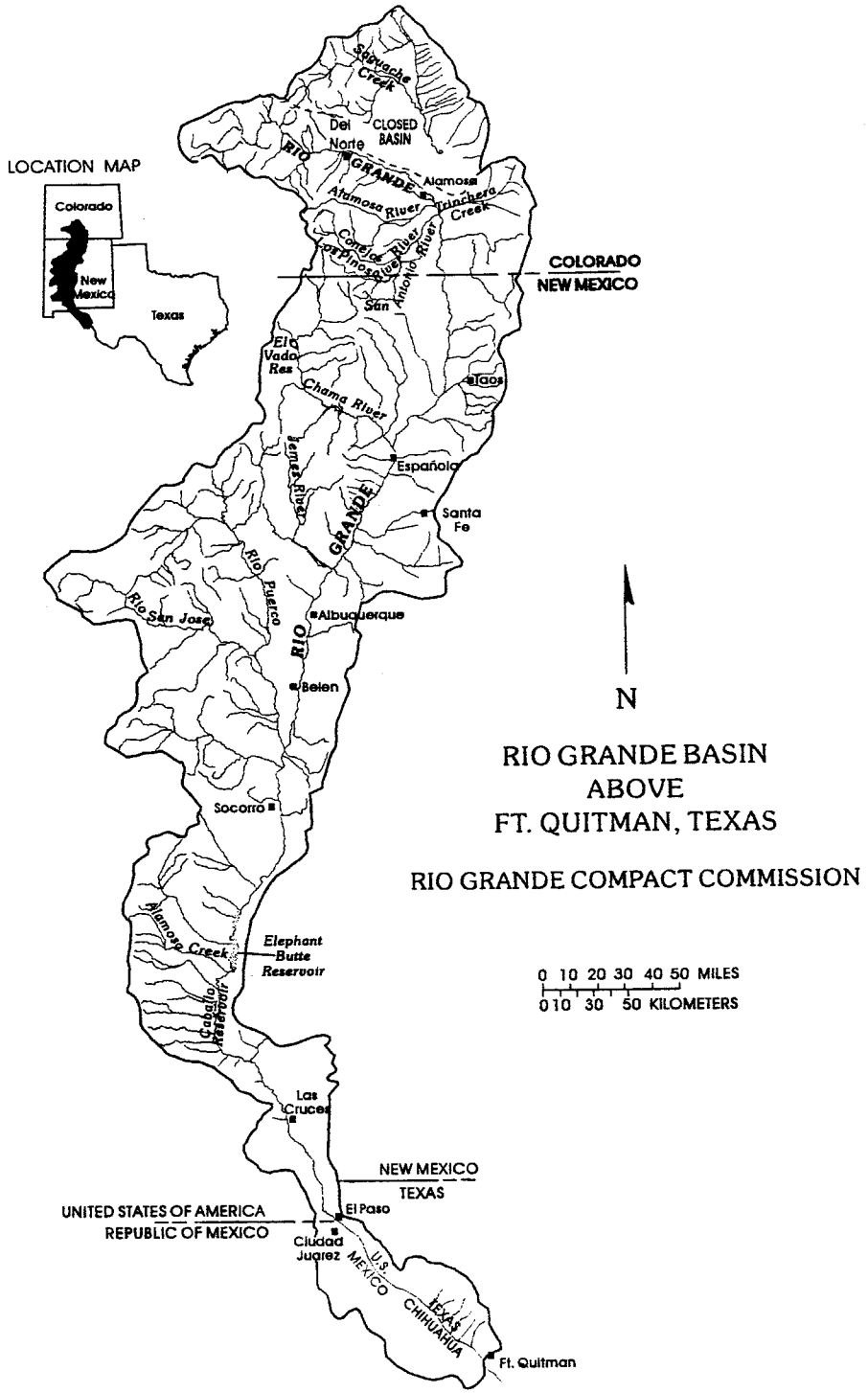
REPORT

of the

RIO GRANDE COMPACT COMMISSION

2004

TO THE GOVERNORS OF
Colorado, New Mexico and Texas


LOCATION MAP
Colorado
New Mexico
Texas
Del Norte
CLOSED BASIN
RIO GRANDE
Alamosa
Trinchera Creek
Conejos River
Los Pinos River
San Antonio River
COLORADO
NEW MEXICO
El Vado Res
Chama River
Taos
Jemez River
Española
Santa Fe
RIO GRANDE
Rio Puerco
Rio San Jose
Albuquerque
RIO
Belen
N
RIO GRANDE BASIN
ABOVE
FT. QUITMAN, TEXAS
RIO GRANDE COMPACT COMMISSION
Socorro
Alamosa Creek
Elephant Butte Reservoir
Caballo Reservoir
0 10 20 30 40 50 MILES
0 10 30 50 KILOMETERS
Las Cruces
NEW MEXICO
TEXAS
UNITED STATES OF AMERICA
REPUBLIC OF MEXICO
El Paso
Ciudad Juarez
U.S.
MEXICO
TEXAS
CHIHUAHUA
Ft. Quitman

CONTENTS

ILLUSTRATIONS

RIO GRANDE COMPACT COMMISSION

COLORADO TEXAS NEW MEXICO

March 31, 2005

The Honorable Bill Richardson
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 66th Annual Meeting of the Rio Grande Compact Commission was held in Santa Fe, New Mexico on March 31, 2005.

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 2004. The Commission found that:

(a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 226,200 acre-feet in 2004 and the scheduled delivery for the year was 221,800 acre-feet.
(b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 407,000 acre-feet in 2004 and the scheduled delivery for the year was 371,500 acre-feet.
(c) The actual release of usable water from Project Storage was 400,500 acre-feet.
(d) New Mexico relinquished 53,000 acre-feet of credit water to Texas on March 1, 2004.
(e) Colorado relinquished 1,150 acre-feet of credit water to Texas on March 31, 2004.

The Commission agreed to the accounting of accrued credits for 2004, as follows:

(1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 4,400 acre-feet on January 1, 2005.
(2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 35,600 acre-feet on January 1, 2005.
(3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2005 was a credit of 365,500 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were $168,068 in the fiscal year ending June 30, 2004. The United States bore $54,111 of this total; the balance of $113,957 was borne equally by the three States party to the Compact.

Respectfully,

John R. D'Antonio Jr., Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

Harold D. Simpson, Commissioner for Colorado

RIO GRANDE COMPACT COMMISSION REPORT

RIO GRANDE COMPACT

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

For the State of Colorado	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

RIO GRANDE COMPACT

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER--Con.

Quantities in thousands of acre feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

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

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

ARTICLE IV

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

RIO GRANDE COMPACT COMMISSION REPORT

DISCHARGE OF RIO GRANDE AT OTOWI BRIDGE AND AT SAN MARCIAL
EXCLUSIVE OF JULY, AUGUST AND SEPTEMBER

Quantities in thousands of acre feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

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

ARTICLE XV

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

ARTICLE XVI

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

ARTICLE XVII

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

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

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

(Sgd.) M. C. HINDERLIDER

(Sgd.) THOMAS M. McCLURE

(Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

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

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

Approved by the President May 31, 1939

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

RESOLUTION

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

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

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

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

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

Now, Therefore, Be it Resolved:

The Commission finds as follows:

(a) That because of change of physical conditions, reliable records of the amount of water passing San Marcial are no longer obtainable at the stream gaging station at San Marcial and that the same should be abandoned for Compact purposes.

(b) That the need for concurrent records at San Marcial and San Acacia no longer exists and that the gaging station at San Acacia should be abandoned for Compact purposes.

(c) That it is desirable and necessary that the obligations of New Mexico under the Compact to deliver water in the months of July, August, September, should be scheduled.

(d) That the change in gaging stations and substitution of the new measurements as hereinafter set forth will result in substantially the same results so far as the rights and obligations to deliver water are concerned, and would have existed if such substitution of stations and measurements had not been so made.

Be it Further Resolved:

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

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

RIO GRANDE COMPACT COMMISSION REPORT

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

Quantities in thousands of acre-feet

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

Intermediate quantities shall be computed by proportional parts.

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

(6) Elephant Butte Effective Index Supply is the recorded flow of the Rio Grande at the gaging station below Elephant Butte Dam during the calendar year plus the net gain in storage in Elephant Butte Reservoir during the same year or minus the net loss in storage in said reservoir, as the case may be.

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.

RULES AND REGULATIONS

RESERVOIR CAPACITIES /1

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

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

ACTUAL SPILL /2, /3, /4

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood purposes, i.e., 1,998,400 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 comingled.

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

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

/8 Amended June 2, 1959.

RULES AND REGULATIONS

QUALITY OF WATER

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

SECRETARY /8

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.

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

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

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.

REPORT OF THE ENGINEER ADVISERS
TO THE RIO GRANDE COMPACT COMMISSIONERS

March 4, 2005

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 2004. As determined by the Engineer Advisers, scheduled and actual deliveries, release of Usable Water for the year 2004, and balances as of January 1, 2005 are as follows:

(a) Deliveries by Colorado at the Stateline:

Balance as of January 1, 2004	1,200 acre-feet
Scheduled delivery	221,800 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	226,200 acre-feet
Accrued credits relinquishment to Project Storage on March 31, 2004	1,200 acre-feet
Accrued credit January 1, 2005	4,400 acre-feet

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

Balance as of January 1, 2004	54,000 acre-feet
Scheduled delivery	371,500 acre-feet
Actual delivery	407,000 acre-feet
Reduction of credit on account of evaporation	900 acre-feet
Accrued credits relinquishment to Project Storage on March 1, 2004	53,000 acre-feet
Accrued credit January 1, 2005	35,600 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2004	215,500 acre-feet
Actual release of Usable Water	400,500 acre-feet
Normal release for year	790,000 acre-feet
Under Release in excess of 150,000 acre-feet	239,500 acre-feet
Accrued departure (credit) as of January 1, 2005	365,500 acre-feet

While there was some improvement to streamflow due to above average precipitation in 2004 in parts of the basin in Colorado and New Mexico, streamflows in general continued to be substantially below normal due to ongoing drought. Usable Water in Project Storage remained below 400,000 acre-feet for the entire year. Consequently, Article VII of the Compact was in effect during the entire year.

The Engineers Advisers met in Santa Fe and Albuquerque from February 28 through March 4 to prepare the 2004 Compact water accounting and to discuss continuing and new issues in preparation for the 2005 annual meeting of the Rio Grande Compact Commission (Commission). The Engineer Advisers requested and received the participation of the U.S. Geological Survey (USGS), the U.S. Bureau of

Reclamation (Reclamation), the U.S. Army Corps of Engineers (Corps), the International Boundary and Water Commission (IBWC), the U.S. Bureau of Indian Affairs (BIA) and the U.S. Fish and Wildlife Service (Service) to discuss in detail their specific water-related activities in the basin. Bill Ruth, the Federal Chairman of the Commission attended the federal agency presentation portion of the meeting.

The New Mexico Engineer Adviser, as in 2003, declined to sign the 2004 Compact accounting sheets because of a disagreement that arose during the fall of 2002 regarding the monthly reduction of accrued credit water in storage in the Rio Grande Project. Although accrued credit water evaporation has been calculated on a monthly basis since the early 1990's, prior to that time evaporation calculations and credit and debit reductions for evaporation occurred annually. New Mexico reports it became concerned in November 2002, upon learning that Reclamation planned to change its 2003 Rio Grande Project operations from those conducted in the 1940's, 1950's, 1960's, 1970's and 1980's due to the change in reporting on the Compact accounting sheets that began in 1990. The Engineer Advisers agreed that a resolution of this issue may be reached after additional discussion and will explore this issue further in 2005.

New Mexico – Texas Relinquishment Agreement

In 2003 New Mexico offered and Texas accepted a relinquishment of a portion of New Mexico's accrued credits then held in Project Storage in Elephant Butte Reservoir. On April 23, 2003 the two states reached agreement for New Mexico to relinquish to Texas a total of 217,500 acre-feet of accrued credits, with 122,500 acre-feet of that amount accepted at that time, and the balance (up to 95,000 acre-feet if available) to be accepted on March 1, 2004.

Due to under-delivery and evaporation, the total relinquishment over the two years actually totaled 175,500 acre-feet. The relinquishment allowed the storage of a like amount of water in post-1929 reservoirs in New Mexico upstream of Elephant Butte Reservoir over as many years as necessary to capture it when the storage prohibition of Article VII is in effect.

A total of 146,143 acre-feet of relinquished water was stored in 2003 and 2004 (88,270 acre-feet in 2003; 57,873 acre-feet in 2004), leaving a balance of 29,357 acre-feet to be captured in future years. At the end of 2004, 20,218 acre-feet of relinquished water remained in storage in El Vado Reservoir and 253 acre-feet in Nichols Reservoir.

Colorado – Texas Relinquishment Agreement

Colorado began 2004 with 1,200 acre-feet of accrued credit. Native water was stored in Platoro Reservoir, a post-Compact reservoir, when storage was prohibited under Article VII of the Compact. This storage occurred during the period November 5, 2003 through March 24, 2004 while the release from the reservoir was reduced for normal winter operations. The maximum release possible through the bypass valves under the reservoir head conditions at that time is approximately eight cubic feet per second. The

inflow to the reservoir exceeded this release resulting in a gain of approximately 1,200 acre-feet before the gates were opened in March. Colorado relinquished 1,150 acre-feet to Project Storage on March 31, 2004 making a like amount of water in Platoro Reservoir available to meet irrigation demand on the Conejos River. On the 2004 accounting sheets, this amount was rounded to 1,200 acre-feet.

CONTINUING ISSUES

This section of the report summarizes issues previously addressed by the Engineer Advisers or the Commission. It reflects information obtained by the Engineer Advisers subsequent to the 2004 Commission meeting, including information obtained in the reports of federal agencies at the 2005 Engineer Advisers meeting.

Compact Accounting Documentation Project

At the 2002 meeting of the Commission, the Commissioners and Reclamation signed a Memorandum of Understanding (MOU) that formally describes the duties, roles, and responsibilities of each party in the accounting, reporting, and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Compact. The 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. The Engineer Advisers have prepared a draft of the documentation manual and will continue to work in 2005 to refine the manual as specific issues related to Compact accounting are addressed.

Closed Basin Project

The total production of the Closed Basin Project in 2004 was 14,340 acre-feet with 10,845 acre-feet of that amount being delivered to the Rio Grande. All deliveries to the Rio Grande met minimum water quality standards. Biofouling problems continue to plague the production wells of the Closed Basin Project. Reclamation replaced six wells in 2004 that were most affected by the iron bacteria and altered operational procedures to minimize bacterial growth. The new well design and operations show promise to restore the production of the project. Wells will continue to be replaced as budgetary constraints allow. The Closed Basin operating committee continues to monitor groundwater levels and groundwater production and adjust project operations pursuant to the enabling legislation.

URGWOM Accounting Model (Nambe Falls)

The Commission approved a resolution in 2001 that provided approval for use by Reclamation of the Upper Rio Grande Water Operations Model (URGWOM) accounting module for Rio Grande Compact accounting, subject to several conditions that the Engineer Advisers found to be substantially fulfilled at

their 2002 meeting. The URGWOM accounting model does not include water accounting associated with Nambe Falls Reservoir and San Juan-Chama (SJC) Project water return flows from the Pojoaque Valley Irrigation District (PVID); instead, prior to 2004, this accounting was performed separately using Reclamation's FORTRAN programs. The Commission approved the Nambe Falls RIVERWARE model for use in Compact accounting at the 2004 meeting, contingent upon Reclamation providing documentation of the model to the Engineer Advisers for review. Reclamation provided a partial draft model documentation report at the 2005 meeting of the Engineer Advisers, and committed to completing the documentation prior to the 2006 meeting. Reclamation plans to eventually merge the Nambe Falls RIVERWARE model into URGWOM.

Upper Rio Grande Water Operations Accounting Module and Hydrologic Data-Base

The Corps presented the latest developments and updates to URGWOM. Significant progress was made on developing and implementing new methods for modeling target flows in the middle Rio Grande valley and linking the results of the New Mexico Interstate Stream Commission's (NMISC) San Acacia reach surface water-groundwater model with URGWOM. The San Acacia model simulates the interaction between the Rio Grande, the Low Flow Conveyance Channel and other surface canals and drains and shallow groundwater in that reach.

At the 2004 meeting of the Engineer Advisers, Reclamation was requested to perform a comprehensive evaluation of the method for incorporating model output into the reporting spreadsheets. Reclamation reported that they are in the process of implementing a generalized relational database management system (Hydrologic Database, or HDB) for storing and using hydrologic data, including the data used for performing Compact accounting. Water accounting data output from URGWOM will eventually be ported directly into HDB using an automated data loader and used for preparation of the annual Compact accounting reports.

Due to the fact that the RIVERWARE code continues to be refined, the Engineer Advisers continue to request that the URGWOM team provide adequate documentation of any changes and keep the Engineer Advisers completely informed as to all model developments and updates in a timely manner.

Compliance by Federal Agencies with State Water Law and Regulations

The Commission approved resolutions in 2001 and 2002 that requested the Corps, Reclamation and Service 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. Federal agency representatives have acknowledged the need to comply with applicable state laws regarding these projects.

New Mexico reports that the NMISC and Reclamation are collaborating to implement several habitat improvement projects in the Albuquerque reach of the Rio Grande to conduct NEPA on those projects. The NMISC has submitted the Environmental Assessment to the Office of the State Engineer for review of depletions and determination as to whether the project requires a permit or an offset of

depletions. The U.S. Section of the IBWC, in its Canalization Project Environmental Impact Statement (EIS), has recognized the need to secure water to offset depletions from its proposed habitat restoration projects. The Corps presentation indicated they are in the planning stages of numerous habitat restoration projects within the Middle Rio Grande and will comply with the requirement of no new net depletions. New Mexico reports that the Corps has not yet submitted permit applications or met with the Office of the State Engineer on these projects.

Water Resource Development Act Section 729 Comprehensive Planning Study

The Corps and NMISC provided an update of the Section 729 water resources investigation in the reach of the Rio Grande between San Acacia and Elephant Butte Reservoir to characterize the interaction of surface water and shallow groundwater. The Corps reported work under the study is nearly complete and that the Corps and NMISC are completing financial accounting for the project. New Mexico reports that surface water stage and groundwater levels as well as water quality have been measured at multiple sites during 2003 and throughout 2004 to document the hydraulic interaction of surface water and groundwater, that New Mexico anticipates continuing data collection in conjunction with the New Mexico Institute of Mining and Technology and that New Mexico has developed a linked surface water/groundwater model for the reach based, in part, on data collected from the Section 729 study.

Low Flow Conveyance Channel Design, Construction, Operation and Maintenance

Reclamation again discussed its proposed project to relocate the river channel, and the adjacent Low Flow Conveyance Channel (LFCC), to the west side of the valley floor downstream from San Marcial. Reclamation indicated that the project is on hold due to lack of funding. Environmental issues and the results of New Mexico's modeling of the reach will be critical in determining whether the project should move forward.

The New Mexico Engineer Adviser reported on the NMISC's linked surface water/groundwater model analysis of alternative LFCC operations using the MODBranch model of the San Acacia reach. Results from the modeling indicate that the impact on New Mexico of not fully operating the LFCC are on the order of an additional depletion of 15,000 to 20,000 acre-feet of water in an average river flow year. Further, the modeling indicated partial operation of the LFCC may result in increased water depletion through the reach when compared to no operation of the LFCC. New Mexico indicated it would continue to refine the modeling analysis in 2005 and meet with Reclamation and the Service to fully evaluate the impact of not recommencing LFCC operations as well as the potential impact of realigning the LFCC and river below San Marcial by Reclamation.

Elephant Butte Pilot Channel Project

The Commission approved resolutions in 2000, 2001, 2002 and 2003 requesting that Reclamation 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. The Engineer Advisers assert that maintaining an active river channel from San Marcial through the sediment delta to Elephant Butte Reservoir is important to New Mexico's ability to make Compact deliveries. The active pool of the reservoir has receded more than 20 miles over the past several years and is below the Narrows. Without construction of the pilot channel little or no defined river channel would exist.

Reclamation and New Mexico have worked cooperatively to complete required environmental permitting and clearances for the project and report that a defined channel remains open for a distance of over 20 miles and is connected to the active reservoir pool. Reclamation and New Mexico have independently estimated that between 8,000 and 17,000 acre-feet of water will be saved annually when the pilot channel is open.

The New Mexico Engineer Adviser indicated New Mexico has spent over $6 million since 2000 to construct and maintain the channel and that he anticipates the need to reconstruct portions of the channel as sediment accumulates in 2005 and beyond. In 2004, Reclamation and New Mexico worked cooperatively to complete the required environmental permitting to maintain and extend the project as necessary below the Narrows. Work will be conducted in that area as funding availability and reservoir levels allow.

YEAR 2004 OPERATIONS

Platoro Reservoir Operations for 2004

Platoro Reservoir, located near the headwaters of the Conejos River in Southern Colorado, is a post-Compact reservoir subject to the storage prohibition of Article VII. Colorado reported that under three different scenarios, for two distinct reasons, Colorado increased storage in Platoro Reservoir during 2004.

During May and June of 2004, the Conejos Water Conservancy District stored pre-Compact direct flow water by exchange in Platoro Reservoir by shorting ditches that were entitled to that water less return flows. This pre-Compact water was re-regulated within 2004 to better meet the crop irrigation requirements under those ditches. This operation is done routinely pursuant to decrees of Colorado's District Water Court. All of this re-regulated water was accounted for and released in 2004, therefore not affecting the Conejos Index Supply. The Colorado Commissioner had discussed this possibility in previous Compact Commission meetings.

For dam safety reasons, the main gate valve in the dam is normally closed during the winter. This allows the downstream butterfly valves on the end of the outlets to be left open and not operated during

the winter. Spray from the outlet will freeze and totally encase the operating arms of these valves and risk damage if they are operated during the winter. The bypass valve passes water around the main slidegate for winter operation. From January through April 2004 this bypass valve was fully open to attempt to pass the late winter inflow to the reservoir. Because of heavy fall precipitation, the bypass valve was again unable to pass all the inflow to the reservoir through February 2005. Therefore, approximately 900 acre-feet was stored in November and December of 2004. This water accumulated because of the difference in the outlet capacity at the existing low reservoir head and the inflow. This water will be either be released as soon as the river and weather conditions allow and delivered to the state line or it will be retained pursuant to relinquishment of credit water in Elephant Butte Reservoir.

Emergency Drought Water Agreement (EDWA) Operations

In 2003, the State of New Mexico entered into the EDWA with the United States (acting through the Corps and Reclamation). Under the agreement New Mexico made available to the United States up to 70,000 acre-feet of relinquished water (also termed Emergency Drought Water), up to 140,000 acre-feet to the Middle Rio Grande Conservancy District (MRGCD), and up to 7,500 acre-feet to the City of Santa Fe over the ten-year term of the Agreement. The EDWA provided that the United States could release a maximum of 30,000 acre-feet in 2003 and up to 20,000 acre-feet in any subsequent calendar year. The MRGCD could release up to 46,667 acre-feet in any calendar year. New Mexico further agreed that the United States, the MRGCD, and the City of Santa Fe shall have the right to carry over for release in a future year any unreleased portion of a particular year's allocation of the Emergency Drought Water.

Carryover storage of Emergency Drought Water from 2003 included 24,379 acre-feet in El Vado Reservoir, 764 acre-feet in McClure Reservoir, and 273 acre-feet in Nichols Reservoir. During 2004, New Mexico stored a total of 57,873 acre-feet of relinquished water under the EDWA, all of which was stored in El Vado Reservoir. Of this water, a balance of 20,471 acre-feet was left at the end of the year, 20,218 in El Vado Reservoir and 253 in Nichols Reservoir.

Supplemental Water Program Operations

Reclamation's supplemental water program is intended to provide additional water, primarily through the voluntary leasing of SJC Project water, for endangered species needs. In 2004, Reclamation leased a total of 30,385 acre-feet for its supplemental water program. Of this, 13,710 acre-feet was SJC Project water and 16,675 acre-feet was EDWA water. Water leased by Reclamation was released during the irrigation season to assist in meeting flow targets at the San Marcial and Central Avenue gaging stations specified by the March 2003 Programmatic Biological Opinion (BO). SJC water leased for the program is released for diversion and use by the MRGCD which, in turn, allows an equivalent amount of native Rio Grande water (less conveyance losses) to remain undiverted. The total amount of water released under the program totaled 27,153 acre-feet. Of the released water, 2,990 acre-feet was SJC

Project water for which no contract has been executed as required by the authorizing legislation (PL 87-483). The New Mexico and Colorado Engineer Advisers continue to object to this release of uncontracted SJC Project water. Of the 16,700 acre-feet of SJC Project water, 10,478 acre-feet was released. The remainder was carried over for use in 2005.

Reclamation continued to operate portable diesel driven pumps at four locations in the San Acacia reach during 2004 to pump an estimated (by Reclamation) 13,170 acre-feet of water from the LFCC to the Rio Grande under a permit issued by the New Mexico Office of the State Engineer. Reclamation reported that they were in compliance with the BO.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, the Corps, the Service, the BIA and IBWC presented reports to the Engineer Advisers on March 1 and 2, 2005.

Cochiti Reservoir Baseline Study

The Corps reported on an ongoing study of Cochiti Reservoir operations. The study, initiated in 2003, is now scheduled to be completed in 2009. The Engineer Advisers are concerned with the continuing delays in completing this study and request that the Corps complete this project within the originally scheduled timeframe.

Jemez Canyon Reservoir Operations

The Corps reported on Jemez Canyon Reservoir operations. The reservoir is now operated as a dry reservoir as all storage was released in 2001 and there were no flood operations during 2004. The Corps is conducting studies on managing sediment in the reservoir including storing or passing sediment. During 2004, a low head weir was completed at the upstream end of the reservoir to control erosion maintain water table levels. This weir failed and a new design was completed in 2004 with construction scheduled for 2005. The Corps is also investigating design alternatives for modifications of the reservoir gates and gate structure for sediment management.

San Juan-Chama Project Shortage Sharing

Shortage sharing between the San Juan-Chama Project and the San Juan basin was not an issue during 2004.

Rio Grande Cutthroat Trout

On February 25, 1998 the Service received a petition to list the Rio Grande cutthroat trout as an endangered species. The Service completed a candidate status review for the Rio Grande Cutthroat Trout (June 11, 2002) indicating that listing of the species was not warranted. A lawsuit was filed in 2003

seeking to overturn the Service's most recent candidate status review and decision not to list the Rio Grande cutthroat trout as endangered. The lawsuit is ongoing. New Mexico reported to the Engineer Advisers that the New Mexico Game and Fish Commission halted the use of piscicides by the New Mexico Department of Game and Fish. The Engineer Advisers are concerned that that decision could adversely affect Rio Grande cutthroat trout reintroduction and restoration efforts.

Upper Rio Grande Basin Water Operations Review and EIS

Reclamation, the Corps, and NMISC signed a Memorandum of Agreement in January 2000 to conduct a review and EIS of water operations in the upper Rio Grande basin. This project is a five-year effort that is evaluating 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 three joint lead agencies developed multiple possible alternatives for analysis and implementation of decisions about coordinated water operations in the upper Rio Grande that seek to promote positive benefits, consistent with their individual missions and operating rules and guidelines. The draft programmatic EIS is currently being reviewed by the joint lead agencies and is scheduled to be released to the public during 2005. The Record of Decision (ROD) is scheduled to be published during 2006.

Prior and Paramount Storage for the Six Middle Rio Grande Pueblos

Reclamation provided details on 2004 Prior and Paramount storage and release activities. Reclamation reported they stored 20,000 acre-feet in El Vado Reservoir to guarantee delivery of irrigation water to the Prior and Paramount lands of the six Middle Rio Grande Pueblos in 2004. These are lands recognized as being prior and paramount to other lands of the Middle Rio Grande Conservancy District. The approximately 11,400 acre-feet of storage remaining at the end of the irrigation season was subsequently released in November and December for delivery to Elephant Butte Reservoir before the end of the calendar year.

The BIA Designated Engineer expressed concerns regarding the procedures used by Reclamation to calculate the amount of storage and subsequent releases of water for prior and paramount operations. Discussions are continuing between the BIA and Reclamation regarding the appropriate accounting for this water. An independent team within the Department of Interior has been appointed to investigate and develop procedures for computing the storage and release of water to satisfy the prior and paramount demand. The team consists of three representatives, one each from Reclamation, BIA and the USGS. Each representative is from outside the basin.

The Texas Engineer Adviser remains concerned about the storage of native Rio Grande water in El Vado Reservoir by Reclamation when the Article VII storage prohibition is in effect.

March 17, 2003 Middle Rio Grande Programmatic Biological Opinion

The Service provided updates on compliance activities with the March 17, 2003 BO regarding the actions of the Corps and Reclamation in regards to the Rio Grande silvery minnow and southwestern willow flycatcher. Water operations during year 2004 were consistent with the BO.

Rio Grande Silvery Minnow

Rio Grande silvery minnow salvage operations were conducted from June to September with a total salvage of 12,865 minnows. About 92.5 percent of those fish survived transportation to the Albuquerque reach where they were released. Incidental take as a result of the water operations in the Middle Rio Grande numbered 521, which was within the limit established by the BO. Approximately 68 miles of the Rio Grande went dry in the Isleta and San Acacia reaches at some time during 2004.

The Service continues to propagate silvery minnow at the Dexter National Fish Hatchery and the City of Albuquerque Biopark to augment the population. During 2004 a total of 180,651 minnows were released in the Rio Grande near Albuquerque. The next release is planned for March or April 2005 when about 80,000 minnows will be released at or near the same site.

During 2004, catch rates for the silvery minnow increased substantially from those of 2002 and 2003. The 2004 catch rate was similar to that of 2001. However, in 2004 the area of highest concentration was in the Angostura reach as opposed to the San Marcial reach in 2001. The Engineer Advisers are encouraged by these results.

The Service discussed reintroduction of the silvery minnow in the Big Bend region of the Rio Grande in Texas and above Cochiti Reservoir. The Service plans to reintroduce the silvery minnow in the Big Bend area as an ESA Section 10(j) experimental, non-essential population. The Service also indicated that reintroduction above Cochiti would be an ESA Section 10(j) experimental, non-essential population. If these segments are designated per Section 10(j), they cannot be designated as critical habitat for the minnow. Reintroduction per Section 10(j) will require the conductance of an environmental assessment in accordance with the National Environmental Policy Act. The Service has initiated meetings with local stakeholders regarding the reintroduction in the Big Bend area and plans to initiate the NEPA process in 2005. The Service is in the process of completing studies above Cochiti Reservoir to determine if the available habitat warrants reintroduction of Rio Grande silvery minnow and initiation of the 10(j) process.

The ongoing activities of the silvery minnow recovery team were discussed. The team was directed in December 2002 by the Service Regional Director to update the current Recovery Plan and revise recovery criteria to address needed actions for downlisting and delisting. The Engineer Advisers are active members of the recovery team. A draft of the revised Recovery Plan is scheduled for

completion by September 2005. The Engineer Advisers believe that the current processes of the recovery team provide adequate opportunities to address issues.

Bosque Restoration Projects

The Corps reported that they are in the process of planning or implementing several bosque restoration projects in the Rio Grande from Santa Ana Pueblo south to El Paso. These projects range from the removal of non-native trees to fire rehabilitation to the installation of gradient control structures (small dams) and open water ponds. New Mexico indicated its general support of these projects but reminded the Corps that habitat restoration permit applications need to be submitted to the Office of the State Engineer to ensure the projects do not cause water right impairment or increase depletions of water. The Corps acknowledged that these projects will need to provide for the offset of any additional depletions of water.

Middle Rio Grande Project Channel Maintenance

Reclamation personnel provided a presentation regarding the status of Reclamation's Middle Rio Grande channel maintenance program. In summary, Reclamation representatives said that 27 priority levee sites remain of concern. Reclamation indicated that at the current funding levels these sites would be reduced to about five sites by 2013 if it is assumed that no new sites would develop. The Engineer Advisers raised concerns with Reclamation relative with their emergency plans to address these priority sites during the spring 2005 snowmelt runoff. The Engineer Advisers recommended that Reclamation and the Corps coordinate to evaluate these sites and other locations as the runoff progresses to ensure adequate flood control operations throughout the basin.

Other Middle Rio Grande river maintenance activities includes mowing of reaches along the Low Flow Conveyance Channel, riprap and road base development for San Acacia priority sites, Elephant Butte Reservoir pilot channel work, and the acquisition of color infra-red aerial imagery of the Bernalillo to Bernardo reach and LIDAR topography data of the Elephant Butte Reservoir delta.

San Acacia Levee Project

The San Acacia Levee project would rehabilitate 55 miles of levee between San Acacia and the San Marcial Railroad Bridge by removing the existing spoil bank levee and replacing it with an engineered levee. The project includes raising or relocating the railroad bridge at San Marcial. The Corps initiated a re-evaluation study, expected to be completed by the third quarter of 2005. The study team's goal is to comply with the endangered species ruling and initiate construction for the new bridge by 2008. The Corps indicated that they have relied on Congressional add-ins to conduct this work and that there are currently no funds for this project in the FY 2006 executive budget.

Southwestern Willow Flycatchers

The Southwestern willow flycatcher was listed as an endangered species on February 27, 1995. Critical habitat for the flycatcher was designated by the Service on July 12, 1997, and subsequently challenged in the 10th Circuit Court of Appeals. The critical habitat designation was set-aside on May 11, 2001. On October 12, 2004 the Service again proposed designation of critical habitat for the flycatcher. The proposed critical habitat in the Rio Grande basin includes areas in the San Luis Valley of Colorado and the Espanola and middle Rio Grande valleys in New Mexico. It does not include areas within the Elephant Butte Reservoir pool. The comment period for the proposed critical habitat designation closes March 31, 2005. The Service indicated this comment period may be extended.

At the 2004 meeting of the Engineer Advisers it was recognized that a potentially critical issue may exist related to the filling of the Elephant Butte Reservoir pool, and the effect of that filling on the flycatcher habitat that has developed in the pool area. The Engineer Advisers met with Reclamation and the Service in June and September 2004 on this issue. Reclamation indicated it will initiate consultation on the effects of specific operations of Elephant Butte Reservoir on flycatcher occupied habitat in 2005 and has invited the Engineer Advisers to participate.

Rio Grande Project Operations and Storage Projections

Reclamation reported delivery of a final allotment of 38 percent of a full supply for all three Rio Grande Project water users (Elephant Butte Irrigation District (EBID), El Paso County Water Improvement District No. 1 (EP No. 1), and Mexico). Mexico and EP No. 1 requested release of and diverted all of their allotted water. EBID used all but 21,000 acre-feet of their allotment. Reclamation reported the lowest storage volume for Elephant Butte Reservoir was 94,615 acre-feet on September 24, 2004. The lowest volume for Caballo Reservoir was 15,883 acre-feet on September 28, 2004.

Reclamation discussed their Rio Grande Project water allocations for 2005. At the time of the Engineer Advisers meeting, Reclamation indicated that the current allocation is 19.7 percent of a full allotment. However, Reclamation estimated the allocation at the end of 2005 would approach 100 percent based on the February 1 forecast of 105 percent of average inflow to Elephant Butte Reservoir as measured at San Marcial for the March through July runoff period. Reclamation indicated that Usable Water in Project Storage is expected to exceed 400,000 acre-feet in middle to late June for a couple of weeks and again in late December.

Vegetation Management at Elephant Butte and Caballo Reservoirs

Salt cedar and other phreatophytes continue to grow within the exposed reservoir areas. Reclamation has continued vegetation management efforts during 2004; 5,110 acres were mowed at both reservoirs. Herbicide (Arsenal) was applied to 918 acres at both reservoirs. New Mexico annually

provides cooperative funding for the vegetation management program at Caballo Reservoir and a portion of Elephant Butte Reservoir.

Canalization Project

IBWC presented information regarding the Canalization EIS. The final EIS was released in June 2004 and the Record of Decision is currently on hold. IBWC is in the process of conducting a Programmatic EIS (PEIS) regarding projects of the Rio Grande and Tijuana Rivers that will include all proposed activities. A draft PEIS is anticipated by late 2005.

IBWC also discussed reconstruction of the Hatch and Rincon Siphons and the Riverside Dam removal. These projects were completed in 2003 and 2004.

BUDGET

The Engineer Advisers reviewed the Cost of Operation for the year ending June 30, 2004 and the Budget for Fiscal Year ending June 30, 2006. The Engineer Advisers found that the expenses for the administration of the Rio Grande Compact for the year ending June 30, 2004 were $168,068. The United States bore $ 54,111 of this total, with the balance of $113,957 borne equally by the three states. The proposed budget for the fiscal year ending June 30, 2006 indicates a total of $175,658 will be spent for administration. The proposed contribution of the USGS for 2006 is $ 54,430.

Steven E. Vandiver
Engineer Adviser for Colorado

Estevan R. Lopez
Engineer Adviser for New Mexico

Herman R. Settemeyer
Engineer Adviser for Texas

RIO GRANDE COMPACT COMMISSION REPORT

RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 31, 2005, the records of deliveries and releases and computations of debits and credits for calendar year 2004 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. On March 1, 2004 New Mexico relinquished a total of 53,000 acre-feet of accrued credits. During 2004 the Commissioners found that the actual release of usable water was 400,500 acre-feet. This resulted in an accrued credit of 365,500 acre-feet as of January 1, 2005.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE

YEAR 2004

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[c]	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
	———	———	———	———	4.9	———	———	———	———	0.0	———	0.2	———	———	———	———	———	0.0	———	———	———	0.0
JAN	2.4	———	———	2.4	5.1	0.2		0.2	2.6	2.6	7.7	0.2	0.0			0.0	7.7	7.7	2.6	9.2	11.8	11.8
FEB	2.5	———	———	2.5	5.2	0.1		0.1	2.8	5.2	8.2	0.2	0.0			0.0	8.2	15.9	1.8	9.8	11.6	23.4
MAR	10.1	———	———	10.1	5.5	0.3		0.3	10.4	15.6	22.3	0.2	0.0			0.0	22.3	38.2	17.6	23.2	40.8	64.2
APR	16.0	13.3	5.3	34.6	5.6	0.1		0.1	34.7	50.3	39.4	0.2	0.0			0.0	39.4	77.6	13.6	8.2	21.8	86.0
MAY	63.1	30.2	4.6	97.9	9.1	3.5	0.1	3.6	101.5	151.8	176.0	0.2	0.0			0.0	176.0	253.6	20.8	24.4	45.2	131.2
JUN	50.5	7.1	0.1	57.7	13.9	4.8	0.1	4.9	62.6	214.4	131.7	0.2	0.0			0.0	131.7	385.3	7.9	21.5	29.4	160.6
JUL	17.7	1.8	0.0	19.5	10.6	-3.3	0.1	-3.2	16.3	230.7	35.6	0.2	0.0	-0.2[b]	0.2[a]	0.0	35.6	420.9	2.1	7.9	10.0	170.6
AUG	7.9	1.0	0.0	8.9	8.1	-2.5	0.0	-2.5	6.4	237.1	16.9	0.2	0.0			0.0	16.9	437.8	0.3	2.0	2.3	172.9
SEPT	10.3	1.0	0.0	11.3	6.5	-1.6	0.1	-1.5	9.8	246.9	32.1	0.2	0.0			0.0	32.1	469.9	0.0	1.0	1.0	173.9
OCT	9.4	1.9	0.2	11.5	5.2	-1.3		-1.3	10.2	257.1	29.2	0.2	0.0			0.0	29.2	499.1	0.0	4.0	4.0	177.9
NOV	4.4	———	———	4.4	5.7	0.5		0.5	4.9	262.0	17.0	0.2	0.0			0.0	17.0	516.1	3.1	18.2	21.3	199.2
DEC	2.7	———	———	2.7	6.1	0.4		0.4	3.1	265.1	11.7	0.2	0.0			0.0	11.7	527.8	4.0	13.0	17.0	216.2
YEAR	197.0	56.3	10.2	263.5	———	1.2	0.4	1.6	265.1	———	527.8	———	0.0	-0.2	0.2	0.0	527.8	———	73.6	142.4	216.2	———

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

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

[b] 488 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.

[c] See Engineer Adviser report in regards to change of storage.

[d] Actual amount of relinquishment 1,150 acre-feet (rounded to 1.2 thousand acre feet).

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
C1	Balance at Beginning of Year	———	———	Cr 1.2
C2	Scheduled Delivery from Conejos River	85.3	———	Dr 84.1
C3	Scheduled Delivery from Rio Grande	136.5	———	Dr 220.6
C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	———	226.2	Cr 5.6
C5	Reduction of Debits o/c Evaporation	———	———	
C6	Reduction of Credits o/c Evaporation and Spill	0.0	———	Cr 5.6
C7	Accrued credit relinquished to proj storage on March 31, 2004	1.2[d]	———	Cr 4.4
C8	Balance at End of Year	———	———	Cr 4.4

APPROVED:

Engineer Adviser for Colorado SEV Date: 3-3-05 Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas HRS Date: 3-3-05

RECORDS OF DELIVERIES AND RELEASES

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2004

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY									Total Water Stored in New Mexico Above San Marcial at End of Month [a, b]	ELEPHANT BUTTE EFFECTIVE SUPPLY				
		ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR			Effective Supply	
	Recorded Flow at Otowi Bridge	RESERVOIRS: LOBATOS TO OTOWI: Storage End of Month [a, b]	RESERVOIRS: LOBATOS TO OTOWI: Change in Storage	RESERVOIRS: LOBATOS TO OTOWI: 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
	----	24.4	----	----	----	----	----	----	----	25.1	203.6	----	----	----	----
JAN	30.8	27.3	2.9	0.1		-1.5	1.5	32.3	32.3	27.9	237.1	33.6	0.7	34.3	34.3
FEB	30.3	31.2	3.9	0.0		-1.4	2.5	32.8	65.1	32.3	265.2	28.1	2.5	30.6	64.9
MAR	72.0	57.1	25.9	0.1		-1.4	24.6	96.6	161.7	88.0	217.0	-48.2	78.5	30.3	95.2
APR	85.9	93.2	36.1	0.3		-0.4	36.0	121.9	283.6	94.2	272.7	55.7	26.7	84.4	179.6
MAY	144.0	101.9	8.7	0.8		1.0	10.5	154.5	438.1	102.9	316.3	43.6	27.2	70.8	250.4
JUN	85.5	92.6	-9.3	0.7		-4.9	-13.5	52.0	490.1	94.9	240.0	-76.3	88.2	11.9	262.3
JUL	51.1	68.3	-26.3	0.4		-1.3	-27.2	23.9	514.0	87.2	137.9	-102.1	123.7	21.6	283.9
AUG	43.0	43.7	-22.6	0.2		-4.7	-27.1	15.9	529.9	44.8	105.6	-32.3	50.5	18.2	302.1
SEPT	38.1	32.0	-11.7	0.1		-15.2	-26.8	11.3	541.2	32.6	90.4	-15.2	21.1	5.9	308.0
OCT	25.4	31.5	-0.5	0.1		-0.7	-1.1	24.3	565.5	32.9	103.0	12.6	0.9	13.5	321.5
NOV	42.6	31.2	-0.3	0.1		-1.7	-1.9	40.6	606.1	31.8	133.6	30.6	0.6	31.4	352.9
DEC	80.5	21.4	-9.8	0.1		-3.4	-13.1	37.4	643.5	22.2	187.4	53.8	0.5	54.1	407.0
YEAR	679.1	----	-3.0	3.0		-35.6	-35.6	643.5	----	----	----	-16.1	423.1	407.0	----

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] Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 agreement for relinquishment of accrued credits aggregated 57,873 acre-feet in 2004. Storage of relinquished credit to date aggregated 146,143; balance remaining is 29,357 acre-feet.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
NM1	Balance at Beginning of Year	----	----	Cr 64.0
NM2	Scheduled Delivery at Elephant Butte	371.5	----	Dr 317.5
NM3	Actual Elephant Butte Effective Supply	----	407.0	Cr 89.5
NM4	Reduction of Debits o/c Evaporation	----		
NM5	Reduction of Credits o/c Evaporation and Spill	0.9	----	Cr 88.6
NM6	Accrued credit relinquished to Project Storage on March 1, 2004	53.0	----	Cr 35.6
NM7				
NM8	Balance at End of Year	----	----	Cr 35.6

APPROVED:
Engineer Adviser for Colorado SEO Date: 3-4-05 Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas [illegible] Date: 3/4/05

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2004

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
	2,225.0	[b] 148.3	11.2	[b] 159.5	2,065.5	[b] 1.2	[b] 54.0	[b] 55.2		214.7	—	—	—	—	—	—	—	—
JAN	2,225.0	182.3	13.2	195.5	2,029.5	1.2	53.6	54.8		250.3	0.1	0.0	0.1					0.0
FEB	2,225.0	210.9	16.4	227.3	1,997.7	1.2	53.1	54.3		281.6	0.1	0.0	0.1				0.1	0.1
MAR	2,225.0	215.7	49.1	264.8	1,960.2	1.2	0.1	1.3		266.1	49.3	0.1	49.4				49.4	49.5
APR	2,200.0	272.6	56.1	328.7	1,871.3	0.0	0.1	0.1		328.8	21.3	0.1	21.4				21.4	71.0
MAY	2,200.0	316.2	60.8	377.0	1,823.0	0.0	0.1	0.1		377.1	15.4	0.2	15.6				15.6	86.6
JUN	2,200.0	239.9	48.3	288.2	1,911.8	0.0	0.1	0.1		288.3	94.1	0.2	94.3				94.3	180.9
JUL	2,200.0	137.8	66.1	203.9	1,996.1	0.0	0.1	0.1		204.0	96.2	0.1	96.3				96.3	277.2
AUG	2,200.0	105.5	35.8	141.3	2,058.7	0.0	0.1	0.1		141.4	80.7	0.1	80.8				80.8	358.0
SEPT	2,200.0	90.3	16.5	106.8	2,093.2	0.0	0.1	0.1		106.9	41.8	0.1	41.9				41.9	399.9
OCT	2,225.0	102.9	19.0	121.9	2,103.1	0.0	0.1	0.1		122.0	0.2	0.1	0.3				0.3	400.2
NOV	2,225.0	133.7	21.6	155.3	2,069.7	0.0	0.1	0.1		155.4	0.2	0.0	0.2				0.2	400.4
DEC	2,225.0	187.3	23.4	210.7	2,014.3	0.0	0.1	0.1		210.8	0.1	0.0	0.1				0.1	400.5
YEAR	—	—	—	—	—	—	—	—	—	—	399.5	1.0	400.5	0.0	0.0	0.0	400.5	—

[a] Project Storage Capacity is 2,200.0 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1998 Resolution of the Rio Grande Compact Commission with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

[b] Based on Balance at Beginning of Year (C1 and NM1).

[c] See Addendum to the February 27, 2004 Report of the Engineer Advisers.

[d] Adjustment pursuant to section entitled "Departure from Normal Releases" of the "Rules and Regulations for Administration of the Rio Grande Compact".

ACCRUED DEPARTURE FROM NORMAL RELEASE

	ITEM	DEBIT	CREDIT	BALANCE
P1	Accrued Departure at Beginning of Year	—	—	Cr 215.5 [c]
P2	Actual Release during Year	400.5	—	Dr 185.0
P3	Normal Release for Year	—	790.0	Cr 605.0
P4	Under Release in excess of 160.0 [d]	239.5	—	Cr 365.5
P5				
P6				
P7	Accrued Departure at End of Year	—	—	Cr 365.5

TIME OF HYPOTHETICAL SPILL Did not occur

APPROVED:
Engineer Adviser for Colorado SEO Date 3-3-05 Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas HLS Date 3-3-05

RIO GRANDE COMPACT COMMISSION REPORT

COST OF OPERATION AND BUDGET

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2004

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	$60,037	$7,119	$52,918		
In New Mexico, above Caballo Reservoir	$52,690	$33,595		$19,095	
In New Mexico, Caballo Reservoir and below	$22,960	$6,390		$2,070	$14,500
Subtotal	$135,687	$47,104	$52,918	$21,165	$14,500
ADMINISTRATION					
U.S.G.S. Contract	$29,432	$7,007	$7,475	$7,475	$7,475
Other expenses	$2,949		$983	$983	$983
Subtotal	$32,381	$7,007	$8,458	$8,458	$8,458
GRAND TOTAL	$168,068	$54,111	$61,376	$29,623	$22,958
EQUAL SHARES			$37,986	$37,986	$37,986

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2006

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	$62,556	$7,848	$54,708		
In New Mexico, above Caballo Reservoir	$56,740	$34,375		$22,365	
In New Mexico, Caballo Reservoir and below	$20,840	$5,200		$2,440	$13,200
Subtotal	$140,136	$47,423	$54,708	$24,805	$13,200
ADMINISTRATION					
U.S.G.S. Contract	$32,447	$7,007	$8,480	$8,480	$8,480
Other expenses	$3,075		$1,025	$1,025	$1,025
Subtotal	$35,522	$7,007	$9,505	$9,505	$9,505
GRAND TOTAL	$175,658	$54,430	$64,213	$34,310	$22,705
EQUAL SHARES			$40,409	$40,409	$40,409

ACKNOWLEDGMENTS

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

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

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

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.

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 following records of storage:

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

The Laguna Agency, Bureau of Indian Affairs, Laguna, N. Mex., supplied the records of storage in Seama Reservoir.

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

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

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

ACCURACY OF RECORDS

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

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

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

STREAMFLOW

Rio Grande near Del Norte, Colo

Location. -- Water-stage recorder, lat 37°41'22", long 106°27'38", in NW 1/4 sec. 29, T. 40 N., R. 5 E., on right bank, 20 ft downstream from county highway bridge, 6 mi west of Del Norte, and 18 mi upstream from Pinos Creek. Datum of gage is 7,980.25 ft above mean sea level, datum of 1929. Prior to May 16, 1908, staff gage at site 4 mi downstream. Records are equivalent.

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

Average discharge. -- 115 years (1890-2004), 893 ft^3/s (646,700 acre-ft per year).

Extremes. -- 1889-2004: 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	3,900	150	100	126	7,740
February	4,110	180	110	142	8,150
March	11,227	681	140	362	22,270
April	19,870	941	524	662	39,410
May	88,748	4,270	911	2,863	176,000
June	66,373	3,660	979	2,212	131,700
July	17,933	1,040	401	578	35,570
August	8,517	375	195	275	16,890
September	16,192	2,010	178	540	32,120
October	14,703	723	361	474	29,160
November	8,591	477	170	286	17,040
December	5,910	220	140	191	11,720
Calendar year 2004	266,074	4,270	100	727	527,800

Conejos River below Platoro Reservoir, Colo.

Location. -- Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW 1/4NW 1/4 sec. 22, T. 36 N., R. 4 E., on left bank 1,100 ft downstream from valve house for Platoro Reservoir, and 0.7 mi northwest of Platoro. Datum of gage is 9,866.60 ft above mean sea level (levels by Bureau of Reclamation).

Drainage area. -- 40 sq mi, approximately.

Average discharge. -- 52 years (1890-2004), 91.4 ft^3/s (66,220 acre-ft per year).

Extremes. -- 1952-2004: 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	266	8.7	8.5	8.6	527
February	242	8.5	8.0	8.4	480
March	770	94	8.1	24.8	1,530
April	1,349	45	23	45.0	2,680
May	7,816	425	81	252	15,500
June	8,827	576	147	294	17,510
July	4,065	279	59	131	8,060
August	1,898	104	42	61.2	3,760
September	2,903	567	32	96.8	5,760
October	1,846	108	27	59.5	3,660
November	442	36	8.6	14.7	877
December	267	8.6	8.6	8.6	529
Calendar year 2004	30,691	576	8.0	83.9	60,870

Conejos River near Mogote, Colo

Location. -- Water-stage recorder, lat 37°03'14", long 106°11'13", in SE 1/4SE 1/4 sec. 34, T. 33 N., R. 7 E., on right bank 25 ft upstream from bridge on State Highway 174, 0.4 mi downstream from Fox Creek, and 5.3 mi west of Mogote. Datum of gage is 8,271.54 ft above mean sea level.

Drainage area. -- 282 sq mi.

Average discharge. -- 94 years (1904, 1912-2004), 322 ft^3/s (233,400 acre-ft per year).

Extremes. -- 1903-05, 1911-2004: 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	1,199	47	29	38.7	2,380
February	1,244	47	37	42.9	2,470
March	5,088	403	43	164	10,090
April	8,070	415	211	269	16,010
May	31,798	1,500	385	1,026	63,070
June	25,460	1,670	413	849	50,500
July	8,918	513	215	288	17,690
August	4,011	190	80	129	7,960
September	5,186	669	66	173	10,290
October	4,732	222	119	153	9,390
November	2,245	116	29	74.8	4,450
December	1,347	56	27	43.5	2,670
Calendar year 2004	99,298	1,670	27	271	197,000

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. -- 64 years (1941-2004), 25.0 ft^3/s (18,090 acre-ft per year).

Extremes. -- 1920, 1925-2004: 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	66.7	2.7	1.6	2.2	132
February	82.2	3.7	2.4	2.8	163
March	1,411	104	3.3	45.5	2,800
April	2,648	150	63	88.3	5,250
May	2,319	187	9.9	74.8	4,600
June	75.3	8.7	0.1	2.5	149
July	11.4	3.0	0.0	0.4	23
August	2.9	0.7	0.0	0.1	5.8
September	0.0	0.0	0.0	0.0	0.0
October	90.4	5.0	0.0	2.9	179
November	79.5	3.9	1.6	2.6	158
December	68.3	2.6	1.8	2.2	135
Calendar year 2004	6,855	187	0.0	18.7	13,600

STREAMFLOW

Los Pinos River near Ortiz, Colo

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

Drainage area. -- 167 sq mi.

Average discharge. -- 86 years (1915-20, 1925-2004), 117 ft^3/s (85,110 acre-ft per year).

Extremes. -- 1915-20, 1925-2004: 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	428	17	11	13.8	849
February	486	22	13	16.8	964
March	2,978	282	18	96.1	5,910
April	6,729	384	151	224	13,350
May	15,234	819	238	491	30,220
June	3,574	239	42	119	7,090
July	881	53	18	28.4	1,750
August	525	27	9.5	16.9	1,040
September	503	52	7.3	16.8	997
October	963	59	19	31.1	1,910
November	734	38	12	24.5	1,460
December	476	18	12	15.4	944
Calendar year 2004	33,511	819	7.3	91.6	66,470

Conejos River near Lasauses, Colo

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

Drainage area. -- 887 sq mi.

Average discharge. -- 83 years (1922-2004), 176 ft^3/s (127,600 acre-ft per year).

Extremes. -- 1921-2004: 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 above station for irrigation of about 75,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,296	63	19	41.8	2,570
February	909	75	17	31.3	1,800
March	8,854	723	72	286	17,560
April	6,841	414	85	228	13,570
May	10,512	645	157	339	20,850
June	4,009	504	43	134	7,950
July	1,038	112	15	33.5	2,060
August	152	24	0.0	4.9	303
September	0.0	0.0	0.0	0.0	0.0
October	1.0	1.0	0.0	0.0	1.9
November	1,581	91	0.7	52.7	3,140
December	2,011	83	46	64.9	3,990
Calendar year 2004	37,205	723	0.0	102	73,800

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); 74 years (1931-2004) 437 ft^3/s (316,700 acre-ft per year).

Extremes. – 1899-2004: 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 1950-51-51, 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	5,935	225	150	191	11,770
February	5,825	245	155	201	11,550
March	20,594	1,380	245	664	40,850
April	11,015	807	168	367	21,850
May	22,780	1,180	420	735	45,180
June	14,806	945	287	494	29,370
July	5,068	401	99	163	10,050
August	1,138	117	14	36.7	2,260
September	529	50	7.9	17.6	1,050
October	2,038	129	17	65.7	4,040
November	10,716	460	85	357	21,260
December	8,580	330	220	277	17,020
Calendar year 2004	109,024	1,380	7.9	298	216,200

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

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

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; 35 years (1970-2004) 132 ft^3/s (95,280 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes. – 1962-2004: 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	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0
March	7,243	505	0.0	234	14,370
April	8,159	359	184	272	16,180
May	14,739	732	193	475	29,230
June	10,521	688	92	351	20,870
July	1,249	128	12	40.3	2,480
August	119	19	0.0	3.8	237
September	988	251	0.0	32.9	1,960
October	873	76	4.0	28.2	1,730
November	563	40	2.0	18.8	1,120
December	2.0	1.0	0.0	0.1	4.0
Calendar year 2004	44,457	732	0.0	121	88,180

STREAMFLOW

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

Location. -- Water-stage recorder, lat 36°42'24", long 106°44'42", in Tierra Amarilla Grant, on right bank 3.7 mi northwest of Heron Dam, 7.8 mi downstream from Horse Lake, and 9.9 mi west of Los Ojos. Datum of gage is 7,188.85 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1971, at site 1,100 ft upstream.
Drainage area. -- 45 sq mi, approximately.
Average discharge. -- 12 years (1963-73,1986), 1.17 ft^3/s (848 acre-ft per year).
Extremes. -- 1963-2004: 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	0.0	0.0	0.0	0.0	0.0
May	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	0.0	0.0
October	--	--	--	--	--
November	--	--	--	--	--
December	--	--	--	--	--
Calendar year 2004	--	--	--	--	--

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. -- 34 years (1971-2004), 128 ft^3/s (92,430 acre-ft per year).
Extremes. -- 1971-2004: 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	6,080	212	175	196	12,060
February	7,056	245	212	243	14,000
March	8,949	345	245	289	17,750
April	12,796	470	345	427	25,380
May	5,341	470	0.0	172	10,590
June	0.0	0.0	0.0	0.0	0.0
July	2,185	470	0.0	70.5	4,330
August	768	255	0.0	24.8	1,520
September	2,400	80	80	80.0	4,760
October	517	80	0.0	16.7	1,030
November	790	120	0.0	26.3	1,570
December	677	120	0.0	21.8	1,340
Calendar year 2004	47,559	470	0.0	130	94,330

Rio Chama below El Vado Dam, N. Mex

Location. -- Water-stage recorder with satellite telemetry, lat 36°34'48", long 106°43'24", in Tierra Amarilla Grant, on left bank 1.5 mi downstream from El Vado Dam, 2.8 mi upstream from Rio Nutrias, and 13 mi southwest of Tierra Amarilla. Datum of gage is 6,696.12 ft above National Geodetic Vertical Datum of 1929. Prior to October 1935, at site 1.5 mi upstream and October 1935 to September 1938, at site 1.1 mi upstream at different datums.

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

Average discharge. -- 4 years (1914, 1921-23), 444 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-feet per year), prior to release of transmountain water; 34 years (1971-2004) 467 ft^3/s (338,300 acre-feet per year).

Extremes. -- 1914-16, 1920-24, 1936-2004; 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	6,847	229	213	221	13,580
February	6,244	224	135	215	12,380
March	6,944	234	218	224	13,770
April	13,365	910	227	446	26,510
May	34,287	2,110	281	1,106	68,010
June	9,338	625	66	311	18,520
July	16,605	983	73	536	32,940
August	12,671	729	108	409	25,130
September	8,478	457	93	283	16,820
October	3,047	211	48	98.3	6,040
November	3,164	215	65	105	6,280
December	7,488	414	35	242	14,850
Calendar year 2004	128,478	2,110	35	351	254,800

Rio Chama below Abiquiu Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 36°14'12", long 106°24'59", in SE1/4SE1/4 sec. 8, T. 23 N., R. 5 E., on right bank 0.8 mi downstream from Abiquiu Dam and 5.9 mi northwest of Abiquiu. Altitude of gage is 6,040 ft above National Geodetic Vertical Datum of 1929 (from river-profile map and topographic map).

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

Average discharge. -- 9 years (1962-70), 376 ft^3/s (272,400 acre-ft per year), prior to release of transmountain water; 34 years (1971-2004), 518 ft^3/s (375,600 acre-feet per year).

Extremes. -- 1961-2004; 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	1,151	53	27	37.1	2,280
February	1,576	88	43	54.3	3,130
March	2,821	151	87	91.0	5,600
April	7,029	505	152	234	13,940
May	30,627	1,730	348	988	60,750
June	11,360	632	78	379	22,530
July	14,629	687	63	472	29,020
August	14,502	768	43	468	28,760
September	13,910	662	287	464	27,590
October	2,623	253	38	84.6	5,200
November	2,676	236	[illegible]	[illegible]	5,000

STREAMFLOW

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 ft upstream from Nambe Falls, 2.6 mi upstream from confluence of Rio Nambe and Rio En Medio, 4.4 mi southeast of Nambe Pueblo, and 5.4 mi southeast of Nambe. Datum of gage is 6,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Drainage area. -- 34.1 sq mi.

Average discharge. -- -- 26 years (1979-2004), 13.7 ft^3/s (9,960 acre-feet per year).

Extremes. -- 1979-2004; 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	34.4	1.2	1.0	1.1	68
February	33.0	1.2	1.1	1.1	65
March	35.9	1.2	1.0	1.2	71
April	33.4	1.2	1.0	1.1	66
May	601	23	1.2	19.4	1,190
June	711	26	21	23.7	1,410
July	437	26	4.5	14.1	867
August	149	6.9	3.9	4.8	295
September	155	5.3	5.0	5.2	307
October	159	5.4	5.0	5.1	316
November	57.8	5.0	0.6	1.9	115
December	21.4	0.8	0.6	0.7	42
Calendar year 2004	2,427	26	0.6	6.6	4,810

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°52'29", long 106°08'30", in SW1/4SW1/4 sec. 18, T. 19 N., R. 8 E., in San Ildefonso Pueblo Grant, 400 downstream from bridge on State Highway 502, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pojoaque River, and 6.8 mi west of Pojoaque. Datum of gage is 5,488.48 ft above National Geodetic Vertical Datum of 1929. Prior to May 19, 1904, and July 25 to Oct 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower.

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

Average discharge. -- 105 years (1896-1905, 1910-2004), 1,511 ft^3/s (1,095,000 acre-feet per year).

Extremes. -- 1895-1905, 1910-2004; 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	15,526	558	425	501	30,800
February	15,277	610	465	527	30,300
March	36,283	2,180	618	1,170	71,970
April	43,290	1,810	1,230	1,443	85,870
May	72,620	3,400	1,300	2,343	144,000
June	33,052	1,420	747	1,102	65,560
July	25,754	1,080	447	831	51,080
August	21,684	1,070	339	699	43,010
September	19,200	853	467	640	38,080
October	12,811	630	314	413	25,410
November	21,425	899	432	714	42,500
December	25,462	1,030	562	821	50,500
Calendar year 2004	342,384	3,400	314	935	679,100

Santa Fe River near Santa Fe, N. Mex.

Location. -- Water-stage recorder with satellite telemetry and concrete control, lat 35°41'12", long 105°50'35", in NE1/4SE1/4 sec. 23, T. 17 N., R. 10 E., 0.4 mi downstream from McClure Dam, and 5.3 mi east of Santa Fe. Altitude of gage is 7,720 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 4, 1930, at site 1.5 mi downstream, and Apr. 11, 1931 to Sept. 30, 1947, at site 0.3 mi upstream, each at different datum.

Drainage area. -- 18.2 sq mi.

Average discharge. -- 92 years (1913-2004), 7.99 ft^3/s (5,800 acre-feet per year).

Extremes. -- 1913-2004; Maximum discharge, 1,500 ft^3/s Aug. 14, 1921 (gage height, 5.17 ft); from rating curve extended above 150 ft^3/s; minimum, no flow Aug. 2-10, 2000.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2.0	0.1	0.0	0.1	3.9
February	1.5	0.1	0.0	0.0	2.9
March	2.5	0.1	0.0	0.1	5.0
April	72.0	12	0.1	2.4	143
May	455	28	0.2	14.7	902
June	250	14	0.3	8.3	496
July	208	6.8	6.6	6.7	412
August	200	6.6	6.1	6.4	396
September	180	6.1	5.9	6.0	358
October	173	5.9	5.4	5.6	344
November	79.5	5.4	1.7	2.6	158
December	55.8	1.9	1.7	1.8	111
Calendar year 2004	1,680	28	0.0	4.6	3,330

Rio Grande below Cochiti Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°37'05", long 106°19'24", in SW1/4NE1/4 sec. 17, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, 320 ft upstream from bridge on State Highway 22, 700 ft downstream from Cochiti Dam, and 1.4 mi northeast of Cochiti Pueblo. Datum of gage is 5,226.08 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1973, at site 2.4 mi downstream at altitude 5,210 ft, from topographic map. Nov. 14, 1973 to Jan. 8, 1976, at site 320 ft downstream at datum 1.79 ft lower.

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

Average discharge. -- 34 years (1971-2004), 1,342 ft^3/s (972,000 acre-feet per year).

Extremes. -- 1971-2004; Maximum discharge, 10,300 ft^3/s July 26, 1971 (gage height, 7.90 ft) at site 2.4 mi downstream prior to closure of Cochiti Dam; from rating curve extended above 2,600 ft^3/s; 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	15,224	582	386	491	30,200
February	13,933	614	428	480	27,640
March	29,873	1,790	515	964	59,250
April	39,390	1,800	1,040	1,313	78,130
May	72,690	3,340	1,240	2,345	144,200
June	27,311	1,250	600	910	54,170
July	20,582	820	429	664	40,820
August	16,207	685	351	523	32,150
September	14,928	617	355	498	29,610
October	10,389	443	255	335	20,610
November	19,906	842	350	664	39,480
December	26,293	1,060	506	848	52,150
Calendar year 2004	306,726	3,340	255	838	608,400

STREAMFLOW

Galisteo Creek below Galisteo Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°27'53", long 106°12'49", in NE1/4NE1/4 sec. 8, T. 14 N., R. 7 E., in Mesita de Juana Lopez Grant, on right bank 0.4 mi downstream from Galisteo Dam, 5.3 mi northwest of Cerrillos, and at mile 11.4. Elevation of gage is 5,450 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 21, 1981, at site 1,200 ft downstream at different datum.

Drainage area. -- 597 sq mi.

Average discharge. -- -- 34 years (1971-2004), 5.64 ft^3/s (4,083 acre-feet per year).

Extremes. -- 1970-2004; Maximum discharge, 3,460 ft^3/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.

Remarks. -- Records poor. Flow partly regulated by uncontrolled outlet in Galisteo Dam. Capacity of outlet, 5,000 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	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0
March	0.0	0.0	0.0	0.0	0.0
April	196	56	0.0	6.5	388
May	0.0	0.0	0.0	0.0	0.0
June	1.4	1.4	0.0	0.0	2.8
July	34.6	17	0.0	1.1	69
August	275	112	0.0	8.8	546
September	21.5	11	0.0	0.7	43
October	1,019	812	0.0	32.9	2,020
November	0.0	0.0	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0
Calendar year 2004	1,548	812	0.0	4.2	3,070

Jemez River below Jemez Canyon Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, 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 National Geodetic Vertical 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. -- 62 years (1937, 1944-2004), 61.4 ft^3/s (44,490 acre-feet per year).

Extremes. -- 1937, 1944-2004; 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	404	19	4.0	13.0	802
February	346	30	2.0	11.9	686
March	1,999	353	1.8	64.5	3,960
April	8,701	2,410	1.8	290	17,260
May	2,382	152	13	76.8	4,720
June	543	428	0.0	18.1	1,080
July	982	783	0.0	31.7	1,950
August	416	229	0.0	13.4	825
September	395	384	0.0	13.2	784
October	243	79	0.0	7.8	482
November	323	51	0.4	10.8	641
December	450	100	0.0	14.5	892
Calendar year 2004	17,185	2,410	0.0	47.0	34,090

Rio Grande below Elephant Butte Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 33°08'54", long 107°12'22", in SW1/4 sec. 25, T. 13 S., R. 4 W. (projected), in Pedro Armendariz Grant, 1.0 mi downstream from dam and 1.5 mi upstream from Cuchillo Negro River. Datum of gage is 4,241.09 ft above national Geodetic Vertical Datum of 1929. Prior to April 23, 1942, at several different sites and datums.

Drainage area. -- 29,450 sq mi approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge. -- 90 years (1915-2004), 1,002 ft^3/s (726,200 acre-feet per year).

Extremes. -- 1915-2004; 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	325	13	7.8	10.5	644
February	1,256	754	6.5	43.3	2,490
March	39,581	1,790	563	1,277	78,510
April	14,491	682	271	483	28,740
May	13,706	484	416	442	27,190
June	44,480	2,140	1,100	1,483	88,230
July	62,364	3,180	544	2,012	123,700
August	25,470	2,200	522	822	50,520
September	10,653	476	18	355	21,130
October	432	17	12	13.9	857
November	322	12	9.1	10.8	640
December	254	10	6.1	8.2	503
Calendar year 2004	213,334	3,180	6.1	583	423,100

Rio Grande below Caballo Dam, N. Mex.

Location. -- Water-stage recorder, lat 32°53'05", long 107°17'31", in NE1/4SW1/4 sec. 30, T. 16 S., R. 4 W., 2,000 ft upstream from Interstate Highway 25, 4,200 ft downstream from Caballo Dam, 1.3 mi upstream from Percha diversion dam, and 3 mi northeast of Arrey. Datum of gage is 4,140.90 ft above National Geodetic Vertical Dam of 1929. October 13, 1938 to December 31, 1945, at datum 5.0 ft higher.

Drainage area. -- 30,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge. -- 67 years (1938-2004), 931 ft^3/s (674,400 acre-feet per year).

Extremes. -- 1938-2004; 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 Reservoir and Caballo Reservoirs. Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	56.1	2.3	1.0	1.8	111
February	29.7	1.1	1.0	1.0	59
March	24,854	1,580	1.1	802	49,300
April	10,727	1,420	3.0	358	21,280
May	7,786	1,020	3.0	251	15,440
June	47,460	1,830	1,260	1,582	94,140
July	48,480	2,060	1,130	1,564	96,160
August	40,661	1,930	852	1,312	80,650
September	21,086	1,340	3.7	703	41,820
October	110	3.7	1.9	3.5	218
November	97.3	4.4	1.6	3.2	193
December	49.6	1.6	1.6	1.6	98
Calendar year 2004	201,396	2,060	1.0	550	399,500

STREAMFLOW

Bonito Ditch below Caballo Dam, N. Mex.

Records available. -- January 1938 to current year. Published as supplementary data with Rio Grande below Caballo Dam in U.S.G.S. Water-Supply Papers and Water-Data Reports 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-ft
January	0.0
February	0.0
March	124.9
April	91.2
May	190.4
June	189.6
July	94.6
August	88.2
September	91.0
October	122.6
November	0.0
December	0.0
Calendar year 2004	992.5

STORAGE IN RESERVOIRS

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 2004

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 2004

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-feet of transmountain water by exchange in 1984 and 23 acre-ft of transmountain water by exchange in 1985.

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

Calendar Year 2004

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 2004

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 2004

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 2004

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 2004

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. – 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 2004

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

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 2004

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Contents	0.0	0.0	0.0	0.0	0.0	0.0	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

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 2004

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	8.7	10.7	14.0	16.7	16.7	16.7	16.7	14.6	13.9	13.9	14.2	14.8	-
Contents	74	105	167	227	227	227	227	179	166	166	172	185	-
Change	+32	+31	+62	+60	0	0	0	-48	-13	0	+6	+13	+111

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, 2003	9,957.86	7,902	-
January 31, 2004	9,958.33	8,088	+186
February 28	9,958.57	8,186	+98
March 31	9,959.43	8,535	+349
April 30	9,959.74	8,660	+125
May 31	9,967.56	12,084	+3,424
June 30	9,977.33	16,906	+4,822
July 31	9,970.80	13,610	-3,296
August 31	9,965.44	11,114	-2,496
September 30	9,961.74	9,497	-1,617
October 31	9,958.65	8,220	-1,277
November 30	9,959.95	8,748	+528
December 31, 2004	9,960.92	9,152	+404
Calendar year 2004	-	-	+1,250

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 2004

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

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

Date	Elevation	Contents	Change in contents
December 31, 2003	7,122.50	123,227	-
January 31, 2004	7,118.05	111,135	-12,092
February 28	7,112.54	97,524	-13,611
March 31	7,111.20	94,443	-3,081
April 30	7,106.79	84,920	-9,523
May 31	7,114.72	102,728	+17,808
June 30	7,122.04	121,933	+19,205
July 31	7,121.11	119,347	-2,586
August 31	7,120.17	116,776	-2,571
September 30	7,118.66	112,735	-4,041
October 31	7,118.82	113,158	+423
November 30	7,118.53	112,393	-765
December 31, 2004	7,118.00	111,005	-1,388
Calendar year 2004	-	-	-12,222

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

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

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2003	6,824.57	30,266	-	5,893
January 31, 2004	6,825.57	31,340	+1,074	4,008
February 28	6,829.90	36,212	+4,872	5,011
March 31	6,849.23	62,518	+26,306	5,357
April 30	6,870.84	101,813	+39,295	8,177
May 31	6,875.09	111,251	+9,438	9,763
June 30	6,870.30	100,661	-10,590	8,036
July 31	6,854.90	71,676	-28,985	5,550
August 31	6,839.15	47,823	-23,853	4,122
September 30	6,830.88	37,364	-10,459	5,355
October 31	6,830.68	37,127	-237	5,348
November 30	6,830.14	36,492	-635	5,339
December 31, 2004	6,820.21	25,823	-10,669	5,244
Calendar year 2004	-	-	-4,443	-

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

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

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2003	6,186.65	72,934	-	71,973
January 31, 2004	6,191.09	84,958	+12,024	84,078
February 28	6,194.86	95,886	+10,928	94,935
March 31	6,198.58	107,271	+11,385	106,398
April 30	6,204.55	126,740	+19,469	126,188
May 31	6,206.92	134,957	+8,217	133,492
June 30	6,205.19	128,944	-6,013	127,844
July 31	6,205.71	130,742	+1,798	129,461
August 31	6,204.52	126,638	-4,104	125,512
September 30	6,200.95	114,793	-11,845	113,673
October 31	6,200.77	114,215	-578	113,325
November 30	6,200.67	113,894	-321	112,774
December 31, 2004	6,200.15	112,234	-1,660	110,277
Calendar year 2004	-	-	+39,300	-

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

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

Date	Elevation	Contents	Change in contents
December 31, 2003	6,786.58	487	-
January 31, 2004	6,789.84	561	+74
February 28	6,794.84	689	+128
March 31	6,803.43	951	+262
April 30	6,819.73	1,648	+697
May 31	6,822.93	1,815	+167
June 30	6,809.22	1,169	-646
July 31	6,791.07	592	-577
August 31	6,790.39	575	-17
September 30	6,789.73	558	-17
October 31	6,789.05	543	-15
November 30	6,794.59	682	+139
December 31, 2004	6,801.17	876	+194
Calendar year 2004	-	-	+389

STORAGE IN RESERVOIRS

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

McClure (Granite Point) Reservoir. – Water-stage recorder, lat 35°41'18", long 105°50'06", in NE1/4SW1/4 sec. 24, T. 17 N., R. 10 E., on Santa Fe River. Original reservoir completed in 1926, capacity, 561 acre-ft; in 1935, permanent flash boards were installed in spillway increasing capacity to 650 acre-ft; in 1947 both dam and spillway were reconstructed increasing capacity to 2,615 acre-ft (gage height, 96.6 ft, crest of spillway). In 1953 spillway was equipped with radial gates that opened automatically, increasing capacity to over 3,000 acre-ft. In 1972, radial gates were removed decreasing capacity to 2,615 acre-ft. In 1989, modifications to the dam and spillway increased capacity to 2,813 acre-ft. In 1995, modification to the dam and spillway increased capacity to 3,257 acre-ft. No dead storage. Elevation of gage is 7,790 ft above National Geodetic Vertical Datum of 1929, from topographic map. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity includes 561 acre-ft for pre-Compact storage and additional capacity as may be available to accomodate up to a total of 1,061 acre-feet of pre-Compact storage in McClure and Nichols Reservoirs combined.

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

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2003	7,860.54	1,540	-	0	776
January 31, 2004	7,861.48	1,590	+50	0	776
February 28	7,862.45	1,650	+60	0	776
March 31	7,867.00	1,920	+270	107	776
April 30	7,884.10	3,120	+1,200	497	1,586
May 31	7,885.63	3,250	+130	522	1,691
June 30	7,882.10	2,970	-280	242	1,691
July 31	7,877.34	2,620	-350	0	1,691
August 31	7,872.00	2,250	-370	0	1,691
September 30	7,867.21	1,940	-310	0	1,691
October 31	7,863.67	1,720	-220	0	1,691
November 30	7,862.88	1,670	-50	0	1,670
December 31, 2004	7,863.20	1,690	-20	0	1,690
Calendar year 2004	-		+150		

Nichols Reservoir. – Water-stage recorder, lat 35°41'24", long 105°52'46", in SE1/4NE1/4 sec. 21, T. 17 N., R. 10 E., on Santa Fe River. Completed in 1942; capacity, 685 acre-ft at gage height 167.0 feet (crest of spillway), dead storage, 14 acre-ft at gage height 121.1 feet. Datum of gage is 7,313.2 feet above National Geodetic Vertical Datum of 1929. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity may include pre-Compact storage such that total pre-Compact storage in McClure and Nichols Reservoirs combined does not exceed 1,061 acre-ft.

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

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2003	160.68	509	-	136	100
January 31, 2004	160.95	516	+7	193	100
February 28	161.25	524	+8	261	100
March 31	162.63	562	+38	462	100
April 30	165.93	654	+92	554	100
May 31	165.50	639	-15	539	100
June 30	164.74	618	-21	518	100
July 31	161.40	529	-89	321	100
August 31	161.88	541	+12	0	100
September 30	160.16	495	-46	0	100
October 31	163.10	574	+79	0	100
November 30	158.13	447	-127	0	121
December 31, 2004	150.03	279	-168	7	101
Calendar year 2004	-		-230		

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

Cochiti Lake. – Water-stage recorder with satellite telemetry, lat 35°37'01", long 106°18'58", in NW1/4SW1/4 sec. 16, T. 1(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 from 1998 survey. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by the U.S. Army Corps of Engineers). A 50,000 acre-foot 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, 2003	5,338.77	47,741	-	46,363
January 31, 2004	5,339.19	48,210	+469	47,202
February 28	5,340.89	50,219	+2,009	48,748
March 31	5,341.63	51,141	+922	49,899
April 30	5,342.24	51,932	+791	50,596
May 31	5,341.80	51,358	-574	49,814
June 30	5,342.21	51,892	+534	49,063
July 31	5,340.69	49,974	-1,918	48,566
August 31	5,340.48	49,719	-255	48,050
September 30	5,340.24	49,430	-289	47,664
October 31	5,340.70	49,986	+556	47,583
November 30	5,340.16	49,335	-651	47,472
December 31, 2004	5,340.35	49,562	+227	47,401
Calendar year 2004	-	-	+1,821	-

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

Month-end contents, in acre-feet

Calendar Year 2004

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

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2003	5,155.00	0	-	0
January 31, 2004	5,155.00	0	0	0
February 28	5,155.00	0	0	0
March 31	5,155.00	0	0	0
April 30	5,155.00	0	0	0
May 31	5,155.00	0	0	0
June 30	5,155.00	0	0	0
July 31	5,155.00	0	0	0
August 31	5,155.00	0	-0	0
September 30	5,155.00	0	0	0
October 31	5,155.00	0	0	0
November 30	5,155.00	0	0	0
December 31, 2004	5,155.00	0	0	0
Calendar year 2004	-	-	0	-

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

Month-end contents, in acre-feet

Calendar Year 2004

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 2004.

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

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

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

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2003	4,312.04	210,480	-	6,980
January 31, 2004	4,330.06	244,000	+33,520	6,944
February 28	4,331.90	272,090	+28,090	6,890
March 31	4,331.08	223,830	-48,260	6,810
April 30	4,328.72	279,470	+55,640	6,730
May 31	4,326.06	322,870	+43,400	6,610
June 30	4,318.84	246,460	-76,410	6,480
July 31	4,312.95	144,260	-102,200	6,350
August 31	4,304.88	111,820	-32,440	6,240
September 30	4,304.24	96,400	-15,420	6,010
October 31	4,305.54	108,960	+12,560	5,920
November 30	4,307.82	139,660	+30,700	5,900
December 31, 2004	4,312.04	193,240	+53,580	5,890
Calendar year 2004	-	-	-17,240	-

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

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

Date	Gage height	Contents	Change in contents
December 31, 2003	4,131.52	11,180	-
January 31, 2004	4,132.66	13,180	+2,000
February 28	4,134.36	16,390	+3,210
March 31	4,145.88	49,070	+32,680
April 30	4,147.58	56,080	+7,010
May 31	4,148.64	60,780	+4,700
June 30	4,145.68	48,290	-12,490
July 31	4,149.78	66,110	+17,820
August 31	4,142.12	35,790	-30,320
September 30	4,134.40	16,470	-19,320
October 31	4,135.66	19,050	+2,580
November 30	4,136.82	21,610	+2,560
December 31, 2004	4,137.58	23,390	+1,780
Calendar year 2004	-	-	-12,210

STORAGE IN RESERVOIRS

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

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

Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 2003	221,660	-
January 31, 2004	257,180	+35,520
February 28	288,480	+31,300
March 31	272,900	-15,580
April 30	335,550	+62,650
May 31	383,650	+48,100
June 30	294,750	-88,900
July 31	210,370	-84,380
August 31	147,610	-62,760
September 30	112,870	-34,740
October 31	128,010	+15,140
November 30	161,270	+33,260
December 31, 2004	216,630	+55,360
Calendar year 2004		-5,030

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

RIO GRANDE COMPACT COMMISSION REPORT

TRANSMOUNTAIN DIVERSIONS

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

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

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

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

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

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

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

Imported quantities, in acre-feet, 2004

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	11,510
April	0	0	0	0	0	0	15,420
May	0	0	26	231	0	19	30,160
June	148	565	205	262	0	191	20,390
July	0	0	93	86	0	4	2,140
August	0	0	62	39	0	0	236
September	39	0	11	32	0	0	1,970
October	53	0	0	6	0	0	1,820
November	0	0	0	0	0	0	1,220
December	0	0	0	0	0	0	12
Calendar year	240	565	397	656	0	214	84,878

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.

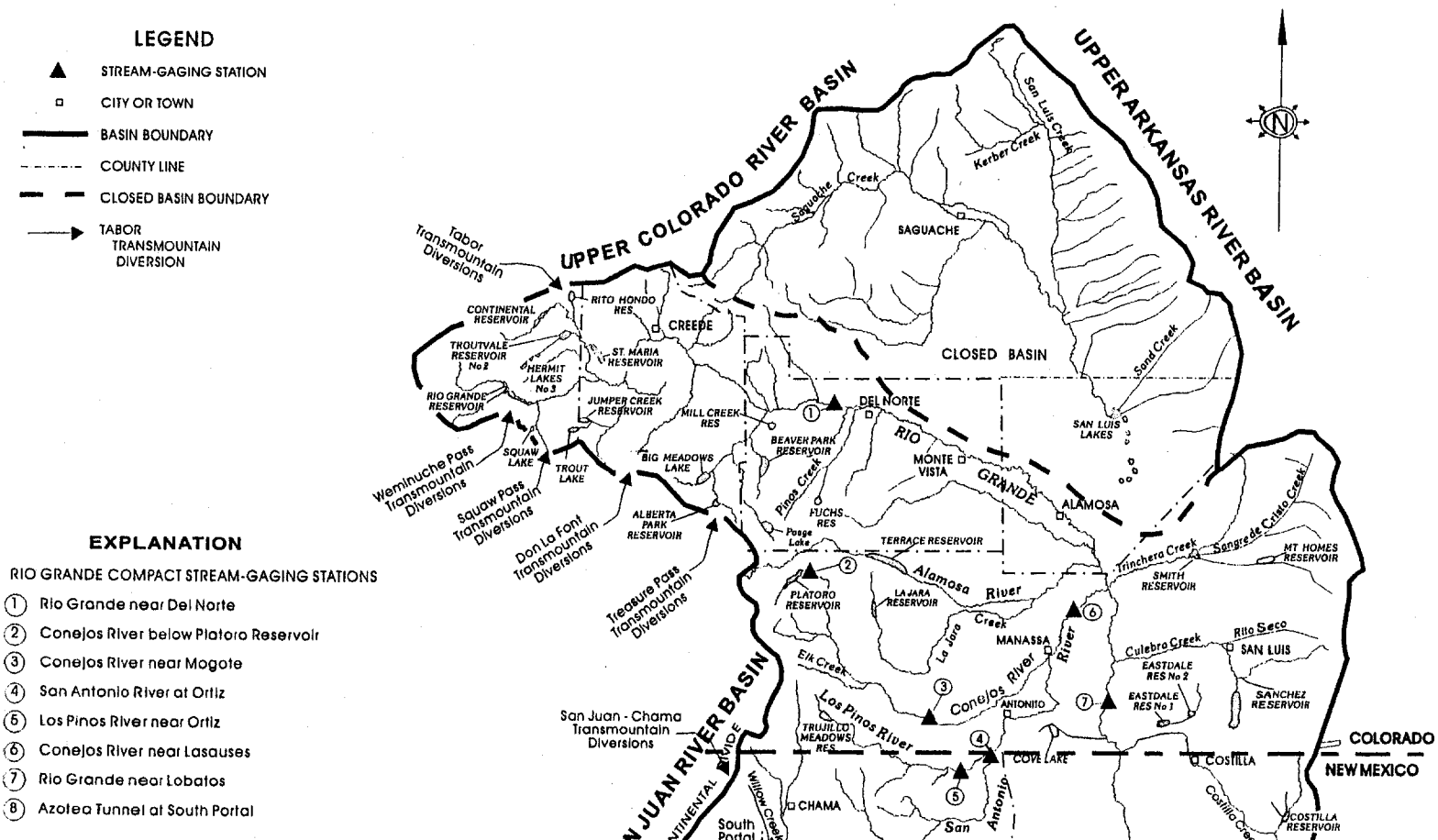
New Mexico State University.--Lat 32°17', long 106°45', in Doña Ana County at University Park, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 3,881 ft.

RIO GRANDE COMPACT COMMISSION REPORT

EVAPORATION AND PRECIPITATION

Evaporation and precipitation, in inches
2004

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precip.	0.14	1.02	0.19	1.05	0.01	0.42	0.72	0.60	0.74	0.60	0.28	0.26	6.03
Platoro Dam	Evap.	-	-	-	-	3.71	7.75	5.97	5.56	4.29	1.14	-	-	-
	Precip.	-	-	-	-	0.00	1.09	2.59	1.76	3.21	0.48	-	-	-
Heron Dam	Evap.	-	-	-	4.74	8.97	9.87	9.11	8.73	6.39	3.44	-	-	-
	Precip.	0.98	1.84	0.12	1.97	0.00	0.18	0.95	0.61	1.23	1.37	0.46	0.64	10.35
El Vado Dam	Evap.	-	-	-	5.11	9.66	9.93	9.21	8.46	5.91	3.25	-	-	-
	Precip.	0.88	1.40	0.11	1.73	0.00	0.42	0.92	0.90	0.88	1.40	0.32	0.63	9.59
Abiquiu Dam	Evap.	-	-	-	7.02	11.99	12.21	10.99	9.92	8.07	5.31	-	-	-
	Precip.	0.21	0.66	0.25	3.10	0.01	0.20	0.85	0.58	0.84	0.87	0.62	0.09	8.28
Nambe Canyon Dam	Evap.	-	-	-	5.57	10.65	11.44	9.16	7.97	5.48	3.59	-	-	-
	Precip.	0.00	0.00	0.00	2.97	0.00	0.58	2.23	1.38	2.70	2.17	1.07	0.56	13.66
Cochiti Dam	Evap.	-	-	-	7.43	12.59	13.85	11.09	11.28	8.90	5.52	-	-	-
	Precip.	0.64	1.14	0.92	2.51	0.00	0.90	1.93	1.70	1.65	3.29	1.08	0.43	16.19
Jemez Canyon Dam	Evap.	-	-	-	10.23	15.56	16.25	14.26	12.36	10.82	6.30	-	-	-
	Precip.	0.13	0.93	0.66	2.95	0.00	0.68	1.63	0.14	0.95	1.44	0.68	0.13	10.32
Elephant Butte Dam	Evap.	3.69	5.33	9.05	11.14	17.15	18.78	16.16	12.72	11.27	8.34	4.41	2.81	120.85
	Precip.	0.21	0.00	0.53	1.57	0.20	0.16	1.21	1.58	0.93	1.12	1.68	0.29	9.48
Caballo Dam	Evap.	3.88	4.71	7.58	10.32	14.42	14.11	-	11.77	9.97	7.31	4.10	2.96	-
	Precip.	0.28	0.00	0.91	1.86	0.18	0.12	0.52	1.02	0.83	1.78	2.08	0.33	9.91
State University	Evap.	-	-	7.37	8.76	12.27	13.08	11.58	10.48	9.68	6.39	4.52	-	-
	Precip.	0.28	0.01	1.22	1.85	0.08	1.53	0.47	2.93	1.76	1.25	1.38	0.39	13.15


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
CLOSED BASIN
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
CONTINENTAL RESERVOIR
TROUTVALE RESERVOIR No 2
HERMIT LAKES No 3
RIO GRANDE RESERVOIR
SQUAW LAKE
TROUT LAKE
RITO HONDO RES
CREEDE
ST. MARIA RESERVOIR
JUMPER CREEK RESERVOIR
BIG MEADOWS LAKE
ALBERTA PARK RESERVOIR
MILL CREEK RES
BEAVER PARK RESERVOIR
FUCHS RES
Posey Lake
TERRACE RESERVOIR
PLATORO RESERVOIR
LAJARA RESERVOIR
TRUJILLO MEADOWS RES
COVE LAKE
CHAMA
South Portal
SAGUACHE
DEL NORTE
MONTE VISTA
ALAMOSA
MANASSA
ANTONITO
SAN LUIS
COSTILLA
SAN LUIS LAKES
SMITH RESERVOIR
MT HOMES RESERVOIR
EASTDALE RES No 2
EASTDALE RES No 1
SANCHEZ RESERVOIR
COSTILLA RESERVOIR
Saguache Creek
Kerber Creek
San Luis Creek
Sand Creek
Pinos Creek
Alamosa River
La Jara Creek
Elk Creek
Conejos River
Los Pinos River
Trinchera Creek
Sangre de Cristo Creek
Culebra Creek
Rito Seco
Willow Creek
San Antonio
Costilla Creek
RIO GRANDE

(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