REPORT

of the

RIO GRANDE COMPACT COMMISSION

1990

TO THE GOVERNORS OF
Colorado, New Mexico and Texas

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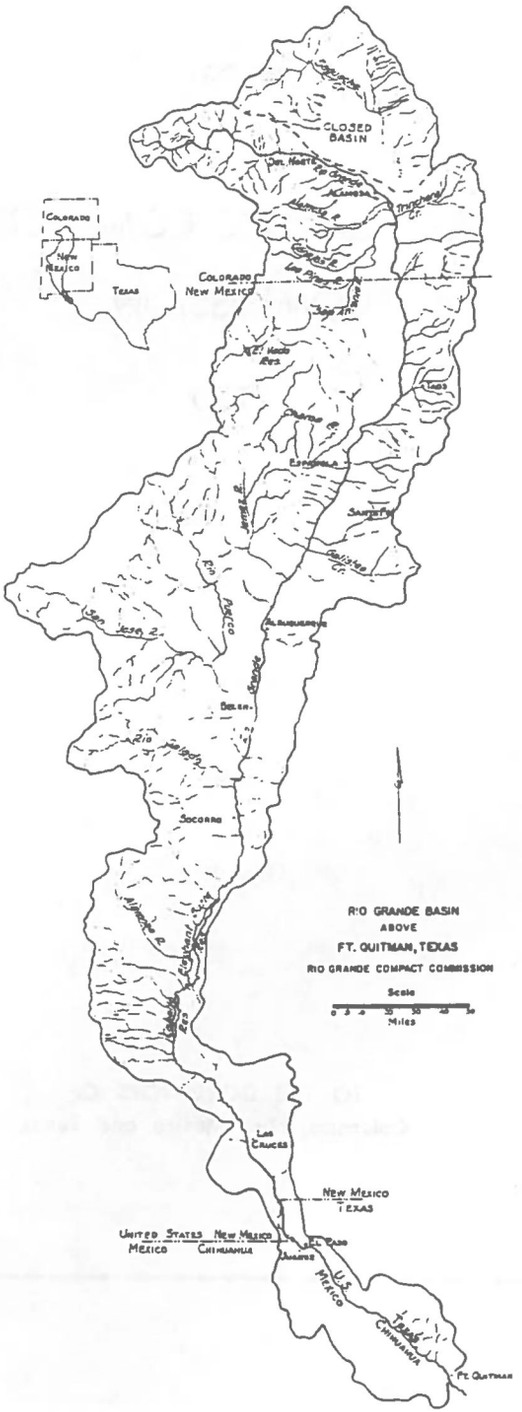

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RIO GRANDE COMPACT COMMISSION

COLORADO TEXAS NEW MEXICO

The Honorable Bruce King
Governor of the State of New Mexico
Santa Fe, New Mexico

April 25, 1991

The Honorable Ann Richards
Governor of the State of Texas
Austin, Texas

The Honorable Roy Romer
Governor of the State of Colorado
Denver, Colorado

Sirs:

The 52nd Annual Meeting of the Rio Grande Compact Commission was held in El Paso, Texas on April 25, 1991.

The Commission reviewed its prior reports and the current reports of the Secretary relative to streamflow at Compact gaging stations and storage in reservoirs for 1990. The Commission found that:

(a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 174,000 acre-feet in 1990 and the scheduled delivery for the year was 169,200 acre-feet. The accrued credit of Colorado was 23,700 acre-feet on January 1, 1991. The decrease in storage in 1990 in reservoirs in Colorado constructed after 1937 aggregated 8,800 acre-feet.

(b) Deliveries of water into Elephant Butte Reservoir, as measured by the Elephant Butte Effective Supply, amounted to 357,700 acre-feet in 1990 and the scheduled delivery for the year was 388,600 acre-feet. The accrued debit of New Mexico was 51,100 acre-feet on January 1, 1991. Water stored in reservoirs in New Mexico above San Marcial totalled 22,000 acre-feet on December 31, 1990. The increase in storage in 1990 in reservoirs in New Mexico above San Marcial constructed after 1929 aggregated 18,400 acre-feet.

(c) Releases of usable water in 1990 from Project Storage amounted to 680,500 acre-feet.

(d) Expenses of the administration of the Rio Grande Compact were $112,676 in the fiscal year ending June 30, 1990. The United States bore $47,750 of this total; the balance of $64,926 was borne equally by the three States party to the Compact.

Respectfully,

Eluid L. Martinez, Commissioner for New Mexico

Jack Hammond, Commissioner for Texas

Jerik A. Danielson, Commissioner for Colorado

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

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)
550	144
600	162
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:

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.)

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

R E S O L U T I O N

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

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

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

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

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

Now, Therefore, Be it Resolved:

The Commission finds as follows:

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

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

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

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

Be it Further Resolved:

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

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

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

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

Quantities in thousands of acre-feet

Otowi Index Supply (5)	Elephant Butte Effective Index Supply (6)
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").

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.

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

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.

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

(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.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.
/2 Adopted at Fourth Annual Meeting, February 24, 1943.

(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 physical capacity of that reservoir, to the level of the uncontrolled spillway, i.e.-2,219,000 acre-ft in 1942.

(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 /3

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.

EVAPORATION LOSSES /4, /5, /6

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.

/3 Adopted June 2, 1959; made effective January 1, 1952.
/4 Amended at Tenth Annual Meeting, February 15, 1949.
/5 Amended at Twelfth Annual Meeting, February 24, 1951.
/6 Amended June 2, 1959.

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.

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 /7

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

(1) Collect and correlate all factual data and other records having a material bearing on the administration of the Compact and keep each Commissioner advised thereof.

(2) Inspect all gaging stations required for administration of the Compact and make recommendations to the Commission as to any changes or improvements in methods of measurement or facilities for measurement which may be needed to insure that reliable records be obtained.

(3) Report to each Commissioner by letter on or before the fifteenth day of each month, except January, a summary of all hydrographic data then available for the current year - on forms prescribed by the Commission - pertaining to:

(a) Deliveries by Colorado
(b) Deliveries by New Mexico
(c) Operation of Project Storage

(4) Make such investigations as may be requested by the Commission in aid of its administration of the Compact.

(5) Act as Secretary to the Commission and submit to the Commission at its regular meeting in February a report on its activities and a summary of all data needed for determination of debits and credits and other matters pertaining to administration of the Compact.

/7 The substitution of this section for the section titled "Reports to Commissioners" was adopted at Ninth Annual Meeting, February 22, 1948.

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.

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.

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

MEETING OF COMMISSION /1, /8

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.
/8 Amended at Thirteenth Annual Meeting, February 25, 1952.

RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on April 25, 1991, the records of deliveries and releases and computations of debits and credits for calendar year 1990 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 below Elephant Butte Dam and the record of operation of Elephant Butte Reservoir; 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. The balance for items P2 through P7 will not be computed until needed. So long as actual release was less than cumulative normal release, item P7 has no application in the accounting.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE

YEAR 1990

Quantities in Thousands of Acre Feet to Nearest Hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES			
	MEASURED FLOW				ADJUSTMENTS				SUPPLY		RECORDED FLOW NEAR DEL NORTE	ADJUSTMENTS					SUPPLY		CONEJOS RIVER AT MOUTH NEAR LOS SAUCES	RIO GRANDE LESS CONEJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS
	CONEJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENT	SUPPLY IN MONTH	ACCUMULATED TOTAL		STORAGE AT END OF MONTH	CHANGE IN STORAGE	PLATORO-WAGON DIVERSIONS	OTHER ADJUSTMENTS	NET ADJUSTMENT	SUPPLY IN MONTH	ACCUMULATED TOTAL				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	——	——	——	——	15.3	——	——	——	——	-Φ-	——	0	——	——	——	——	——	-Φ-	——	——	——	-Φ-
JAN	1.8	——	——	1.8	15.3	0.0		0.0	1.8	1.8	6.5	0	0			0	6.5	6.5	1.8	8.5	10.3	10.3
FEB	1.9	——	——	1.9	15.5	+0.2		+0.2	2.1	3.9	7.7	0	0			0	7.7	14.2	2.3	10.2	12.5	22.8
MAR.	3.5	——	——	3.5	15.7	+0.2		+0.2	3.7	7.6	13.1	0	0			0	13.1	27.3	3.3	15.4	18.7	41.5
APR.	9.6	6.7	1.9	18.2	15.8	+0.1		+0.1	18.3	25.9	29.8	0	0			0	29.8	57.1	0.1	6.4	6.5	48.0
MAY	41.6	17.8	2.4	61.8	15.9	+0.1		+0.1	61.9	87.8	121.3	0	0			0	121.3	178.4	8.4	24.8	33.2	81.2
JUN	45.9	6.7	0.1	52.7	17.8	+1.9	+0.1[b]	+2.0	54.7	142.5	165.1	0	0	-2.2[a]	+0.2[b]	-2.0	163.1	341.5	0.9	15.1	16.0	97.2
JUL	17.0	2.1	0.0	19.1	12.1	-5.7	+0.1[b]	-5.6	13.5	156.0	57.9	0	0			0	57.9	399.4	0.2	12.9	13.1	110.3
AUG	13.0	1.6	0.1	14.7	7.5	-4.6	+0.1[b]	-4.5	10.2	166.2	27.8	0	0			0	27.8	427.2	0.4	8.9	9.3	119.6
SEPT	7.9	1.1	0.2	9.2	6.0	-1.5		-1.5	7.7	173.9	22.1	0	0			0	22.1	449.3	0.2	3.6	3.8	123.4
OCT	13.0	2.2	0.3	15.5	4.1	-1.9		-1.9	13.6	187.5	42.6	0	0			0	42.6	491.9	5.3	9.3	14.6	138.0
NOV	5.0	——	——	5.0	5.6	+1.5		+1.5	6.5	194.0	20.1	0	0			0	20.1	512.0	5.8	14.7	20.5	158.5
DEC	3.1	——	——	3.1	6.5	+0.9		+0.9	4.0	198.0	12.0	0	0			0	12.0	524.0	2.8	12.7	15.5	174.0
YEAR	163.3	38.2	5.0	206.5	——	-8.8	+0.3	-8.5	198.0	——	526.0	——	0	-2.2	+0.2	-2.0	524.0	——	31.5	142.5	174.0	——

REMARKS: Storage under relinquishment of accrued credits during 1990 equals zero; balance remaining is 51,000 ac-ft.
Col. 6 does not include transmountain water.

a 2,427 ac-ft minus 243 ac-ft pre-compact; report of Eng. Adv. for Colorado.

b Evaporation loss post-compact reservoirs; report of Eng. Adv. for Colorado.

c Gaged flow minus 1,620 ac-ft Closed Basin delivery not creditable; report of Bureau of Reclamation.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE	
C1	Balance at Beginning of Year	——	——	Cr	20.9
C2	Scheduled Delivery from Conejos River	44.0	——	Dr	23.1
C3	Scheduled Delivery from Rio Grande	135.2	——	Dr	158.3
C4	Actual Delivery at Lobatos over 10'000 Acre Feet	——	184.0	Cr	25.7
C5	Reduction of Debits "% Evaporation	——	0.0	Cr	25.7
C6	Reduction of Credits "% Evaporation	2.0	——	Cr	23.7
C7					
C8	Balance at End of Year	——	——	Cr	23.7

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 1990

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	ELEPHANT BUTTE EFFECTIVE SUPPLY				
	Recorded Flow at Otowi Bridge	ADJUSTMENTS (RESERVOIRS: LOBATOS to OTOWI)						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR		Recorded Flow Below Elephant Butte Dam	EFFECTIVE SUPPLY	
		Storage - End of Month	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustment	During Month	Accumulated Total		End of Month	Change Gain (+) Loss (-)		During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	——	0.5	——	——	——	——	——	——	——	3.6	1672.2	——	——	——	——
JAN	33.8	0.5	0.0	0.0		-0.9	-0.9	32.9	32.9	3.5	1705.5	+33.3	0.8	34.1	34.1
FEB	34.4	0.6	+0.1	0.0		-0.1	0.0	34.4	67.3	3.6	1734.2	+28.7	4.2	32.9	67.0
MAR	54.0	1.2	+0.6	0.1		-1.7	-1.0	53.0	120.3	4.0	1647.7	-86.5	111.1	24.6	91.6
APR	63.2	20.3	+19.1	0.1		-0.4	+18.8	82.0	202.3	23.8	1587.0	-60.7	87.3	26.6	118.2
MAY	104.1	51.3	+31.0	0.3		-0.1	+31.2	135.3	337.6	54.7	1528.8	-58.2	107.3	49.1	167.3
JUN	62.9	41.2	-10.1	0.3		-2.7	-12.5	50.4	388.0	43.7	1423.6	-105.2	121.7	16.5	183.8
JUL	67.2	28.4	-12.8	0.2		-2.8	-15.4	51.8	439.8	31.6	1337.4	-86.2	101.2	15.0	198.8
AUG	56.5	20.8	-7.6	0.1		-11.2	-18.7	37.8	477.6	23.8	1298.3	-39.1	59.5	20.4	219.2
SEPT	63.4	21.1	+0.3	0.1		-28.9	-28.5	34.9	512.5	26.5	1249.2	-49.1	70.6	21.5	240.7
OCT	45.5	22.0	+0.9	0.1		-1.6	-0.6	44.9	557.4	24.7	1269.7	+20.5	0.6	21.1	261.8
NOV	65.6	21.8	-0.2	0.2		-0.2	-0.2	65.4	622.8	24.2	1322.0	+52.3	0.5	52.8	314.6
DEC	52.3	18.8	-3.0	0.2		-0.8	-3.6	48.7	671.5	22.0	1364.4	+42.4	0.7	43.1	357.7
YEAR	702.9	——	+18.3	+1.7		-51.4	-31.4	671.5	——	——	——	-307.8	665.5	357.7	——

REMARKS: Storage in recreational reservoirs not included.
Cols. 3, 11 and 12 do not include transmountain water.

a Includes evaporation from debit water storage in McClure and Nichols Reservoirs.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE	
NM 1	Balance at Beginning of Year	——	——	Dr	21.5
NM 2	Scheduled Delivery at Elephant Butte	388.6	——	Dr	410.1
NM 3	Actual Elephant Butte Effective Supply	——	357.7	Dr	52.4
NM 4	Reduction of Debits % Evaporation	——	a1.3	Dr	51.1
NM 5	Reduction of Credits % Evaporation	0.0	——	Dr	51.1
NM 6					
NM 7					
NM 8	Balance at End of Year	——	——	Dr	51.1

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 1990

Quantities in Thousands of Acre Feet to Nearest Hundred

MONTH	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			USABLE RELEASE	
														CABALLO FLOOD WATER	CREDIT WATER	USABLE WATER	DET DURING MONTH	ACCUMULATED TOTAL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1672.2	69.9	1742.1		0	0	0		1742.1	——	——	——	——	——	——	——	a
JAN		1684.7	72.4	1757.1		20.8	0	20.8		1777.9	0.1	0.0	0.1				0.1	0.1
FEB		1713.5	62.4	1775.9		20.7	0	20.7		1796.6	16.1	0.0	16.1				16.1	16.2
MAR		1627.1	56.9	1684.0		20.6	0	20.6		1704.6	112.0	0.0	112.0				112.0	128.2
APR		1566.7	65.3	1632.0		20.3	0	20.3		1652.3	73.9	0.1	74.0				74.0	202.2
MAY		1508.8	63.2	1572.0		20.0	0	20.0		1592.0	93.6	0.1	93.7				93.7	295.9
JUN		1404.0	43.6	1447.6		19.6	0	19.6		1467.2	133.2	0.1	133.3				133.3	429.2
JUL		1318.0	35.6	1353.6		19.4	0	19.4		1373.0	109.5	0.1	109.6				109.6	538.8
AUG		1279.0	22.5	1301.5		19.3	0	19.3		1320.8	75.9	0.0	75.9				75.9	614.7
SEPT		1230.0	42.7	1272.7		19.2	0	19.2		1291.9	65.0	0.1	65.1				65.1	679.8
OCT		1250.7	44.5	1295.2		19.0	0	19.0		1314.2	0.5	0.0	0.5				0.5	680.3
NOV		1303.0	48.3	1351.3		19.0	0	19.0		1370.3	0.1	0.0	0.1				0.1	680.4
DEC		1345.5	51.5	1397.0		18.9	0	18.9		1415.9	0.1	0.0	0.1				0.1	680.5
YEAR	——	——	——	——	——	——	——	——	——	——	680.0	0.5	680.5				680.5	——

REMARKS:

a Computation not needed because cumulative actual release is less than cumulative normal release; reference is made to report of Engineer Advisers for the year 1989.

ACCRUED DEPARTURE FROM NORMAL RELEASE

	ITEM	DEBIT	CREDIT	BALANCE	
P1	Accrued Departure at Beginning of Year	——	——		a
P2	Actual Release during Year	680.5	——		a
P3	Normal Release for Year	——	790.0		a
P4	Actual Evaporation from Elephant Butte Reservoir		——		a
P5	Evaporation Loss if No Accrued Departure	——			a
P6					
P7	Accrued Departure at End of Year	——	——		a

TIME OF HYPOTHETICAL SPILL: Did not occur

COST OF OPERATION FOR FISCAL YEAR ENDING JUNE 30, 1990

ITEM	TOTAL COST	BORNE BY UNITED STATES	BORNE BY COLORADO	BORNE BY NEW MEXICO	BORNE BY TEXAS
GAGING STATIONS					
In Colorado	$32,520	$16,260	$16,260	-	-
In New Mexico, above Caballo Reservoir	40,660	25,500	-	$15,160	-
In New Mexico, Caballo Reservoir and below	18,460	1,100	-	1,100	$16,260
Subtotals:	$91,640	$42,860	$16,260	$16,260	$16,260
ADMINISTRATION					
USGS Contract	$19,560	$ 4,890	$ 4,890	$ 4,890	$ 4,890
Other expense	1,476	-	492	492	492
Subtotals:	$21,036	$ 4,890	$ 5,382	$ 5,382	$ 5,382
GRAND TOTALS:	$112,676	$47,750	$21,642	$21,642	$21,642
EQUAL SHARES OF STATES:	-	-	$21,642	$21,642	$21,642

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 1992

ITEM	TOTAL COST	BORNE BY UNITED STATES	BORNE BY COLORADO	BORNE BY NEW MEXICO	BORNE BY TEXAS
GAGING STATIONS					
In Colorado	$35,660	$17,830	$17,830	-	-
In New Mexico, above Caballo Reservoir	44,600	27,970	-	$16,630	-
In New Mexico, Caballo Reservoir and below	20,230	1,200	-	1,200	$17,830
Subtotals:	$100,490	$47,000	$17,830	$17,830	$17,830
ADMINISTRATION					
USGS Contract	$21,460	$ 5,365	$ 5,365	$ 5,365	$ 5,365
Other expense	2,550	-	850	850	850
Subtotals:	$24,010	$ 5,365	$ 6,215	$ 6,215	$ 6,215
GRAND TOTALS:	$124,500	$52,365	$24,045	$24,045	$24,045
EQUAL SHARES OF STATES:	-	-	$24,045	$24,045	$24,045

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

The office of the State Engineer of Colorado provided records of discharge for the following:

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

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

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

Storage in Platoro Reservoir at Platoro, Colo.
Azotea tunnel at outlet, near Chama, N. Mex.
Willow Creek above Heron Res., near Los Ojos, N. Mex.
Horse Lake Creek above Heron Res., near Los Ojos, N. Mex.
Storage in Heron Reservoir near Los Ojos, N. Mex.
Willow Creek below Heron Dam, N. Mex.
Storage in El Vado Reservoir near Tierra Amarilla, N. Mex.
Storage in Nambe Falls Reservoir near Nambe, N. Mex.
Rio Nambe below Nambe Falls Dam, near Nambe, N. Mex.

The U.S. Geological Survey supplied the record for Rio Grande below Elephant Butte Dam, and in cooperation with the New Mexico Interstate Stream Commission, also provided the following:

Rio Chama below El Vado Dam, N. Mex.
Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.
Storage in McClure Reservoir near Santa Fe, N. Mex.
Santa Fe River near Santa Fe, N. Mex.
Storage in Nichols Reservoir near Santa Fe, N. Mex.

The U.S. Geological Survey, in cooperation with the Corps of Engineers, Albuquerque, N. Mex., also provided the following records:

Rio Chama below Abiquiu Dam, N. Mex.
Rio Grande below Cochiti Dam, N. Mex.
Galisteo Creek below Galisteo Dam, N. Mex.
Jemez River below Jemez Canyon Dam, N. Mex.

The Corps of Engineers, Albuquerque, N. Mex., provided the records of storage in Abiquiu, Galisteo, and Jemez Canyon Reservoirs and in Cochiti Lake.

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

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

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

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

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

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. The number of significant figures and rounding limits used are those as employed by the U.S. Geological Survey.

Rio Grande near Del Norte, Colo.

Location.--Water-stage recorder, lat 37°41'22" long 106°27'38", in NW¼ sec. 29, T. 40 N., R. 5 E., on right bank, 20 ft downstream from county highway bridge, 6 miles west of Del Norte, and 18 miles 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 miles downstream. Records are equivalent.

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

Average discharge.--101 years (1890-1990), 906 ft^3/s (656,400 acre-ft per year).

Extremes.--1889-1990: 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	3,291	135	86	106	6,530
February	3,880	165	120	139	7,700
March	6,586	320	155	212	13,060
April	15,014	795	238	500	29,780
May	61,157	4,140	561	1,973	121,300
June	83,260	4,850	1,020	2,775	165,100
July	29,195	1,770	449	942	57,910
August	14,021	705	320	452	27,810
September	11,133	947	207	371	22,080
October	21,448	1,030	555	692	42,540
November	10,150	514	182	338	20,130
December	6,030	260	140	195	11,960
Calendar year 1990	265,165	4,850	86	726	526,000

Conejos River below Platoro Reservoir, Colo.

Location.--Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW¼NW¼ sec. 22, T. 36 N., R. 4 E., on left bank 1,100 ft downstream from valve house for Platoro Reservoir, and 0.7 mile 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.--38 years (1953-90), 93.2 ft^3/s (67,520 acre-ft per year).

Extremes.--1952-90: 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	192.2	6.2	6.2	6.20	381
Feburary	128.4	6.2	4.1	4.59	255
March	133.4	4.4	4.1	4.30	265
April	984.3	53	4.1	32.8	1,950
May	6,427	485	30	207	12,750
June	9,658	676	77	322	19,160
July	4,735	190	122	153	9,390
August	3,204	190	49	103	6,360
September	1,862	91	39	62.1	3,690
October	2,977	185	18	96.0	5,900
November	159.6	15	3.2	5.32	317
December	99.2	3.2	3.2	3.20	197
Calendar year 1990	30,560.1	676	3.2	83.7	60,620

Conejos River near Mogote, Colo.

Location.--Water-stage recorder, lat 37°03'14", long 106°11'13", in SE¼SE¼ sec. 34, T. 33 N., R. 7 E., on right bank 25 ft upstream from bridge on State Highway 174, 0.4 mile downstream from Fox Creek, and 5.3 miles west of Mogote. Datum of gage is 8,271.54 ft above mean sea level.

Drainage area.--282 sq mi.

Average discharge.--80 years (1904, 1912-90), 330 ft^3/s (239,100 acre-ft per year).

Extremes.--1903-05, 1911-90: 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	916	36	25	29.5	1,820
February	954	45	30	34.1	1,890
March	1,798	97	37	58.0	3,570
April	4,841	264	60	161	9,600
May	20,978	1,360	179	677	41,610
June	23,128	1,530	310	771	45,870
July	8,568	353	223	276	16,990
August	6,540	283	119	211	12,970
September	3,991	303	98	133	7,920
October	6,548	341	134	211	12,990
November	2,515	124	45	83.8	4,990
December	1,561	60	40	50.4	3,100
Calendar year 1990	82,338	1,530	25	226	163,300

San Antonio River at Ortiz, Colo.

Location.--Water-stage recorder, lat 36°59'35", long 106°02'17", in New Mexico in NE¼SE¼, sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 mile southeast of Ortiz, and 0.4 mile upstream from Los Pinos River. Altitude of gage is 7,970 ft.

Drainage area.--110 sq mi.

Average discharge.--50 years (1941-90), 25.6 ft^3/s (18,550 acre-ft per year).

Extremes.--1920, 1925-90: 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	.00	.00	.00	.000	.00
February	6.90	1.0	.00	.25	14
March	278.4	20	1.0	8.98	552
April	966.2	61	9.3	32.2	1,920
May	1,223.2	102	6.6	39.5	2,430
June	53.53	7.0	.00	1.78	106
July	13.55	5.8	.00	.44	27
August	24.08	4.6	.00	.78	48
September	69.98	17	.00	2.33	139
October	141.9	13	1.2	4.58	281
November	116.7	5.8	2.0	3.89	231
December	63.5	4.5	1.0	2.05	126
Calendar year 1990	2,957.94	102	.00	8.10	5,870

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 mile south of New Mexico-Colorado State line, 2.1 miles southwest of Ortiz, and 2.9 miles upstream from mouth. Altitude of gage is 8,040 ft.

Drainage area.--167 sq mi.

Average discharge.--72 years (1915-20, 1925-90), 120 ft^3/s (86,940 acre-ft per year).

Extremes.--1915-20, 1925-90: 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	209.0	12	4.0	6.74	415
February	309.0	14	9.0	11.0	613
March	569	32	12	18.4	1,130
April	3,389	249	22	113	6,720
May	8,954	403	112	289	17,760
June	3,395	227	22	113	6,730
July	1,077	77	18	34.7	2,140
August	813	49	16	26.2	1,610
September	541	54	11	18.0	1,070
October	1,074	51	19	34.6	2,130
November	1,104	55	26	36.8	2,190
December	732	33	18	23.6	1,450
Calendar year 1990	22,166.0	403	4.0	60.7	43,970

Conejos River near Los Sauces, Colo.

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

Drainage area.--887 sq mi.

Average discharge.--69 years (1922-90), 185 ft^3/s (134,000 acre-ft per year).

Extremes.--1921-90: Maximum discharge, 3,890 ft^3/s May 15, 1941; no flow at times in some years.

Remarks.--Records good except those for winter months, which are fair. Diversions for irrigation of about 75,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	930	35	25	30.0	1,840
February	1,163	60	34	41.5	2,310
March	1,656.2	77	1.2	53.4	3,290
April	44.67	2.4	.76	1.49	89
May	4,236.9	745	1.3	137	8,400
June	455.76	164	.18	15.2	904
July	85.93	8.6	.24	2.77	170
August	220.2	20	1.2	7.10	437
September	83.27	7.3	.00	2.78	165
October	2,654	175	24	85.6	5,260
November	2,907	154	50	96.9	5,770
December	1,438	74	27	46.4	2,850
Calendar year 1990	15,874.93	745	.00	43.5	31,490

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 miles north of Colorado-New Mexico State line, 10 miles east of Lobatos, and 14 miles east of Antonito. Datum of gage is 7,427.63 ft above mean sea level, datum 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); 60 years (1931-90) 449 ft^3/s (325,300 acre-ft per year).

Extremes.--1899-1990: Maximum discharge observed, 13,200 ft^3/s June 8, 1905, (gage height, 9.1 ft), from rating curve extended above 8,000 ft^3/s; no flow at times in 1950-51, 1956.

Remarks.--Records good except those for winter months, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	5,570	205	150	180	11,050
February	6,520	290	200	233	12,930
March	9,635	390	120	311	19,110
April	3,267	181	75	109	6,480
May	16,714	1,790	156	539	33,150
June	8,079	594	148	269	16,020
July	6,603	300	160	213	13,100
August	4,672	216	99	151	9,270
September	1,941	94	28	64.7	3,850
October	7,368	399	62	238	14,610
November	10,315	528	226	344	20,460
December	7,830	400	150	253	15,530
Calendar year 1990	88,514	1,790	28	243	175,600

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 mile downstream from Iron Spring Creek, 3.3 miles west of Los Ojos, and at mile 9.7. Datum of gage is 7,196.29 ft above mean sea level. Prior to Apr. 1, 1971, at site 900 ft downstream.

Drainage area.--112 sq mi.

Average discharge.--7 years (1963-69), 11.5 ft^3/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 21 years (1970-90), 136 ft^3/s (98,530 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes.--1962-90: Maximum discharge, 1,610 ft^3/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times prior to 1971.

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	0.60	.03	.01	.019	1.2
February	1.39	.24	.02	.050	2.8
March	45.02	2.9	.40	1.45	89
April	5,304.1	406	1.0	177	10,520
May	12,971	766	136	418	25,730
June	12,019	951	42	401	23,840
July	2,321	188	20	74.9	4,600
August	1,313.0	193	4.1	42.4	2,600
September	2,440.2	504	1.9	81.3	4,840
October	2,908.0	256	1.0	93.8	5,770
November	356.68	23	.45	11.9	707
December	6.54	.40	.13	.21	13
Calendar year 1990	39,686.53	951	.01	109	78,720

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 miles northwest of Heron Dam, 7.8 miles downstream from Horse Lake, and 9.9 miles west of Los Ojos. Datum of gage is 7,188.85 ft above mean sea level. Prior to July 1, 1971, at site 1,100 ft upstream.

Drainage area.--45 sq mi, approximately.

Average discharge.--12 years (1963-73, 86), 1.17 ft^3/s (848 acre-ft per year).

Extremes.--1963-90: 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	0.00	.00	.00	.000	.00
April	0.23	.10	.00	.008	.5
May	0.12	.05	.00	.004	.2
June	0.00	.00	.00	.000	.00
July	0.00	.00	.00	.000	.00
August	0.00	.00	.00	.000	.00
September	0.23	.08	.00	.008	.5
October	11.45	8.5	.00	.37	23
November	0.85	.36	.00	.028	1.7
December	0.00	.00	.00	.000	.00
Calendar year 1990	-	-	-	-	-

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 mile upstream from Rio Chama, 5.1 miles northeast of El Vado Dam, and 8.7 miles southwest of Los Ojos.

Drainage area.--193 sq mi.

Average discharge.--20 years (1971-90) 109 ft^3/s (78,970 acre-ft per year).

Extremes.--1971-90: 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	0.00	.00	.00	.000	.00
February	3,324.00	203	.00	119	6,590
March	15,936	543	325	514	31,610
April	9,549.00	542	.00	318	18,940
May	485.00	103	.00	15.6	962
Jun	0.00	.00	.00	.000	.00
July	313.00	185	.00	10.1	621
August	16.20	10	.00	.52	32
September	379.90	64	.00	12.7	754
October	23.00	23	.00	.74	46
November	90.00	20	.00	3.00	179
December	611	20	19	19.7	1,210
Calendar year 1990	30,727.10	543	.00	84.2	60,950

Rio Chama below El Vado Dam, N. Mex.

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

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

Average discharge.--4 years (1914, 1921-23), 444 ft^3/s (321,700 acre-ft per year) prior to completion of El Vado Dam; 35 years (1936-70), 372 ft^3/s (269,500 acre-ft per year), prior to release of transmountain water; 20 years (1971-90) 461 ft^3/s (334,000 acre-ft per year).

Extremes.--1914-16, 1920-24, 1936-90: Maximum discharge observed, 9,000 ft^3/s May 22, 1920 (gage height, 12 ft); no flow Mar. 25, 26, 31, 1955.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	3,574	118	110	115	7,090
February	3,883	157	118	139	7,700
March	3,840	159	113	124	7,620
April	3,718	168	110	124	7,370
May	13,686	1,100	153	441	27,150
June	14,284	1,080	216	476	28,330
July	13,275	962	114	428	26,330
August	9,574	924	170	309	18,990
September	12,766	1,180	159	426	25,320
October	4,454	161	122	144	8,830
November	4,022	163	116	134	7,980
December	6,345	248	159	205	12,590
Calendar year 1990	93,421	1,180	110	256	185,300

Rio Chama below Abiquiu Dam, N. Mex.

Location.--Water-stage recorder, lat 36°14'12", long 106°24'59", in SE¼SE¼ sec. 8, T. 23 N., R. 5 E., on right bank 0.8 mile downstream from Abiquiu Dam and 5.9 miles northwest of Abiquiu. Altitude of gage is 6,040 ft (from river-profile map and topographic map).

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

Average discharge.--9 years (1962-70), 376 ft^3/s (272,400 acre-feet per year), prior to release of transmountain water; 20 years (1971-90), 512 ft^3/s (370,900 acre-ft per year).

Extremes.--1961-90: 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	1,670	59	50	53.9	3,310
February	1,460	60	50	52.1	2,900
March	3,191	164	60	103	6,330
April	6,635	326	100	221	13,160
May	15,542	1,070	197	501	30,830
June	14,116	1,170	202	471	28,000
July	13,250	1,130	187	427	26,280
August	13,601	787	218	439	26,980
September	19,757	1,150	130	659	39,190
October	4,911	234	102	158	9,740
November	4,696	590	55	157	9,310
December	4,646	305	72	150	9,220
Calendar year 1990	103,475	1,170	50	283	205,200

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

Location.--Totalizing flowmeters, lat 35°50'46", long 105°54'17", in NE¼SW¼ sec. 29, T.19 N., R.10 E., in Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 feet upstream from Nambe Falls, 2.6 miles upstream from confluence of Rio Nambe and Rio En Medio, 4.4 miles southeast of Nambe Pueblo, and 5.4 miles southeast of Nambe.

Drainage area.--34.1 sq mi.

Average discharge.--12 years (1979-90), 15.8 ft^3/s (11,450 acre-feet per year).

Extremes.--1979-90: Maximum discharge, 312 ft^3/s June 9, 1979 (gage height, 1.96 feet), at site 1,100 feet downstream; minimum daily discharge, 0.13 ft^3/s May 3, 1981.

Remarks.--Records good. Flow completely regulated by Nambe Falls Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	16.27	.58	.50	.52	32
February	14.80	.56	.47	.53	29
March	16.11	.58	.47	.52	32
April	251.75	20	.50	8.39	499
May	632	35	15	20.4	1,250
June	834	40	14	27.8	1,650
July	417.4	25	4.0	13.5	828
August	450.2	30	4.1	14.5	893
September	275.2	22	1.1	9.17	546
October	87.8	6.3	1.1	2.83	174
November	187.9	6.4	6.2	6.26	373
December	79.56	6.3	.91	2.57	158
Calendar year 1990	3,262.99	40	.47	8.94	6,470

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

Location.--Water-stage recorder, lat 35°52'29", long 106°08'30", in San Ildefonso Pueblo Grant, 400 ft downstream from bridge on State Highway 4, 1.8 miles southwest of San Ildefonso Pueblo, 2.5 miles downstream from Pojoaque River, and 6.8 miles west of Pojoaque. Datum of gage is 5,488.48 ft above mean sea level, datum of 1929. Prior to May 19, 1904, and July 25 to Oct. 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower.

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

Average discharge.--91 years (1896-1905, 1910-90) 1,527 ft^3/s (1,106,000 acre-ft per year).

Extremes.--1895-1905, 1910-90: 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	17,057	622	501	550	33,830
February	17,326	708	550	619	34,370
March	27,230	1,040	729	878	54,010
April	31,866	1,490	723	1,062	63,210
May	52,472	2,980	992	1,693	104,100
June	31,692	1,570	740	1,056	62,860
July	33,887	1,600	736	1,093	67,210
August	28,497	1,380	750	919	56,520
September	31,936	1,740	644	1,065	63,350
October	22,953	966	580	740	45,530
November	33,093	1,860	644	1,103	65,640
December	26,376	1,330	623	851	52,320
Calendar year 1990	354,385	2,980	501	971	702,900

Santa Fe River near Santa Fe, N. Mex.

Location.--Water-stage recorder and concrete control, lat 35°41'12", long 105°50'35", in NE¼SE¼ sec. 23, T. 17 N., R. 10 E., 0.4 mile downstream from McClure Dam, and 5.3 miles east of Santa Fe. Altitude of gage is 7,718 ft. Prior to Nov. 4, 1930, at site 1.5 miles downstream, and Apr. 11, 1931 to Sept. 30, 1947, at site 0.3 mile upstream, each at different datum.

Drainage area.--18.2 sq mi.

Average discharge.--78 years (1913-90), 8.03 ft^3/s (5,820 acre-ft per year).

Extremes.--1913-90: Maximum discharge, 1,500 ft^3/s Aug. 14, 1921; minimum, 0.05 ft^3/s Apr. 7, 8, 1981.

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	15.45	.54	.39	.50	31
February	16.70	.82	.48	.60	33
March	25.94	.99	.69	.84	51
April	28.31	1.4	.73	.94	56
May	246.03	20	.79	7.94	488
June	442	20	11	14.7	877
July	236.1	11	2.9	7.62	468
August	151.9	13	3.1	4.90	301
September	399.7	23	4.6	13.3	793
October	35.55	4.8	.91	1.15	71
November	104.06	4.6	.99	3.47	206
December	151.5	5.2	4.6	4.89	301
Calendar year 1990	1,853.24	23	.39	5.08	3,680

Rio Grande below Cochiti Dam, N. Mex.

Location.--Water-stage recorder, lat 35°37'05", long 106°19'24", in SW¼NE¼ sec. 17, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, 320 feet upstream from bridge on State Highway 22, 700 feet downstream from Cochiti Dam, and 1.4 miles northeast of Cochiti Pueblo. Datum of gage is 5,226.08 ft above mean sea level, datum of 1929. Prior to Nov. 14, 1973, at site 2.4 mi downstream at altitude 5,210 ft. Nov. 14, 1973 to Jan. 8, 1976, at site 320 ft downstream at datum 1.79 ft lower.

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

Average discharge.--20 years (1971-90) 1,375 ft^3/s (996,200 acre-ft per year).

Extremes.--1971-90: Maximum discharge, 10,300 ft^3/s July 26, 1971, at site 2.4 miles downstream prior to closure of Cochiti Dam; minimum discharge, 0.51 ft^3/s Aug. 3-5, 1977, Aug. 27-28, 1978.

Remarks.--Records good. Since Nov. 12, 1973, flow completely regulated by Cochiti Dam. Cochiti eastside main canal on left bank and Sili main canal on right bank bypass station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	17,596	686	417	568	34,900
February	17,009	781	461	607	33,740
March	22,117	895	596	713	43,870
April	23,758	1,150	492	792	47,120
May	44,513	2,610	773	1,436	88,290
June	25,175	1,260	580	839	49,930
July	26,443	1,070	619	853	52,450
August	19,815	975	496	639	39,300
September	21,965	1,330	458	732	43,570
October	17,594	1,120	394	568	34,900
November	25,821	1,230	313	861	51,220
December	22,093	1,040	286	713	43,820
Calendar year 1990	283,899	2,610	286	778	563,100

Galisteo Creek below Galisteo Dam, N. Mex.

Location.--Water-stage recorder, lat 35°27'56", long 106°12'57", in SE¼SE¼ sec. 5, T. 14 N., R. 7 E., 0.6 mile downstream from Galisteo Dam, and 5.5 miles northwest of Cerrillos. Altitude of gage is 5,450 ft.

Drainage area.--597 sq mi.

Average discharge.--20 years (1971-90), 6.10 ft^3/s (4,420 acre-ft per year).

Extremes.--1970-90: Maximum discharge, 2,000 ft^3/s July 27, 1971 (gage height, 7.00 ft); maximum gage height, 7.33 ft July 20, 1971; no flow many days each year.

Remarks.--Records poor. Flow partly regulated by uncontrolled outlet in Galisteo Dam. Capacity of outlet, 5,000 ft^3/s when reservoir is full. Diversions for irrigation of about 50 acres above reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	26.85	2.0	.00	.87	53
February	4.15	1.8	.00	.15	8.2
March	7.50	4.0	.00	.24	15
April	24.70	3.0	.50	.82	49
May	4.25	1.0	.00	.14	8.4
June	0.00	.00	.00	.000	.00
July	670.15	368	.00	21.6	1,330
August	200.31	72	.00	6.46	397
September	826.97	195	.49	27.6	1,640
October	22.97	9.1	.14	.74	46
November	16.08	1.4	.19	.54	32
December	17.45	.95	.18	.56	35
Calendar year 1990	1,821.38	368	.00	4.99	3,610

Jemez River below Jemez Canyon Dam, N. Mex.

Location.--Water-stage recorder, lat 35°23'24", long 106°32'03", in NE¼ sec. 5, T. 13 N., R. 4 E., 0.8 mile downstream from Jemez Canyon Dam, 2.0 miles upstream from mouth, and 6 miles north of Bernalillo. Datum of gage is 5,095.60 ft above mean sea level, datum of 1929. Prior to April 24, 1951, at site three-quarters of a mile 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.--48 years (1937, 1944-90), 61.5 ft^3/s (44,560 acre-ft per year).

Extremes.--1937, 1944-90: 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	689.5	58	1.7	22.2	1,370
February	826.2	90	1.7	29.5	1,640
March	2,319	260	16	74.8	4,600
April	3,566	259	32	119	7,070
May	3,341	231	16	108	6,630
June	248.8	41	2.1	8.29	493
July	1,261.5	422	1.9	40.7	2,500
August	1,409.4	182	1.7	45.5	2,800
September	628.02	169	.07	20.9	1,250
October	1,023.07	282	.00	33.0	2,030
November	1,281.4	145	6.7	42.7	2,540
December	620.7	75	1.8	20.0	1,230
Calendar year 1990	17,214.59	422	.00	47.2	34,150

Rio Grande below Elephant Butte Dam, N. Mex.

Location.--Water-stage recorder, lat 33°08'54", long 107°12'22", in SW¼ sec. 25, T. 13 S., R. 4 W., (projected) in Pedro Armendariz Grant, 1.0 mile downstream from dam and 1.5 miles upstream from Cuchillo Negro River. Datum of gage is 4,242.09 ft above mean sea level, datum of 1929. Prior to April 23, 1942, at several different sites and datums.

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

Average discharge.--76 years (1915-90), 997 ft^3/s (722,300 acre-ft per year).

Extremes.--1915-90: 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	418	15	11	13.5	829
February	2,097	651	14	74.9	4,160
March	56,012	2,090	652	1,807	111,100
April	44,022	2,190	582	1,467	87,320
May	54,120	2,370	1,340	1,746	107,300
June	61,340	2,130	1,360	2,045	121,700
July	51,010	2,050	1,370	1,645	101,200
August	29,983	1,620	670	967	59,470
September	35,622	1,930	16	1,187	70,660
October	298.8	17	7.7	9.64	593
November	244.4	10	6.8	8.15	485
December	373.5	13	9.5	12.0	741
Calendar year 1990	335,540.7	2,370	6.8	919	665,500

Rio Grande below Caballo Dam, N. Mex.

Location.--Water-stage recorder, lat 32°53'05", long 107°17'31", in NE¼SW¼ 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 miles upstream from Percha diversion dam, and 3 miles northeast of Arrey. Datum of gage is 4,140.90 ft above mean sea level, datum of 1929. October 13, 1938 to December 31, 1945, at datum 5.0 ft higher.

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

Average discharge.--53 years (1938-90) 906 ft^3/s (656,400 acre-ft per year).

Extremes.--1938-90: Maximum daily discharge, 7,650 ft^3/s May 20, 1942; minimum daily, 0.1 ft^3/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

Remarks.--Records good. Flow regulated by Elephant Butte and Caballo Reservoirs. Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	62.00	2.0	2.0	2.00	123
February	8,140.00	1,020	2.0	291	16,150
March	56,445	2,530	806	1,821	112,000
April	37,238	1,800	981	1,241	73,860
May	47,200	1,800	1,180	1,523	93,620
June	67,150	2,510	1,820	2,238	133,200
July	55,200	2,410	1,450	1,781	109,500
August	38,250	2,030	745	1,234	75,870
September	32,783	1,930	454	1,093	65,030
October	228.0	168	2.0	7.35	452
November	73.00	5.0	2.0	2.43	145
December	62.00	2.0	2.0	2.00	123
Calendar year 1990	342,831.00	2,530	2.0	939	680,000

Bonito ditch below Caballo Dam, N. Mex.

Records available.--January 1938 to December 1990. 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-feet

January	0
February	11
March	14
April	65
May	126
June	137
July	42
August	14
September	103
October	0
November	0
December	0
Calendar year 1990	512

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 1930; 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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	1.8	2.4	3.0	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Contents	30	40	50	52	52	0	0	0	0	0	0	0	-
Change	+23	+10	+10	+2	0	-52	0	0	0	0	0	0	-7

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

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

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

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

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 E½ 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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	-
Contents	257	257	257	257	257	257	257	257	257	257	257	257	-
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)

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

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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	-
Contents	38	38	38	38	38	12	12	12	12	12	12	12	-
Change	0	0	0	0	0	-26	0	0	0	0	0	0	-26

Big Meadows Reservoir.--In NW¼ sec. 17, T. 38 N., R. 2 E., on South Fork about 0.9 mile 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; and 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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage heig	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

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

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

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

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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-
Contents	43	43	43	43	43	43	43	43	43	43	43	43	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Fuchs Reservoir.--Staff gage in sec. 2, T. 37 N., R. 4 E., on East Pinos Creek. Completed in 1939; capacity, 237 acre-ft with 2 feet of flash boards in spillway. Pinos Creek enters Rio Grande below station near Del Norte.

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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	11.0	12.0	13.2	13.2	13.2	10.6	6.9	0.0	0.0	0.0	9.1	13.6	-
Contents	110	128	151	151	151	103	50	0	0	0	80	160	-
Change	+16	+18	+23	0	0	-48	-53	-50	0	0	+80	+80	+66

Platoro Reservoir.--Water-stage recorder in NW¼ 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, 1989	9,979.66	18,160	-
January 31, 1990	9,979.58	18,116	-44
February 28	9,979.93	18,309	+193
March 31	9,980.44	18,590	+281
April 30	9,980.55	18,651	+61
May 31	9,980.67	18,718	+67
June 30	9,984.02	20,625	+1,907
July 31	9,973.54	14,959	-5,666
August 31	9,963.63	10,313	-4,646
September 30	9,960.19	8,848	-1,465
October 31	9,955.17	6,858	-1,990
November 30	9,958.98	8,352	+1,494
December 31	9,961.13	9,240	+888
Calendar year 1990	-	-	-8,920

Trujillo Meadows Reservoir.--In sec. 5, T. 32 N., R. 5 E., on Los Pinos River. Completed in 1957; capacity, 913 acre-ft. 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

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	913	913	913	913	913	913	913	913	913	913	913	913	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

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

Heron Reservoir.--Water-stage recorder, lat 36°39'56", long 106°42'13", on Willow Creek. Storage began in October 1970. Capacity, 401,300 acre-ft at elevation 7,186.1 ft (low point on crest of spillway); dead storage, 1,340 acre-ft at elevation 7,003.0 ft. Used for storage of transmountain water.

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

Date	Elevation	Contents	Change in Contents
December 31, 1989	7,180.75	370,400	-
January 31, 1990	7,180.67	370,000	-400
February 28	7,179.49	363,400	-6,600
March 31	7,174.00	333,500	-29,900
April 30	7,172.50	325,600	-7,900
May 31	7,176.67	347,800	+22,200
June 30	7,180.60	369,600	+21,800
July 31	7,181.13	372,600	+3,000
August 31	7,181.51	374,700	+2,100
September 30	7,182.02	377,700	+3,000
October 31	7,182.76	381,900	+4,200
November 30	7,182.76	381,900	0
December 31	7,182.50	380,400	-1,500
Calendar year 1990	-	-	+10,000

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 feet (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 feet above mean sea level, datum of 1929. Storage includes both Rio Grande and transmountain water.

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

Date	Gage height	Contents	Change in contents	TM Water
December 31, 1989	6,866.63	93,090	-	92,610
January 31, 1990	6,863.82	87,590	-5,500	87,110
February 28	6,864.28	88,480	+890	88,000
March 31	6,877.10	116,000	+27,520	114,860
April 30	6,890.25	150,400	+34,400	130,050
May 31	6,899.69	178,900	+28,500	127,780
June 30	6,894.75	163,600	-15,300	122,310
July 31	6,887.78	143,400	-20,200	115,050
August 31	6,882.37	129,000	-14,400	108,180
September 30	6,875.20	111,500	-17,500	90,470
October 31	6,874.93	110,900	-600	88,830
November 30	6,875.12	111,300	+400	88,980
December 31	6,872.08	104,500	-6,800	85,690
Calendar year 1990	-	-	+11,410	-

Abiquiu Reservoir.--Water-stage recorder, lat 36°14'24", long 106°25'44", on Rio Chama. Completed in February 1963; capacity, 1,201,200 acre-ft at elevation 6,350 feet (crest of spillway) by 1984 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A resolution granting permission to store transmountain waters was approved by Rio Grande Compact Commission on May 3, 1974. Storage includes both Rio Grande and transmountain water.

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

Date	Elevation	Contents	Change in contents	TM water
December 31, 1989	6,212.89	163,030	-	160,780
January 31, 1990	6,213.98	167,230	+4,200	164,970
February 28	6,215.35	172,580	+5,350	170,230
March 31	6,215.77	174,230	+1,650	171,830
April 30	6,215.56	173,400	-830	171,110
May 31	6,215.53	173,280	-120	170,640
June 30	6,215.27	172,260	-1,020	169,840
July 31	6,216.18	175,860	+3,600	173,090
August 31	6,214.59	169,600	-6,260	166,700
September 30	6,211.22	156,660	-12,940	153,570
October 31	6,210.83	155,190	-1,470	152,060
November 30	6,210.57	154,220	-970	151,560
December 31	6,211.65	158,290	+4,070	155,100
Calendar year 1990	-	-	-4,740	-

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

Nambe Falls Reservoir.--Water-stage recorder in NE¼SW¼ sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, on Rio Nambe. Completed in 1976; capacity 2,023 acre-ft at elevation 6,826.6 feet (crest of spillway), dead storage 121 acre-ft at elevation 6,760.9 feet. 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, 1989	6,807.34	1,090	-
January 31, 1990	6,810.78	1,230	+140
February 28	6,813.75	1,370	+140
March 31	6,818.98	1,610	+240
April 30	6,825.25	1,950	+340
May 31	6,826.69	2,030	+80
June 30	6,820.19	1,670	-360
July 31	6,816.52	1,490	-180
August 31	6,809.69	1,190	-300
September 30	6,811.35	1,260	+70
October 31	6,820.92	1,710	+450
November 30	6,821.28	1,730	+20
December 31	6,823.58	1,850	+120
Calendar year 1990	-	-	+760

McClure (Granite Point) Reservoir.--Water-stage recorder in NE¼SW¼ 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. No dead storage. Altitude of gage is 7,790 ft. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Only the storage of Rio Grande water in excess of 561 acre-feet is subject to terms of Rio Grande Compact.

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

Date	Gage height	Contents	Change in contents	Pre-compact water	TM water
December 31, 1989	-	545	-	76	469
January 31, 1990	-	582	+37	113	469
February 28	59.08	639	+57	170	469
March 31	-	957	+318	488	469
April 30	80.60	1,640	+683	561	469
May 31	-	2,080	+440	561	469
June 30	-	1,820	-260	561	469
July 31	-	1,740	-80	561	469
August 31	-	1,870	+130	561	469
September 30	-	1,450	-420	561	469
October 31	84.42	1,810	+360	561	469
November 30	-	1,780	-30	561	469
December 31	80.81	1,610	-170	561	469
Calendar year 1990	-	-	+1,065	-	-

Nichols Reservoir.--Water-stage recorder in SE¼NE¼ 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 mean sea level, datum of 1929. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange.

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

Date	Gage height	Contents	Change in contents	TM water
December 31, 1989	-	305	-	120
January 31, 1990	-	298	-7	120
February 28	151.56	309	+11	120
March 31	-	348	+39	120
April 30	150.08	300	-48	120
May 31	-	318	+18	120
June 30	-	430	+112	120
July 31	158.56	457	+27	120
August 31	149.56	272	-185	120
September 30	-	591	+319	120
October 31	153.53	347	-244	120
November 30	146.17	220	-127	120
December 31	152.66	330	+110	120
Calendar year 1990	-	-	+25	-

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

Cochiti Lake.--Water-stage recorder and manometer in NW¼SW¼ sec. 16, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, on Rio Grande. Completed in 1975; capacity 502,300 acre-ft at elevation 5,450.0 ft (crest of service spillway); dead storage 560 acre-ft at elevation 5,255.0 ft., from 1986 survey. 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	TM water
December 31, 1989	5,332.92	50,940	-	49,440
January 31, 1990	5,332.85	50,850	-90	49,480
February 28	5,333.03	51,080	+230	49,450
March 31	5,332.58	50,520	-560	49,130
April 30	5,332.57	50,510	-10	48,830
May 31	5,332.00	49,820	-690	48,370
June 30	5,331.35	49,060	-760	47,920
July 31	5,332.27	50,140	+1,080	48,220
August 31	5,332.07	49,900	-240	47,760
September 30	5,333.13	51,210	+1,310	47,420
October 31	5,331.64	49,390	-1,820	47,110
November 30	5,331.56	49,300	-90	47,000
December 31	5,332.33	50,210	+910	47,040
Calendar year 1990	-	-	-730	-

Galisteo Reservoir.--Water-stage recorder and manometer in NW¼ sec. 9, T. 14 N., R. 7 E., on Galisteo Creek. Storage records begin in October 1970. Capacity 88,990 acre-ft at elevation 5,608.0 ft (crest of spillway). No dead storage. Reservoir is operated by Corps of Engineers for flood control and sediment storage.

Month-end contents, in acre-feet

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	0
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Jemez Canyon Reservoir.--Water-stage recorder in SW¼SW¼ sec. 32, T. 14 N., R. 4 E., on Jemez River. Completed in 1953; capacity, 172,800 acre-ft at elevation 5,252.3 ft. Maximum controlled capacity at elevation 5,232.0 ft (floor of spillway) is 102,700 acre-ft by 1983 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	TM Water
December 31, 1989	5,191.27	22,350	-	16,370
January 31, 1990	5,191.26	22,340	-10	16,270
February 28	5,191.02	22,050	-290	16,160
March 31	5,190.75	21,730	-320	15,850
April 30	5,190.38	21,290	-440	15,430
May 31	5,189.62	20,400	-890	14,740
June 30	5,188.48	19,110	-1,290	13,760
July 31	5,188.20	18,790	-320	13,220
August 31	5,187.48	18,000	-790	12,710
September 30	5,188.10	18,680	+680	12,300
October 31	5,186.60	17,060	-1,620	11,880
November 30	5,186.36	16,800	-260	11,750
December 31	5,186.37	16,810	+10	11,730
Calendar year 1990	-	-	-5,540	-

Acomita Reservoir.--Staff gage in SE¼ 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 and Laguna Indian Reservations.

Month-end contents, in acre-feet

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	0
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

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 1990.

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

Elephant Butte Reservoir.--Water-stage recorder in NW¼ sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,065,000 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1988. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Water is used for power development and irrigation in New Mexico and Texas. Records furnished by Bureau of Reclamation. Delivery of transmountain water for minimum recreation pool was initiated in December 1975. Beginning Jan. 1, 1977 gage readings are midnight readings.

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

Date	Gage height	Contents	Change in contents	TM water
December 31, 1989	4,395.54	1,675,300	-	3,160
January 31, 1990	4,396.62	1,709,400	+34,100	3,990
February 28	4,397.53	1,738,600	+29,200	4,410
March 31	4,394.83	1,653,200	-85,400	5,520
April 30	4,392.84	1,592,500	-60,700	5,460
May 31	4,390.87	1,534,200	-58,300	5,390
June 30	4,387.15	1,428,900	-105,300	5,310
July 31	4,383.96	1,342,700	-86,200	5,260
August 31	4,382.46	1,303,500	-39,200	5,240
September 30	4,380.53	1,254,400	-49,100	5,220
October 31	4,381.34	1,274,900	+20,500	5,190
November 30	4,383.37	1,327,200	+52,300	5,180
December 31	4,384.97	1,369,600	+42,400	5,180
Calendar year 1990	-	-	-305,700	-

Caballo Reservoir.--Water-stage recorder in SE¼SW¼ sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 331,500 acre-ft (by 1981 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above mean sea level, datum of 1929. 100,000 acre-ft of storage reserved for flood control. Records furnished by Bureau of Reclamation. Beginning Jan. 1, 1977, gage readings are midnight readings.

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

Date	Gage height	Contents	Change in contents
December 31, 1989	4,149.60	69,900	-
January 31, 1990	4,150.13	72,400	+2,500
February 28	4,147.97	62,400	-10,000
March 31	4,146.69	56,900	-5,500
April 30	4,148.63	65,300	+8,400
May 31	4,148.16	63,200	-2,100
June 30	4,143.16	43,600	-19,600
July 31	4,140.65	35,600	-8,000
August 31	4,135.56	22,500	-13,100
September 30	4,142.91	42,700	+20,200
October 31	4,143.42	44,500	+1,800
November 30	4,144.50	48,300	+3,800
December 31	4,145.33	51,500	+3,200
Calendar year 1990	-	-	-18,400

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

Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 1989	1,742,100	-
January 31, 1990	1,757,100	+15,000
February 28	1,775,900	+18,800
March 31	1,684,000	-91,900
April 30	1,632,000	-52,000
May 31	1,572,000	-60,000
June 30	1,447,600	-124,400
July 31	1,353,600	-94,000
August 31	1,301,500	-52,100
September 30	1,272,700	-28,800
October 31	1,295,200	+22,500
November 30	1,351,300	+56,100
December 31	1,397,000	+45,700
Calendar year 1990	-	-345,100

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

ne 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.

minuche 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.

lliams 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.

bor 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.

n La Font No. 1 & No. 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.

easure 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.

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

Imported quantities, in acre-feet, 1990

lonth	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
nuary	0	0	0	0	0	0	0
bruary	0	0	0	0	0	0	0
rch	0	0	0	0	0	0	0
ril	0	0	0	0	0	0	9,880
y	0	0	0	161	0	0	25,160
ne	127	234	147	267	62	53	23,790
ly	135	278	58	102	55	0	4,260
gust	151	249	0	55	20	0	2,370
ptember	38	199	0	42	1	0	4,660
tober	0	0	0	21	0	0	5,350
vember	0	0	0	0	0	0	710
cember	0	0	0	0	0	0	0
l. year	451	960	205	648	138	53	76,170

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. 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 Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,388 ft.

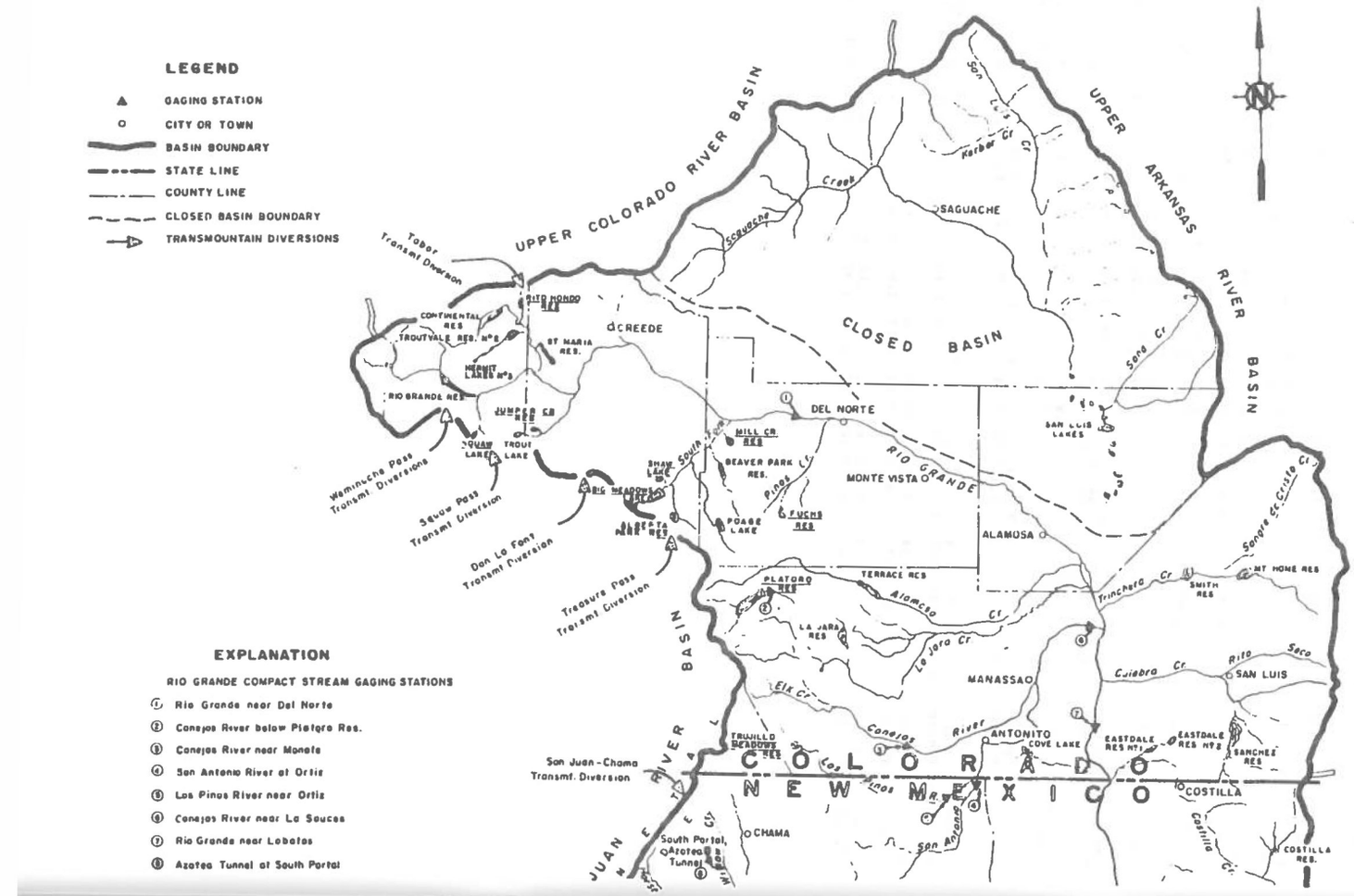
Elephant Butte Dam.--Lat 33°09', long 107°11', in Sierra County at Elephant Butte Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 4,576 ft.

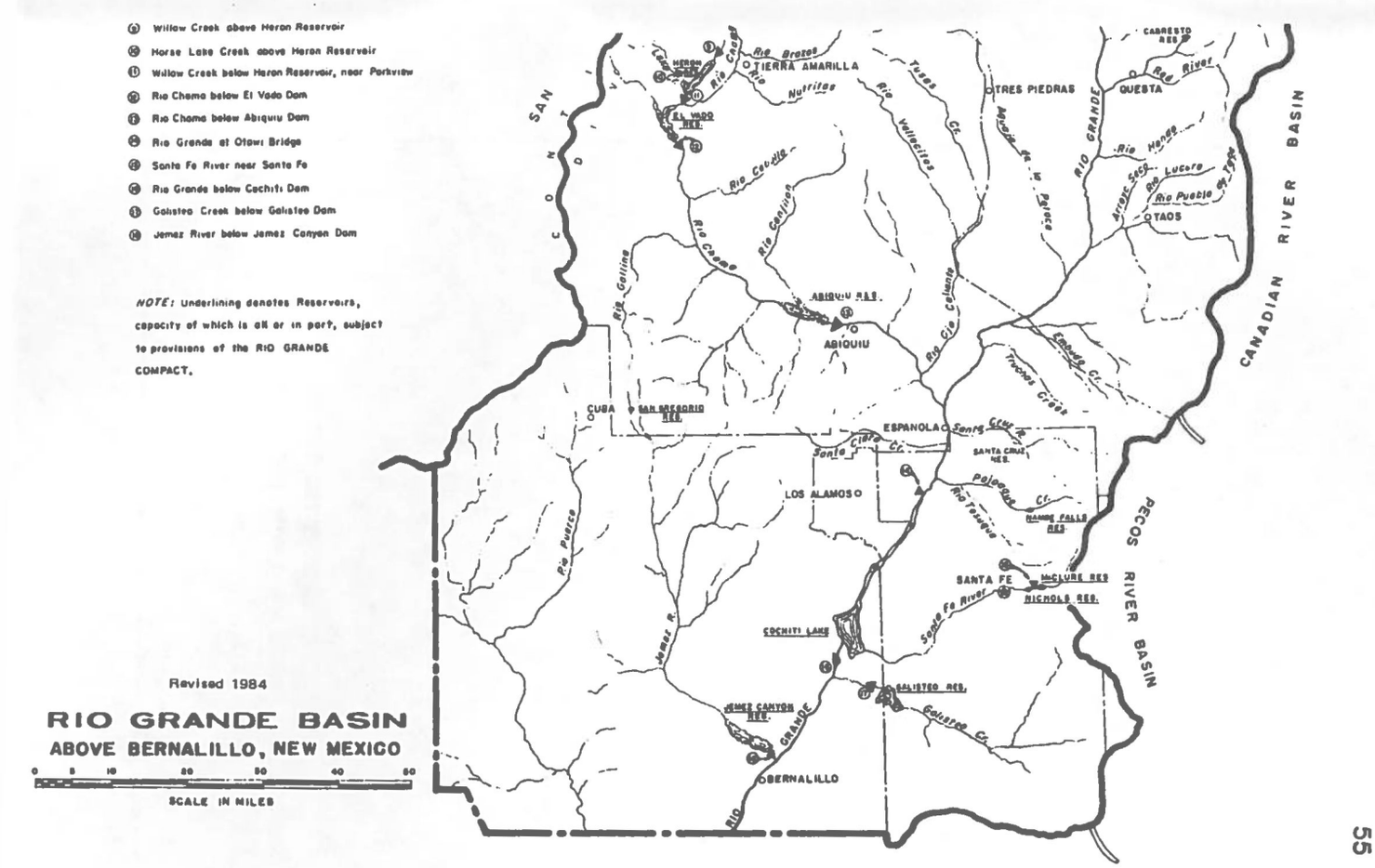
Caballo Dam.--Lat 32°54', long 107°18', in Sierra County at Caballo Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 4,190 ft.

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

Evaporation and precipitation, in inches

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap.	-	-	-	-	-	10.62	7.81	5.27	3.46	-	-	-	-
	Precip.	0.62	0.20	0.43	1.72	0.78	0.45	1.86	1.28	1.48	0.72	0.90	0.75	11.19
Platoro Dam	Evap.	-	-	-	-	-	9.20	5.53	4.05	3.97	-	-	-	-
	Precip.	-	-	-	-	-	0.66	4.91	3.96	3.03	2.42	-	-	-
Heron Dam	Evap.	-	-	-	4.06	6.84	9.31	6.77	6.04	4.96	2.98	-	-	-
	Precip.	0.84	0.79	1.62	2.05	1.39	0.73	3.00	3.04	2.37	1.92	1.55	3.20	22.50
El Vado Dam	Evap.	-	-	-	5.08	8.05	10.36	7.69	6.73	5.66	3.75	-	-	-
	Precip.	0.35	0.60	1.21	1.65	1.71	0.46	3.72	3.20	2.20	1.08	1.40	2.32	19.90
Abiquiu Dam	Evap.	-	-	-	7.58	10.86	12.56	7.74	8.87	6.75	5.40	-	-	-
	Precip.	0.06	0.21	0.15	1.60	0.42	0.66	2.79	1.23	1.84	0.56	0.69	0.32	10.53
Nambe Falls Dam	Evap.	-	-	-	5.25	9.72	12.52	9.44	8.62	7.18	4.66	-	-	-
	Precip.	0.77	0.59	0.08	2.89	0.97	0.36	3.17	1.50	2.14	1.73	1.43	1.87	17.50
Cochiti Dam	Evap.	-	-	-	8.72	12.33	14.74	10.83	10.57	6.31	6.31	-	-	-
	Precip.	0.43	0.34	0.43	1.81	1.16	0.46	3.98	1.93	1.87	0.62	1.07	1.38	15.48
Jemez Canyon Dam	Evap.	-	-	-	9.45	13.28	17.59	12.91	11.33	9.89	7.86	-	-	-
	Precip.	0.24	0.44	0.43	1.57	0.66	0.46	3.09	1.74	2.03	0.23	1.00	0.88	12.77
Elephant Butte Dam	Evap.	3.40	5.05	7.94	11.63	15.57	18.11	12.97	10.92	7.84	7.02	3.82	3.12	107.39
	Precip.	0.30	0.09	0.87	0.17	0.83	0.08	2.03	4.62	2.32	0.47	1.55	0.74	14.07
Caballo Dam	Evap.	-	-	9.44	10.75	12.81	14.40	10.96	8.73	7.18	7.07	-	-	-
	Precip.	0.25	0.26	0.93	0.00	0.52	0.09	5.17	3.80	6.39	0.97	1.22	0.61	20.21
State Univer.	Evap.	-	-	8.13	11.31	14.78	14.15	11.91	9.60	8.07	6.24	3.71	-	-
	Precip.	0.51	0.04	0.20	0.88	0.30	0.02	1.87	2.22	1.44	1.02	0.62	0.41	9.53


LEGEND
GAGING STATION
CITY OR TOWN
BASIN BOUNDARY
STATE LINE
COUNTY LINE
CLOSED BASIN BOUNDARY
TRANSMOUNTAIN DIVERSIONS
UPPER COLORADO RIVER BASIN
UPPER ARKANSAS RIVER BASIN
CLOSED BASIN
RIO GRANDE BASIN
SAGUACHE
CREEDE
DEL NORTE
MONTE VISTA
ALAMOSA
MANASSAS
SAN LUIS
ANTONITO
COSTILLA
CHAMA
COLORADO
NEW MEXICO
RIO GRANDE
Tabor Transmt Diversion
Weminuche Pass Transmt Diversions
Sawpit Pass Transmt Diversion
Don Lo Font Transmt Diversion
Treasure Pass Transmt Diversion
San Juan - Chama Transmt. Diversion
EXPLANATION
RIO GRANDE COMPACT STREAM GAGING STATIONS
1 Rio Grande near Del Norte
2 Conejos River below Platoro Res.
3 Conejos River near Manata
4 San Antonio River at Ortiz
5 Los Pinos River near Ortiz
6 Conejos River near La Sauces
7 Rio Grande near Lobatos
8 Azotea Tunnel at South Portal


9 Willow Creek above Heron Reservoir
10 Horse Lake Creek above Heron Reservoir
11 Willow Creek below Heron Reservoir, near Parkview
12 Rio Chama below El Vado Dam
13 Rio Chama below Abiquiu Dam
14 Rio Grande at Otowi Bridge
15 Santa Fe River near Santa Fe
16 Rio Grande below Cochiti Dam
17 Galisteo Creek below Galisteo Dam
18 Jemez River below Jemez Canyon Dam
NOTE: Underlining denotes Reservoirs, capacity of which is all or in part, subject to provisions of the RIO GRANDE COMPACT.
Revised 1984
RIO GRANDE BASIN
ABOVE BERNALILLO, NEW MEXICO
SCALE IN MILES
TIERRA AMARILLA
TRES PIEDRAS
QUESTA
TAOS
ABIQUIU
ESPANOLA
LOS ALAMOS
SANTA FE
COCHITI LAKE
BERNALILLO
CANADIAN RIVER BASIN
PECOS RIVER BASIN

REPORT

of the

RIO GRANDE COMPACT COMMISSION

1990

TO THE GOVERNORS OF
Colorado, New Mexico and Texas