREAMFLOW

Bonito ditch below Caballo Dam, N. Mex.

Records available.--January 1938 to December 2000. Published as supplementary data with Rio Grande below Caballo Dam in USGS Water-Supply Papers and Water-Data Reports beginning with October 1947.

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-feet

January	0
February	103.1
March	115.1
April	91.1
May	121.8
June	121.8
July	171.5
August	153.4
September	110.1
October	32.2
November	32.1
December	0
Calendar year 2000	1,052.2

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

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

Calendar Year 2000

[illegible]

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

Calendar Year 2000

[illegible]

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

Calendar Year 2000

[illegible]

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

Calendar Year 2000

[illegible]



## STORAGE IN RESERVOIRS

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

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

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

## Calendar Year 2000

[illegible]

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

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

## Calendar Year 2000

[illegible]

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

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

## Calendar Year 2000

[illegible]

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

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

## Calendar Year 2000

[illegible]

## RIO GRANDE COMPACT COMMISSION

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 2000

Month Cal.yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Gage height	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-
Contents	43	43	43	43	43	43	43	43	43	43	43	43	-
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 2000

Month Cal.yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Gage height	14.5	15.4	16.3	17.2	17.2	11.1	7.0	7.0	4.7	3.4	5.0	6.4	-
Contents	178	198	218	237	237	112	51	51	26	14	29	44	-
Change	20	20	20	19	0	-125	-61	0	-25	-12	+15	+15	-114

**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-ft,

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

Date	Elevation	Contents	Change in Contents
December 31, 1999	9,997.6		
January 31, 2000	9,997.5	29,299	
February 28	9,997.6	29,195	-
March 31	9,997.9	29,314	-104
April 30	9,998.1	29,501	+119
May 31	10,002.4	29,627	+187
June 30	9,995.9	32,698	+126
July 31	9,987.2	28,134	+3,071
August 31	9,979.9	22,539	-4,564
September 30	9,977.8	18,294	-5,595
October 31	9,976.3	17,177	-4,245
November 30	9,976.7	16,355	-1,117
December 31	9,977.1	16,582	-822
Calendar year 2000	-	16,779	+227
		-	+197
Trujillo Meadows			-12,520

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 2000

[illegible]

## STORAGE IN RESERVOIRS

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

Heron Reservoir.--Water-stage recorder, 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. Used for storage of transmountain water.

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

Date	Elevation	Contents	Change in Contents
December 31, 1999	7,182.42	379,940	-
January 31, 2000	7,181.80	376,400	-3,540
February 28	7,181.19	372,930	-3,470
March 31	7,176.64	347,680	-25,250
April 30	7,174.85	338,030	-9,650
May 31	7,176.58	347,360	+9,330
June 30	7,174.21	334,620	-12,740
July 31	7,173.26	329,590	-5,030
August 31	7,170.53	315,380	-14,210
September 30	7,164.72	286,330	-29,050
October 31	7,163.55	280,660	-5,670
November 30	7,161.97	273,100	-7,560
December 31	7,160.76	267,390	-5,710
Calendar year 2000	-	-	-112,550

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 mean sea level, 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, 1999	6,886.34	139,480	-	57,370
January 31, 2000	6,886.44	139,750	+270	57,330
February 28	6,886.35	139,510	-240	57,230
March 31	6,886.66	145,870	+6,360	74,940
April 30	6,898.52	175,190	+29,320	83,170
May 31	6,896.06	167,580	-7,610	82,620
June 30	6,881.73	127,380	-40,200	74,670
July 31	6,858.63	78,070	-49,310	51,330
August 31	6,840.10	49,120	-28,950	31,250
September 30	6,826.10	31,920	-17,200	28,070
October 31	6,814.29	20,380	-11,540	15,090
November 30	6,816.42	22,260	+1,880	14,600
December 31	6,818.24	23,940	+1,680	14,920
Calendar year 2000	-	-	-115,540	-

## 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 ft (crest of spillway) by 1998 survey. 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, 1999	6,218.35	177,310	-	176,270
January 31, 2000	6,218.58	178,220	+910	177,260
February 28	6,218.80	179,090	+870	178,010
March 31	6,218.81	179,130	+40	178,330
April 30	6,219.20	180,680	+1,550	180,370
May 31	6,213.99	160,580	-20,100	159,820
June 30	6,207.85	138,230	-22,350	137,100
July 31	6,201.26	115,790	-22,440	114,650
August 31	6,192.75	89,700	-26,090	88,240
September 30	6,187.55	75,280	-14,420	71,740
October 31	6,189.90	81,640	+6,360	77,880
November 30	6,192.12	87,880	+6,240	84,020
December 31	6,193.31	91,320	+3,440	88,650
Calendar year 2000	-	-	-85,990	-

Nambe Falls Reservoir.--Water-stage recorder in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, on Rio Nambe. Completed in 1976; capacity 2,023 acre-ft at elevation 6,826.6 ft (crest of spillway), dead storage 121 acre-ft at elevation 6,760.9 ft. 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, 1999	6,824.51	1,900	-
January 31, 2000	6,825.86	1,980	+80
February 28	6,823.68	1,860	-120
March 31	6,825.05	1,930	+70
April 30	6,826.63	2,020	+90
May 31	6,818.12	1,570	-450
June 30	6,807.77	1,110	-460
July 31	6,804.32	980	-130
August 31	6,807.85	1,110	+130
September 30	6,802.95	930	-180
October 31	6,804.42	980	+50
November 30	6,808.77	1,150	+170
December 31	6,812.43	1,310	+160
Calendar year 2000	-	-	-590

## RIO GRANDE COMPACT COMMISSION REPORT

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

McClure (Granite Point) Reservoir.--Water-stage recorder 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, 9,788.4 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. Altitude of gage is 7,790 ft. 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 storage and additional capacity as may be available to accommodate up to a total of 1,061 acre-ft 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, 1999	7,875.42	2,480	-	1,060	485
January 31, 2000	7,875.73	2,500	+20	1,060	485
February 28	7,871.44	2,210	-290	1,060	485
March 31	7,872.51	2,280	+70	1,060	485
April 30	7,865.96	1,860	-420	1,060	485
May 31	7,856.39	1,310	-550	825	485
June 30	7,849.02	975	-335	490	485
July 31	7,838.58	603	-372	118	485
August 31	7,839.24	623	+20	138	485
September 30	7,835.06	504	-119	20	484
October 31	7,837.94	583	+79	259	324
November 30	7,847.01	894	+311	570	324
December 31	7,848.52	1,050	+156	726	324
Calendar year 2000	-	-	-1,430	-	-

Nichols Reservoir.--Water-stage recorder 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 ft (crest of spillway), dead storage, 14 acre-ft at gage height 121.1 ft. Datum of gage is 7,313.2 ft above mean sea level, 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	Transmountain water
December 31, 1999	155.64	390	-	79
January 31, 2000	145.05	307	-83	79
February 28	159.13	471	+164	79
March 31	150.23	283	-188	79
April 30	157.71	438	+155	79
May 31	157.57	435	-3	79
June 30	150.27	284	-151	79
July 31	151.03	299	+15	79
August 31	151.98	317	+18	79
September 30	150.52	289	-28	80
October 31	159.35	476	+187	240
November 30	159.34	476	0	240
December 31	156.28	407	-69	240
Calendar year 2000	-	-	+17	-

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

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

Galisteo Reservoir.—Water-stage recorder and manometer in NW1/4 sec. 9, T. 14 N., R. 7 E., on Galisteo Creek. Storage records begin in October 1970. Capacity 88,990 acre-ft at elevation 5,608.0 ft (crest of spillway). No dead storage. Reservoir is operated by Corps of Engineers for flood control and sediment storage.

## Calendar Year 2000

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# STORAGE IN RESERVOIRS

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

Jemez Canyon Reservoir.--Water-stage recorder 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. 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, 1999	5,190.99	18,380	-	17,230
January 31, 2000	5,191.72	19,160	+780	18,010
February 29	5,192.23	19,730	+570	19,350
March 31	5,193.82	21,670	+1,940	21,150
April 30	5,194.35	22,360	+690	21,130
May 31	5,192.74	20,330	-2,030	19,810
June 30	5,191.71	19,150	-1,180	18,620
July 31	5,190.60	17,970	-1,180	17,380
August 31	5,189.67	17,040	-930	16,400
September 30	5,182.53	10,700	-6,340	10,080
October 31	5,175.72	5,550	-5,150	4,090
November 30	5,175.04	5,160	-390	3,960
December 31	5,173.69	4,510	-650	3,930
Calendar year 2000	-	-	-13,870	-

Acoma 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 2000

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 2000.



## RIO GRANDE COMPACT COMMISSION REPORT

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

Elephant Butte Reservoir.--Water-stage recorder in NW1/4 sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,065,000 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1988 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 the Sept. 9, 1998 resolution of the Rio Grande Compact Commission. Datum of gage is 43.3 ft above mean sea level, 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, 1999	4,396.58	1,708,200	-	2,110
January 31, 2000	4,397.52	1,738,300	+30,100	2,100
February 29	4,395.64	1,678,480	-59,820	2,080
March 31	4,393.86	1,623,390	-55,090	5,810
April 30	4,391.94	1,565,660	-57,730	5,740
May 31	4,390.24	1,516,000	-49,660	5,640
June 30	4,387.18	1,429,680	-86,320	5,590
July 31	4,384.30	1,351,710	-77,970	5,530
August 31	4,380.92	1,264,220	-87,490	5,480
September 30	4,378.28	1,198,930	-65,290	5,410
October 31	4,378.64	1,207,670	+8,740	10,890
November 30	4,380.22	1,246,650	+38,980	10,870
December 31	4,381.74	1,285,050	+38,400	10,840
Calendar year 2000	-	-	-423,150	-

Caballo Reservoir.--Water-stage recorder in SE1/4SW1/4 sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 331,500 acre-ft (by 1981 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above mean sea level, datum of 1929. 100,000 acre-ft of storage reserved for flood control. Records furnished by Bureau of Reclamation. 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
December 31, 1999	4,142.78	42,310	-
January 31, 2000	4,145.08	50,500	+8,190
February 29	4,159.32	126,480	+75,980
March 31	4,158.04	117,850	-8,630
April 30	4,158.46	120,650	+2,800
May 31	4,150.54	74,460	-46,190
June 30	4,149.84	71,020	-3,440
July 31	4,143.46	44,630	-26,390
August 31	4,141.70	38,820	-5,810
September 30	4,140.04	33,890	-4,930
October 31	4,140.84	36,200	+2,310
November 30	4,142.16	40,280	+4,080
December 31	4,142.94	42,850	+2,570
Calendar year 2000	-	-	+540

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## STORAGE IN RESERVOIRS

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

Project storage.--The combined usable storage in Elephant Butte and Caballo Reservoirs.

## Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 1999	1,750,500	-
January 31, 2000	1,788,800	+38,300
February 29	1,805,000	+16,200
March 31	1,741,200	-63,800
April 30	1,686,300	-54,900
May 31	1,590,500	-95,800
June 30	1,500,700	-89,800
July 31	1,396,300	-104,400
August 31	1,303,000	-93,300
September 30	1,232,800	-70,200
October 31	1,243,900	+11,100
November 30	1,286,900	+43,000
December 31	1,327,900	+41,000
Calendar year 2000	-	-422,600

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 Creek in New Mexico. Construction completed in 1970.

## Imported quantities, in acre-feet, 2000

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	540
April	0	0	0	5	0	0	15,860
May	64	0	85	223	0	52	20,990
June	139	0	110	105	0	18	5,020
July	0	0	28	45	0	0	110
August	0	0	7	51	0	0	230
September	0	0	0	52	0	0	0
October	0	0	0	15	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
Calendar year	203	0	230	496	0	70	42,750

## RIO GRANDE COMPACT COMMISSION REPORT

### 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.

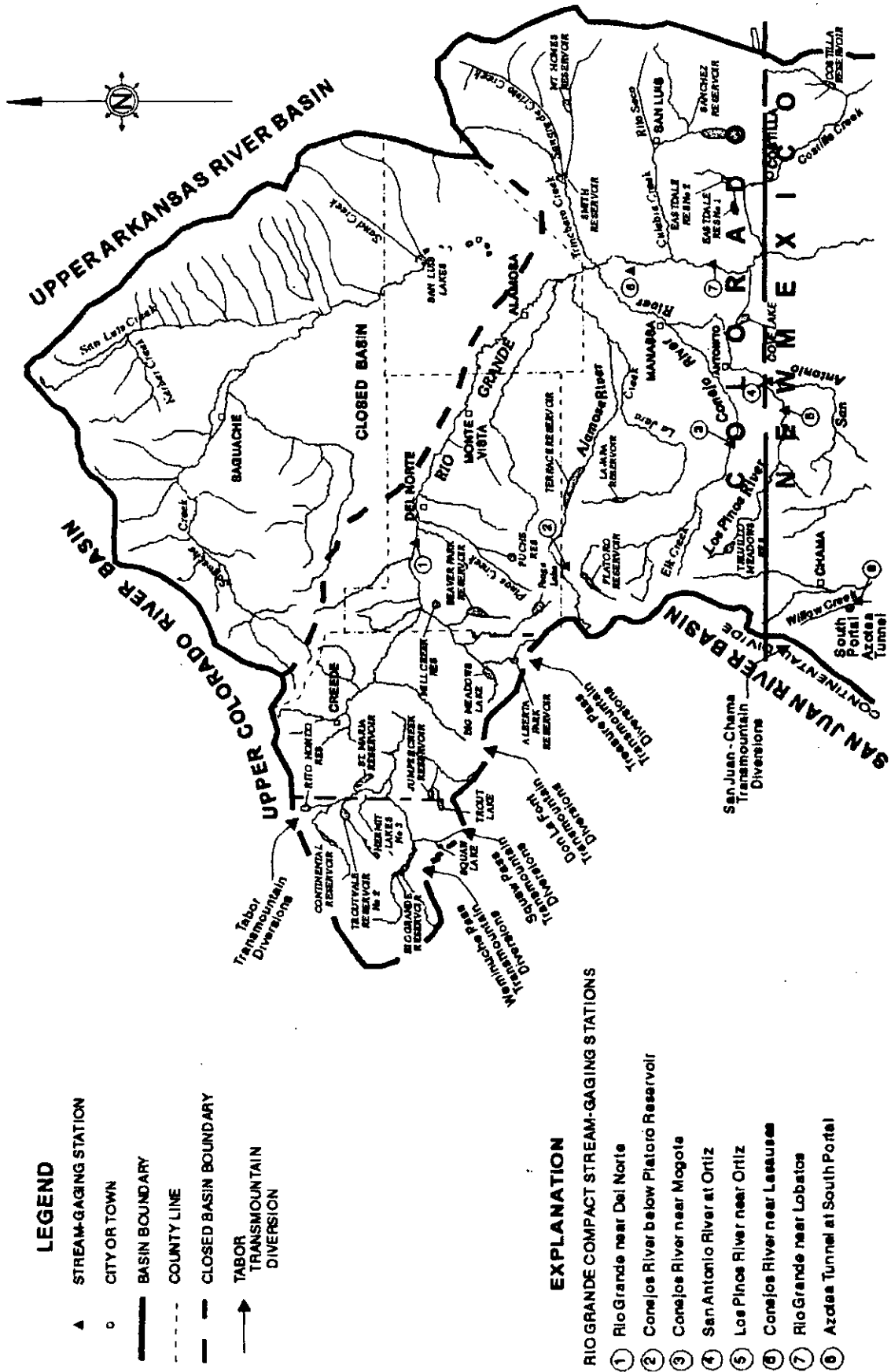
Caballo Dam.--Lat 32°54', long 107°18', in Sierra County at Caballo Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 4,190 ft.

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 2000

Evaporation and precipitation, in inches

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precip.	0.23	0.02	0.52	0.6	0.1	0.54	0.37	1.02	0.23	1.26	0.05	0.11	5.05
Platoro Dam	Evap.	-	-	-	-	2.61	7.7	6.28	4.79	5.35	2.4	-	-	-
	Precip.	-	-	-	-	0.17	0.75	2.5	2.91	2.02	2.19	-	-	-
Heron Dam	Evap.	-	-	-	5.94	8.63	9.96	9.87	8.41	7.56	3.22	-	-	-
	Precip.	1.51	0.50	2.53	0.36	0.26	1.17	1.12	0.90	0.28	2.47	1.54	0.41	13.05
El Vado Dam	Evap.	-	-	-	6.46	8.87	9.71	9.52	8.27	7.32	3.76	-	-	-
	Precip.	0.23	0.10	2.33	0.20	0.36	1.29	1.53	1.03	0.13	2.26	1.07	0.07	10.60
Abiquiu Dam	Evap.	-	-	-	8.18	11.39	10.97	10.75	10.10	9.38	4.95	-	-	-
	Precip.	0.16	0.14	1.00	0.76	0.06	0.36	0.98	0.57	0.10	2.07	0.43	0.15	6.78
Nambe Falls Dam	Evap.	-	-	-	6.16	10.19	8.54	8.24	7.93	6.70	3.40	-	-	-
	Precip.	0.27	0.04	1.11	0.37	0.00	1.20	2.38	2.43	0.28	4.17	0.47	0.50	13.22
Cochiti Dam	Evap.	-	-	-	9.51	13.81	12.31	12.13	12.11	10.84	5.10	-	-	-
	Precip.	0.43	0.10	0.77	0.64	0.14	1.25	1.44	2.39	0.57	3.25	1.78	0.53	13.29
Jemez Canyon Dam	Evap.	-	-	-	9.43	14.66	14.60	16.26	16.76	11.86	9.68	-	-	-
	Precip.	0.33	0.02	1.88	0.54	0.00	0.77	0.90	1.63	0.00	3.60	1.52	0.30	11.49
Elephant Butte Dam	Evap.	4.88	7.41	9.56	13.03	18.43	14.71	14.70	13.63	13.97	7.11	4.08	3.54	125.05
	Precip.	0.00	0.00	1.72	0.11	0.00	2.23	0.84	1.83	0.00	2.94	1.63	0.06	11.36
Caballo Dam	Evap.	5.53	6.99	9.64	11.94	16.16	13.13	13.82	12.34	11.77	6.49	4.43	3.45	115.69
	Precip.	0.00	0.00	2.01	0.00	0.00	4.38	0.86	2.52	0.00	2.86	1.69	0.04	14.36
State Univer.	Evap.	-	-	11.42	10.67	11.45	11.54	11.61	10.75	8.91	5.20	-	-	-
	Precip.	0.00	0.01	0.20	0.00	0.00	4.90	1.59	0.61	0.11	1.37	1.01	0.14	9.94





- NOTE: Screened areas denote reservoirs, whose capacity is all or in part subject to provisions of the**

Revised March 1989

**RIO GRANDE BASIN  
ABOVE BERNALILLO, NEW MEXICO**

