REPORT

of the

RIO GRANDE COMPACT COMMISSION

2001

TO THE GOVERNORS OF
Colorado, New Mexico and Texas

Errata Sheet for the 2000 Report of the Rio Grande Compact Commission

On page 31 make the following changes:

1. For "Actual Spill," add footnote number 4 that reads, "Adopted March 22, 2001, made effective January 1, 2001.

2. Change paragraph "b" from 2,040,000 acre-feet to 1,998,400, from 2,015,000 acre-feet to 1,973,400. Change "1988 acre-capacity table" to "1999 area-capacity table."

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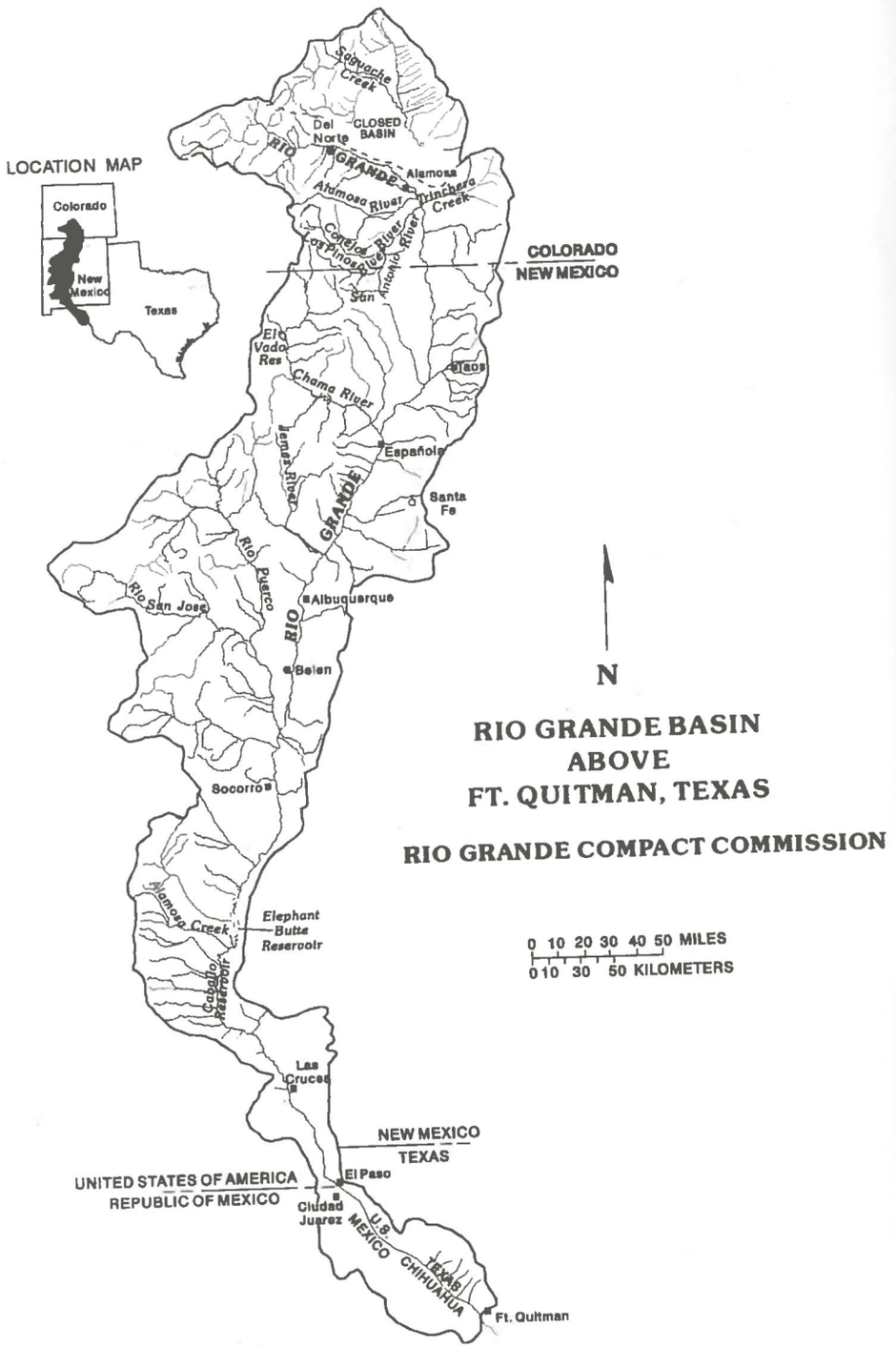

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ILLUSTRATIONS

RIO GRANDE COMPACT COMMISSION
COLORADO TEXAS NEW MEXICO

March 21, 2002

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

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

Honorable Governors:

The 63rd Annual Meeting of the Rio Grande Compact Commission was held in Santa Fe, New Mexico, on March 21, 2002.

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 2001. The Commission found that:

(a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 300,300 acre-feet in 2001 and the scheduled delivery for the year was 313,700 acre-feet.
(b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 416,400 acre-feet in 2001 and the scheduled delivery for the year was 494,900 acre-feet.
(c) The actual release of usable water from Project Storage was 788,000 acre-feet.

The Commission agreed to the accounting of accrued credits for 2001, as follows:

(1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 10,100 acre-feet on January 1, 2002.
(2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 155,700 acre-feet on January 1, 2002.
(3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2002 was a credit of 77,900 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were $169,296 in the fiscal year ending June 30, 2001. The United States bore $57,439 of this total; the balance of $111,857 was borne equally by the three States party to the Compact.

Respectfully,

Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

Harold D. Simpson, Commissioner for Colorado

REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSIONERS

February 22, 2002

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 2001. The Engineer Advisers adjusted accrued credit balances as of January 1, 2001, to reflect correction of errors in Bureau of Reclamation (Reclamation) Elephant Butte Reservoir evaporation data and delayed application by Reclamation of revised equations for sediment accumulation in Abiquiu, Cochiti, and Jemez Canyon Reservoirs as further described below.

As determined by the Engineer Advisers, the corrected balances as of January 1, 2001, scheduled and actual deliveries, and release of usable water for the year 2001 are as follows:

(a) Deliveries by Colorado at the Stateline:

Balance as of January 1, 2001	27,000 acre-feet
Scheduled delivery	313,700 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	300,300 acre-feet
Reduction of credit on account of evaporation	3,500 acre-feet
Accrued credit January 1, 2002	10,100 acre-feet

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

Balance as of January 1, 2001	269,100 acre-feet
Scheduled delivery	494,900 acre-feet
Actual delivery	416,400 acre-feet
Reduction of credit on account of evaporation	34,900 acre-feet
Accrued credit January 1, 2002	155,700 acre-feet

(c) Project Storage and releases:

Accrued departure (credit) as of January 1, 2001	75,900 acre-feet
Actual release of usable water	788,000 acre-feet
Accrued departure (credit) as of January 1, 2002	77,900 acre-feet

Usable water in Project Storage exceeded 400,000 acre-feet for the entire year.

The Engineers Advisers met in Santa Fe from February 20 through February 22 to prepare the 2001 Compact water accounting and to discuss continuing and new issues in preparation for the 2002 meeting of the Rio Grande Compact Commission (Commission). The Engineer Advisers requested and received the participation of Reclamation, the U.S. Army Corps of Engineers (Corps), and the U.S. Fish and Wildlife Service (Service) in part of that meeting to discuss in detail their specific water-related activities in the basin.

CONTINUING ISSUES

This section of the report addresses issues previously addressed by the Engineer Advisers or the Commission. It reflects information obtained by the Engineer Advisers subsequent to the 2001 Commission meeting, including information obtained in the reports of federal agencies at the 2002 Engineer Advisers meeting.

Sedimentation in Upper and Middle Rio Grande Reservoirs in New Mexico

Sediment surveys were conducted in 1998 for Abiquiu, Cochiti and Jemez Canyon Reservoirs, which are primarily flood control reservoirs owned and operated by the Corps. Based on the sediment surveys, Reclamation subsequently revised the sediment accumulation equations and area-capacity tables for use in daily operations and water accounting models. The area-capacity tables derived from the 1998 surveys were made effective January 1, 1999. Reclamation's 1999 water accounting reflected the revised area-capacity tables but did not reflect the revised sediment accumulation equations. Reclamation and the Engineer Advisers agreed at the 2000 meeting of the Engineer Advisers, and again at the 2001 meeting, that Reclamation was to apply the new sediment accumulation equations retroactively to January 1, 1999.

Instead, Reclamation used the old sediment accumulation equations in the 1999 and 2000 accounting, which estimated excess sediment accumulation in Abiquiu, Cochiti and Jemez Canyon Reservoirs. In December 2000, Reclamation corrected the excess sediment accumulation calculations resulting from continued use of the old equations and coordinated with the Corps to release approximately 5,000 acre-feet of excess native Rio Grande storage, some of which carried over into January 2001.

Associated corrections were required to Reclamation's native Rio Grande and San Juan-Chama water accounting for the three reservoirs for 1999 and 2000. Reclamation made those corrections in early 2002. These reservoir storage accounting corrections in turn resulted in a reduction in New Mexico's accrued credit as of January 1, 2001, of 1,600 acre feet as calculated by the Engineer Advisers. This reduction was incorporated into the 2001 accounting.

URGWOM Accounting Model

The Commission approved a resolution in 2001 that provided approval for Reclamation's use of the Upper Rio Grande Water Operations Model (URGWOM) accounting module, subject to the following conditions: (1) that Reclamation provide the Compact states with timely access to the URGWOM accounting model and its associated data and results, (2) that Reclamation work with the Engineer Advisers to perform a review and documentation of the procedures for Compact accounting documentation of Rio Grande and San Juan-Chama Project water, and (3) that Reclamation work with the Engineer Advisers to quantify evaporation accounting errors for the period from 1993

through 1998 for accumulated credits of New Mexico and Colorado. It is the opinion of the Engineer Advisers that Reclamation has fulfilled those conditions, or has made satisfactory progress towards their fulfillment, as discussed below.

The URGWOM model team established an FTP (file-transport protocol) website in 2001 and placed updated model input data on the website approximately weekly. The states may access the data and use it to operate a copy of the URGWOM model to analyze the water accounting produced by Reclamation.

The Engineer Advisers and Reclamation met in person or held conference calls on several occasions in 2001 and planned their comprehensive documentation of Rio Grande Compact accounting procedures. The Engineer Advisers compiled the historic Engineer Adviser Reports, Commission meeting minutes, and Commission resolutions, and prepared complete sets for each state and Reclamation. Reclamation completed an internal file search for Compact accounting documents and indicated that these documents soon will be provided to the three states. The Engineer Advisers and Reclamation also prepared a proposed Memorandum of Understanding (MOU) between the Commission and Reclamation that formally describes the duties, roles, and responsibilities of each party in the water accounting, reporting, and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Compact. The Engineer Advisers recommend Commission approval and adoption of the MOU. The proposed MOU provides that the Engineer Advisers and Reclamation will prepare a manual describing the historic and current accounting procedures and that Reclamation and the Engineer Advisers will formally review the accounting and reporting procedures for potential modifications and enhancements every five years, or more frequently if necessary.

Reclamation reported in 1999 that its internal review of evaporation data at Elephant Butte Reservoir for the period 1993 through 1998 found arithmetic and transcription errors. The accounting procedures use gross calculated evaporation rates and precipitation on the reservoir surface, in accordance with the Rules and Regulations for Administration 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 calculation of credit water and Usable Water in Project Storage, as reported in the Reports of the Commission, was in error for the periods 1993 to 1995 and 1997 to 1999. No credit water was in storage in 1996 due to Actual Spill in 1995. Reclamation and the Engineer Advisers quantified the errors, which were determined to be partially offsetting, and found that the impact to Compact accounting was significant only for 1997. The Engineer Advisers found the resulting required correction to be a reduction of 100 acre-feet in New Mexico's accrued credit status at the end of 2000. This correction was incorporated into the 2001 accounting provided at the beginning of this report.

During presentation by Reclamation of its 2001 accounting the Engineer Advisers found that

the URGWOM accounting module continued to calculate the accumulation of sediments in Jemez Canyon Reservoir during the months that the reservoir had no water in storage. The Engineer Advisers requested Reclamation make the necessary changes to its sediment accumulation equations so that the modeled accumulation of sediment and depletion of available storage space is stopped when reservoirs contain no stored water.

Sedimentation in Rio Grande Project Reservoirs

Sediment surveys were conducted in 1999 and 2000 for Elephant Butte and Caballo Reservoirs. Based on the sediment surveys, Reclamation revised the area-capacity tables for the two reservoirs effective January 1, 2001. Decreased project storage capacity due to sedimentation since the last survey in 1988 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 Commission adopted changes at its March, 2001 meeting, effective January 1, 2001, to the Rules and Regulations for Administration of the Compact (Paragraph b of the section entitled "Actual Spill") to reflect the decrease in storage capacity in Elephant Butte and Caballo Reservoirs. The remarks for Elephant Butte and Caballo Reservoirs will be revised in the 2001 annual report of the Commission to reflect the reduction in storage capacity in the section entitled "Storage in Reservoirs, Reservoirs in Rio Grande Basin in New Mexico".

Compliance by Federal Agencies with State Water Law and Regulations

The Commission approved a resolution in 2001 that requested the Corps, Reclamation and Service to comply with state law by obtaining permits from the appropriate state agencies for any water related actions that result in new or additional river depletions. The Engineer Advisers discussed with the Corps, Reclamation and Service permitting and water rights issues related to creation or restoration of wetlands and riverine or riparian habitat and related environmental projects in 2001 and again in 2002. In 2001, Federal agency representatives acknowledged the need to comply with applicable state water laws regarding these projects. New Mexico reports Federal agencies are inconsistent in submitting applications for permits to comply with New Mexico's requirements to obtain permits for riparian and riverine habitat restoration projects that increase consumption of water. Federal agencies are planning or constructing numerous habitat restoration projects.

Elephant Butte Pilot Channel Project

The Commission approved resolutions in 2000 and 2001 requesting Reclamation to continuously extend and maintain a constructed pilot channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte Reservoir as the reservoir recedes. Reclamation has not succeeded in constructing and maintaining such a channel to the reservoir pool. New Mexico asserts

that 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 pilot channel as designed incorporates side channel weirs, constructed as areas of low constructed height in the pilot channel spoil bank levees. The side channel weirs and other channel features were requirements of the Endangered Species Act (ESA) Section 7 consultation between Reclamation and the Service regarding the construction of the pilot channel. In addition, Reclamation has also constructed culverts and side channel weirs through the spoil bank levee that is the west bank of the Rio Grande just downstream of the current terminus of the Low Flow Conveyance Channel. These features were requirements of ESA Section 7 consultation between Reclamation and the Service regarding construction of a previous pilot channel in that reach.

New Mexico asserts the culverts and side channel weirs are de facto surface water points-of-diversion that divert water from the pilot channel and spread it out over the Elephant Butte Reservoir sediment delta, which until recently was inundated but now is exposed. New Mexico asserts that these unpermitted diversions result in significant depletions and losses of water, impairing New Mexico's Compact deliveries and making less water available for Rio Grande Project use. New Mexico and Reclamation agreed that more discussion is needed as this project progresses.

The pilot channel failed sometime during the snowmelt runoff period from late April through May 2001, resulting in the spreading of water into the sediment delta with high attendant evaporative losses. The location of the failure was at a side channel weir constructed at a bend in the channel. Sinuosity of the channel through the sediment delta is another pilot channel feature required of Reclamation through the ESA consultation.

Reclamation temporarily halted construction of the pilot channel during the spring runoff period of 2001. Reclamation resumed construction of the pilot channel in October 2001. At the 2002 meeting of the Engineer Advisers, Reclamation estimated that the pilot channel would be extended to Nogal Canyon, the originally planned project downstream terminus, sometime by the fall of 2002. By that time the upstream edge of the reservoir pool will be approximately five miles downstream, based on current projections by Reclamation. Reclamation reported that they have initiated design and permitting work associated with a new phase of the project to extend the pilot channel past Nogal Canyon. The New Mexico Engineer Adviser inquired of Reclamation what its response would be if New Mexico proposed to contract with a private sector construction firm to construct portions of the pilot channel. Reclamation's Albuquerque Area Office Manager said he would welcome such assistance.

Reclamation's oral and computer graphic presentation of the pilot channel construction at the Engineer Advisers meeting contained little detail. The Engineer Advisers requested a more substantive presentation from Reclamation, including maps showing progress in constructing the channel, at the 2002 Commission meeting.

Endangered Species Act Section 7 Consultations

The Commission approved resolutions in 2000 and 2001 requesting that the Federal agencies involved in ongoing ESA Section 7 river operations consultations with the Service bring them to prompt conclusion as required by law. -

The river operations consultation was successfully concluded with the issuance of the June 29, 2001, Programmatic Biological Opinion on the Effects of Actions Associated with the U.S. Bureau of Reclamation's, U.S. Army Corps of Engineers' and Non-Federal Entities' Discretionary Actions Related to Water Management on the Middle Rio Grande, New Mexico (Programmatic Biological Opinion) that was a companion to the Conservation Water Agreement between the State of New Mexico and the United States (discussed below) executed that same date.

Low Flow Conveyance Channel Design, Construction, Operation and Maintenance

Reclamation staff affirmed the need for its proposed project to relocate the river channel, and the intervening Low Flow Conveyance Channel, to the west side of the valley floor downstream from San Marcial. The need is critical due to the problems associated with the elevated channel floor caused by sedimentation in the river channel and the resulting diminishing channel capacity, which is less than the two-year frequency flood event. An uncontrolled breech of the river channel will occur if the channel is not relocated to the lower elevation flood plain area from its current elevated location on the east margin of the flood plain. Reclamation staff informed the Engineer Advisers that Reclamation submitted a Biological Assessment regarding the realignment project to the Service in May 2001, with copies to the Engineer Advisers, and is currently continuing its consultation with the Service. The elapsed time to date since the submittal of the Biological Assessment substantially exceeds the time allowed by federal regulation for completion of such consultations unless the Service and Reclamation have agreed to extend it for a specific time period or the Director of the Service has taken action to extend it in order to obtain additional data. Reclamation is consulting on the bottom-up realignment alternative with an initial Low Flow Conveyance Channel (LFCC) capacity of 500 cubic feet per second (cfs).

The Commission's April 11, 2001, resolution addressing this project documents that Reclamation informed the Commission at its regular annual meeting on March 22, 2001, that the Final Environmental Impact Statement (EIS) for this project was expected to be completed by the summer of 2001. The resolution also requested that the replacement LFCC be constructed with a 2000 cfs capacity and further requested that Reclamation keep the Commission informed through the Engineer Advisers of any additional difficulties in implementing the project and provide a quarterly update on project activities, problems, and results. Reclamation staff informed the Engineer Advisers at the 2002 meeting that the Final EIS would not be completed until conclusion of its ESA Sec-

tion 7 consultation with the Service. The Engineer Advisers have not received progress reports from Reclamation over the last year.

Reclamation informed the Engineer Advisers of ESA conflicts with the planned relocation of the LFCC. An area of concentrated Southwestern willow flycatcher nests now exists in the proposed location of the relocated Low Flow Conveyance Channel. Water from the current Low Flow Conveyance Channel outfall, located many miles upstream of the reservoir pool, now flows overland through this nesting area. Reclamation said the current plan is to construct the new LFCC to this area, allow the channel discharge to flow overland two to three miles through the nesting area, and then recollect the water into a second segment of constructed LFCC. The Engineer Advisers questioned the efficiency and usefulness of this plan. The Engineer Advisers also questioned the lower planned capacity of 500 cfs, as opposed to the capacity of 2000 cfs requested by the Commission's resolution. Reclamation staff responded that since it does not have current plans to divert water from the river to the LFCC, the higher capacity is not warranted and that LFCC capacity is needed only for drainage. The alternatives currently being formulated for analysis as part of the Upper Rio Grande Water Operations Review and EIS are based on the existing authorities of Reclamation, which include a Low Flow Conveyance Channel capacity of 2000 cfs.

Reclamation also stated that budget to construct this project is not currently available or planned.

Water Resource Development Act Section 729 Comprehensive Planning Study

The Corps provided an update on the on-going Section 729 authority, which authorizes the Corps to perform Basin wide Rio Grande studies. The Corps has conducted public meetings and met with the Engineer Advisers regarding potential projects that might be implemented. The Engineer Advisers recommended to the Corps that the Corps concentrate on the improvement of channel capacities of the Rio Grande from Cochiti Reservoir to Elephant Butte Reservoir based on information provided relating to the continuing decreasing channel capacity of the Rio Grande.

New Mexico reported to the Engineer Advisers that it has entered into a cost sharing agreement with the Corps under its Section 729 authority to initiate a water resources investigation in the reach of the Rio Grande between San Acacia and Elephant Butte Reservoir. This study includes groundwater observation wells and surface water staff gages throughout the reach to characterize the shallow groundwater system and surface water/groundwater interactions. New Mexico is currently working on an Environmental Assessment, access agreements with landowners, and Scopes of Work for the project.

YEAR 2001 OPERATIONS

Middle Rio Grande Endangered Species Conservation Pool Operations

The Commission approved a resolution in 2001 that established the Middle Rio Grande Endangered Species Conservation Pool (Conservation Pool). By adoption of that Resolution, the Commission gave its advice and consent to a deviation from normal operations of the Corps Middle Rio Grande Project Reservoirs, as specified by the Flood Control Act of 1960 (Public Law 86-645), to allow for Conservation Pool operations for a term of not more than three years. The Resolution also reserved for the State of Texas the right to rescind its approval of the Resolution on March 21, 2002 and again on March 20, 2003, if Texas were to determine that it has been or will be harmed by the departure from normal operations of the reservoirs.

A Conservation Water Agreement (CWA) was executed on June 29, 2001 between the State of New Mexico and the United States that set limitations and conditions on the storage and release operations of the Conservation Pool. The CWA will expire December 31, 2003. Up to 100,000 acre-feet of native Rio Grande water may be captured and released from Abiquiu and Jemez Canyon Reservoirs during 2001 through 2003 for Rio Grande Compact management and federal ESA purposes. A maximum of 30,000 acre-feet of Conservation Pool water, plus any carryover amounts unused in previous years, may be used in any one calendar year.

A total of 58,814 acre-feet was captured in the Conservation Pool during 2001, with 51,188 acre-feet captured in Abiquiu Reservoir and 7,627 acre-feet captured in Jemez Canyon Reservoir. The bulk of this storage was captured during the peak snowmelt runoff month of May. Releases from the Conservation Pool commenced on July 2, 2001 and continued through the end of October at a combined rate of approximately 100 cfs from both reservoirs. Due to a structural problem with the bulkhead guides at Jemez Canyon Reservoir it became necessary to drain that reservoir completely in October. Releases from the Conservation Pool in 2001 totaled 25,624 acre-feet. Evaporative and unidentified losses totaled 6,246 acre-feet, leaving 26,945 acre-feet in storage at the end of 2001, all in Abiquiu Reservoir.

The water accounting of the Conservation Pool was performed in accordance with the Rules and Regulations of the Compact.

Supplemental Water Program Operations

The supplemental water program is intended to provide additional water for endangered species needs. Reclamation's draft report identifies five aspects of the program as defined in the March 2001 Final Rio Grande Supplemental Water Programmatic Environmental Assessment, including San Juan-Chama water leases, concurrence with waiver requests for delayed delivery of San Juan-Chama Project water from Heron Reservoir to project contractors, LFCC water management options, off-channel interim storage of water at refuges, and use of groundwater wells. Reclamation leased 9,255 acre-feet of San Juan-Chama water from six contractors in 2001 and released 4,990 acre-feet of allocated but uncontracted San Juan-Chama water from Heron Reservoir for a total of 14,245

acre-feet. All of this water was provided to the Middle Rio Grande Conservancy District (MRGCD) prior to the end of April, 2000, in partial repayment of the 20,900 acre-feet of water Reclamation owed to MRGCD as specified in the August 2, 2000 Agreed Order Resolving Plaintiffs' Motion for Preliminary Injunction in *Minnow v. Martinez* (now *Minnow v. Keys*).

Reclamation operated pumps at four locations during 2001 to pump an estimated (by Reclamation) 25,000 acre-feet of water from the LFCC to the Rio Grande. Reclamation applied for a permit and received an emergency authorization from the New Mexico Office of the State Engineer for this pumping operation. New Mexico advised that Reclamation did not install flow meters on the pumps as required by the authorization.

Conservation Pool water was used to assist in meeting minimum and target flows below San Acacia Diversion Dam and at the San Marcial gaging station. Flows below San Acacia Diversion Dam were consistently at or above 100 cfs, and therefore consistently exceeded the 50 cfs target flow established by the June 29, 2001, Programmatic Biological Opinion. Flows at the San Marcial gage also consistently exceeded the applicable minimum and target flows, which vary with time of year. Reclamation staff indicated that they were assisted by the MRGCD in meeting the minimum and target flows.

Jemez Canyon Reservoir Sediment Control Pool

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 Jemez Reservoir sediment control pool expired as of December 31, 2000 and the ownership of the remaining San Juan-Chama Project water (approximately 4,500 acre-feet at the end of 2000) in the sediment control pool reverted back to the City of Albuquerque as of January 1, 2001. This water was released in June and July 2001 at the request of the City. The Corps currently anticipates that the reservoir will thereafter be operated as a normally dry flood control facility following the expiration of the CWA at the end of 2003.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, Corps, Service, and U.S. Geological Survey presented reports to the Engineer Advisers on February 21, 2001. The Engineer Advisers specifically requested in writing prior to the meeting discussion by Reclamation and the Service of the impacts of the ESA on Reclamation's productivity and effectiveness in carrying out its traditional river maintenance, water conveyance, and water salvage activities and ways those impacts might be mitigated. The Engineer Advisers subsequently have invited the Regional Directors of Reclamation and the Service to attend the 2002 Commission meeting for discussion of these issues.

Upper Rio Grande Basin Water Operations Review and EIS

Reclamation, Corps and NMISC 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. Compliance with the National Environmental Policy Act (NEPA) and the ESA will be provided. The agencies are currently holding a series of public meetings throughout the planning region to present and obtain public comment regarding alternatives that they propose to evaluate in the EIS.

Caballo Dam Structural Repairs

Reclamation informed the Engineer Advisers that repairs to Caballo Dam associated with concrete cracking of the spillway structure center pier and design deficiencies in the radial gate structures are almost complete. The temporary restriction, which results in a temporary reduction in Project Storage capacity of 93,244 acre-feet in Caballo Reservoir operating levels, was imposed in December 2000 and is still in place. Reclamation indicated that the construction would be completed and the restriction will be lifted in the near future.

Rio Grande Project Storage Projections

Reclamation discussed their Rio Grande Project water allocations for 2002. Reclamation indicated that an initial allocation was made on December 17, 2001 that included a 20.8 percent reduction in full supply. Reclamation revised this allocation on January 29, 2002 to reflect a 12.8 percent reduction. Reclamation advised the Engineer Advisers that they anticipate revising this allocation near the end of February to reflect approximately a 6 percent reduction in available supply and anticipated that by the end of March 2002 a full water supply will be available to Rio Grande Project water users. The Engineer Advisers expressed concern with this allocation procedure since it did not reflect any inflow estimates for the year while including evaporation projections. Such a procedure is inconsistent and leads to misconceptions of the amount of available Project water. The Engineer Advisers requested Reclamation, which made no commitment, to revise their procedures to use all available information, including projected inflows, to provide the basis of the annual Rio Grande Project water allotment.

Reclamation presented projections of reservoir operations for Elephant Butte and Caballo Reservoirs based on February 1, 2002, snowmelt runoff forecasts for March-July 2002. The projections indicate that Elephant Butte Reservoir storage would be drawn down to approximately 334,000 acre-feet by the fall of 2002. This level of Elephant Butte Reservoir storage would be the lowest since 1978. Approximately 166,000 acre-feet of this storage is accrued credit of New Mexico and Colorado. Reclamation stated that if current conditions persist that the 2003 irrigation allotment

from Project Storage would be less than a full allotment.

Upper Rio Grande Water Operations Model

The RiverWare simulation software that is the basis of URGWOM now operates on a personal computer platform. That is pertinent to historic concerns of Commission members that the software previously only operated on a UNIX workstation. Reclamation personnel demonstrated the model showing simulated hydrographs above Elephant Butte Reservoir. This demonstration showed that low peak flow runoff that is projected to occur at Lobatos and Otowi likely will not allow any additional storage of water for the Conservation Pool in 2002.

Middle Rio Grande Project Channel Maintenance

Reclamation personnel provided an extensive presentation regarding the status of Reclamation's channel maintenance program. In summary, Reclamation representatives said that the river channel is in a failed condition in many locations due to inadequate funding, restrictions and conditions on maintenance work imposed for compliance with the ESA, and delays in completion of consultations with the Service for compliance with Section 7 of the ESA. Reclamation described the impending failure of the river levees as the result of river channel migration into the levee toe at numerous locations and severely restricted channel capacity. Reclamation stated that current channel flow capacity is reduced from the historic capacity of 22,000 cfs to a current capacity of 3,800 cfs with a projected future capacity in five years of 2,000 cfs. Reclamation has identified 25 critical sites on the river where the mean annual flood cannot be safely passed without threat of a levee failure. The probable damage from levee failure is high because sedimentation has elevated the river channel above the adjacent valley floor throughout the Middle Rio Grande. Reclamation showed graphic simulations of flooded areas resulting from levee toe erosion failures and provided rough estimates of additional depletions of water associated with levee failures at current problem areas. Reclamation personnel stated that ESA restrictions prevent adequately stabilizing the channel to keep it from endangering the levee. Additionally, the number of sites that Reclamation is able to address in any one year has dropped by one-half (from ten to five per year) since 1995 and is projected to decline further through 2005. The conclusion of the presentation was that this failed condition will worsen because the failed sites that require maintenance are growing in number, the costs and complexity of maintenance needs at each site are generally greater, and the budget for this work is flat, resulting in a steadily increasing number of sites of impending levee failure.

The Engineer Advisers discussed with Reclamation the delays associated with Section 7 consultation in addressing historic channel failures and current channel problems. These delays have been reduced, perhaps partially due to the programmatic compliance efforts, from the 18 months required to complete NEPA and ESA compliance activities. It appears NEPA and ESA compliance

delays recently have been short for projects to restore endangered species habitat but the same expeditious treatment has not yet occurred for work at critical maintenance sites.

Reduction in effectiveness and productivity of Reclamation's channel maintenance responsibilities is an impact that should be addressed in the Rio Grande silvery minnow critical habitat rule EIS now being prepared by the Service. Failure of the levee and channel, in addition to causing damaging flooding, could also severely impact conveyance of flows through the Middle Rio Grande to Elephant Butte Reservoir, increase depletions of water in the Middle Rio Grande, and impair water supplies for water users below Elephant Butte Dam. The Engineer Advisers recommend that the Commission formally request that the Service and Reclamation describe these impacts explicitly and report to the Commission the plans of these two federal agencies to mitigate and minimize these impacts. An uncontrolled breach of the levee system could potentially dewater a significant portion of the river channel resulting in the mortality of the endangered Rio Grande silvery minnow.

Los Lunas Habitat Restoration Project

This project consists of habitat restoration for the Rio Grande silvery minnow and the Southwestern willow flycatcher of approximately 40 acres near Los Lunas, New Mexico. The project would provide for overbank flooding at flows above 2500 cfs and the creation of low velocity riverine habitat in side channels by removal of jetty jacks and lowering of the river banks in the area. Section 7 consultation concurrence was received from the Service one week after submittal of the Biological Assessment for this project. Net depletions aspects of this project were discussed. Reclamation's Albuquerque Area Office Manager said Reclamation may not have the resources to offset its additional depletions of water associated with its ESA compliance actions and projects.

Santa Ana Habitat Restoration Project

This restoration project, located at the confluence of the Jemez River with the Rio Grande, involves realignment and widening of the river channel and stabilization of the river channel grade with "gradient restoration facilities" installed by Reclamation, and by the Corps under a separate but related effort.

Rio Grande Silvery Minnow

Reclamation staff reported briefly on monitoring of the Rio Grande silvery minnow status that it has funded. Current monitoring shows increased numbers throughout the Middle Rio Grande compared to the previous year but numbers are much lower than in 1995, which was followed by the very dry year of 1996.

The Service gave a report on silvery minnow rescue operations for 2001. There were four events where the river flow became intermittent below San Acacia Dam for channel lengths ranging

from 200 feet to five miles. The Service reported that a total take of three of the species was charged against the limit of 250 annually set by the Incidental Take Statement in the Programmatic Biological Opinion. The Service reported that during 2001 silvery minnows were found at all 19 sampling locations in the Middle Rio Grande. During 2001 no minnows from captive populations were released to the Rio Grande. In January 2002, 11,000 marked minnows reared in captive propagation facilities were released to the river below San Acacia. The Service also reported on silvery minnow captive populations: The Dexter National Fish Hatchery holds approximately 81,000 minnows, the USGS Biological Resources Division facility at New Mexico State University holds 3,900 minnows, and the Albuquerque Biological Park holds 4,000 minnows.

Vegetation Management at Elephant Butte and Caballo Reservoirs

New Mexico annually provides cooperative funding for this program, which currently relies on mowing, with the goal of reduction of non-beneficial consumption of water. Two years ago Reclamation requested and New Mexico provided additional funding for a herbicide control pilot program. The Environmental Assessment for this pilot program remains in progress following a review of a draft by New Mexico in June 2001.

Jemez Canyon Reservoir Bulkhead Repairs

The Corps reported on the status of repairs to the Jemez Canyon Reservoir bulkhead guides for the gates. The need for repairs resulted in the October 2001 release of all remaining Conservation Pool water in Jemez Canyon Reservoir. Repairs are currently scheduled to be completed in early to mid-March 2002. The Corps reported that they would not be able to store water under the CWA until after the migratory sandhill cranes that over-winter in the Middle Rio Grande depart the area (usually around March 10th). After the CWA expires the reservoir will be operated to pass-through inflow when not in flood control operations until such time as the URGWOPS review and EIS are complete.

San Acacia Levee Project

The Corps is currently estimating revised schedules and costs for the San Acacia Levee project. This project would rehabilitate 55 miles of levee between San Acacia and Bosque Del Apache including raising or relocating the railroad bridge at San Marcial. The Conservation Agreement requires New Mexico to share in the cost of relocation of the railroad bridge. The Corps could not assure that the project would be initiated before the Conservation Agreement expired.

May Spike Release from Jemez Canyon and Cochiti Reservoirs

The Corps deviated from normal operations of Cochiti and Jemez Canyon Reservoirs in April and May 2001 to create a spike flow as part of an agreement with Jemez Pueblo to allow for later

storage in Jemez Canyon Reservoir under the Conservation Water Agreement. In a 48-hour period from May 21 to 23, 2001 the Corps released a spike of approximately 1,600 cfs (about 1,300 cfs above the inflow) from Jemez Canyon Reservoir. This release, coupled with the release of a spike of approximately 4,100 cfs from Cochiti Reservoir (about 1,000 cfs above the inflow), resulted in a roughly 5,000 cfs peak flow through the Albuquerque reach, which the Corps desired to obtain to assist in the realization of the Santa Ana river restoration project objectives. The water from the release consisted of native water stored by the Corps in April and May and was not part of the CWA. The Corps did not seek the advice and consent of the Commission for deviation of the normal operations for Jemez Canyon and Cochiti Reservoirs specified in PL 86-645, as explicitly required by that law.

Programmatic Biological Opinion

The Service reported on the Programmatic Biological Opinion issued on June 29, 2001. The Programmatic Biological Opinion concluded in a jeopardy opinion for the silvery minnow and flycatcher, but also developed a Reasonable and Prudent Alternative with 14 elements. These elements included: flow requirements for specific areas, required habitat creation/restoration activities, and funding requirements for reintroduction of the silvery minnow. The Service reported that the operations with respect to the Programmatic Biological Opinion for 2001 were successful. All target flows had been met and habitat restoration activities were underway.

Silvery Minnow Critical Habitat Designation and EIS

The Service's critical habitat designation was found to be inadequately supported by a Federal District Court in November 2000. The court required the Service to prepare an economic impact analysis and EIS to analyze the impacts of critical habitat designation as required by the ESA. The Service reported that the draft EIS should be issued in March 2002. The Service noted that the area under study for critical habitat now includes the entire Rio Grande and the Pecos River. The Engineer Advisers expressed concern about the potential critical habitat including international border areas. The Engineer Advisers also inquired whether the economic impact analysis would address the costs and impacts associated with: water depletions due to habitat restoration or creation activities, loss of crops due to water shortage from minnow activities, damage due to flooding if channel capacity and levee flood protection are allowed to deteriorate, and damage to states if water is undeliverable to Compact measuring points. Service representatives noted that they had not been advised that such economic costs were important or would be addressed. The Engineer Advisers noted that the Silvery Minnow Recovery Team had not been convened to provide preparation and review of the EIS despite written requests to the Service by the states that the recovery team be a part of the study and initial indications by the Service that it would use the recovery team as a NEPA interdisciplinary

team. The only meeting of the recovery team occurred on September 12, 2001, when air travel was impossible, and was not subsequently rescheduled by the Service.

Rio Grande Cutthroat Trout

The Service reported that on November 8, 2001, a settlement had been reached in a lawsuit regarding listing of the Rio Grande Cutthroat Trout as a threatened or endangered species under the ESA. The settlement requires that a Candidate Status Review be completed on the species. The preliminary decision was published in the Federal Register in December 2001 for a 60-day comment period. Due to the court ordered Internet blackout of the Interior Department, and the inability of individuals or organizations to submit email comments as directed in the public notice, it is likely that an additional 30-day comment period, until March 29, 2002, will be allowed.

BUDGET

The Engineer Advisers reviewed the Cost of Operation for the year ending June 30, 2001 and the Budget for Fiscal Year ending June 30, 2003. The Engineer Advisers found that the expenses for the administration of the Rio Grande Compact for the year ending June 30, 2001 were $169,296. The United States bore $57,439 of this total, with the balance of $111,857 borne equally by the three states. The proposed budget for the fiscal year ending June 30, 2003 indicates a total of $183,674 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

MEMORANDUM OF UNDERSTANDING

between the

RIO GRANDE COMPACT COMMISSION

and the

UNITED STATES BUREAU OF RECLAMATION

To formally describe the duties, roles and responsibilities of each agency in the water accounting, reporting and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Rio Grande Compact.

1.0 RECITALS AND PURPOSE

WHEREAS, the States of Colorado, New Mexico, and Texas are signatory States to the Rio Grande Compact (the Compact) with an effective date of May 31, 1939; and

WHEREAS, the Congress of the United States gave consent to the Compact with the passage of PL 76-96; and

WHEREAS, the President of the United States approved the Compact on May 31, 1939; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) owns and/or operates several project works in the Rio Grande Basin including Platoro Reservoir of the San Luis Valley Project on the Conejos River, the Closed Basin portion of the San Luis Valley Project on the Rio Grande, Azotea Tunnel and Heron Reservoir of the San Juan-Chama Project on the Rio Chama, El Vado Reservoir of the Middle Rio Grande Project on the Rio Chama, and Elephant Butte and Caballo Reservoirs of the Rio Grande Project on the Rio Grande; and

WHEREAS, PL 87-483, which authorized the initial stage of the San Juan-Chama Project, required the development of the details of San Juan-Chama Project operation essential to the accounting of diverted San Juan and Rio Grande flows; and

WHEREAS, all works constructed and/or operated by Reclamation in the Rio Grande Basin are required to be operated at all times in conformance with the Compact; and

WHEREAS, strict and accurate water accounting of both native Rio Grande water and all transmountain diversions is necessary to ensure that all Reclamation project works are operated in conformance with the Compact; and

WHEREAS, such accounting procedures were developed by Reclamation, the Rio Grande Compact Commission (the Commission), the signatory States and other affected parties and agencies and approved by the Assistant Secretary of Interior on March 8, 1963, and published that same year by Reclamation in the report entitled "Accounting of Water San Juan-Chama Project, Colorado-New Mexico"; and

WHEREAS, the accounting procedures were further refined in Reclamation's report of March 18, 1974, entitled "San Juan-Chama Project, Colorado-New Mexico Water Accounting and Operational Plan, Rio Grande Basin," and formally transmitted to the Commission by Reclamation's Regional Director by letter of March 19, 1974; and

WHEREAS, such accounting procedures were successfully implemented and performed by Reclamation and the signatory States for many years; and

WHEREAS, numerous modifications to the accounting procedures have been authorized by the Commission and implemented by Reclamation since 1974, and

WHEREAS, there is currently no organized documentation of these accounting modifications nor is there a comprehensive documented description of the current accounting procedures used by Reclamation.

NOW, THEREFORE, the purpose of this agreement is to clarify and formally articulate the details of the duties, roles and responsibilities of each party for the water accounting, reporting, and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Compact.

2.0 Pertinent Data

2.1 Definitions

The following definitions provide clarification on the data and procedures used for Compact accounting.

Raw Data: Raw data are the description, measurement, and quantification of water volumes and fluxes. Table 1 contains a list of raw data required for current Compact accounting. Examples of raw data include stream flow gage readings, pan evaporation measurements, precipitation gage readings, reservoir elevations, etc.

Accounting Data: Accounting data is information describing and quantifying the delivery, use, movement, transfer, and storage of water within the Rio Grande Basin. Examples of accounting data include deliveries of San Juan-Chama (SJC) water from Heron Reservoir to a downstream storage pool, deliveries by Colorado to New Mexico at the Colorado-New Mexico state line, and deliveries by New Mexico to Texas at Elephant Butte Reservoir. Most accounting data are usually calculated values derived from an

approved method.

Calculated Values: Calculated values are numerical results of approved accounting methods. Examples of calculated values include, but are not limited to, tributary inflow above Heron Reservoir, demand for the permanent San Juan-Chama recreation pool at Cochiti Reservoir, the amount of San Juan-Chama water required at Otowi gage to offset the effects of storage at Nambe Falls Reservoir, the Conejos Index Supply, the Otowi Index Supply, and the Elephant Butte Effective Supply.

Approved Method: An approved method is a method of performing a calculation or accounting procedure formally approved by the Commission. The adjustment of New Mexico's and Colorado's Compact Credit water stored in Elephant Butte Reservoir for loss due to evaporation is an example of an approved method.

Constant Value: A constant value is a value used in a calculation defined by an approved method. The constant value typically represents a portion of a physical system or reflects a value used in an accounting calculation defined by an approved method. An example of a constant value is the 2.0 percent loss factor currently used to describe losses in San Juan-Chama water transported from Heron Reservoir to the Otowi Index gage. The Commission must approve constant values prior to their use in an approved method.

2.2 Raw Data Sources and Responsible Collecting Agency

Compact accounting of native Rio Grande water and San Juan-Chama Project and other transmountain diversions incorporates raw data from a number of different sources. This section describes the types, sources, and the agency responsible for collecting and providing the raw data required for Compact accounting. A number of state, federal and local agencies that are not party to this agreement are responsible for collecting and providing raw data used in Compact accounting. This agreement does not in any way address how such raw data is collected, reviewed, maintained or made available for Compact accounting by other agencies not party to this agreement, except to note that the U. S. Geological Survey (USGS), acting as Secretary to the Commission per the Rules and Regulations for Administration of the Rio Grande Compact as amended February 22, 1948, is responsible for preparing a summary of the raw data needed to perform the Compact accounting.

Table 1 attached to this Memorandum of Understanding provides a listing of all raw data required for Compact accounting and the agency that is responsible for its collection.

3.0 Roles and Responsibilities

3.1 U.S. Bureau of Reclamation

The roles and responsibilities of the U.S. Bureau of Reclamation as related to Compact accounting and the Commission are to:

- Collect, compile and provide various data required for Compact accounting as indicated in Table 1.
- Prepare the annual water accounting report to the Engineer Advisers to the Commission that provides details on water accounting for the San Juan-Chama Project, the San Luis Valley Project, and information on the Upper Rio Grande Water Operations Model (URGWOM) and other related water accounting matters This report will be submitted to the Engineer Advisers as a draft for review and comment no later than three weeks prior to each February's regularly scheduled meeting of the Engineer Advisers.
- Meet with the Engineer Advisers at their annual meeting to resolve any questions regarding the accounting and assist the Engineer Advisers to prepare the annual Compact accounting for Commission approval.
- Disseminate to the Commission and all interested parties, on a monthly basis, provisional San Luis Valley Project and San Juan-Chama Project water accounting data throughout the year.

3.2 Engineer Advisers/Rio Grande Compact Commission

The Engineer Advisers to the Commission, as representatives of their respective States, are responsible for collecting and providing various data as indicated in Table 1. As a collective body, the Engineer Advisers are responsible for reviewing and preparing the annual Compact accounting for Commission approval. This includes review of both the annual water accounting report produced by Reclamation and the draft compilation of Compact accounting prepared by the USGS. The Compact accounting is then presented to the Commission for formal approval as part of the annual report of the Engineer Advisers. Upon approval, the accounting is then published in the annual report of the Commission to the Governors of Colorado, New Mexico and Texas.

4.0 Communications and Coordination

4.1 Protocols

Reclamation and the States will review the adequacy of the processes for water accounting information exchange and the sufficiency of the information exchanged, on a regular basis, but not less than annually. This review will evaluate the amount and frequency of information provided by each entity, with the goal of adjusting information exchange to meet the needs of all parties. Agreed-upon outcomes of the reviews will be

documented in writing. All raw data and water accounting data required for Compact accounting that is collected or produced by any of the signatories to this agreement will be made available to the other signatories upon written or verbal request.

Reclamation and the States will work on establishing more face-to-face and/or phone communications in between the regularly scheduled yearly Engineer Advisers and Commission meetings. The goal of such communications is to address questions and concerns on a more frequent basis.

4.2 Water Accounting Documentation Report

Reclamation and the States will cooperatively conduct a Compact water accounting documentation project during the 2002 calendar year. This project will concurrently review and document the basis for both native Rio Grande and San Juan-Chama Project water accounting, and will thoroughly detail and describe all the accounting data, calculated values and constant values, and approved methods that are involved in the water accounting. The goal of the project will be to present a comprehensive final report to the Commission at its annual 2003 meeting. The report will include a section on quality assurance/quality control protocols for all future Compact water accounting.

Reclamation and the States will ensure that all agreed-upon actions related to water accounting are documented. Such documentation will be specific for water accounting for the Compact. All parties will agree to water accounting documentation before finalization.

5.0 Protocols for Implementing Future Changes to Approved Methods

The details of the approved methods for water accounting may require adjustments predicated upon changing conditions, changes in project plans, operations and water usage, and improvement in engineering and hydrologic knowledge and data. When the necessity of such an adjustment to an approved method is identified, Reclamation and the Commission will investigate and study the technical basis for the adjustment. A report or technical memorandum detailing the adjustment will be prepared by the agency proposing the adjustment and submitted to the Engineer Advisers to the Commission prior to the annual meeting of the Advisers in February. The Engineer Advisers will review the adjustment, and, if deemed appropriate, shall recommend approval of the adjustment by the Commission. No accounting adjustments will be implemented without the prior approval of the Commission.

Review of Compact water accounting procedures will be performed both informally and formally. Reclamation and the signatory States will meet every five years from the date of Commission approval of this Memorandum of Understanding to formally review all Compact accounting procedures and will document the results of this review. This Memorandum of Understanding will be revised as necessary at those times.

IN WITNESS WHEREOF, the parties have caused this instrument to be duly executed.

RIO GRANDE COMPACT COMMISSION

Hal D. Simpson
Commissioner for Colorado

Date: March 21, 2002

Thomas C. Turney
Commissioner for New Mexico

Date: March 21, 2002

Joe G. Hanson
Commissioner for Texas

Date: March 21, 2002

U.S. BUREAU OF RECLAMATION

Ken Maxey
Area Manager, Albuquerque Area Office

Date: March 21, 2002

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING THE NEED FOR FEDERAL AGENCIES TO APPLY FOR STATE PERMITS IN COMPLIANCE WITH STATE WATER LAW AND REGULATIONS

March 21, 2002
Santa Fe, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande which may include habitat restoration projects; and

WHEREAS, New Mexico reports that such federal activities have the potential to create new or additional depletions and could affect future New Mexico deliveries to the Rio Grande Project, and

WHEREAS, New Mexico reports that neither the Corps nor Reclamation have applied for permits as requested in the April 11, 2001 Resolution of the Rio Grande Compact Commission.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission again requests the above federal agencies to comply with state law by obtaining permits from the appropriate state agencies for any water-related actions that result in new or additional river depletions; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE DEVELOPMENT OF AN APPROPRIATE METHODOLOGY FOR DETERMINING
THE ANNUAL ALLOCATION OF USABLE WATER IN RIO GRANDE PROJECT STORAGE

March 21, 2002
Santa Fe, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver water to Elephant Butte Reservoir for use by the Rio Grande Project according to an inflow-outflow schedule based on the Otowi Index Supply; and

WHEREAS, the waters of the Rio Grande Project are used to meet the United States treaty obligation to the Republic of Mexico and provide a water supply for Southern New Mexico and Texas downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, Reclamation determines the annual allocation for Elephant Butte Irrigation District (EBID) and El Paso Water Improvement District No. 1 (EP No.1); and

WHEREAS, Reclamation's current procedure for determining the annual allocation for EBID and EP No. 1 does not include all parameters necessary to accurately determine projected reservoir storage; and

WHEREAS, the dissemination of inaccurate allotments causes unnecessary hardships to the water users of Southern New Mexico and Texas along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission hereby requests that the Bureau of Reclamation work cooperatively with the Engineer Advisers to develop procedures for determining the annual allotments of water supply in accordance with the Rio Grande Compact.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE CONTINUING NEED FOR THE U.S. BUREAU OF RECLAMATION
TO CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL THROUGH
THE DELTA OF ELEPHANT BUTTE RESERVOIR TO THE ACTIVE RESERVOIR POOL
AS THE RESERVOIR RECEDES

March 21, 2002
Santa Fe, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that water conveyance facilities and maintenance of the active channel of the Rio Grande are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) is continuing to construct a temporary channel to connect the river channel at the head of Elephant Butte Reservoir, through the reservoir sediment delta, to the active reservoir pool; and

WHEREAS, Reclamation's projections of reservoir operations for Elephant Butte and Caballo Reservoirs for 2002 indicate that Elephant Butte Reservoir will be drawn down an additional 40 feet in elevation by the fall of 2002 and that the active reservoir pool will reside near the southern end of the narrows; and

WHEREAS, Reclamation currently anticipates that, due to equipment and permitting problems, the pilot channel will not be completed through the sediment delta connecting the river channel with the active reservoir pool during 2002; and

WHEREAS, the Engineer Advisers report that a functional channel through the sediment delta to the reservoir pool is important to New Mexico's delivery of water to the Rio Grande Project.

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation continue to extend and maintain the constructed channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte reservoir as the reservoir recedes, thereby maintaining an active river channel to the reservoir pool at all times; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full continued funding of the above project; and

BE IT FURTHER RESOLVED that the U.S. Bureau of Reclamation is requested to promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; and the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE U.S. BUREAU OF RECLAMATION
MAINTAINING THE MIDDLE RIO GRANDE FLOODWAY

March 21, 2002
Santa Fe, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on February 21, 2002 reported to the Engineer Advisers that the number of critical maintenance sites, defined as a location where the floodway levee is likely to fail under the mean annual flood (2.3 year return period), within the middle Rio Grande valley was approximately 25 sites; and

WHEREAS, Reclamation anticipates that the number of critical sites will continue to increase;

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission recommends and requests that Reclamation maintain the middle Rio Grande floodway such that effective drainage and efficient transport of water can be achieved; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full funding for maintenance of the middle Rio Grande floodway for the above purpose; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing maintenance activities and that Reclamation provide the Engineer Advisers an update at the 2003 Engineer Advisers meeting on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
of the
RIO GRANDE COMPACT COMMISSION
REGARDING *A PHYSICAL ASSESSMENT, THE OPPORTUNITIES FOR IMPROVED MANAGEMENT OF THE WATER RESOURCES OF THE BI-NATIONAL RIVER BASIN*
PROPOSED BY THE NATURAL HERITAGE INSTITUTE

March 21, 2002

WHEREAS, the allocation of the water of the Rio Grande between the United States and Mexico is governed by two treaties between the two countries, the 1906 treaty for waters above Ft. Quitman, Texas and the 1944 treaty for waters below Ft. Quitman, Texas; and

WHEREAS, the States of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, which allocated among the States all the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, existing water supplies do not normally meet the existing demands in the Rio Grande Basin above Fort Quitman and each State will defend its rights granted by the Rio Grande Compact to use the waters apportioned thereby for the benefit of its citizens; and

WHEREAS, the need to manage and conserve the water supplies of the Rio Grande Basin for the benefit of present and future generations is well understood, however, that management and conservation must be done within the constraints and allocations of existing Treaties and the Compact; and

WHEREAS, it was agreed and understood among the parties to both the Treaty and the Compact that the waters of the Rio Grande, above Fort Quitman, Texas, would be fully utilized to benefit mankind in seeking to produce successful economies in this water-short region; and

WHEREAS, the description of the study proposed by the Natural Heritage Institute contains numerous statements that do not take into full account long standing legal and contractual relationships of which citizens of Texas, New Mexico and Colorado have relied on for many generations; and

WHEREAS, the States of Texas, New Mexico, and Colorado, as well as the United States Government, are seeking to resolve a wide variety of issues that affect the way in which the Rio Grande system is operated, which efforts are extremely complicated and costly; and

WHEREAS, a proposal to conduct parallel investigations will be singularly complicated, expensive, and time consuming; and

WHEREAS, past descriptions of the proposed physical assessment have strongly suggested an intention to utilize the study as a basis to redefine or alter the Treaties with Mexico

and the Rio Grande Compact, which could likely have the effect of adversely affecting existing water users in the Rio Grande Basin, above Fort Quitman, Texas; and

WHEREAS, the Rio Grande Compact Commission provides the mechanism for entities and organizations to discuss and negotiate their differences and allows for consideration of the feasibility of new water management and control technology; and

WHEREAS, federal and state money should not be contributed to this proposed study.

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission hereby requests that the States of Texas, New Mexico, and Colorado, as well as agencies of the Federal Government, decline to support or participate in the study entitled "A Physical Assessment of the Opportunities for Improved Management of the Water Resources of the Bi-National River Basin" proposed by the Natural Heritage Institute; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission is requested to transmit copies of this Resolution to the Secretary of Interior, the Commissioner of the Bureau of Reclamation, the Secretary of the Army (Corps of Engineers), the Commissioner for the International Boundary and Water Commission, and the Congressional delegations of the three States.

Dated this 21st day of March 2002.

Harold D. Simpson, Commissioner for Colorado

Joe C. Hanson, Commissioner for Texas

Thomas C. Turney, Commissioner for New Mexico

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
NEED FOR THE U.S. BUREAU OF RECLAMATION
TO DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN THE LOW FLOW
CONVEYANCE CHANNEL FROM SAN ACACIA TO THE ACTIVE RESERVOIR POOL IN
ELEPHANT BUTTE RESERVOIR AT THE 2000 CFS OPERATIONAL DESIGN

March 21, 2002
Santa Fe, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities including the Low Flow Conveyance Channel are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on February 21, 2002 reported to the Engineer Advisers on the status of their Low Flow Conveyance Channel (LFCC) Modification project; and

WHEREAS, Reclamation is now proposing to reconstruct the LFCC from San Marcial to Elephant Butte Reservoir at a 500 cfs design capacity which is contrary to the historical channel capacity of 2000 cfs; and

WHEREAS, Reclamation also proposes to discharge the waters of the reconstructed LFCC into a marsh area currently occupied by Southwestern willow flycatchers well before the logical terminus of the LFCC and then re-gather the discharged water; and

WHEREAS, Reclamation's proposal directly conflicts with the April 11, 2001 Resolution of the Rio Grande Compact Commission; and

WHEREAS, the Rio Grande Compact Commission contends that Reclamation's proposal, if implemented, would effectively negate operation of the LFCC, and could negatively impact the ability of the Low Flow Conveyance Channel to effectively drain and efficiently transport the waters of the Rio Grande to Elephant Butte Reservoir; and

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission recommends and requests that Reclamation design, construct, operate, and maintain the reconstructed LFCC from

San Marcial to the active reservoir pool at Elephant Butte Reservoir at the 2000 cfs operational design such that effective drainage and efficient transport of water can be achieved; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full funding for modifications to the Low Flow Conveyance Channel at a 2000 cfs capacity all the way to the reservoir pool; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE USE OF THE ACCOUNTING MODULE OF THE UPPER RIO GRANDE OPERATIONS MODEL FOR RIO GRANDE COMPACT ACCOUNTING PURPOSES

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, Rio Grande Compact and San Juan-Chama Project annual water accounting is conducted using data collected by the U.S. Geological Survey (USGS), the U.S. Army Corps of Engineers (Corps), the Bureau of Reclamation (Reclamation), and the States of Colorado and New Mexico; and

WHEREAS, Reclamation systematically collects relevant data and prepares annual accounting of Rio Grande and San Juan-Chama Project reservoir operations, streamflow, and water deliveries for review and use by the Engineer Advisers to the Rio Grande Compact Commission in preparing the annual Rio Grande Compact accounting; and

WHEREAS, Reclamation has developed and continues to use a separate FORTRAN program for each reservoir to provide accounting information of native Rio Grande and San Juan-Chama waters; and

WHEREAS, the Bureau of Reclamation, the Corps, and the USGS in 1996 began to develop the Upper Rio Grande Water Operations Model (URGWOM) using the RiverWare software program, for the simulation of middle Rio Grande basin reservoir operations; and

WHEREAS, URGWOM contains an accounting module that has been applied for Rio Grande Compact accounting purposes; and

WHEREAS, accounting errors made in the process of employing the FORTRAN programs are reduced when using the URGWOM accounting module because the newer software has superior features and is easier to use; and

WHEREAS, the URGWOM accounting module was tested by comparing its results to the daily accounting FORTRAN programs currently in use, satisfactorily reproduced the accounting results of years 1995, 1996 and 2000, and resulted in the identification of data errors made in using the

FORTRAN program based accounting that otherwise would not have been revealed; and

WHEREAS, Reclamation recommends and requests that the Rio Grande Compact Commission approve Reclamation's use of URGWOM for Rio Grande Compact and San Juan-Chama Project water accounting purposes and abandonment of the previous accounting software and methods that URGWOM replaces.

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission hereby approves the use of the URGWOM accounting module in producing the accounting data needed by the USGS for use in the Rio Grande Compact accounting process subject to the following conditions:

1. Reclamation fulfill its commitments made during the February 2000 meeting of the Engineer Advisers to the Rio Grande Compact Commission to work with the Engineer Advisers to complete during 2001: a) review and documentation of the procedures for Rio Grande Compact accounting of Rio Grande and San Juan-Chama Project water, and b) quantification of the evaporation accounting error for the period 1993 through 1998 for accumulated credits of New Mexico and Colorado; and

2. Reclamation provide the three Compact States timely access to the URGWOM accounting module and its associated data and results, using a file transfer protocol, or FTP, site to be updated at least weekly; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Albuquerque Area Office Manager of Bureau of Reclamation and the District Engineer of the Albuquerque District of the Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING THE NEED FOR FEDERAL AGENCIES TO APPLY FOR STATE PERMITS IN COMPLIANCE WITH STATE WATER LAW AND REGULATIONS

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and

WHEREAS, Reclamation, the Corps, the U.S. Fish & Wildlife Service, and other parties are planning and, in some cases, conducting aquatic and riparian habitat restoration activities; and

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission hereby requests the above federal agencies to comply with state law by obtaining permits from the appropriate state agencies for any water-related actions that result in new or additional river depletions; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE CONTINUING NEED FOR THE U.S. BUREAU OF RECLAMATION TO CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL THROUGH THE DELTA OF ELEPHANT BUTTE RESERVOIR TO THE ACTIVE RESERVOIR POOL AS THE RESERVOIR RECEDES

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that water conveyance facilities and maintenance of the active channel of the Rio Grande, particularly in the San Acacia reach, are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) is currently constructing a temporary channel to connect the river channel at the head of Elephant Butte Reservoir, through the reservoir sediment delta, to the active reservoir pool; and

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation continue to extend and maintain the constructed channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte Reservoir as the reservoir recedes, thereby maintaining an active river channel to the reservoir pool at all times; and

BE IT FURTHER RESOLVED that the U.S. Bureau of Reclamation is requested to promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any difficulties in implementing the pilot channel construction project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; and the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING THE NEED FOR CONCLUSION
OF THE BUREAU OF RECLAMATION'S AND U.S. CORPS OF ENGINEERS'
ONGOING CONSULTATIONS WITH U.S. FISH AND WILDLIFE SERVICE
UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT
REGARDING RIO GRANDE OPERATIONS

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that water salvage and conveyance facilities located in the Middle Rio Grande Valley and maintenance of the channel of the Rio Grande have facilitated its delivery of water under the Rio Grande Compact, and that the future of such projects and facilities are uncertain while deliberation over wildlife habitat in the region continues; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act (ESA) and further designated critical habitat for the species in 1999; and

WHEREAS, the ESA Section 7 requires federal agencies to consult with the Service regarding federal actions that might affect endangered species; and

WHEREAS, the ESA Section 7 consultations described above have not been completed; and

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that the Federal agencies involved in the ESA Section 7 consultations initiate, as appropriate, and bring the formal consultations to prompt resolution in accordance with the time limits set by federal regulation; and

BE IT FURTHER RESOLVED that Reclamation and the Corps assist the State of New Mexico in mitigating and offsetting any restrictions placed on the Federal agencies discretionary actions with regard to Rio Grande water storage and conveyance facilities operations that might reduce the water supply available for use within New Mexico above Elephant Butte Reservoir.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE STORAGE OF NATIVE NEW MEXICO RIO GRANDE WATER IN U.S. ARMY CORPS OF ENGINEERS MIDDLE RIO GRANDE PROJECT RESERVOIRS

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and

WHEREAS, litigation under the federal Endangered Species Act, Cause No. 99-CIV-1320, styled *Minnow v. Martinez*, filed in the United States District Court for the District of New Mexico in Albuquerque, New Mexico, was initiated in late 1999 on the middle Rio Grande in New Mexico seeking protection for the endangered Rio Grande silvery minnow; and

WHEREAS, New Mexico has recently proposed in an offer of settlement of *Minnow v. Martinez* to make available for lease by Reclamation, for a period of three years, a total of 100,000 acre-feet of New Mexico's native Rio Grande water and to establish a Middle Rio Grande Endangered Species Conservation Pool (Conservation Pool) in the Corps' Middle Rio Grande Project Reservoirs; and

WHEREAS, New Mexico proposes to capture and store native Rio Grande water during 2001 through 2003 at times when Rio Grande flows are in excess of downstream diversion demands in New Mexico above Elephant Butte Reservoir; such water, if not stored, would have flowed downstream to Elephant Butte Reservoir and contributed to New Mexico's compact delivery; and

WHEREAS, the native Rio Grande water that New Mexico stores in the Middle Rio Grande Endangered Species Conservation Pool would be released at a sufficient flow rate to maintain flow at points in the Rio Grande critical for the silvery minnow, with total releases over the three-year term not to exceed 90,000 acre-feet, with no more than 30,000 acre-feet (plus any carryover water from the prior year) released in any one calendar year; and

WHEREAS, the Flood Control Act of 1960 (Public Law 86-645) requires the advice and consent of the Rio Grande Compact Commission for any departure from the normal operation schedules of the Corps' Middle Rio Grande Project Reservoirs; and

NOW, THEREFORE, BE IT RESOLVED that, in accordance with the Flood Control Act of 1960 (Public Law 86-645), the Rio Grande Compact Commission hereby favorably advises and consents

to the departure from normal operation schedules of the Corps= Middle Rio Grande Project Reservoirs for a term of not more than three years to allow the operation of the Middle Rio Grande Endangered Species Conservation Pool as described above; and

BE IT FURTHER RESOLVED that by approval of this resolution, the States of Colorado and Texas in no way change the obligations of New Mexico under the Rio Grande Compact.

BE IT FURTHER RESOLVED PROVIDED, HOWEVER, that the State of Texas reserves the right to rescind its approval of this resolution on March 21, 2002, and again on March 20, 2003, if Texas determines that Texas has been or will be harmed by the departure from normal operation schedules, by providing written notice of the rescission of its approval to the States of Colorado and New Mexico through each state's respective Rio Grande Compact Commissioner.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U.S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U.S. Army Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
NEED FOR THE U.S. BUREAU OF RECLAMATION TO DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN THE LOW FLOW CONVEYANCE CHANNEL FROM SAN ACACIA TO THE ACTIVE RESERVOIR POOL IN ELEPHANT BUTTE RESERVOIR AT A 2000 CFS OPERATIONAL DESIGN

April 11, 2001
Albuquerque, New Mexico

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

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities including the Low Flow Conveyance Channel are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on September 8, 2000 submitted a Draft Environmental Impact Statement (DEIS) for the Low Flow Conveyance Channel Modification to the Engineer Advisers for review and comment; and

WHEREAS, the DEIS provides analysis of four alternatives for the future of the Low Flow Conveyance Channel south of San Marcial; and

WHEREAS, Reclamation indicated to the Compact Commission at the March 22, 2001 compact annual meeting that the Final Environmental Impact Statement should be completed by the summer of 2001; and

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation take all appropriate steps to implement construction and operation of the Low Flow Conveyance Channel in accordance with a 2000 cfs design capacity to the active reservoir at Elephant Butte Reservoir; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
TO EXCLUDE ACOMITA RESERVOIR FROM COMPACT ACCOUNTING

March 23, 2000
El Paso, Texas

WHEREAS, annual accounting of the allocation of the waters of the Rio Grande between the States of Colorado, New Mexico, and Texas under the Rio Grande Compact requires the change in water stored in reservoirs constructed since 1929 to be considered in the calculation of index supplies; and

WHEREAS, the Rio Grande Compact provides that the Commissioner for Texas may demand the release of water from storage reservoirs constructed after 1929 to the amounts of accrued debits of Colorado and New Mexico; and

WHEREAS, Acomita Reservoir is a small reservoir on the San Fidel Arroyo, constructed in 1938 with an original capacity of 850 acre feet and capacity, based on a 1956 sediment survey, of 650 acre-feet, that stores water diverted from the Rio San Jose; and

WHEREAS, Acomita Reservoir, which has been empty for many years, was observed in June 1999 to be essentially full; and

WHEREAS, the Acoma Pueblo did not provide reservoir storage data for 1999 for Acomita Reservoir; and

WHEREAS, the Rio Grande Compact water accounting for 1999 included an estimation that water stored in Acomita Reservoir had increased 600 acre feet; and

WHEREAS, release of water in storage from the Acomita Reservoir in response to a demand from the Texas Commissioner for release of water stored in reservoirs constructed since 1929 would be futile with regard to contributing flow to the Rio Grande and Elephant Butte Reservoir due to the large distance separating Acomita Reservoir from the Rio Grande and Elephant Butte Reservoir and the ephemeral nature of the Rio Puerco and its tributary the Rio San Jose; and

WHEREAS, the Rio Grande Compact Commission has previously excluded annual water accounting from other small reservoirs.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact annual water accounting exclude Acomita Reservoir storage effective January 1, 2000.

H. D. S.
Harold D. Simpson, Commissioner for Colorado

Thomas C. Turney
Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
SUPPORTING A COMPREHENSIVE PLANNING STUDY
OF THE REACH OF THE RIO GRANDE EXTENDING FROM
SAN ACACIA DIVERSION DAM TO ELEPHANT BUTTE RESERVOIR
UNDER
THE WATER RESOURCES DEVELOPMENT ACT SECTION 729

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Otowi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Otowi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the protection of the health and safety of the people who live in the Rio Grande basin require that the channel of the Rio Grande be maintained both to deliver water to Elephant Butte Reservoir and to avoid or reduce the adverse impacts from floods; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that construction authorized by the Flood Control Acts of 1948 and 1950 of the Middle Rio Grande Project, including the Low Flow Conveyance Channel and the Rio Grande Floodway in the reach of the Rio Grande from the San Acacia Diversion Dam to Elephant Butte Reservoir, and subsequent operations and maintenance of these and associated water drainage and salvage facilities, have been important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act and further designated critical habitat for the species in 1999 to include the reach of the Rio Grande from San Acacia Diversion Dam to the San Marcial railroad bridge; and

WHEREAS, most of the remaining population of the Rio Grande silvery minnow exist in the reach of the Rio Grande downstream of San Acacia Diversion Dam; and

WHEREAS, the reach of the Rio Grande from San Acacia Diversion Dam to Elephant Butte Reservoir supports several nesting pairs of the endangered Southwestern willow flycatcher; and

WHEREAS, the aggraded channel of the Rio Grande in this reach is confined to the east side of the floodplain by a levee constructed from sand that has been continuously raised and augmented as the river channel has aggraded and Reclamation indicates that this sand levee is inadequate to reliably contain the river under flood conditions; and

WHEREAS, the channel of the Rio Grande in the San Marcial area has aggraded substantially historically, including more than 12 feet of sediment deposition from 1979 to 1987, due to the high sediment load of the Rio Grande in this reach, causing the channel of the Rio Grande to be on the order of ten feet higher than the floodplain to the west of the channel; and

WHEREAS, the San Marcial Railroad Bridge has been raised previously due to sediment deposition in the bed of the river under the bridge; and

WHEREAS, the San Marcial Railroad Bridge now has inadequate space underneath it to pass flood flows exceeding about 6000 cubic feet per second without submergence and damage or risk to the bridge, causing an immediate need to raise it again; and

WHEREAS, operation of the Low Flow Conveyance Channel in its historic mode such that all river flows were diverted to the Low Flow Conveyance Channel when river flows were less than 2000 cubic feet per second has been discontinued due in part to endangered species habitat concerns; and

WHEREAS, an uncontrolled breach of the levee below San Marcial, where the river channel is on the order of ten feet higher than the floodplain to the west, would destroy that portion of the Low Flow Conveyance Channel and cause the waters of the river to spread out over the floodplain and be depleted rather than delivered to Elephant Butte Reservoir; and

WHEREAS, such an avulsion would also dry up or threaten existing riparian habitat including Southwest Willow Flycatcher nesting sites and kill Rio Grande silvery minnow existing in the Rio Grande channel downstream from the location of the avulsion; and

WHEREAS, drainage of the flood plain above Elephant Butte Reservoir is impaired, contributing to excessive water depletion by open water evaporation and phreatophytes, consequently diminishing compact deliveries; and

WHEREAS, proliferation of exotic, invasive phreatophytes has displaced native riparian habitat and is also causing waste of water; and

WHEREAS, the U. S. Fish and Wildlife Service recommends that an ecosystem restoration approach be the framework and basis of efforts by the signatories of the ESA Collaborative Process Memorandum of Understanding to address compliance with the Endangered Species Act while protecting New Mexico's economic water uses and compact deliveries; and

WHEREAS, the Water Resources Development Act, Section 729, authorizes comprehensive water resources investigations; the Corps of Engineers has budgeted in FY2001 to initiate such a study in the Rio Grande specifically addressing endangered species, water delivery, and flood control needs; the New Mexico Interstate Stream Commission is seeking substantial additional federal funding and has budgeted necessary matching funds for a comprehensive evaluation of the San Acacia to Elephant Butte Reservoir reach of the Rio Grande conditioned on full recognition by the Corps of Engineers and other study sponsors of the limits of water supply in this desert region, specifically including New Mexico's need to maintain economic uses of water in the Middle Rio Grande while meeting its Rio Grande Compact delivery obligations.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission finds that federal projects and facilities that have been important to convey water to Elephant Butte Reservoir and to assist New Mexico in making its Rio Grande Compact deliveries have impaired function due to sedimentation and river aggradation and due to constraints imposed by the federal government associated with the Endangered Species Act; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports 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 Endangered Species Act 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.

Harold D. Simpson, Commissioner for Colorado

Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REQUESTING CONCLUSION
OF THE BUREAU OF RECLAMATION'S AND U.S. CORPS OF ENGINEERS' PROGRAMMATIC CONSULTATION WITH U.S. FISH AND WILDLIFE SERVICE UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT REGARDING RIO GRANDE OPERATIONS

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Otowi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Otowi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the protection of the health and safety of the people who live in the Rio Grande basin require that the channel of the Rio Grande be maintained both to deliver water to Elephant Butte Reservoir and to avoid or reduce the adverse impacts from floods; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that operation and maintenance of water salvage and conveyance facilities in the Middle Rio Grande Valley and maintenance of the channel of the Rio Grande are essential to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, under various existing legal authorities, and subject to allocation of supplies and priority of water rights under the Rio Grande Compact and the laws of the states, the U.S. Corps of Engineers (Corps) and U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande to 1) store and deliver water; 2) assist New Mexico in meeting Rio Grande Compact delivery obligations; 3) provide flood protection and

sediment control, and comply with existing law, contract obligations, and international treaty; and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act and further designated critical habitat for the species in 1999; and

WHEREAS, the Endangered Species Act in section 7 requires federal agencies to consult with the Service regarding federal actions that might affect endangered species; and

WHEREAS, Reclamation and the Corps in recent years have not timely completed section 7 consultations with the Service regarding annual plans to operate water storage and conveyance facilities prior to completion of the actions that were the subject of the consultations; and

WHEREAS, Reclamation and the Corps determined in 1998 that they would proceed with a multiple year programmatic section 7 consultation covering their Rio Grande water operations actions and discretionary authority; and

WHEREAS, an initial biological assessment submitted by Reclamation and the Corps to the Service in May 1998 to initiate that section 7 consultation was subsequently withdrawn and was replaced by another biological assessment submitted to the Service in October 1999; and

WHEREAS, Reclamation and the Service informed the Rio Grande Compact Engineer Advisers on February 22, 2000, that informal discussions were occurring regarding the Corps and Reclamation's biological assessment but that neither formal section 7 consultation nor preparation by the Service of the required biological opinion had commenced as of that date; and

WHEREAS, the Corps indicated its intention that formal section 7 consultation commence immediately upon submittal by Reclamation and the Corps of the biological assessment in October 1999; and

WHEREAS, representatives of Reclamation and the Corps and the Service did not indicate, in response to questions from the Engineer Advisers, when the formal section 7 consultation would commence or be completed; and

WHEREAS, lack of initiation or conclusion of formal consultation and prolonged informal consultation has and will continue to limit Reclamation's and the Corps effectiveness in continuing their historic and essential Rio Grande operations activities and exacerbate the uncertainty of the constraints on these activities associated with compliance with the Endangered Species Act.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that the Federal agencies involved in the ESA section 7 consultation initiate and bring the formal consultation to a prompt resolution in accordance with the time limits set by federal regulation; and

BE IT FURTHER RESOLVED that Reclamation and the Corps assist the Rio Grande Compact Commission and the State of New Mexico in mitigating and offsetting any restrictions placed on the Federal agencies' discretionary actions with regard to Rio Grande water storage and conveyance facilities operations that might reduce the water supply available for use within New Mexico above Elephant Butte Reservoir and interfere with New Mexico's ability to convey Rio Grande water through the Middle Rio Grande Valley to meet its delivery obligations to below Elephant Butte Dam.

H. D. S.

Harold D. Simpson, Commissioner for Colorado

Thomas C. Turney

Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE NEED FOR THE BUREAU OF RECLAMATION TO
CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL THROUGH THE
DELTA OF ELEPHANT BUTTE RESERVOIR TO THE RESERVOIR POOL

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Otowi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Otowi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that operation and maintenance of water conveyance facilities and maintenance of the active channel of the Rio Grande, particularly in the San Acacia to Elephant Butte Reservoir reach, are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the Rio Grande Compact Commission emphasized the importance of maintaining a river channel connection through the Elephant Butte Reservoir delta to the reservoir pool in its discussions with Bureau of Reclamation representatives at the 1999 annual compact commission meeting; and

WHEREAS, the Rio Grande main river channel currently ends before it reaches the reservoir pool and the channel divides into several distributary channels, with the result that water and sediment are no longer being efficiently transported into the reservoir, aggravating both unnecessary losses of water and aggradation of the river channel; and

WHEREAS, Reclamation anticipated conducting river channel maintenance to reconnect the river channel to the reservoir pool during the winter of 1999-2000 but this work was not approved by the U.S. Fish and Wildlife Service (Service) due to Endangered Species Act issues; and

WHEREAS, until recently, neither the New Mexico Interstate Stream Commission nor the Engineer Advisors nor the Rio Grande Compact Commission were aware that unresolved Endangered Species Act issues were being discussed and the lack of approval from the U. S. Fish and Wildlife Service was preventing important maintenance of this portion of the river channel; and

WHEREAS, the Reclamation's projections of snow melt runoff and operations of Elephant Butte and Caballo Reservoirs, as discussed with the Engineer Advisers at their annual meeting, indicate that Elephant Butte Reservoir will be drawn down to approximately 1,000,000 acre-feet by fall 2000.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that Reclamation continuously extend and maintain a pilot channel(s) from San Marcial through the sediment delta to Elephant Butte lake as the reservoir recedes, thereby maintaining an active river channel to the lake at all times.

BE IT FURTHER RESOLVED that Reclamation quickly resolve any remaining project issues with the U.S. Fish and Wildlife Service such that the pilot channel maintenance activities can commence.

BE IT FURTHER RESOLVED that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisors of any additional difficulties in implementing the pilot channel project and that, upon implementing the project, Reclamation keep the Engineer Advisors fully informed of the project progress, results, and problems.

H. D. S.
Harold D. Simpson, Commissioner for Colorado

Thomas C. Turney
Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

RIO GRANDE COMPACT

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

For the State of Colorado	M. C. Hinderlider
For the State of New Mexico	Thomas M. McClure
For the State of Texas	Frank B. Clayton

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

ARTICLE I

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

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

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

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

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

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

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

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

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

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

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

(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.

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

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 transmountain diversions into the Rio Grande between Lobatos and San Marcial.

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

RIO GRANDE COMPACT

ARTICLE V

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

ARTICLE VI

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

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

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

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

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

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

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

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

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

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:

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.

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").

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.

RESERVOIR CAPACITIES /1

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

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

ACTUAL SPILL /2, /3, /4

(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., 1,998,400 acre-feet in the months of October through March, inclusive, and 1,973,400 acre-feet in the months of April through September, inclusive, as determined from the 1999 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

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

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

DEPARTURES FROM NORMAL RELEASES /5

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

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

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

/3 Amended September 9, 1998.

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

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

EVAPORATION LOSSES /6, /7, /8

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

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

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

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

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

ADJUSTMENT OF RECORDS

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

NEW OR INCREASED DEPLETIONS

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

TRANSMOUNTAIN DIVERSIONS

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

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

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

/8 Amended June 2, 1959.

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 /9

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 adviser 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.

/9 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, /10

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

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

(Signed) M. C. HINDERLIDER

M. C. Hinderlider

Commissioner for Colorado

(Signed) THOMAS M. McCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

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

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

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 2001 the Commissioners found that the actual release of usable water was 788,000 acre-feet. This resulted in an accrued credit of 77,900 acre-feet as of January 1, 2002.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2001

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES			
	MEASURED FLOW				ADJUSTMENTS				SUPPLY			ADJUSTMENTS					SUPPLY					
	CONEJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL NORTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN 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
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	———	———	———	———	13.8	———	———	———	———	0.0	———	0.2	———	———	———	———	———	0.0	———	———	———	0.0
JAN	2.5	———	———	2.5	13.8	0.0		0.0	2.5	2.5	8.6	0.2	0.0			0.0	8.6	8.6	2.1	9.8	11.9	11.9
FEB	2.4	———	———	2.4	14.0	0.2		0.2	2.6	5.1	8.1	0.2	0.0			0.0	8.1	16.7	3.3	11.7	15.0	26.9
MAR	4.3	———	———	4.3	14.2	0.2		0.2	4.5	9.6	18.6	0.2	0.0			0.0	18.6	33.3	7.0	19.5	26.5	53.4
APR	15.4	10.9	4.6	30.9	14.6	0.4		0.4	31.3	40.9	52.0	0.2	0.0			0.0	52.0	85.3	7.0	12.8	19.8	73.2
MAY	78.6	40.8	5.1	124.5	27.0	12.4	0.1[a]	12.5	137.0	177.9	261.6	0.2	0.0			0.0	261.6	346.9	33.9	48.9	82.8	156.0
JUN	53.9	9.9	0.1	63.9	28.1	1.1	0.2[a]	1.3	65.2	243.1	206.5	0.2	0.0			0.0	206.5	553.4	15.7	60.2	75.9	231.9
JUL	19.4	1.8	0.0	21.2	22.0	-6.1	0.1[a]	-6.0	15.2	258.3	70.6	0.2	0.0	-0.3[b]	0.3[a]	0.0	70.6	624.0	1.9	20.8	22.7	254.6
AUG	12.1	1.4	0.1	13.6	19.0	-3.0	0.0[a]	-3.0	10.6	268.9	44.4	0.2	0.0			0.0	44.4	668.4	0.0	6.0	6.0	260.6
SEPT	6.9	0.7	0.0	7.6	15.9	-3.1	0.1[a]	-3.0	4.6	273.5	20.2	0.2	0.0			0.0	20.2	688.6	0.0	3.1	3.1	263.7
OCT	4.6	0.8	0.1	5.5	14.1	-1.8	0.1[a]	-1.7	3.8	277.3	15.9	0.2	0.0			0.0	15.9	704.5	0.0	3.4	3.4	267.1
NOV	2.7	———	———	2.7	14.1	0.0	0.0[a]	0.0	2.7	280.0	11.2	0.2	0.0			0.0	11.2	715.7	0.8	7.9	8.7	275.8
DEC	2.4	———	———	2.4	14.1	0.0		0.0	2.4	282.4	9.7	0.2	0.0			0.0	9.7	725.4	2.0	12.5	14.5	290.3
YEAR	205.2	66.3	10.0	281.5	———	0.3	0.6	0.9	282.4	———	725.4	———	0.0	-0.3	0.3	0.0	725.4	———	73.7	216.6	290.3	———

Remarks Cols. 6 and 13 do not include transmountain water.

[a] Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.

[b] 517 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
C1	Balance at Beginning of Year	———	———	Cr 27.0
C2	Scheduled Delivery from Conejos River	97.0	———	Dr 70.0
C3	Scheduled Delivery from Rio Grande	216.7	———	Dr 286.7
C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	———	300.3	Cr 13.6
C5	Reduction of Debits o/c Evaporation	———		
C6	Reduction of Credits o/c Evaporation and Spill	3.5	———	Cr 10.1
C7				
C8	Balance at End of Year	———	———	Cr 10.1

APPROVED
Engineer Adviser for Colorado SEV Date 2/20/2002 Engineer Adviser for New Mexico [illegible] Date 2/20/2002 Engineer Adviser for Texas HCS Date 2/21/2002

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2001

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY									Total Water Stored in New Mexico Above San Marcial at End of Month[a]	ELEPHANT BUTTE EFFECTIVE SUPPLY				
		ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR			Effective Supply	
		RESERVOIRS LOBATOS TO OTOWI													
	Recorded Flow at Otowi Bridge	Storage End of Month[a]	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total		End of Month[a]	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	———	10.9	———	———	———	———	———	———	———	11.9	1,256.5	———	———	———	———
JAN	33.4	10.9	0.0	0.0		0.1	0.1	33.5	33.5	11.2	1,295.4	38.9	4.3	43.2	43.2
FEB	34.3	11.7	0.8	0.0		0.1	0.9	35.2	68.7	10.6	1,240.3	-55.1	98.9	43.8	87.0
MAR	51.0	23.8	12.1	0.0		0.3	12.4	63.4	132.1	23.9	1,188.9	-51.4	96.5	45.1	132.1
APR	67.2	77.1	53.3	0.3		0.4	54.0	121.2	253.3	84.0	1,131.6	-57.3	97.4	40.1	172.2
MAY	169.0	196.6	119.5	1.2		-1.3	119.4	288.4	541.7	205.7	1,101.5	-30.1	105.0	75.9	248.1
JUN	116.5	203.8	7.2	2.3		-1.8	7.7	124.2	665.9	212.7	1,037.5	-64.0	107.5	43.5	291.6
JUL	76.2	185.0	-18.8	1.3		-11.5	-29.0	47.2	713.1	192.0	936.0	-101.5	113.1	11.6	303.2
AUG	60.1	159.0	-26.0	1.0		-6.8	-31.8	28.3	741.4	163.8	867.4	-68.6	91.9	23.3	326.5
SEPT	62.6	112.3	-46.7	1.0		-2.0	-47.7	14.9	756.3	115.5	843.9	-23.5	40.3	16.8	343.3
OCT	42.7	89.6	-22.7	0.7		-3.5	-25.5	17.2	773.5	89.1	839.7	-4.2	15.3	11.1	354.4
NOV	27.0	89.7	0.1	0.3		-1.1	-0.7	26.3	799.8	89.1	864.8	25.1	0.4	25.5	379.9
DEC	35.3	90.1	0.4	0.2		-2.0	-1.4	33.9	833.7	89.8	888.1	23.3	13.2	36.5	416.4
YEAR	775.3	———	79.2	8.3		-29.1	58.4	833.7	———	———	———	-368.4	784.8	416.4	———

Remarks Storage in recreational reservoirs not included
Cols. 3 and 11 reflect implementation of revised area-capacity tables for Abiquiu, Cochiti, and Jemez Canyon Reservoirs effective January 1, 1999

[a] Cols. 3, 11, and 12 do not include transmountain water.

[b] Col 12 year beginning value adjusted to reflect the April 1999 Elephant Butte Reservoir area-capacity table made effective January 1, 2001. Previous value was 1,274.2

[c] New Mexico's credit at beginning of year reduced by 1.6 to reflect retroactive application of revised sediment accumulation equations to 1999 and 2000 accounting for Abiquiu, Cochiti, and Jemez Canyon reservoirs and further reduced by 0.1 to reflect correction of Elephant Butte evaporation data errors in 1997.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
NM1	Balance at Beginning of Year	———	———	Cr 269.1
NM2	Scheduled Delivery at Elephant Butte	494.9	———	Dr 225.8
NM3	Actual Elephant Butte Effective Supply	———	416.4	Cr 190.6
NM4	Reduction of Debits o/c Evaporation	———	———	
NM5	Reduction of Credits o/c Evaporation and Spill	34.9	———	Cr 155.7
NM6			———	
NM7				
NM8	Balance at End of Year	———	———	Cr 155.7

APPROVED
Engineer Adviser for Colorado SEV Date 2/20/2002 Engineer Adviser for New Mexico [illegible] Date 2/20/2002 Engineer Adviser for Texas HCS Date 2/21/2002

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2001

Quantities in thousands of acre-feet to nearest hundred

MONTH	[a] Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	CREDIT WATER IN STORAGE			Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	RIO GRANDE BELOW CABALLO DAM								
		Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month		Colorado Credit Water	New Mexico Credit Water	Total at End of Month			Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	SPILL FROM STORAGE: Caballo Flood Water	SPILL FROM STORAGE: Credit Water	SPILL FROM STORAGE: Usable Water	USABLE RELEASE: Net During Month	USABLE RELEASE: Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	2,131.8	[b]960.4	38.4	[b]998.8	1,133.0	[b]27.0	[b]269.1	[b]296.1		1,294.9	------	------	------	------	------	------	------	0.0
JAN	2,131.8	999.6	42.5	1,042.1	1,089.7	27.0	268.8	295.8		1,337.9	0.2	0.0	0.2				0.2	0.2
FEB	2,131.8	946.0	108.4	1,054.4	1,077.4	28.8	267.5	284.3		1,348.7	23.6	0.0	23.6				23.6	24.0
MAR	2,131.8	897.2	93.0	990.2	1,141.6	26.6	265.1	291.7		1,281.9	106.7	0.1	106.8				106.8	130.8
APR	2,106.8	844.5	96.8	941.3	1,165.5	28.2	260.9	287.1		1,228.4	87.5	0.1	87.6				87.6	218.4
MAY	2,106.8	819.5	98.1	917.6	1,189.2	25.7	256.3	282.0		1,199.6	96.8	0.2	97.0				97.0	315.4
JUN	2,106.8	761.9	72.7	834.6	1,272.2	25.1	250.5	275.6		1,110.2	131.3	0.1	131.4				131.4	446.8
JUL	2,106.8	665.2	62.2	727.4	1,379.4	24.7	246.1	270.8		998.2	130.8	0.1	130.9				130.9	577.7
AUG	2,106.8	600.2	43.5	643.7	1,463.1	24.4	242.8	267.2		910.9	110.8	0.2	111.0				111.0	688.7
SEPT	2,106.8	579.9	12.3	592.2	1,514.6	24.1	239.9	264.0		856.2	73.0	0.2	73.2				73.2	761.9
OCT	2,131.8	578.9	7.6	586.5	1,545.3	23.8	237.0	260.8		847.3	25.6	0.0	25.6				25.6	787.5
NOV	2,131.8	605.9	10.4	616.3	1,515.5	23.6	235.3	258.9		875.2	0.3	0.0	0.3				0.3	787.8
DEC	2,131.8	630.4	25.5	655.9	1,475.9	23.5	234.2	257.7		913.6	0.1	0.1	0.2				0.2	788.0
YEAR	------	------	------	------	------	------	------	------	------	------	786.9	1.1	788.0	0.0	0.0	0.0	788.0	------

[a] Temporary Project Storage Capacity for calendar year 2001 is 2,106,786 acre-feet (April to September) and 2,131,786 acre-feet (October to March) due to repair work on Caballo Dam. Project Storage Capacity after completion of repair will be 2,200,000 acre-feet (April to September) and 2,225,000 acre-feet (October to March) as recognized by the September 9, 1998 Resolution of the Rio Grande Compact Commission with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

[b] Based on Balance at Beginning of Year (C1 and NM1) and implementation of area-capacity curves for Elephant Butte Reservoir (see footnote "c" on Deliveries by New Mexico at Elephant Butte accounting sheet).

ACCRUED DEPARTURE FROM NORMAL RELEASE

ITEM		DEBIT	CREDIT	BALANCE
P1	Accrued Departure at Beginning of Year	------	------	Cr: 75.9
P2	Actual Release during Year	788.0	------	Dr: 712.1
P3	Normal Release for Year	------	790.0	Cr: 77.9
P4				
P5				
P6				
P7	Accrued Departure at End of Year	------	------	Cr: 77.9

TIME OF HYPOTHETICAL SPILL: Did not occur

APPROVED:
Engineer Adviser for Colorado: SEO Date: 2/20/2002 Engineer Adviser for New Mexico: [signature] Date: 2/20/2002 Engineer Adviser for Texas: [signature] Date: 2/21/02

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2001

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado	$55,150	$6,450	$48,700		
In New Mexico, above Caballo Reservoir	$64,310	$39,195		$25,115	
In New Mexico, Caballo Reservoir and below	$21,329	$5,316		$1,750	$14,263
Subtotal	$140,789	$50,961	$48,700	$26,865	$14,263
ADMINISTRATION					
U.S.G.S. Contract	$25,912	$6,478	$6,478	$6,478	$6,478
Other expenses	$2,595		$865	$865	$865
Subtotal	$28,507	$6,478	$7,343	$7,343	$7,343
GRAND TOTAL	$169,296	$57,439	$56,043	$34,208	$21,606
EQUAL SHARES			$37,286	$37,286	$37,286

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2003

Item	Total Cost	Borne by United States	Borne by		
			Colorado	New Mexico	Texas
GAGING STATIONS					
In Colorado	$58,888	$6,780	$52,108		
In New Mexico, above Caballo Reservoir	$69,170	$42,015		$27,155	
In New Mexico, Caballo Reservoir and below	$24,780	$7,390		$1,890	$15,500
Subtotal	$152,838	$56,185	$52,108	$29,045	$15,500
ADMINISTRATION					
U.S.G.S. Contract	$28,028	$7,007	$7,007	$7,007	$7,007
Other expenses	$2,808		$936	$936	$936
Subtotal	$30,836	$7,007	$7,943	$7,943	$7,943
GRAND TOTAL	$183,674	$63,192	$60,051	$36,988	$23,443
EQUAL SHARES			$40,161	$40,161	$40,161

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 Lasauses, Colo.
Rio Grande near Lobatos, Colo.

Records of six transmountain diversions and of storage in Platoro, 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:
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.
The U.S. Geological Survey, in cooperation with
the U.S. Bureau of Reclamation, Albuquerque, N. Mex.,
provided the following records:
Storage in Nambe Falls Reservoir near Nambe, N. Mex.
Rio Nambe below Nambe Falls Dam, near Nambe, N. Mex.

The U.S. Geological Survey supplied the record for Rio Grande below Elephant Butte Dam and, in cooperation with the New Mexico Interstate Stream Commission, also provided the following:
Rio Chama below El Vado Dam, N. Mex.
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 Laguna Agency, Bureau of Indian Affairs, Laguna, N. Mex., supplied the records of storage in Seama Reservoir.

The U.S. Bureau of Reclamation, El Paso, Texas, provided the following records:
Storage in Elephant Butte Reservoir at Elephant Butte, N. Mex.
Storage in Caballo Reservoir near Arrey, N. Mex.
Rio Grande below Caballo Dam, N. Mex.
Bonito Ditch below Caballo Dam, N. Mex.

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

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.--112 years (1890-2001), 904 ft^3/s (654,900 acre-ft per year).

Extremes.--1889-2001: Maximum discharge, 18,000 ft^3/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft^3/s; minimum daily, 69 ft^3/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	4,350	160	120	140	8,630
February	4,100	170	120	146	8,130
March	8,384	531	160	270	16,630
April	26,245	2,560	356	875	52,060
May	131,880	5,910	1,650	4,254	261,600
June	104,090	5,600	2,330	3,470	206,500
July	35,575	2,410	519	1,148	70,560
August	22,380	995	473	722	44,390
September	10,172	494	285	339	20,180
October	8,026	291	218	259	15,920
November	5,636	286	132	188	11,180
December	4,870	180	140	157	9,660
Calendar year 2001	365,708	5,910	120	1,002	725,400

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.--49 years (1890-2001), 93.2 ft^3/s (67,520 acre-ft per year).

Extremes.--1952-2001: Maximum discharge, 1,160 ft^3/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	222.1	7.3	7.0	7.13	439
February	209.1	7.6	7.3	7.47	415
March	241.8	8.0	7.6	7.80	480
April	1,226.9	181	8.0	40.9	2,430
May	7,351	531	46	237	14,580
June	10,328	577	126	344	20,490
July	5,380	283	45	174	10,670
August	3,608	196	43	116	7,160
September	2,025	118	40	67.5	4,020
October	1,242	69	15	40.1	2,460
November	254.9	22	7.0	8.50	506
December	217.0	7.0	7.0	7.00	430
Calendar year 2001	32,304.8	577	7.0	88.5	64,080

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.--91 years (1904, 1912-2001), 327 ft^3/s (236,900 acre-ft per year).

Extremes.--1903-05, 1911-2001: Maximum discharge, 9,000 ft^3/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft^3/s; minimum daily determined, 10 ft^3/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	1,265	43	39	40.8	2,510
February	1,206	47	39	43.1	2,390
March	2,158	129	40	69.6	4,280
April	7,770	765	94	259	15,410
May	39,626	1,820	457	1,278	78,600
June	27,171	1,560	459	906	53,890
July	9,778	544	122	315	19,390
August	6,073	339	135	196	12,050
September	3,495	194	80	116	6,930
October	2,326	103	60	75.0	4,610
November	1,345	85	26	44.8	2,670
December	1,222	43	36	39.4	2,420
Calendar year 2001	103,435	1,820	26	283	205,200

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.--61 years (1941-2001), 25.6 ft^3/s (18,550 acre-ft per year).

Extremes.--1920, 1925-2001: Maximum discharge, 1,750 ft^3/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft^3/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	77.8	3.1	2.2	2.51	154
February	98.9	4.9	2.7	3.53	196
March	1,420.1	190	4.9	45.8	2,820
April	2,284	240	15	76.1	4,530
May	2,539	254	12	81.9	5,040
June	66.74	10	.00	2.22	132
July	.00	.00	.00	.00	.00
August	55.64	22	.00	1.79	110
September	9.01	1.1	.00	.30	18
October	66.31	3.2	.69	2.14	132
November	74.9	4.0	1.5	2.50	149
December	64.4	2.6	1.8	2.08	128
Calendar year 2001	6,756.80	254	.00	18.5	13,400

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.--83 years (1915-20, 1925-2001), 120 ft^3/s (86,940 acre-ft per year).
Extremes.--1915-20, 1925-2001: Maximum discharge, 3,160 ft^3/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft^3/s; minimum observed, 4.0 ft^3/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	406	15	11	13.1	805
February	415	17	13	14.8	823
March	1,183	60	16	38.2	2,350
April	5,497	666	57	183	10,900
May	20,582	1,010	346	664	40,820
June	4,963	401	45	165	9,840
July	917	58	20	29.6	1,820
August	704	36	14	22.7	1,400
September	357.2	19	9.4	11.9	709
October	402	16	11	13.0	797
November	367.2	17	9.2	12.2	728
December	334	12	10	10.8	662
Calendar year 2001	36,127.4	1,010	9.2	99.0	71,660

Conejos River near Lasauses, 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 Lasauses. 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.--80 years (1922-2001), 181 ft^3/s (131,100 acre-ft per year).
Extremes.--1921-2001: Maximum discharge, 3,890 ft^3/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	1,041	40	27	33.6	2,060
February	1,632	81	35	58.3	3,240
March	3,519	257	65	114	6,980
April	3,498	325	31	117	6,940
May	17,099	967	157	552	33,920
June	7,927	554	48	264	15,720
July	974.60	72	.80	31.4	1,930
August	20.12	2.6	.10	.65	40
September	4.21	1.0	.00	.14	8.4
October	15.38	1.4	.00	.50	31
November	397.1	24	3.7	13.2	788
December	1,013	48	23	32.7	2,010
Calendar year 2001	37,140.41	967	.00	102	73,670

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^3/s (612,900 acre-ft per year); 71 years (1931-2001) 449 ft^3/s (325,300 acre-ft per year).
Extremes.--1899-2001: Maximum discharge observed, 13,200 ft^3/s June 8, 1905 (gage height, 9.1 ft), from rating curve extended above 8,000 ft^3/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	6,010	220	170	194	11,920
February	7,571	376	180	270	15,020
March	13,373	768	308	431	26,530
April	9,996	616	172	333	19,830
May	41,746	2,140	554	1,347	82,800
June	38,250	2,010	690	1,275	75,870
July	11,467	638	130	370	22,740
August	3,025	159	61	97.6	6,000
September	1,552	115	29	51.7	3,080
October	1,718	66	43	55.4	3,410
November	4,363	259	55	145	8,650
December	7,290	290	200	235	14,460
Calendar year 2001	146,361	2,140	29	401	290,300

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^3/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 32 years (1970-2001), 137 ft^3/s (99,260 acre-ft per year) subsequent to completion of Azotea tunnel.
Extremes.--1962-2001: Maximum discharge, 1,610 ft^3/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	3,432.50	421	.00	111	6,810
April	11,890	820	133	396	23,580
May	24,533	940	443	791	48,660
June	14,281	881	175	476	28,330
July	2,286.1	177	7.1	73.7	4,530
August	2,170.2	249	4.0	70.0	4,300
September	121.80	24	.00	4.06	242
October	.00	.00	.00	.00	.00
November	.00	.00	.00	.00	.00
December	.00	.00	.00	.00	.00
Calendar year 2001	58,714.60	940	.00	161	116,500

STREAMFLOW

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

Location.--Water-stage recorder, lat 36°42'24", long 106°44'42", in Tierra Amarilla Grant, on right bank 3.7 mi northwest of Heron Dam, 7.8 mi downstream from Horse Lake, and 9.9 mi west of Los Ojos. Datum of gage is 7,188.85 ft above 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^3/s (848 acre-ft per year).
Extremes.--1963-2001: Maximum discharge, 3,960 ft^3/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	0.62	0.18	0.00	0.02	1.2
June	.00	.00	.00	.00	.00
July	.00	.00	.00	.00	.00
August	.00	.00	.00	.00	.00
September	.00	.00	.00	.00	.00
October	--	--	--	--	--
November	--	--	--	--	--
December	--	--	--	--	--
Calendar year 2001	--	--	--	--	--

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.--31 years (1971-2001), 126 ft^3/s (91,290 acre-ft per year).
Extremes.--1971-2001: Maximum daily discharge, 2,780 ft^3/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	662.0	100	.00	21.4	1,310
February	2,800	100	100	100	5,550
March	5,360	400	100	173	10,630
April	14,031	550	400	468	27,830
May	1,736.0	419	.00	56.0	3,440
June	0.00	.00	.00	.00	.00
July	.00	.00	.00	.00	.00
August	.00	.00	.00	.00	.00
September	.00	.00	.00	.00	.00
October	992.00	400	.00	32.0	1,970
November	12,000	400	400	400	23,800
December	10,894	400	200	351	21,610
Calendar year 2001	48,475.00	550	.00	133	96,150

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^3/s (321,700 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-70), 372 ft^3/s (269,500 acre-ft per year), prior to release of transmountain water; 31 years (1971-2001) 479 ft^3/s (347,000 acre-ft per year).
Extremes.--1914-16, 1920-24, 1936-2001: Maximum discharge observed, 9,000 ft^3/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	3,506	116	111	113	6,950
February	3,065	114	102	109	6,080
March	3,298	165	99	106	6,540
April	3,233	161	91	108	6,410
May	20,966	2,040	92	676	41,590
June	9,919	760	182	331	19,670
July	7,656	521	152	247	15,190
August	12,936	653	98	417	25,660
September	22,035	863	604	734	43,710
October	11,530	719	221	372	22,870
November	6,686	226	218	223	13,260
December	6,967	226	221	225	13,820
Calendar year 2001	111,797	2,040	91	306	221,700

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^3/s (272,400 acre-ft per year), prior to release of transmountain water; 31 years (1971-2001), 534 ft^3/s (387,000 acre-ft per year).
Extremes.--1961-2001: Maximum discharge, 2,990 ft^3/s July 1, 1965 (gage height, 6.69 ft); minimum, about 0.5 ft^3/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	1,664	56	51	53.7	3,300
February	1,743	109	52	62.2	3,460
March	1,570	58	48	50.6	3,110
April	5,018	400	48	167	9,950
May	5,281	503	142	170	10,470
June	6,167	461	155	206	12,230
July	16,566	809	208	534	32,860
August	18,756	862	193	605	37,200
September	25,564	1,030	692	852	50,710
October	14,323	772	65	462	28,410
November	1,265	44	38	42.2	2,510
December	1,358	47	41	43.8	2,690
Calendar year 2001	99,275	1,030	38	272	196,900

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.--23 years (1979-2001), 14.7 ft^3/s (10,650 acre-ft per year).
Extremes.--1979-2001: Maximum discharge, 312 ft^3/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	38.7	1.3	1.1	1.25	77
February	33.8	1.3	1.1	1.21	67
March	43.4	1.5	1.3	1.40	86
April	354.6	24	1.5	11.8	703
May	1,198	58	25	38.6	2,380
June	611	38	11	20.4	1,210
July	420.8	19	3.9	13.6	835
August	372.7	35	3.0	12.0	739
September	220.1	21	2.9	7.34	437
October	223.0	2.0	2.4	7.19	442
November	52.6	7.7	1.4	1.75	104
December	39.1	1.7	1.0	1.26	78
Calendar year 2001	3,607.8	58	1.0	9.88	7,160

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.--102 years (1896-1905, 1910-2001), 1,533 ft^3/s (1,111,000 acre-ft per year).
Extremes.--1895-1905, 1910-2001: Maximum discharge, 24,400 ft^3/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft^3/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	16,822	579	471	543	33,370
February	17,315	740	529	618	34,340
March	25,721	1,250	659	830	51,020
April	33,908	1,800	721	1,130	67,260
May	85,180	3,700	1,750	2,748	169,000
June	58,720	3,190	1,100	1,957	116,500
July	38,396	1,530	904	1,239	76,160
August	30,298	1,280	588	977	60,100
September	31,570	1,300	868	1,052	62,620
October	21,519	948	511	694	42,680
November	13,629	584	358	454	27,030
December	17,789	638	512	574	35,280
Calendar year 2001	390,867	3,700	358	1,071	775,300

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.--89 years (1913-2001), 8.16 ft^3/s (5,912 acre-ft per year).
Extremes.--1913-2001: Maximum discharge, 1,500 ft^3/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	2.94	0.14	0.06	0.095	5.8
February	4.29	.24	.08	.15	8.5
March	64.66	7.3	.12	2.09	128
April	167.2	21	1.4	5.57	332
May	566.5	35	4.4	18.3	1,120
June	334.0	15	7.7	11.1	662
July	245.3	16	4.9	7.91	487
August	383.9	18	5.0	12.4	761
September	292.4	27	1.1	9.75	580
October	272.7	16	5.8	8.80	541
November	36.95	6.0	.15	1.23	73
December	6.05	.34	.11	.20	12
Calendar year 2001	2,376.89	35	.06	6.51	4,710

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.--31 years (1971-2001), 1,406 ft^3/s (1,019,000 acre-ft per year).
Extremes.--1971-2001: Maximum discharge, 10,300 ft^3/s July 26, 1971, at site 2.4 mi downstream prior to closure of Cochiti Dam; minimum discharge, 0.51 ft^3/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	17,567	632	511	567	34,840
February	18,669	894	528	667	37,030
March	23,352	1,130	597	753	46,320
April	29,642	1,420	644	988	58,790
May	74,140	4,090	1,690	2,392	147,100
June	51,560	2,720	1,110	1,719	102,300
July	31,648	1,140	911	1,021	62,770
August	25,243	1,010	634	814	50,070
September	25,676	996	750	856	50,930
October	16,482	787	360	532	32,690
November	11,279	587	164	376	22,370
December	16,609	632	462	536	32,940
Calendar year 2001	341,867	4,090	164	937	678,100

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.--31 years (1971-2001), 6.03 ft^3/s (4,369 acre-ft per year).
Extremes.--1970-2001: Maximum discharge, 2,000 ft^3/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^3/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	90.75	8.6	0.00	2.93	180
February	47.84	3.2	.54	1.71	95
March	8.65	2.9	.00	.28	17
April	1.25	.61	.00	.042	2.5
May	1.15	.60	.00	.037	2.3
June	178.33	95	.00	5.94	354
July	.32	.24	.00	.010	.6
August	343.80	134	.00	11.1	682
September	.00	.00	.00	.00	.00
October	.00	.00	.00	.00	.00
November	.00	.00	.00	.00	.00
December	.00	.00	.00	.00	.00
Calendar year 2001	672.09	134	.00	1.84	1,330

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.--59 years (1937, 1944-2001), 62.7 ft^3/s (45,430 acre-ft per year).
Extremes.--1937, 1944-2001: Maximum discharge, 16,300 ft^3/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	609.2	36	1.8	19.7	1,210
February	1,093	62	14	39.0	2,170
March	3,117.7	354	3.7	101	6,180
April	5,885.8	687	5.1	196	11,670
May	3,723.2	1,580	5.2	120	7,380
June	1,478.5	214	1.6	49.3	2,930
July	680	63	14	21.9	1,350
August	723.0	64	9.0	23.3	1,430
September	690	28	14	23.0	1,370
October	2,083.13	120	.40	67.2	4,130
November	160.57	15	.17	5.35	318
December	217.5	8.9	4.2	7.02	431
Calendar year 2001	20,461.60	1,580	.17	56.1	40,590

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.--87 years (1915-2001, 1,011 ft^3/s (732,500 acre-ft per year).
Extremes.--1915-2001: Maximum daily discharge, 8,220 ft^3/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	2,152.6	768	9.6	69.4	4,270
February	49,880	2,440	1,280	1,781	98,940
March	48,630	1,630	1,040	1,569	96,460
April	49,130	1,670	1,620	1,638	97,450
May	53,420	1,800	1,600	1,723	106,000
June	54,190	2,440	1,470	1,806	107,500
July	57,040	2,220	1,390	1,840	113,100
August	46,319	1,660	838	1,494	91,870
September	20,327	874	370	678	40,320
October	7,713.9	1,490	7.4	249	15,300
November	208.9	7.7	6.4	6.96	414
December	6,631.1	667	7.6	214	13,150
Calendar year 2001	395,642.5	2,440	6.4	1,084	784,800

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.--64 years (1938-2001) 941 ft^3/s (681,800 acre-ft per year).
Extremes.--1938-2001: Maximum daily discharge, 7,650 ft^3/s May 20, 1942; minimum daily, 0.1 ft^3/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	93.0	3.0	3.0	3.00	184
February	12,024.0	996	3.0	429	23,850
March	53,791	2,330	901	1,735	106,700
April	44,130	1,870	1,120	1,471	87,530
May	48,780	2,000	1,110	1,574	96,760
June	66,190	2,520	1,860	2,206	131,300
July	65,950	2,600	1,710	2,127	130,800
August	55,870	2,110	1,600	1,802	110,800
September	36,820	1,770	850	1,227	73,030
October	12,892.0	1,440	4.0	416	25,570
November	142.0	7.0	1.0	4.73	282
December	40.6	1.8	1.1	1.31	81
Calendar year 2001	396,722.6	2,600	1.0	1,087	786,900

STREAMFLOW

Bonito ditch below Caballo Dam, N. Mex.

Records available --January 1938 to December 2001. 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	32.3
March	141.3
April	126.3
May	144.2
June	134.8
July	88.8
August	210.5
September	155.1
October	16.1
November	0
December	70.2
Calendar year 2001	1,119.7

RIO GRANDE COMPACT COMMISSION REPORT

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

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

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

Calendar Year 2001

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

Rito Hondo Reservoir.--Staff gage in sec. 22, T. 42 N., R. 3 W., on Rito Hondo (Deep Creek) tributary to Clear Creek. Completed in 1957; capacity, 561 acre-ft. Originally filled during May and June 1958 with transmountain water; storage is not in debit status. Water is used for fish culture.

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

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-
Contents	561	561	561	561	561	561	561	561	561	561	561	561	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Calendar Year 2001

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

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

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

Calendar Year 2001

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

STORAGE IN RESERVOIRS

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 2001

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

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

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

Calendar Year 2001

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

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

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

Calendar Year 2001

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

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 2001

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

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 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	15.0	15.0	15.0	0.0	14.2	14.2	14.0	13.7	13.6	13.3	13.3	13.3	-
Contents	43	43	43	0	39	39	38	37	36	35	35	35	-
Change	0	0	0	-43	+39	0	-1	-1	-1	-1	0	0	-8

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 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	9.9	12.6	15.0	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	-
Contents	92	140	188	237	237	237	237	237	237	237	237	237	-
Change	+48	+48	+48	+49	0	0	0	0	0	0	0	0	+193

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

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

Date	Elevation	Contents	Change in contents
December 31, 2000	9,977.1	16,779	-
January 31, 2001	9,977.2	16,843	+64
February 28	9,977.5	17,012	+169
March 31	9,977.9	17,214	+202
April 30	9,978.6	17,584	+370
May 31	9,998.6	30,014	+12,430
June 30	9,991.3	31,105	+1,091
July 31	9,991.26	25,060	-6,045
August 31	9,986.3	21,975	-3,085
September 30	9,981.1	18,946	-3,029
October 31	9,977.7	17,097	-1,849
November 30	9,977.7	17,097	0
December 31	9,977.7	17,113	+16
Calendar year 2001	-	-	+334

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 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	-
Contents	869	869	869	869	869	869	869	869	869	869	869	869	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

STORAGE IN RESERVOIRS

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

Heron Reservoir.--Water-stage recorder, 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, 2000	7,160.76	267,390	-
January 31, 2001	7,160.60	266,640	-750
February 28	7,159.80	262,900	-3,740
March 31	7,159.87	263,230	+330
April 30	7,159.50	261,510	-1,720
May 31	7,169.23	308,750	+47,240
June 30	7,174.43	335,790	+27,040
July 31	7,175.12	339,470	+3,680
August 31	7,175.65	342,320	+2,850
September 30	7,175.28	340,330	-1,990
October 31	7,174.62	336,800	-3,530
November 30	7,170.00	312,670	-24,130
December 31	7,165.76	291,420	-21,250
Calendar year 2001	-	-	+24,030

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, 2000	6,818.24	23,940	-	14,920
January 31, 2001	6,814.99	20,990	-2,950	10,270
February 28	6,816.62	22,440	+1,450	10,480
March 31	6,828.11	34,150	+11,710	10,190
April 30	6,869.59	99,160	+65,010	23,890
May 31	6,900.02	179,900	+80,740	23,780
June 30	6,899.32	177,700	-2,200	23,640
July 31	6,895.22	165,020	-12,680	22,190
August 31	6,887.15	141,690	-23,330	19,680
September 30	6,869.17	98,280	-43,410	17,070
October 31	6,858.85	78,460	-19,820	17,760
November 30	6,865.15	90,170	+11,710	28,500
December 31	6,869.57	99,120	+8,950	36,300
Calendar year 2001	-	-	+75,180	-

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, 2000	6,193.31	91,320	-	88,650
January 31, 2001	6,194.72	95,470	+4,150	94,820
February 28	6,196.23	100,010	+4,540	99,760
March 31	6,197.91	105,180	+5,170	104,880
April 30	6,199.01	108,620	+3,440	106,270
May 31	6,201.74	144,970	+36,350	103,970
June 30	6,211.48	151,290	+6,320	100,950
July 31	6,206.23	132,550	-18,740	89,800
August 31	6,203.14	121,960	-10,590	84,390
September 30	6,201.05	115,110	-6,850	83,360
October 31	6,199.40	109,850	-5,260	80,320
November 30	6,202.69	120,460	+10,610	91,840
December 31	6,205.83	131,160	+10,700	103,260
Calendar year 2001	-	-	+39,840	-

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, 2000	6,812.43	1,310	-
January 31, 2001	6,815.24	1,430	+120
February 28	6,817.86	1,560	+130
March 31	6,823.54	1,850	+290
April 30	6,826.66	2,030	+180
May 31	6,826.76	2,030	0
June 30	6,824.19	1,880	-150
July 31	6,816.25	1,480	-400
August 31	6,811.04	1,250	-230
September 30	6,807.27	1,090	-160
October 31	6,801.23	880	-210
November 30	6,804.29	980	+100
December 31	6,807.83	1,110	+130
Calendar year 2001	-	-	-200

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 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, 2000	7,848.52	1,050	-	726	324
January 31, 2001	7,852.99	1,150	+100	746	404
February 28	7,855.65	1,280	+130	876	404
March 31	7,867.01	1,920	+640	1,060	404
April 30	7,877.95	2,660	+740	1,060	404
May 31	7,885.78	3,260	+600	1,060	404
June 30	7,881.39	2,920	-340	1,060	404
July 31	7,876.00	2,520	-400	1,060	404
August 31	7,865.96	1,860	-660	1,060	404
September 30	7,855.17	1,250	-600	846	404
October 31	7,842.63	733	-517	329	404
November 30	7,842.31	722	-11	318	404
December 31	7,843.91	777	+55	373	404
Calendar year 2001	-	-	-273	-	-

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	Pre-Compact water	Transmountain water
December 31, 2000	156.28	407	-	167	240
January 31, 2001	150.16	282	-125	122	160
February 28	144.42	195	-87	35	160
March 31	149.65	274	+79	0	160
April 30	145.59	211	-63	0	160
May 31	167.04	687	+476	0	160
June 30	164.17	603	-84	0	160
July 31	151.19	319	-284	0	160
August 31	159.10	479	+160	0	160
September 30	153.90	440	-39	215	160
October 31	163.37	581	+141	421	160
November 30	161.30	526	-55	366	160
December 31	158.44	455	-71	295	160
Calendar year 2001	-	-	+48	-	-

STORAGE IN RESERVOIRS

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

Cochiti Lake.--Water-stage recorder and manometer in NW1/4SW1/4 sec. 16, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, on Rio Grande. Completed in 1975; capacity 491,259 acre-ft at elevation 5,450.0 ft (crest of service spillway); zero storage at elevation 5,255.0 ft, from 1998 survey. A 50,000-acre-ft permanent pool was authorized by Public Law 88-293, 88th Congress, March 26, 1964. Reservoir is operated by Corps of Engineers for flood control, sediment storage, and recreation. Storage began Nov. 12, 1973.

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2000	5,342.06	51,700	-	49,890
January 31, 2001	5,341.49	50,960	-740	49,930
February 29	5,340.85	50,170	-790	50,030
March 31	5,341.59	51,090	+920	50,270
April 30	5,341.59	51,090	0	49,820
May 31	5,340.53	49,780	-1,310	49,320
June 30	5,340.72	50,010	+230	49,920
July 31	5,340.13	49,300	-710	48,290
August 31	5,339.07	48,080	-1,220	47,870
September 30	5,339.21	48,230	+150	47,360
October 31	5,338.88	47,860	-370	46,990
November 30	5,338.93	47,920	+60	47,050
December 31	5,340.84	50,160	+2,240	49,010
Calendar year 2001	-	-	-1,540	-

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.

Month-end contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Contents	0	0	0	0	0	0	0	0	0	0	0	0	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

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, 2000	5,173.69	4,510	-	4,390
January 31, 2001	5,173.99	4,640	+130	4,350
February 29	5,172.50	3,990	-650	4,300
March 31	5,172.27	3,890	-100	4,180
April 30	5,180.96	9,410	+5,520	3,980
May 31	5,183.49	11,510	+2,100	3,920
June 30	5,179.09	7,940	-3,570	791
July 31	5,176.54	6,060	-1,880	0
August 31	5,175.13	5,210	-850	0
September 30	5,171.70	3,660	-1,550	0
October 31	5,155.59	0	-3,660	0
November 30	5,155.00	0	0	0
December 31	5,155.00	0	0	0
Calendar year 2001	-	-	-4,510	-

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

Month-end contents, in acre-feet

Calendar Year 2001

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 2001.

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, 2,023,400 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1999 with flood control storage reservation of 50,000 acre-ft from April through September and 25,000 acre-ft from October through March in accordance with 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, 2000	4,381.74	1,268,340	-	10,840
January 31, 2001	4,383.24	1,306,110	+37,770	10,670
February 29	4,381.04	1,250,970	-55,140	10,640
March 31	4,378.92	1,199,420	-51,550	10,570
April 30	4,376.48	1,142,020	-57,400	10,450
May 31	4,375.16	1,111,830	-30,190	10,320
June 30	4,372.26	1,047,610	-64,220	10,140
July 31	4,367.38	946,010	-101,600	10,020
August 31	4,363.86	877,360	-68,650	9,920
September 30	4,362.60	853,720	-23,640	9,840
October 31	4,362.36	849,270	-4,450	9,580
November 30	4,363.70	874,330	+25,060	9,530
December 31	4,364.92	897,630	+23,300	9,490
Calendar year 2001	-	-	-370,710	-

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, 326,700 acre-ft (by 1999 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above 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, 2000	4,142.94	42,850	-
January 31, 2001	4,144.12	42,490	-360
February 29	4,157.33	108,370	+65,880
March 31	4,154.82	92,970	-15,400
April 30	4,155.46	96,760	+3,790
May 31	4,155.68	98,080	+1,320
June 30	4,151.12	72,740	-25,340
July 31	4,148.96	62,240	-10,500
August 31	4,144.40	43,500	-18,740
September 30	4,132.18	12,320	-31,180
October 31	4,129.26	7,610	-4,710
November 30	4,131.04	10,380	+2,770
December 31	4,138.44	25,490	+15,110
Calendar year 2001	-	-	-17,360

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, 2000	1,311,200	-
January 31, 2001	1,348,600	+37,400
February 29	1,359,300	+10,700
March 31	1,292,400	-66,900
April 30	1,238,800	-53,600
May 31	1,209,900	-28,900
June 30	1,120,400	-89,500
July 31	1,008,200	-112,200
August 31	920,900	-87,300
September 30	866,000	-54,900
October 31	856,900	-9,100
November 30	884,700	+27,800
December 31	923,100	+38,400
Calendar year 2001	-	-388,100

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, 2001

Month	Pine River-Weminuche Pass ditch	Weminuche Pass ditch	Williams Creek-Squaw Pass ditch	Tabor ditch	Don La Font ditches	Treasure Pass diversion ditch	Azotea tunnel
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	1,510
April	0	0	0	0	0	0	19,280
May	0	0	0	38	0	0	51,090
June	236	0	258	204	0	46	29,280
July	83	0	87	113	0	11	4,640
August	46	0	40	85	0	0	4,460
September	55	0	2	48	0	0	310
October	42	0	0	13	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
Calendar year	462	0	387	501	0	57	110,570

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
2001

Evaporation and precipitation, in inches

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
Airport	Precip.	0.36	0.56	1.02	0.27	1.09	0.07	2.75	3.22	0.11	0.03	0.26	0.13	9.87
Platoro	Evap.	-	-	-	-	4.72	8.88	6.60	4.37	4.39	3.40	-	-	-
Dam	Precip.	-	-	-	-	0.12	0.94	3.01	0.46	1.33	0.91	-	-	-
Heron	Evap.	-	-	-	5.04	8.09	9.81	8.32	6.86	7.22	4.60	-	-	-
Dam	Precip.	1.76	0.73	1.82	1.21	1.91	0.31	2.58	1.98	0.30	0.54	1.25	0.79	15.18
El Vado	Evap.	-	-	-	5.64	8.31	10.10	9.01	7.27	6.86	5.70	-	-	-
Dam	Precip.	1.20	0.27	0.74	0.94	0.71	0.61	1.69	2.33	0.20	0.62	0.95	0.41	10.67
Abiquiu	Evap.	-	-	-	7.49	10.77	12.02	9.80	8.52	8.30	5.88	-	-	-
Dam	Precip.	0.57	0.35	0.09	0.48	0.46	0.17	2.46	1.11	0.31	0.17	0.91	0.27	7.35
Nambe	Evap.	-	-	-	4.50	7.69	11.67	7.96	6.12	6.36	4.37	-	-	-
Falls Dam	Precip.	1.08	0.02	0.0	0.0	1.58	0.77	1.67	2.43	0.13	0.16	0.37	0.0	8.21
Cochiti	Evap.	-	-	-	8.22	10.72	13.94	12.60	10.58	10.28	7.14	-	-	-
Dam	Precip.	1.48	0.46	0.39	0.36	0.64	0.65	1.13	2.19	0.51	0.09	0.24	0.53	8.67
Jemez	Evap.	-	-	-	9.22	11.97	15.73	17.01	15.59	13.91	5.60	-	-	-
Canyon Dam	Precip.	0.16	0.46	0.42	0.12	0.28	0.18	1.76	1.38	0.70	0.16	0.30	0.14	6.06
Elephant	Evap.	2.70	5.38	7.88	13.00	15.34	19.11	15.70	12.71	11.68	9.88	6.06	3.84	123.28
Butte Dam	Precip.	1.17	0.79	0.21	0.0	0.50	0.57	1.45	1.65	1.76	0.09	0.24	0.20	8.63
Caballo	Evap.	2.83	4.39	7.06	11.31	13.24	15.23	12.89	11.70	10.57	8.06	4.79	3.30	105.37
Dam	Precip.	0.92	0.77	0.11	0.03	0.86	0.95	0.99	1.19	1.50	0.15	0.10	0.05	7.62
State	Evap.	-	-	6.95	9.90	11.08	11.97	11.90	10.60	8.79	7.26	4.79	-	-.
Univer.	Precip.	0.29	0.17	0.35	0.04	0.71	0.36	0.99	1.49	0.61	0.01	0.21	0.02	5.25

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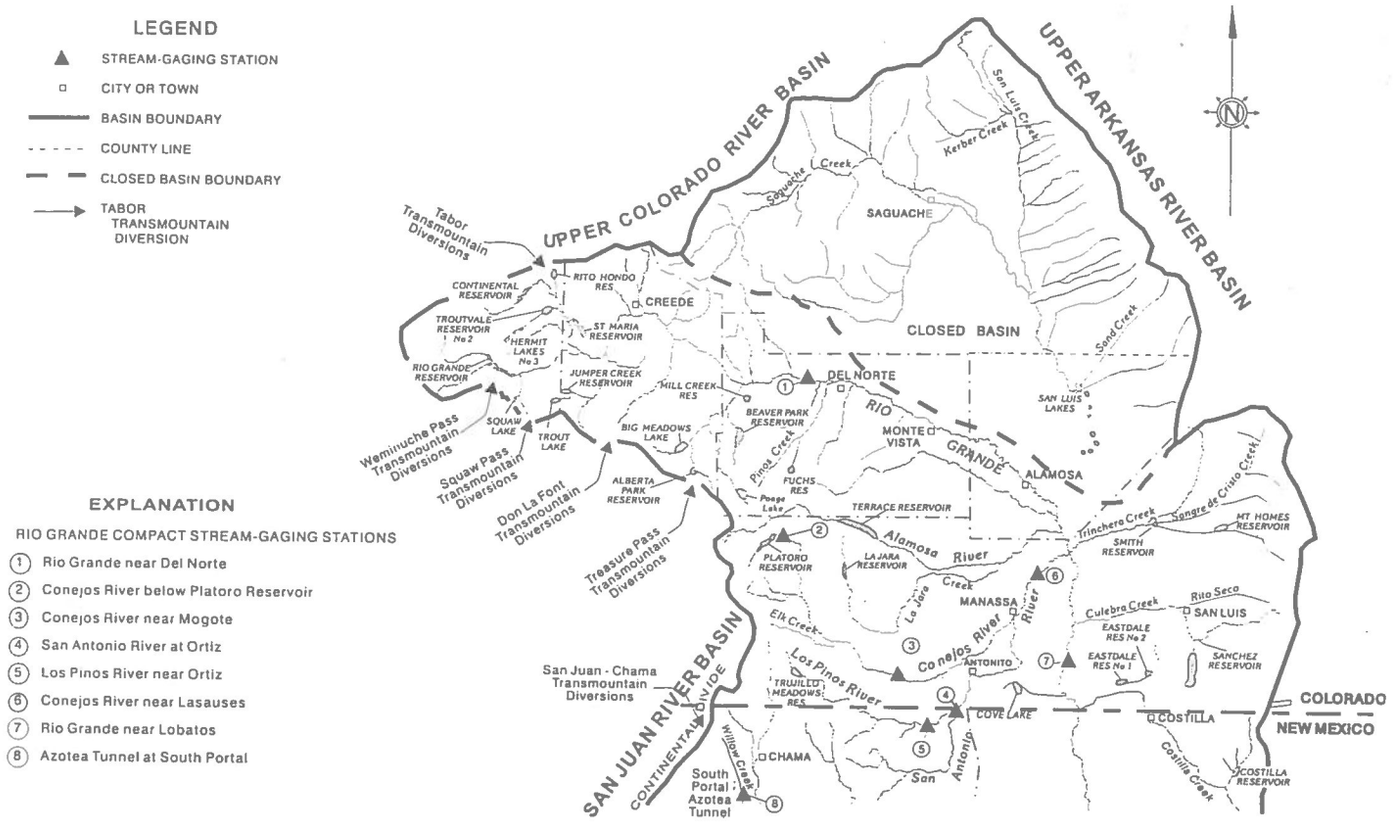
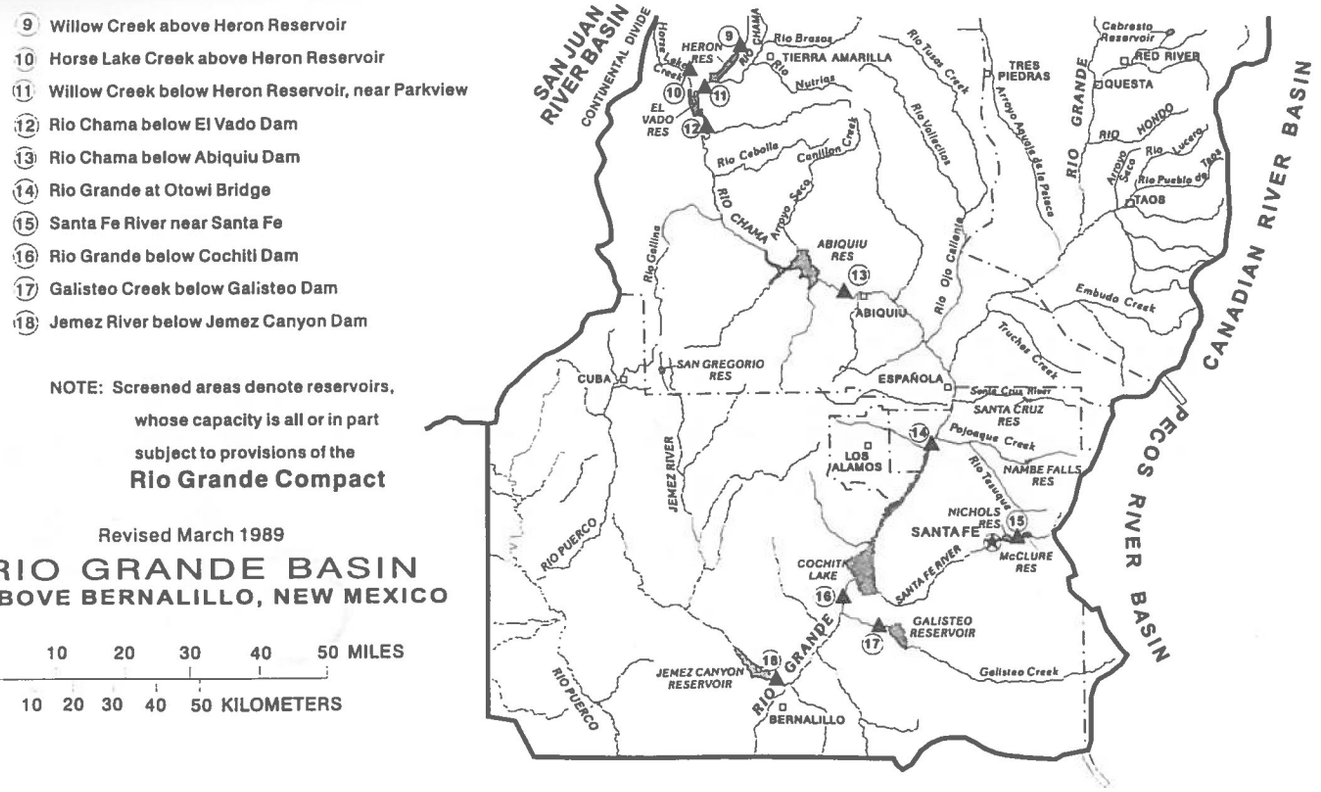

LEGEND
STREAM-GAGING STATION
CITY OR TOWN
BASIN BOUNDARY
COUNTY LINE
CLOSED BASIN BOUNDARY
TABOR TRANSMOUNTAIN DIVERSION
EXPLANATION
RIO GRANDE COMPACT STREAM-GAGING STATIONS
1 Rio Grande near Del Norte
2 Conejos River below Platoro Reservoir
3 Conejos River near Mogote
4 San Antonio River at Ortiz
5 Los Pinos River near Ortiz
6 Conejos River near Lasauses
7 Rio Grande near Lobatos
8 Azotea Tunnel at South Portal
UPPER COLORADO RIVER BASIN
UPPER ARKANSAS RIVER BASIN
SAN JUAN RIVER BASIN
CONTINENTAL DIVIDE
CLOSED BASIN
SAGUACHE
CREEDE
DEL NORTE
MONTE VISTA
ALAMOSA
MANASSA
SAN LUIS
COSTILLA
CHAMA
COLORADO
NEW MEXICO
Tabor Transmountain Diversions
Weminuche Pass Transmountain Diversions
Squaw Pass Transmountain Diversions
Don La Font Transmountain Diversions
Treasure Pass Transmountain Diversions
San Juan - Chama Transmountain Diversions
RIO GRANDE
Alamosa River
Conejos River
Los Pinos River
Rio Seco
Culebra Creek
Trinchera Creek
Sangre de Cristo Creek
Kerber Creek
San Luis Creek
Saguache Creek
Sand Creek
Pinos Creek
Elk Creek
La Jara Creek
Willow Creek
San Antonio
Costilla Creek
CONTINENTAL RESERVOIR
TROUTVALE RESERVOIR No 2
HERMIT LAKES No 3
RIO GRANDE RESERVOIR
RITO HONDO RES
ST MARIA RESERVOIR
JUMPER CREEK RESERVOIR
MILL CREEK RES
BIG MEADOWS LAKE
SQUAW LAKE
TROUT LAKE
ALBERTA PARK RESERVOIR
BEAVER PARK RESERVOIR
FUCHS RES
Pooge Lake
TERRACE RESERVOIR
PLATORO RESERVOIR
LA JARA RESERVOIR
TRUJILLO MEADOWS RES
COVE LAKE
ANTONITO
EASTDALE RES No 2
EASTDALE RES No 1
SANCHEZ RESERVOIR
SMITH RESERVOIR
MT HOMES RESERVOIR
SAN LUIS LAKES
COSTILLA RESERVOIR
South Portal Azotea Tunnel
1
2
3
4
5
6
7
8


9 Willow Creek above Heron Reservoir
10 Horse Lake Creek above Heron Reservoir
11 Willow Creek below Heron Reservoir, near Parkview
12 Rio Chama below El Vado Dam
13 Rio Chama below Abiquiu Dam
14 Rio Grande at Otowi Bridge
15 Santa Fe River near Santa Fe
16 Rio Grande below Cochiti Dam
17 Galisteo Creek below Galisteo Dam
18 Jemez River below Jemez Canyon Dam
NOTE: Screened areas denote reservoirs, whose capacity is all or in part subject to provisions of the Rio Grande Compact
Revised March 1989
RIO GRANDE BASIN
ABOVE BERNALILLO, NEW MEXICO
0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS
SAN JUAN RIVER BASIN
CONTINENTAL DIVIDE
CANADIAN RIVER BASIN
PECOS RIVER BASIN
RIO GRANDE
RIO CHAMA
HERON RES
EL VADO RES
ABIQUIU RES
ABIQUIU
SAN GREGORIO RES
CUBA
ESPAÑOLA
SANTA CRUZ RES
LOS ALAMOS
NAMBE FALLS RES
NICHOLS RES
SANTA FE
McCLURE RES
COCHITI LAKE
GALISTEO RESERVOIR
JEMEZ CANYON RESERVOIR
BERNALILLO
TIERRA AMARILLA
TRES PIEDRAS
QUESTA
RED RIVER
TAOS
Cabresto Reservoir
Rio Brazos
Rio Tusas
Rio Nutrias
Rio Cebolla
Canjilon Creek
Rio Vallecitos
Arroyo Aguaje de la Pasaca
Arroyo Seco
Rio Lucero
Rio Pueblo de Taos
Rio Ojo Caliente
Rio Gallina
Embudo Creek
Truchas Creek
Santa Cruz River
Pojoaque Creek
Rio Tesuque
Santa Fe River
Galisteo Creek
Jemez River
Rio Puerco
Horse Lake Creek
9
10
11
12
13
14
15
16
17
18