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REPORT of the

RIO GRANDE COMPACT

COMMISSION

1998



TO THE GOVERNORS OF Colorado, New Mexico and Texas

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COMPACT



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RIO GRANDE COMPACT COMMISSION COLORADO TEXAS NEW MEXICO

March 25, 1999

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

The Honorable George Bush, Jr. Governor of the State of Texas Austin, Texas

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

Honorable Governors:

The 60th Annual Meeting of the Rio Grande Compact Commission was held in Santa Fe, New Mexico, on March 25, 1999.

The Commission reviewed its prior reports and the current reports of the Secretary and the Engineer Advisers relative to streamflow at Compact gaging stations and storage in reservoirs in 1998. The Commission found that:

- (a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 249,200 acre-feet in 1998 and the scheduled delivery for the year was 240,300 acre-feet.
- (b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 596,900 acre-feet in 1998 and the scheduled delivery for the year was 536,700 acre-feet.
- (c) The actual release of Rio Grande Project usable water was \$10,000 acre-feet.
- The Commission agreed to the accounting of accrued credits for 1998, as follows:
- (1) The Commissioners found that the accrued credit for deliveries by Colorado and the Colorado-New Mexico State Line for 1998 was 11,500 acre-feet on January 1, 1999.
- (2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam for 1998 was 153,100 acre-feet on January 1, 1999.

(3) The Commissioners found that the accrued departure (debit) of Project Storage as of January 1, 1999 was 15,400 acre-feet.

The Rio Grande Compact Commission met in a special session meeting on September 9, 1998. In that meeting the Commission was able to resolve past disagreement regarding the determination of Project Storage. Based on this resolution, the Commission determined Project Storage by recognizing 25,000 acre-feet of flood control reservation in Elephant Butte Reservoir during the winter months (October- March) and 50,000 acre-feet of flood control storage reservation in the Reservoir during the summer months (April- September). The current remaining capacity of Elephant Butte Reservoir plus 231,510 acre-feet in Caballo Reservoir totals 2,271,510 acre-feet of Project Storage during the winter months and 2,246,510 acre-feet of Project Storage during the summer months. This determination also allowed the Commission to agree on a complete and consensus accounting.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were \$150,750 in the fiscal year ending June 30, 1998. The United States bore \$51,406 of this total; the balance of \$99,344 was borne equally by the three States party to the Compact.

Respectfully,

Thomas C. Turney, Commissioner for New Mexico

Joe G. Hanson, Commissioner for Texas

Harold D. Simpson. Commissioner for Colorado

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

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

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

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

ARTICLE I

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

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

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

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

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

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

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

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

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

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

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

RIO GRANDE COMPACT

(I) "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;

(i) On the Rio Grande at San Marcial:

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

(I) On the Rio Grande below Caballo Reservoir.

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

Such gaging stations shall be equipped, maintained and operated by the Commission directly or in cooperation with an appropriate Federal or State agency, and the equipment, method and frequency of measurement at such stations shall be such as to produce reliable records at all times. (Note: See Resolution of Commission printed elsewhere in this report.)

ARTICLE III

The obligation of Colorado to deliver water in the Rio Grande at the Colorado-New Mexico State Line, measured at or near Lobatos, in each calendar year, shall be ten thousand acre feet less than the sum of those quantities set forth in the two following tabulations of relationship, which correspond to the quantities at the upper index stations:

DISCHARGE OF CONEJOS RIVER Quantities in thousands of acre feet

Conejos Index Supply (1)	Conejos River at Mouths (2)
100	0
150	20
200	45
250	75
300	109
350	147
400	188
450	232
500	278
550	326
600	376
650	426
700	476

Intermediate quantities shall be computed by proportional parts.

(1) Conejos Index Supply is the natural flow of Conejos River at the U.S.G.S. gaging station near Mogote during the calendar year, plus the natural flow of Los Pinos River at the U.S.G.S. gaging station near Ortiz and the natural flow of San Antonio River at the U.S.G.S. gaging station at Ortiz, both during the months of April to October, inclusive.

(2) Conejos River at Mouths is the combined discharge of branches of this river at the U.S.G.S. gaging stations near Los Sauces during the calendar year.

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER Quantities in thousands of acre feet

Rio Grande at Del Norte (3)	Rio Grande at Lobatos less Conejos at Mouths (4)
200	60
250	65
300	75
350	86
400	98
450	112
500	127
550	144
600	162

RIO GRANDE COMPACT

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER-Con. Quantities in thousands of acre feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

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

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

ARTICLE IV

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

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.)

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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

RIO GRANDE COMPACT

recourse by a signatory state to the Supreme Court of the United States for redress should the character or quality of the water, at the point of delivery, be changed hereafter by one signatory state to the injury of another. Nothing herein shall be construed as an admission by any signatory state that the use of water for irrigation causes increase of salinity for which the user is responsible in law.

ARTICLE XII

To administer the provisions of this Compact there shall be constituted a Commission composed of one representative from each state, to be known as the Rio Grande Compact Commission. The State Engineer of Colorado shall be ex-officio the Rio Grande Compact Commissioner for Colorado. The State Engineer of New Mexico shall be ex-officio the Rio Grande Compact Commissioner for New Mexico. The Rio Grande Compact Commissioner for Texas shall be appointed by the Governor of Texas. The President of the United States shall be requested to designate a representative of the United States to sit with such Commission, and such representative of the United States, if so designated by the President, shall act as Chairman of the Commission without vote.

The salaries and personal expenses of the Rio Grande Compact Commissioners for the three States shall be paid by their respective States, and all other expenses incident to the administration of this Compact, not borne by the United States, shall be borne equally by the three States.

In addition to the powers and duties hereinbefore specifically conferred upon such Commission, and the members thereof, the jurisdiction of such Commission shall extend only to the collection, correlation and presentation of factual data and the maintenance of records having a bearing upon the administration of this Compact, and, by unanimous action, to the making of recommendations to the respective States upon matters connected with the administration of this Compact. In connection therewith, the Commission may employ such engineering and clerical aid as may be reasonably necessary within the limit of funds provided for that purpose by the respective States. Annual reports compiled for each calendar year shall be made by the Commission and transmitted to the Governors of the signatory States on or before March first following the year covered by the report. The Commission may, by unanimous action, adopt rules and regulations consistent with the provisions of this Compact to govern their proceedings.

The findings of the Commission shall not be conclusive in any court or tribunal which may be called upon to interpret or enforce this Compact.

ARTICLE XIII

At the expiration of every five-year period after the effective date of this Compact, the Commission may, by unanimous consent, review any provisions hereof which are not substantive in character and which do not affect the basic principles upon which the Compact is founded, and shall meet for the consideration of such questions on the request of any member of the Commission; provided, however, that the provisions hereof shall remain in full force and effect until changed and amended within the intent of the Compact by unanimous action of the Commissioners, and until any changes in this Compact are ratified by the legislatures of the respective states and consented to by the Congress, in the same manner as this Compact is required to be ratified to become effective.

ARTICLE XIV

The schedules herein contained and the quantities of water herein allocated shall never be increased nor diminished by reason of any increase or diminution in the delivery or loss of water to Mexico.

ARTICLE XV

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

ARTICLE XVI

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

ARTICLE XVII

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

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

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

- (Sgd.) M. C. HINDERLIDER
- (Sgd.) THOMAS M. McCLURE
- (Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

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

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

Approved by the President May 31, 1939

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

RESOLUTION

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

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

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

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

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

Now, Therefore, Be it Resolved:

The Commission finds as follows:

- (a) That because of change of physical conditions, reliable records of the amount of water passing San Marcial are no longer obtainable at the stream gaging station at San Marcial and that the same should be abandoned for Compact purposes.
- (b) That the need for concurrent records at San Marcial and San Acacia no longer exists and that the gaging station at San Acacia should be abandoned for Compact purposes.
- (c) That it is desirable and necessary that the obligations of New Mexico under the Compact to deliver water in the months of July, August, September, should be scheduled.
- (d) That the change in gaging stations and substitution of the new measurements as hereinafter set forth will result in substantially the same results so far as the rights and obligations to deliver water are concerned, and would have existed if such substitution of stations and measurements had not been so made.

Be it Further Resolved:

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

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

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

Quantities in thousands of acre-feet

Otowi Index Supply (5)	Elephant Butte Effective Index Supply (6)
100	57
200	114
300	171
400	228
500	286
600	345
700	406
800	471
900	542
1,000	621
1,100	707
1,200	800
1,300	897
1,400	996
1,500	1,095
1,600	1,195
1,700	1,295
1,800	1,395
1,900	1,495
2,000	1,595
2,100	1,695
2,200	1,795
2,300	1,895
2,400	1,995
2,500	2,095
2,600	2,195
2,700	2,295
2,800	2,395
2,900	2,495
3,000	2.595

Intermediate quantities shall be computed by proportional parts.

- (5) The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San ildefonso (formerly station near Buckman) during the calendar year, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.
- (6) Elephant Butte Effective Index Supply is the recorded flow of the Rio Grande at the gaging station below Elephant Butte Dam during the calendar year plus the net gain in storage in Elephant Butte Reservoir during the same year or minus the net loss in storage in said reservoir, as the case may be.

The application of this schedule shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) depletion after 1929 in New Mexico of the natural runoff at Otowi Bridge; and (c) any transmountain diversions into the Rio

RESOLUTION OF COMMISSION

Grande between Lobatos and Elephant Butte Reservoir."

Be it Further Resolved:

That the gaging stations at San Acacia and San Marcial be, and the same are hereby abandoned for Compact purposes.

Be it Further Resolved:

That this Resolution has been passed unanimously and shall be effective January 1, 1949, if within 120 days from this date the Commissioner for each State shall have received from the Attorney General of the State represented by him, an opinion approving this Resolution, and shall have so advised the Chairman of the Commission, otherwise, to be of no force and effect.

(Note: The following paragraph appears in the Minutes of the Annual Meeting of the Commission held at Denver, Colorado, February 14-16, 1949.

"The Chairman announced that he had received, pursuant to the Resolution adopted by the Commission at the Ninth Annual Meeting on February 24, 1948, opinions from the Attorneys General of Colorado, New Mexico and Texas that the substitution of stations and measurements of deliveries by New Mexico set forth in said resolution was within the powers of the Commission").

RULES AND REGULATIONS FOR ADMINISTRATION OF THE RIO GRANDE COMPACT

A Compact, known as the Rio Grande Compact, between the States of Colorado, New Mexico and Texas, having become effective on May 31, 1939 by consent of the Congress of the United States, which equitably apportions the waters of the Rio Grande above Fort Quitman and permits each State to develop its water resources at will, subject only to its obligations to deliver water in accordance with the schedules set forth in the Compact, the following Rules and Regulations have been adopted for its administration by the Rio Grande Compact Commission; to be and remain in force and effect only so long as the same may be satisfactory to each and all members of the Commission, and provided always that on the objection of any member of the Commission, in writing, to the remaining two members of the Commission after a period of sixty days from the date of such objection, the sentence, paragraph or any portion or all of these rules to which any such objection shall be made, shall stand abrogated and shall thereafter have no further force and effect; it being the intent and purpose of the Commission to permit these rules to obtain and be effective only so long as the same may be satisfactory to each and all of the Commissioners.

GAGING STATIONS /1

Responsibility for the equipping, maintenance and operation of the stream gaging stations and reservoir gaging stations required by the provisions of Article II of the Compact shall be divided among the signatory States as follows:

(a) Gaging stations on streams and reservoirs in the Rio Grande Basin above the Colorado-New Mexico boundary shall be equipped, maintained, and operated by Colorado in cooperation with the U.S. Geological Survey.

(b) Gaging stations on streams and reservoirs in the Rio Grande Basin below Lobatos and above Caballo Reservoir shall be equipped, maintained and operated by New Mexico in cooperation with the U.S. Geological Survey to the extent that such stations are not maintained and operated by some other Federal agency.

(c) Gaging stations on Elephant Butte Reservoir and on Caballo Reservoir, and the stream gaging stations on the Rio Grande below those reservoirs shall be equipped, maintained and operated by or on behalf of Texas through the agency of the U.S. Bureau of Reclamation.

The equipment, method and frequency of measurements at each gaging station shall be sufficient to obtain records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. Water-stage recorders on the reservoirs specifically named in Article II of the Compact shall have sufficient range below maximum reservoir level to record major fluctuations in storage. Staff gages may be used to determine fluctuations below the range of the water-stage recorders on these and other large reservoirs, and staff gages may be used upon approval of the Commission in lieu of water-stage recorders on small reservoirs, provided that the frequency of observation is sufficient in each case to establish any material changes in water levels in such reservoirs.

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

RULES AND REGULATIONS

RESERVOIR CAPACITIES /1

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

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

ACTUAL SPILL /2, /3

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood control purposes, i.e., 2,040,000 acre-feet in the months of October through March, inclusive, and 2,015,000 acre-feet in the months of April through September, inclusive, as determined from the 1988 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

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

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

DEPARTURES FROM NORMAL RELEASES /4

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

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

- 12 Adopted at Fourth Annual Meeting, February 24, 1943.
- 13 Amended September 9, 1998.
- /4 Adopted June 2, 1959; made effective January 1, 1952.

EVAPORATION LOSSES 15, 16, 17

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

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

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

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

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

ADJUSTMENT OF RECORDS

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

NEW OR INCREASED DEPLETIONS

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

TRANSMOUNTAIN DIVERSIONS

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

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

16 Amended at Twelfth Annual Meeting, February 24, 1951.

// Amended June 2, 1959.

RULES AND REGULATIONS

QUALITY OF WATER

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

SECRETARY 18

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

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

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

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

(a) Deliveries by Colorado

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

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

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

COSTS /1

In February of each year, the Commission shall adopt a budget for the ensuing fiscal year beginning July first.

Such budget shall set forth the total cost of maintenance and operating of gaging stations, of evaporation stations, the cost of engineering and clerical aid, and all other necessary expenses excepting the salaries and personal expenses of the Rio Grande Compact Commissioners.

Contributions made directly by the United States and the cost of services rendered by the United States without cost shall be deducted from the total budget amount; the remainder shall then be allocated equally to Colorado, New Mexico and Texas.

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

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

Expenditures made directly by any State for purposes set forth in the budget shall be credited to that State; contributions in cash or in services by any State under a cooperative agreement with any federal agency shall be credited to such State, but the amount of the federal contribution shall not so be credited; in event any State, through contractual relationships, causes work to be done in the interest of the Commission, such State shall be credited with the cost thereof, unless such cost is borne by the United States.

Costs incurred by the Commission under any cooperative agreement between the Commission and any U.S. Government Agency, not borne by the United States, shall be apportioned equally to each State, and each Commissioner shall arrange for the prompt payment of one-third thereof by his State.

The Commissioner of each State shall report at the annual meeting each year the amount of money expended during the year by the State which he represents, as well as the portion thereof contributed by all cooperating federal agencies, and the Commission shall arrange for such proper reimbursement in cash or credits between States as may be necessary to equalize the contributions made by each State in the equipment, maintenance and operation of all gaging stations authorized by the Commission and established under the terms of the Compact.

It shall be the duty of each Commissioner to endeavor to secure from the Legislature of his State an appropriation of sufficient funds with which to meet the obligations of his State, as provided by the Compact.

MEETING OF COMMISSION /1, /9

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

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

(Signed) M. C. HINDERLIDER M. C. Hinderlider Commissioner for Colorado (Signed) THOMAS M. McCLURE Thomas M. McClure Commissioner for New Mexico (Signed) JULIAN P. HARRISON Julian P. Harrison Commissioner for Texas

Adopted December 19, 1939.

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

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

RIO GRANDE COMPACT COMMISSION REPORT RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 25, 1999, the records of deliveries and releases and computations of debits and credits for calendar year 1998 were reported. The records and computations as approved by the Commission are reproduced on the next three pages.

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

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

The actual release from Project Storage during the year was measured at gaging stations below Caballo Dam. Based on the September 9, 1998 resolution of the Rio Grande Compact Commission, Project Storage was determined for the winter months (October-March) using 25,000 acre-feet of flood control storage reservation in Elephant Butte Reservoir. Project Storage was determined for the summer months (April-September) using 50,000 acre-feet of flood control storage reservation in Elephant Butte Reservoir. The remaining capacity of Elephant Butte Reservoir plus 231,510 acre-feet in Caballo Reservoir totals 2,271,510 acre-feet of Project Storage during the winter months and 2,246,510 acrefeet of Project Storage during the summer months. The Commissioners for Colorado, New Mexico, and Texas agreed at the September 9, 1998 special meeting to return to a single set of accounting as represented by the accounting signed by New Mexico and Texas in 1997. Based on this accounting the Commissioners found that the actual release of usable water for 1998 was 810,000 acre-feet. This resulted in an accrued debit of 15,400 acre-feet as of January 1, 1999.

DELIVERIES BY COLORADO AT STATE LINE	YEAR 1998
RIO GRANDE COMPACT	

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			ACCUMULATED TOTAL AT LOBATOS	23	0.0	24.2	48.2	68.1	111.6	161.2	185.2	197.2	201.5	204.5	209.8	221.1	239.2			BALANCE	Cr 2.9	Dr 83.5	Dr 237 4	Cr 11.8		Cr 11.5		Cr 11.5
	RIES		TA EGNARO OF SOTABOL	22		24.2	24.0	39.9	23.5	49.6	24.0	12 0	4.3	3.0	5.3	11.3	181	239.2 ^c		CREDIT	********			249.2		*******		*******
	DELIVE		CONETOS BIAEB BIO GEVENDE FESS	21		18.9	18.5	30.0	15.8	20.2	13.5	7.7	4.0	3.0	4.7	8.7	14.7	159.7	s	DEBIT	*****	86.4	163.9			0.3		*******
			LOS SAUCES AT MOUTHS NEAR CONEJOS AIVER	20		5.3	5.5	6.0	7.7	29.4	10.5	4.3	0.3	0.0	0.6	2.6	3.4	79.5	ND CREDIT					0				
		۲۷	ACCUMULATED TOTAL	19	0.0	14.4	26.6	46.3	81.0	248.2	366.1	445.4	485.1	512.3	542.2	563.3	577.6		DEBITS A			INer	9	000 Acre Fe	-	In and Spill		
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	PLY		ETNENTRULQA TEN	17		0.1	0.0	0.0	0.1	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.6	SU	ITE	Beginning of	Delivery Iron	Delivery Iron	ery al Lobal	I Debits of	d Credits of		End of Year
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RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE YEAR 1998

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-12 0	-120	0.2 -12.0	-11.3 0.2 -12.0	-11.3 0.2 -12.0	54.1 -11.3 0.2 -12.0
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-1.6	-1.6	0.1	3.0 0.1 -1.6	3.0 0.1 -1.6	20.5 3.0 0.1 -1.6
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AGE		RIO GRA		Tola) Release and Spid	Ŧ	******	6 B	20.4	1.901	64.0	\$2.3	132.9	126.3	117.5	84.2	28.4	01	0.1	810.0	UED DEPART	W	ng of Year						IF OF HVPOT
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M PROJE	ndred			Measured Flow at Caballo Gaging Station	12		8.8	20.4	105 9	04.7	92.1	132 7	126.2	117.4	B4 0	28.4	0.1	01	808.9			Accrued Depar	Actual Release	Normal Releas			Assessed Para	undary with may
PILL FRO	to nearest hu			Fotal Water In Project Storage at End ol Momh	=	1,987.7	2,015.2	2,033.4	1,583,1	1,951.6	2,0014	1,908.5	1,815.0	1,713.0	6 003 9	0.468,1	1,696.0	1,737.3				PI	P2	P3	P.4	P5	P6	
SE AND S EAR 1998	ids of acre tee			Flood Water in Storage in Cabalio Reservoir of End of Menth	0																							-
RELEA Y	Nes In thousar	TORAGE		Total at End of Month	6	b 108 4	0 801	107.5	106.4	105.2	C.E01	100.9	8.69	98.4	96.9	96.4	95.9	95.5			sion with flood	000 acre-lee!						
OMPACT	Quant	ATER IN ST		New Mexico Credil Water	8	b105.5	105.1	104.6	103.6	102 4	100.5	98.2	97 1	95.8	6.14	8.02	0.09	92.9			mpact Commit	ember and 25.						
RANDE C		CREDIT W		Colorado Credil Waler	7	^b 2.9	2.9	29	2.8	28	20	27	27	26	2.6	26	26	26	(arrested		No Grande Co	it through Sept						
RIOG	ĺ			Uninited Capacity of Projact Storage at End of Menth	9	412.2	DEA.3	245.0	394.2	400.1	340.4	438.5	531.3	6.158	709.5	733.3	671.4	629.7			lakition of the l	e-feel from Apr						
		TORAGE		Total at End of Month	2	h1.859.3	1,907.2	1,925.9	1,077.3	1,846.4	1,898.1	1,807.6	1,715.2	1,614.6	1,537.0	1,530.2	1,600.1	1,641,0			er 9, 1998 Rei	r ol 50,000 acr						
		VATER IN S		Cabalto Reservoir	4	43.6	0.04	2 65	6.03	67.3	70.6	64.0	73.3	64 5	4.1E	37.2	39.5	416			y the Septemb	Butte Reservoi		(LI AND IN IN I)				
		USABLE V		Elephani Butte Reservoir		^b 1.815.7	9.038,1	1,066.2	1,017.0	1 622'1	1.827.5	1,743.6	1,6419	1,550.0	1,499 6	1,501.0	1,560.6	1,600.2			is recognized b	in at Etephant	tch.	mung or rear.				
				Total Project Slorage Capacity Avatlable at End of Month	2	2,2715	2,2715	2,271.5	2,2715	2,246.5	2,246 \$	2,246 5	2,246.5	2,246.5	2,246 5	2,271.5	2,271.5	2,271.5			rage capacity a	rage reservalu	ber through Ma	serance at beg				
				MONTH	-		JAN	FEB	MAR	APR	MAY	NUL	JUL	AUG	SEPT	OCT	NON	DEC	YEAR	Remarks	a Project stor	control slo	Irom Octo	1 uo nessea ol				

COST OF OPERATION FOR FISCAL YEAR ENDING JUNE 30, 1998

	-		В	orne by			B	ome by	
ltem	Тс	otal Cost	Uni	ted States	Ċ	olorado	Ne	w Mexico	 Texas
GAGING STATIONS									
In Colorado	\$	49,421	\$	5,735	\$	43,686			
In New Mexico, above Caballo Reservoir	\$	57,660	\$	36,000			\$	21,660	
In New Mexico, Caballo Reservoir and below	\$	18,439	\$	3,911			\$	1,560	\$ 12,968
Subtotal	\$	125,520	\$	45,646	\$	43,686	\$	23,220	\$ 12,968
ADMINISTRATION									
	\$	23.040	\$	5,760	\$	5,760	\$	5,760	\$ 5,760
O.S.G.S. Contract	s	2 190			\$	730	\$	730	\$ 730
Other expenses	¢	25 230	s	5,760	\$	6,490	\$	6,490	\$ 6,490
	e	150 750	\$	51 406	s	50,176	\$	29,710	\$ 19,458
FOLIAL SHARES	\$	100,700		01,100	\$	33,115	\$	33,115	\$ 33,115

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2000

	<u> </u>		B	orne by			В	orne by		
Item	T	otal Cost	Unit	ed States	С	olorado	Ne	w Mexico		Texas
GAGING STATIONS										
in Colorado	\$	53,481	\$	6,203	\$	47,278				
In New Mexico, above Caballo Reservoir	\$	60,800	\$	36,670			\$	24,130		
In New Mexico, Caballo Reservoir and below	\$	20,145	\$	4,882			\$	1,680	\$	13,583
Subtotal	\$	134,426	\$	47,755	\$	47,278	\$	25,810	\$	13,583
ADMINISTRATION										
U.S.G.S. Contract	\$	24,916	\$	6,229	\$	6,229	\$	6,229	\$	6,229
Other expenses	\$	2,496	- 3		\$	832	\$	832	\$	832
Subtota	\$	27.412	\$	6,229	\$	7,061	\$	7,061	\$	7,061
	5	161,838	s	53,984	\$	54,339	\$	32,871	\$	20,644
	٣	.01,000	<u> </u>		\$	35,951	\$	35,951	\$	35,951
EQUAL SHARES					<u> </u>					

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ACKNOWLEDGMENTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

RIO GRANDE COMPACT COMMISSION REPORT ACCURACY OF RECORDS

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

The accuracy of streamflow records depends primarily on (I) the stability of the stagedischarge 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.

Rio Grande near Del Norte, Colo.

Location.--Water-stage recorder, lat 37°41'22", long 106°27'38", in NW1/4 sec. 29, T. 40 N., R. 5 E., on right bank, 20 ft downstream from county highway bridge, 6 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 .-- 109 years (1890-1998), 903 ft3/s (654,200 acre-ft per year).

Extremes.—1889-1998: Maximum discharge, 18,000 ft³/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft³/s; minimum daily, 69 ft³/s Aug. 21, 1902.

<u>Remarks</u>.-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
lanuary	7.220	200	100	222	14 220
Januar y	6 150	290	200	233	14,320
February	0,150	240	200	220	12,200
March	9,950	720	190	321	19,740
April	17,435	1,300	356	581	34,580
May	83,290	4,290	1,370	2,687	165,200
June	71,540	4,260	1,510	2,385	141,900
July	29,382	1,400	559	948	58,280
August	20,001	1,000	480	645	39,670
September	13,704	712	307	457	27,180
October	15,075	720	375	486	29,900
November	10,647	520	271	355	21,120
December	7,191	301	180	232	14,260
Calendar year 1998	291,585	4,290	180	799	578,400

Conejos River below Platoro Reservoir, Colo.

Location.—Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW1/4NW1/4 sec. 22, T. 36 N., R. 4 E., on left bank 1,100 ft downstream from valve house for Platoro Reservoir, and 0.7 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.-46 years (1890-1998), 94.0 ft³/s (68,100 acre-ft per year).

Extremes.-1952-98: Maximum discharge, 1,160 ft³/s Nov. 1, 1957; maximum gage height, 4.29 ft June 15, 1958; no flow Oct. 16-20, 1955.

Remarks.--Records good except those for winter months, which are fair. No diversions above station. Flow completely regulated by Platoro Reservoir (capacity, 59,570 acre-ft).

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	228.4	7.4	72	7 27	452
February	208.0	7.5	7.5	7.37	433
March	232.5	7.5	7.5	7.50	461
April	859.0	52	7.5	28.6	1,700
May	7,243	514	52	234	14,370
June	9,599	490	144	320	19,040
July	7,163	397	133	231	14,210
August	3,783	174	78	122	7,500
September	2,214	149	14	73.8	4,390
October	1,492.3	131	7.3	48.1	2,960
November	219.0	7.3	7.3	7.30	434
December	226.3	7.3	7.3	7.3	449
Calendar year 1998	33,467.5	514	7.3	91.7	66,380

RIO GRANDE COMPACT COMMISSION REPORT

Conejos River near Mogote, Colo.

Location.-Water-stage recorder, lat 37°03'14", long 106°11'13", in SE1/4SE1/4 sec. 34, T. 33 N., R. 7 E., on right bank 25 ft upstream from bridge on State Highway 174, 0.4 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 .-- 88 years (1904, 1912-98), 329 ft3/s (238,400 acre-ft per year).

Extremes.—1903-05, 1911-98: Maximum discharge, 9,000 ft³/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft³/s; minimum daily determined, 10 ft³/s July 18, 1904.

<u>Remarks</u>.-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
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Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	1 555	58	46	50.2	3.080
February	1,365	54	45	48.8	2,710
March	2.716	212	44	87.6	5,390
April	5,010	338	96	167	9,940
May	29,990	1,640	333	967	59,490
June	26,584	1,500	612	886	52,730
July	12,702	674	257	410	25,190
August	6,379	266	154	206	12,650
September	3,916	249	56	131	7,770
October	3,339	266	72	108	6,620
November	2,338	110	46	77.9	4,640
December	1,537	68	33	49.6	3,050
Calendar year 1998	97,431	1,640	33	267	193,300

San Antonio River at Ortiz, Colo.

Location.-Water-stage recorder, lat 36°59'35", long 106°02'17", in New Mexico in NE1/4SE1/4, sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 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 .-- 58 years (1941-98), 26.1 ft³/s (18,910 acre-ft per year).

Extremes.--1920, 1925-98: Maximum discharge, 1,750 ft³/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft³/s; no flow at times.

Remarks.--Records good except those for winter months, which are fair. A few small diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

And and a second s	Constitution of the local division of the lo	and the second se			
Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary.	04.0	2.8	24	3.06	188
February	75.8	3.1	2.1	2.71	150
March	589.9	102	1.9	19.0	1,170
April	1,311	125	12	43.7	2,600
May	4,114	285	25	133	8,160
June	198.67	22	.00	6.62	394
July	76.46	16	.00	2.47	152
August	33.92	6.0	.00	1.09	67
September	10.98	2.6	.00	0.37	22
October	170.3	28	2.0	5.49	338
November	246.9	11	2.0	8.23	490
December	159.0	9.6	3.5	5.13	315
Calendar year 1998	7,081.83	285	.00	19.4	14,050

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 .-- 80 years (1915-20, 1925-98), 121 ft³/s (87,660 acre-ft per year).

Extremes.—1915-20, 1925-98: Maximum discharge, 3,160 ft³/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft³/s; minimum observed, 4.0 ft³/s Dec. 17, 1945.

Remarks.-Records good except those for winter months, which are fair. Diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	640	24	18	20.6	1.270
February	537	21	17	19.2	1,070
March	1,123	77	17	36.2	2,230
April	2,954	244	45	98.5	5,860
May	20,143	883	318	650	39,950
June	7,225	534	97	241	14,330
July	1,765	113	29	56.9	3,500
August	812	49	19	26.2	1,610
September	518	37	11	17.3	1,030
October	944	107	14	30.5	1,870
November	1,126	50	13	37.5	2,230
December	747	35	19	24.1	1,480
Calendar year 1998	38,534	883	11	106	76,430
-					

Conejos River near Lasauses, Colo.

Location.-Water-stage recorders, lat 37°16'01", 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 .-- 77 years (1922-98), 185 ft³/s (134,000 acre-ft per year).

Extremes.-1921-98: Maximum discharge, 3,890 ft³/s May 15, 1941; no flow at times in some years.

Remarks.-Records good except those for winter months, which are fair. Diversions 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	2,684	95	77	86.6	5,320
February	2,763	127	80	98.7	5,480
March	4,971	337	97	160	9,860
April	3,865	301	57	129	7,670
May	14,816	859	222	478	29,390
June	5,282	409	11	176	10,480
July	2,163	229	16	69.8	4,290
August	157.57	40	0.20	5.08	313
September	12.11	2.8	.00	0.40	24
October	317.43	106	0.08	10.2	630
November	1,307	52	34	43.6	2,590
December	1,736	72	37	56.0	3,440
Calendar year 1998	40.074.11	859	-00	110	79.490

RIO GRANDE COMPACT COMMISSION REPORT

Rio Grande near Lobatos, Colo.

Location.--Water-stage recorder, lat 37°04'42", long 105°45'22", in sec. 22, T. 33 N., R. II 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 of 1929.

Drainage area.--7,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley).

Average discharge.—31 years (1900-30), 846 ft³/s (612,900 acre-ft per year); 68 years (1931-98) 451 ft³/s (326,700 acre-ft per year). <u>Extremes</u>.—1899-1998: Maximum discharge observed, 13,200 ft³/s June 8, 1905 (gage height, 9.1 ft), from rating curve extended above 8,000 ft³/s; no flow at times in 1950-51, 1956.

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

Monthly a	and yearly	/ discharge,	in cubic f	eet per second
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Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	12.180	445	350	393	24,160
February	12,120	495	355	433	24.040
March	20,118	1.100	420	649	39,900
April	11,856	619	270	395	23,520
May	25,006	1,450	451	807	49,600
June	12,078	960	108	403	23,960
July	6,079	352	92	196	12,060
August	2,155	143	45	69.5	4,270
September	1,491	68	32	49.7	2,960
October	2,699	209	47	87.1	5,350
November	5,696	240	140	190	11,300
December	9,109	380	130	294	18.070
Calendar year 1998	120,587	1,450	32	330	239,200

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

Location.--Water-stage recorder, lat 36°44'33", long 106°37'34", in Tierra Amarilla Grant, on right bank 200 ft downstream from bridge, 0.2 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 ft³/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 29 years (1970-98), 138 ft³/s (99,980 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes.-1962-98: Maximum discharge, 1,610 ft³/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.

Remarks.--Records good except those for winter months, which are fair. Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in 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
Ianuary	.00	.00	.00	.00	.00
February	.00	.00	.00	.00	.00
March	2,524	281	.00	81.4	5,010
April	6,179	538	88	206	12,260
May	19,162	851	407	618	38,010
June	13,248	840	286	442	26,280
July	4,245	290	24	137	8,420
August	693.0	98	2.0	22.4	1,370
September	74.0	13	1.0	2.47	147
October	326.0	50	.00	10.5	647
November	583.0	73	.00	19.4	1,160
December	203.0	51	.00	6.55	403
Calendar year 1998	47,237.00	851	.00	129	93,690

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 ft³/s (848 acre-ft per year).

Extremes.-1963-98: Maximum discharge, 3,960 ft³/s July 30, 1968 (gage height, 4.9 ft); no flow most of time.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	-	-	-	-	-
February	-	-	-	-	· -
March	-	-		-	-
April		-	_	-	-
May	9.61	.92	.00	.31	19
June	.00	.00	.00	.00	.00
July	30.00	12	.00	.97	60
August	65.30	12	.06	2.11	130
September	15.69	1.7	.05	.52	31
October	32.11	10	.00	1.04	64
November	147.7	7.6	1.4	4.92	293
December	-	-	-	-	-
Calendar year 1998		-			-

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 .-- 28 years (1971-98) 125 ft3/s (90,560 acre-ft per year).

Extremes.-1971-98: Maximum daily discharge, 2,780 ft³/s Dec. 18, 19, 1982; no flow at times each year. Remarks.--Records excellent. Flow completely regulated by Heron Dam.

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	1.860	60	60	60	3.690
February	1.680	60	60	60	3,330
March	11,608	900	60	374	23,020
April	16,049	900	.00	535	31,830
May	3,661	650	.00	118	7,260
June	66.00	66	.00	2.20	131
July	4,814	500	.00	155	9,550
August	2,355	225	.00	76.0	4,670
September	5,715	244	.00	191	11,340
October	6,167	276	.00	199	12,230
November	10,060	385	230	336	19,990
December	10,341	385	160	334	20,510
Calendar year 1998	74,396	900	.00	204	147,600

RIO GRANDE COMPACT COMMISSION REPORT

Rio Chama below El Vado Dam, N. Mex.

Location.-Water-stage recorder, lat 36°34′48″, long 106°43′24″, in Tierra Amarilla Grant, on left bank 1.5 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 ft³/s (321,700 acre-ft per year) prior to completion of El Vado Dam; 35 years (1936-70), 372 ft³/s (269,500 acre-ft per year), prior to release of transmountain water; 28 years (1971-98) 492 ft³/s (356,500 acre-ft per year).
- Extremes.—1914-16, 1920-24, 1936-98: Maximum discharge observed, 9,000 ft³/s May 22, 1920 (gage height, 12 ft); no flow Mar. 25, 26, 31, 1955.
- Remarks.—Records good. Diversions above station for irrigation of about 10,600 acres. Since 1935 flow regulated by El Vado Reservoir and since October 1970 flow partly regulated by Heron Reservoir. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	6,274	207	196	202	12.440
February	5,600	202	197	200	11.110
March	6,877	331	197	222	13,640
April	16,593	1,140	331	553	32,910
May	50,960	2,510	1,220	1,644	101,100
lune	14,595	1,120	205	487	14,595
uly	16,699	889	197	539	33.120
August	22,509	1,090	476	726	44.650
September	30,286	1,390	513	1.010	60.070
October	11,554	736	170	373	22.920
November	5,164	176	170	172	10,240
December	5,282	175	169	170	10,480
Calendar year 1998	192,393	2,510	169	527	381.600

Rio Chama below Abiquiu Dam, N. Mex.

Location.--Water-stage recorder, lat 36°14'12", long 106°24'59", in SE1/4SE1/4 sec. 8, T. 23 N., R. 5 E., on right bank 0.8 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 ft³/s (272,400 acre-feet per year), prior to release of transmountain water; 28 years (1971-98), 548 ft³/s (397,000 acre-ft per year).

Extremes.—1961-98: Maximum discharge, 2,990 ft³/s July I, 1965 (gage height, 6.69 ft); minimum, about 0.5 ft³/s Mar. 17, 1966, Jan. 28, 1972.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	6.043	207	181	195	11 990
February	5.068	194	151	182	10.090
March	8,139	555	193	263	16,140
April	19,762	1,370	270	659	39,200
May	54,680	1,820	1,510	1,764	108,500
June	25,437	1,780	1,310	848	50,450
July	18,369	1,310	189	593	36,430
August	22,586	1,190	198	729	44,800
September	29,064	1,180	615	969	57,650
October	12,376	765	196	399	24,550
November	2,395	339	39	79.8	4,750
December	1,506	72	35	48.6	2,990
Calendar year 1998	205.445	1.820	35	563	407,500

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

Location.-Totalizing flowmeters, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T.19 N., R.10 E., in Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 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 -- 20 years (1979-98), 15.5 ft³/s (11,230 acre-feet per year).

Extremes -1979-98: Maximum discharge, 312 ft³/s June 9, 1979 (gage height, 1.96 feet), at site 1,100 feet downstream; no flow December 31, 1994.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
monta					
January	44.3	1.5	1.4	1.43	88
February	41.9	1.5	1.4	1.50	83
March	295.3	12	1.4	9.53	586
April	486	34	11	16.2	964
May	1,045	47	25	33.7	2,070
June	916	47	19	30.5	1,820
luly	458.7	26	9.8	14.8	910
August	664	24	16	21.4	1,320
September	622.9	30	3.9	20.8	1,240
October	129.9	4.4	4.1	4.19	258
November	96.8	4.4	2.6	3.23	192
December	84.9	2.9	1.7	2.74	168
Calendar year 1998	4,885.7	47	1.4	13.4	9,690

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 .-- 99 years (1896-1905, 1910-98), 1,543 ft³/s (1,118,000 acre-ft per year).

Extremes.—1895-1905, 1910-98: Maximum discharge, 24,400 ft³/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft³/s July 4, 5, 1902.

<u>Remarks</u>.-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

				Construction of the second secon	
Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	29,412	1,020	910	949	58,340
February	27,087	1,030	917	967	53,730
March	41,809	2,150	863	1,349	82,930
April	51,050	2,730	1,210	1,702	101,300
May	110,670	4,130	2,830	3,570	219,500
June	55,190	3,670	1,240	1,840	109,500
July	41,422	1,770	917	1,336	82,160
August	37,286	1,610	856	1,203	73,960
September	38,530	2,030	1,080	1,284	76,420
October	29,949	2,220	617	966	59,400
November	23,402	1,480	637	780	46,420
December	23,123	851	545	746	45,860
Calendar year 1998	508,930	4,130	545	1,394	1,009,000

RIO GRANDE COMPACT COMMISSION REPORT

Santa Fe River near Santa Fe, N. Mex.

Location.--Water-stage recorder and concrete control, lat 35°4l'12", long 105°50'35", in NE1/4SE1/4 sec. 23, T. I7 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 .- 86 years (1913-98), 8.25 ft³/s (5,977 acre-ft per year).

Extremes .-- 1913-98: Maximum discharge, 1,500 ft³/s Aug. 14, 1921; minimum, 0.05 ft³/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, ir	n cubic feet per second
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Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	452	16	14	1.45	90
February	45.2	1.7	1.5	1.61	90
March	81.3	16	1.6	2.62	161
April	631.6	29	6.3	21.1	1,250
May	466.1	19	8.1	15.0	925
June	361	13	12	12.0	716
July	382	13	12	12.3	758
August	363	12	11	11.7	720
September	372	18	10	12.4	738
October	222.9	10	5.4	7.19	442
November	41.23	6.1	.40	1.37	82
December	13.7	1.5	.30	.44	27
Calendar year 1998	3,025.23	29	.30	8.29	6,000

Rio Grande below Cochiti Dam, N. Mex.

Location.-Water-stage recorder, lat 35°37′05", long 106′19′24", in SW1/4NE1/4 sec. 17, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, 320 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 .-- 28 years (1971-98) 1,442 ft3/s (1,045,000 acre-ft per year).

Extremes.--1971-98: Maximum discharge, 10,300 ft³/s July 26, 1971, at site 2.4 miles downstream prior to closure of Cochiti Dam; minimum discharge, 0.51 ft³/s Aug. 3-5, 1977, Aug. 27-28, 1978.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	30 380	1 180	848	980	60.260
February	28,764	1,060	984	1 027	57 050
March	36.886	1,940	845	1,190	73,160
April	43.119	2.540	969	1.437	85,530
May	100,700	4,070	2.680	3.248	199,700
June	50,050	3,600	1,160	1,668	99,270
July	34,481	1,440	780	1,112	68,390
August	31,672	1,250	765	1.022	62,820
September	31,536	1,240	926	1,051	62,550
October	23,988	1,240	564	774	23,988
November	25,425	1,660	669	848	50,430
December	22,155	784	571	715	43,940
Calendar year 1998	459,156	4,070	564	1,258	910,700

Galisteo Creek below Galisteo Dam, N. Mex.

Location.--Water-stage recorder, lat 35°27'56", long 106°12'57", in SE1/4SE1/4Sec. 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 .- 28 years (1971-98), 6.08 ft³/s (4,405 acre-ft per year).

Extremes.—1970-98: Maximum discharge, 2,000 ft³/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 ft³/s when reservoir is full. Diversions for irrigation of about 50 acres above reservoir.

Monthly and yearly discharge, in cubic feet per second

	Second-	Maximum	Minimum		Runoff in
Month	foot-days	daily	daily	Mean	acre-feet
January	10.41	.45	.25	.34	21
February	11.09	.50	.26	.40	22
March	338.31	47	.27	10.9	671
April	31.05	7.4	.00	1.04	62
May	0.22	.10	.00	.007	.4
June	.00	.00	.00	.00	.00
July	271.90	41	.00	8.77	539
August	140.23	45	.00	4.52	278
September	2.50	1.5	.00	.083	5.0
October	792.89	683	.00	25.6	1.570
November	116.61	94	.00	3.89	231
December	13.94	6.9	.00	.45	28
Calendar year 1998	1,729.15	683	.00	4.74	3,430

Jemez River below Jemez Canyon Dam, N. Mex.

Location.-Water-stage recorder, lat 35°23'24", long 106°32'03", in NE1 /4 sec. 5, T. 13 N., R. 4 E., 0.8 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 .-- 56 years (1937, 1944-98), 63.6 ft³/s (46,080 acre-ft per year).

Extremes.-1937, 1944-98: Maximum discharge, 16,300 ft³/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	Mean	Runoff in
				Trictari	0000-1001
January	1,078.9	104	5.1	34.8	2,140
February	1,072	48	26	38.3	2,130
March	2,349.4	230	2.9	75.8	4,660
April	4,932	457	63	164	9,780
May	6,183	322	65	199	12,260
June	566.2	66	6.5	18.9	1,120
July	331.8	4.1	6.5	10.7	658
August	288.3	39	4.3	9.30	572
September	103.4	4.4	2.8	3.45	205
October	864.4	210	3.3	27.9	1,710
November	1,428.4	135	8.2	47.6	2,830
December	983.5	83	8.0	31.7	1,950
Calendar year 1998	20,181.3	457	2.8	55.3	40,030

RIO GRANDE COMPACT COMMISSION REPORT

Rio Grande below Elephant Butte Dam, N. Mex.

Location.--Water-stage recorder, lat 33°08′54″, long 107°12′22″, in SW1 /4 sec. 25, T. 13 S., R. 4 W., (projected) in Pedro Armendariz Grant, 1.0 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 .-- 84 years (1915-98, 1,009 ft³/s (731,000 acre-ft per year).

Extremes.--1915-98: Maximum daily discharge, 8,220 ft³/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 y	yearly discharge,	in cubic feet	per second
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Month	Second- foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
lanuary	4.015	367	19	130	7 960
February	24,525	1,430	107	876	48,650
March	55,680	2,200	1,430	1,796	110,400
April	48,420	1,860	1,450	1,614	96,040
May	51,620	2,270	1,430	1,665	102,400
June	65,970	2,810	1,600	2,199	130,900
July	68,810	2,580	1,620	2,220	136,500
August	57,220	2,510	1,580	1,846	113,500
September	27,492	1,780	494	916	54,530
October	11,793	1,430	11	380	23,390
November	368.9	68	7.1	12.3	732
December	181.2	7.5	3.4	5.85	359
Calendar year 1998	416,095.1	2,810	3.4	1,140	825,300

Rio Grande below Caballo Dam, N. Mex.

Location – Water-stage recorder, lat 32°53'05", long 107°17"31", in NE1/4SW1/4 sec. 30, T. 16 S., R. 4 W., 2,000 ft upstream from Interstate Highway 25, 4,200 ft downstream from Caballo Dam, I.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 .-- 61 years (1938-98) 936 ft³/s (678,100 acre-ft per year).

Extremes.—1938-98: Maximum daily discharge, 7,650 ft³/s May 20, 1942; minimum daily, 0.1 ft³/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

Remarks.--Records good. Flow regulated by Elephant Butte 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	4,495.0	307	1.0	145	8,920
February	14,332	1,020	151	512	28,430
March	53,400	2,310	1,050	1.723	105,900
April	42,730	1,730	1,200	1,424	84,750
May	46,430	1,940	1,090	1,498	92,090
June	66,890	2,890	1,490	2,230	132,700
July	63,600	2,640	1,500	2,052	126,200
August	59,210	2,320	1,380	1,910	117,400
September	42,330	1,860	1,120	1,411	83,960
October	14,292	1,380	1.0	461	28,350
November	61.0	7.0	1.0	2.03	121
December	31.0	1.0	1.0	1.00	61
Calendar Year 1998	407,801.0	2,890	1.0	1,117	808,900

Bonito ditch below Caballo Dam, N. Mex.

Records available.—January 1938 to December 1998. 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.

anuary	0	
February	0	
March	159.1	
April	157.4	
May	183.1	
une	230.3	
uly	111.0	
August	85.7	
September	195.5	
October	19.4	
November	0	
December	0	

Calendar year 1998 1,141.5

RIO GRANDE COMPACT COMMISSION REPORT

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

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

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

Calendar Year 1998

Month	Jan.	Feb.	Mar.	Apr.	May	Јиле	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	4.5	5.7	6.9	9.1	9.1	9.1	3.4	3.4	3.4	3.4	5.0	6.0	-
Contents	76	98	120	162	162	162	58	58	58	58	86	104	-
Change	+22	+22	+22	+42	0	0	-104	0	0	0	+28	+18	+50

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

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

Calendar Year 1998

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

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

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

Calendar Year 1998

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

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

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

Calendar Year 1998

14.0		E 1	14							<u> </u>			<u></u>
Month	Jan.	reb.	Mar.	Apr.	мау	June	July	Aug.	Sept.	Uct.	Nov.	Dec.	Cal.yr.
Gage height	6.9	6.9	6.9	6.9	6.9	6.9	6.9	5.5	2.4	6.9	6.9	6.9	-
Contents	213	213	213	213	213	213	213	136	28	213	213	213	-
Change	0	0	0	0	0	0	0	-77	-108	+185	0	0	0

STORAGE IN RESERVOIRS

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

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

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

Calendar Year 1998

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

Big Meadows Reservoir.—In NW1/4 sec. 17, T. 38 N., R. 2 E., on South Fork about 0.9 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 acreft 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

Calendar Year 1998

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

<u>Alberta Park Reservoir</u>,--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 acreft of transmountain water stored in 1984.

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

Calendar Year 1998

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

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

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

Calendar Year 1998

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

RIO GRANDE COMPACT COMMISSION

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

Mill Creek Reservoir.-In sec. 16, T. 39 N., R. 3 E., on Mill Creek. Completed in 1953; capacity, 43 acre-ft. Capacity based on elevation above bottom of outlet. Includes 43 acre-ft of transmountain water, by exchange, in 1976.

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

Calendar Year 1998

Month	Jan.	Feb.	Mar.	Арт.	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

Calendar Year 1998

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal.yr.
Gage height	17.2	17.2	17.2	17.2	17.2	15.9	13.5	12.5	10.5	10.0	13.1	15.2	-
Contents	238	238	238	238	238	211	157	138	103	93	148	193	-
Change	0	0	0	0	0	-27	-54	-19	-35	-10	+55	+45	-45

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

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

Date	Elevation	Contents	Change in Contents
December 31, 1997	9,995.6	27,917	-
January 31, 1998	9,996.0	28,188	+271
February 28	9,996.3	28,358	+170
March 31	9,997.1	28,961	+603
April 30	9,997.5	29,231	+270
May 3I	10,002.1	32,501	+3,270
June 30	10,008.1	36,967	+4,466
July 31	9,999.6	30,687	-6,280
August 31	9,991.3	25,051	-5,636
September 30	9,986.1	21,843	-3,208
October 31	9,983.3	20,219	-1,624
November 30	9,984.8	21,053	+834
December 31	9,985.6	21,539	+486
Calendar year 1998	-	-	-6,378

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

Calendar Year 1998

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	0	0	0	0	16.0	21.0	23.0	-
Contents	913	913	913	913	913	0	0	0	0	108	316	420	-
Change	0	0	0	0	0	-913	0	0	0	+108	+208	+104	-493

STORAGE IN RESERVOIRS

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

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

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

Date	Elevation	Contents	Change in Contents
December 31, 1997	7,176.93	349,260	-
January 31, 1998	7,176.24	345,510	-3.750
February 28	7,175.68	342,480	-3.030
March 31	7,172.81	327,220	-15,260
April 30	7,169.57	310,480	-16.740
May 31	7,176.24	345,510	+35.030
June 30	7,180.94	371,520	+26.010
July 31	7,181.26	373,330	+1.810
August 31	7,180.60	369,600	-3.730
September 30	7,177.88	354,460	-15,140
October 31	7,175.67	342,430	-12.030
November 30	7,172.77	327.010	-15.420
December 31	7,169.17	308,450	-18.560
Calendar year 1998	-	-	-40.810

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	Transmountair water
December 31, 1997	6.874.46	109.810		65 350
January 31, 1998	6.872.82	106.130	-3 680	65 310
February 28	6.871.21	102.610	-3.520	65 320
March 31	6,879.10	120,790	+18,180	79,120
April 30	6,890.30	150,520	+29.730	104.010
May 31	6,899.66	178,770	+28.250	109.700
June 30	6,898.26	174,380	-4,390	108,750
July 31	6,892.56	157,080	-17,300	104,200
August 31	6,880.20	123,520	-33,560	100,520
September 30	6,859.30	79,250	-44.270	70.010
October 31	6,857.66	76,370	-2.880	70,590
November 30	6,866.84	93,520	+17.150	76,710
December 31	6,872.80	106,080	+12.560	85.750
Calendar year 1998	-	-	-3.730	

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

<u>Abiquiu Reservoir</u>.—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	Transmountain water
December 31, 1997	6,216.57	175,480	-	166,470
January 31, 1998	6,217.03	177,310	+1,830	168,190
February 28	6,217.58	179,500	+2,190	170,340
March 3I	6,217.83	180,500	+1,000	171,300
April 30	6,217.76	180,220	-280	169,000
May 3l	6,217.76	180,220	0	166,710
June 30	6,211.63	156,420	-23,800	146,950
July 31	6,211.20	154,800	-1,620	143,730
August 31	6,210.88	153,600	-1,200	143,170
September 30	6,211.00	154,050	+450	143,120
October 31	6,211.38	155,480	+1,430	142,820
November 30	6,213.28	162,700	+7,220	151,120
December 31	6,215.26	170,330	+7,630	159,190
Calendar year 1998	-	-	-5,150	-

Nambe Falls Reservoir.--Water-stage recorder in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E, in Nambe Indian Reservation, on Rio Nambe. Completed in 1976; capacity 2,023 acre-ft at elevation 6,826.6 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 content
December 31, 1997	6,817.66	1,550	-
anuary 31, 1998	6,821.01	1,710	+160
February 28	6,823.41	1,840	+130
March 31	6,822.33	1,780	-60
April 30	6,820.92	1,710	-70
May 31	6,826.79	2,030	+320
une 30	6,824.89	1,920	-110
[uly 3]	6,826.70	2,030	+110
August 31	6,822.36	1,780	-250
September 30	6,806.80	1,070	-710
October 31	6,811.58	1,270	+200
November 30	6,817.26	1,530	+260
December 31	6,820.19	1,670	+140
Calendar year 1998	-	-	+120

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

McClure (Granite Point) Reservoir.—Water-stage recorder in NE1/45W1/4 sec. 24, T. 17 N., R. 10 E., on Santa Fe River. Original reservoir completed in 1926, capacity, 561 acre-ft; in 1935, permanent flash boards were installed in spillway increasing capacity to 650 acre-ft; in 1947 both dam and spillway were reconstructed increasing capacity to 2,615 acre-ft (gage height, 9,788.4 ft, crest of spillway). In 1953 spillway was equipped with radial gates that opened automatically, increasing capacity to 0,000 acre-ft. In 1972, radial gates were removed decreasing capacity to 2,615 acre-ft. In 1989, modifications to the dam and spillway increased capacity to 2,813 acre-ft. In 1995, modification to the dam and spillway increased capacity to 3,257 acre-ft. No dead storage. Altitude of gage is 7,790 ft. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Only the storage of Rio Grande water in excess of 1,061 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	Transmountain water
December 31, 1997	7.864.11	1.750	-	730	485
January 31, 1998	7,864.39	1.760	+10	740	485
February 28	7,864.71	1,780	+20	760	485
March 31	7,873.26	2,340	+560	1.060	485
April 30	7,866.97	1,920	-420	1.060	485
May 31	7,882.30	2,950	+1.030	1.060	485
June 30	7,882.43	3,010	+60	1,060	485
July 31	7,876.63	2,570	-440	1,060	485
August 31	7,875.40	2,940	+370	1,060	485
September 30	7,867.02	1,940	-1,000	1,060	485
October 31	7,863.83	1,690	-250	1,060	485
November 30	7,868.76	2,030	+340	1,060	485
December 31	7,870.67	2,160	+130	1,060	485
Calendar year 1998	-	-	+410	-	-

Nichols Reservoir.—Water-stage recorder in SE1/4NE1/4 sec. 21, T. 17 N., R. 10 E., on Santa Fe River. Completed in 1942; capacity, 685 acre-ft at gage height 167.0 feet (crest of spill way), 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

Orabition and an	the second se			
Date	Gage height	Contents	Change in contents	Transmountain water
December 31, 1997	163.52	585	-	254
January 31, 1998	166.35	666	+81	254
February 28	167.07	688	+22	254
March 31	167.16	690	+2	254
April 30	167.03	686	-4	254
May 31	162.81	566	-120	254
June 30	154.57	367	-199	254
July 31	155.67	391	+24	254
August 31	154.79	371	-20	254
September 30	155.65	390	+19	254
October 31	160.44	503	+113	254
November 30	159.61	482	-21	254
December 31	155.42	385	-97	254
Calendar year 1998	-	-	-200	-

STORAGE IN RESERVOIRS

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

Cochiti Lake.—Water-stage recorder and manometer in NW1/4SW1/4 sec. 16, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, on Rio Grande. Completed in 1975; capacity 498,400 acre-ft at elevation 5,450.0 ft (crest of service spillway); dead storage 150 acre-ft at elevation 5,255.0 ft, from 1991 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	Transmountain water
December 31, 1997	5,340.77	57,330		47,440
January 31, 1998	5,342.07	59,160	+1,830	49,000
February 29	5,343.06	60,590	+1,430	49,710
March 31	5,343.11	60,660	+70	49,994
April 30	5,342.90	60,350	-310	49,520
May 31	5,343.26	60,880	+530	48,700
June 30	5,341.49	58,340	-2,540	47,720
July 31	5,341.49	58,340	0	47,190
August 31	5,341.06	57,730	-610	46,610
September 30	5,341.81	58,790	+1,060	45,920
October 31	5,342.34	59,540	+750	45,680
November 30	5,341.18	57,900	-1,640	46,120
December 31	5,342.52	59,800	+1,900	47,990
Calendar year 1998	-	-	+2,470	-

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

Month-end contents, in acre-feet

Calendar Year 1998

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

STORAGE IN RESERVOIRS

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

<u>Iemez Canyon Reservoir</u>.-Water-stage recorder in SW1/4SW1/4 sec. 32, T. 14 N., R. 4 E., on Jemez River. Completed in 1953; capacity, 170,600 acre-ft at elevation 5,252.3 ft. Maximum controlled capacity at elevation 5,232.0 ft (floor of spillway) is 100,500 acre-ft by 1991 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A sediment pool of about 2,000 acre-ft of transmountain water has been maintained since August 1979.

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 1997	5,193.38	23.020	-	18.110
January 31, 1998	5,193.14	22,710	-310	17.940
February 29	5,192.71	22,170	-540	17,840
March 3I	5,195.79	26,210	+4,040	18,110
April 30	5,196.69	27,440	+1,230	22.880
May 31	5,196.53	27,220	-220	22,250
June 30	5,195.75	26,150	-1,070	21,330
July 31	5,196.00	26,490	+340	21,220
August 31	5,195.01	25,150	-1,340	20,080
September 30	5,194.08	23,920	-1,230	18,900
October 31	5,194.06	23,900	-20	18,340
November 30	5,193.93	23,730	-170	18,160
December 31	5,193.50	23,170	-560	17,920
Calendar year 1998		-	+150	-

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

Month-end contents, in acre-feet

Calendar Year 1998

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	2	2	+2
Change	0	0	0	0	0	0	0	0	0	0	+2	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 1998.

RIO GRANDE COMPACT COMMISSION REPORT

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

Elephant Butte Reservoir.--Water-stage recorder in NW1/4 sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,065,000 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1988 with flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March in accordance with the Sept. 9, 1998 resolution of the Rio Grande Compact Commission. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Water is used for power development and irrigation in New Mexico and Texas. Records furnished by Bureau of Reclamation. Delivery of transmountain water for minimum recreation pool was initiated in December 1975. Beginning Jan. 1, 1977 gage readings are midnight readings.

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

Date	Gage height	Contents	Change in contents	Transmountain water
December 31, 1997	4.403.13	1,926,600	-	2,560
January 31, 1998	4.404.49	1,974,500	+47,900	2,550
February 29	4,404.54	1,976,300	+1,800	2,540
March 31	4,403.11	1,925,900	-50,400	2,520
April 30	4,401.98	1,886,800	-39,100	2,500
May 31	4,403.32	1,933,300	+46,500	2,470
June 30	4,400.81	1,847,000	-86,300	2,430
July 31	4,397.70	1,744,100	-102,900	2,410
August 31	4,394.75	1,650,700	-93,400	2,380
September 30	4,393.05	1,598,800	-51,900	2,350
October 31	4,393.08	1,599,700	+900	2,340
November 30	4,395.01	1,658,800	+59,100	2,330
December 31	4,396.26	1,698,000	+39,200	2,320
Calendar year 1998		-	-228,600	

Caballo Reservoir.-Water-stage recorder in SE1/45W1/4 sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 331,500 acre-ft (by 1981 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above mean sea level, datum of 1929. 100,000 acre-ft of storage reserved for flood control. Records furnished by Bureau of Reclamation. Beginning Jan. 1, 1977, gage readings are midnight readings.

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

Date	Gage height	Contents	Change in contents
December 31, 1997	4,143.15	43,560	-
January 31, 1998	4,143.08	43,320	-240
February 29	4,147.36	59,700	+16,380
March 31	4,147.50	60,310	+610
April 30	4,149.06	67,320	+7,010
May 31	4,149.75	70,590	+3,270
June 30	4,148.34	64,010	-6,580
July 3I	4,150.31	73,320	+9,310
August 31	4,148.46	64,560	-8,760
September 30	4,141.24	37,400	-27,160
October 31	4,141.16	37,160	-240
November 30	4,141.92	39,510	+2,350
December 31	4,142.56	41,580	+2,070
Calendar year 1998	-	-	-1,980

STORAGE IN RESERVOIRS

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

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

Month-end contents, in acre-feet

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Late	Contents	Change in contents
December 31, 1997	1,970,200	-
January 31, 1998	2,017,800	-110,600
February 29	2,036,000	+18,200
March 31	1,986,200	-49,800
April 30	1,954,100	-32,100
May 31	2,003,900	+49,800
June 30	1,911,000	-92,900
July 31	1,817,400	-93,600
August 31	1,715,300	-102,100
September 30	1,636,200	-79,100
October 31	1,636,900	+700
November 30	1,698,300	+61,400
December 31	1,739,600	+41,300
Calendar year 1998	-	-230,600

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

TRANSMOUNTAIN DIVERSIONS

- Pine River Weminuche Pass ditch (Fuchs ditch).-Water-stage recorder and 3-ft Parshall flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from North Fork Los Pinos River in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.
- Weminuche Pass ditch (Raber-Lohr ditch).--Water-stage recorder and 4-ft rectangular flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from Rincon la Vaca Creek in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.
- <u>Williams Creek Squaw Pass ditch</u>—Water-stage recorder and 2-ft Parshall flume in sec. 21, T. 39 N., R. 3 W., at Squaw Pass in Colorado. Diversion is from Williams Creek in San Juan River Basin into Squaw Creek in Rio Grande Basin. Constructed in 1938. Diversion for irrigation is from Rio Grande below Del Norte gaging station.
- Tabor ditch.-Water-stage recorder and 3-ft Parshall flume in sec. 35, T. 43 N., R. 3 W., at Spring Creek Pass in Colorado. Diversion is from Cebolla Creek in Gunnison River Basin into tributary of Clear Creek in Rio Grande Basin. Completed in 1910 or 1911. Diversion for irrigation is from Rio Grande below Del Norte gaging station.
- Don La Font No. 1 & 2 ditches. (Piedra Pass ditch).-Water-stage recorder and 2-ft Parshall flume in sec. 4, T. 38 N., R. 1 W., at Piedra Pass in Colorado. Diversion is from tributaries of Piedra River in San Juan River Basin to South River in Rio Grande Basin. Original ditch completed in 1938, first enlargement completed in 1940. Water is imported by Colorado Game and Fish Department, beginning in 1959, to offset losses from fish culture reservoirs.
- <u>Treasure Pass diversion ditch</u>.-Water-stage recorder and 2-ft Parshall flume in sec. 3I, T. 38 N., R. 2 E., at Wolf Creek Pass in Colorado. Diversion is from Wolf Creek in San Juan River Basin to a tributary of South Fork Rio Grande. Completed in 1923 or 1924. Water is diverted for irrigation from Rio Grande above the Del Norte gaging station, beginning in 1959. Prior to 1959 it was diverted below gaging station.
- Azotea tunnel,-Water-stage recorder and 10-ft Parshall flume, lat 36°51'12", long 106°40'18", at south portal of Azotea tunnel, San Juan-Chama Project. Diversion is from Rio Blanco, Little Navajo River, and Navajo River in Colorado and discharge is into Azotea Creek in New Mexico. Construction completed in 1970.

Imported quantities, in acre-feet, 1998

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Month	Pine River- Weminuche Pass ditch	Weminuche Pass ditch	Williams Creek- Squaw Pass ditch	Tabor ditch	Don La Font ditches	Treasure Pass diversion ditch	Azotea tunnel
lanuary	0	0	0	0	0	0	0
February	Ő	õ	õ	õ	õ	õ	õ
March	0	0	0	0	0	Ō	2,330
April	0	0	0	0	0	0	11,520
May	0	0	0	204	0	39	41,820
June	319	327	149	343	0	146	28,600
July	56	132	99	157	0	38	8,850
August	0	0	30	151	0	0	1,670
September	0	0	11	69	0	0	150
October	0	0	0	0	0	0	200
November	0	0	0	0	0	0	1,190
December	0	0	0	0	0	0	380
Cal. year	375	459	289	924	0	223	96,710

EVAPORATION AND PRECIPITATION

The last paragraph of Article VI of the Compact states, in part, — "such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bear to the total amount of water in such reservoirs during the year."

To provide the data needed for the computation of such evaporation losses, the Commission has encouraged the establishment and operation of evaporation stations near each major reservoir in the basin and at other selected locations.

Evaporation and other climatological data collected at the several stations in Colorado and New Mexico are tabulated on the next page. At some of the stations, it was not possible to obtain evaporation records throughout the winter period.

The measurements of evaporation were made in accordance with standard practice for the type of pan in use. Measurements of precipitation were made in standard 8-inch rain gages, which were supplemented at some of the stations by recording rain gages.

Records for the evaporation stations at the State University, Elephant Butte Dam, and El Vado Dam antedated the creation of the Commission; the stations at Abiquiu Dam, Cochiti Dam, and Jemez Canyon Dam were established by the Corps of Engineers. All others were established at the request of the Commission.

The Rio Grande Compact Commission gratefully acknowledges the cooperation of the National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, and U.S. Bureau of Reclamation for furnishing the climatological records contained in this report.

<u>Alamosa Airport</u>-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.

<u>Platoro Dam</u>.-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.

<u>Abiquiu Dam</u>—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°36', 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.

<u>Iemez Canyon Dam</u>.-Lat 35°23', long 106°32', in Sandoval County at Jemez Canyon Dam, N. Mex. Standard dass A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,388 ft.

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

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

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

EVAPORATION AND PRECIPITATION 1998

Evaporation and precipitation, in inches

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap. Precip.	- 0.00	- 0.03	- 0.53	- 0.67	- 0.01	- 0.27	- 1.52	1.03	- 0.86	- 1.66	- 0.35	0.01	- 6.94
Platoro Dam	Evap. Precip.	-	-	-	-	1.03 -	9.62 0.09	5.18 3.64	4.55 2.48	5.29 1.43	-	-	-	-
Heron	Evap.	-	-	-	4.22	6.68	8.98	7.36	6.49	5.69	3.64	-	-	-
Dam	Precip.	0.79	1.28	1.60	1.07	0.37	0.03	2.37	2.60	1.06	3.56	2.03	0.20	16.96
El Vado Dam	Evap. Precip.	- 0.18	- 0.42 .	- 0.23	4.74 0.62	8.32 0.19	10.98 0.02	8.07 2.49	7.05 3.31	6.30 1.90	4.00 3.57	1.96	- 0.11	15.00
Abiquiu	Evap.	-	-	-	6.15	11.07	14.51	9.32	9.41	8.20	4.77	-	-	-
Dam	Precip.	0.08	0.39	0.55	0.27	0.11	0.08	1.59	0.83	1.03	2.31	1.10	0.05	8.39
Nambe	Evap.	-	-	-	5.95	10.66	12.02	8.17	7.78	9.03	3.72	-	-	-
Falls Dam	Precip.	0.15	0.77	1.63	0.58	0.00	0.50	3.54	1.29	0.41	3.15	1.48	0.14	13.64
Cochiti	Evap.	0.01	-	-	7.60	11.93	14.78	10.65	10.84	10.69	6.39	-	-	-
Dam	Precip.		0.37	1.12	0.68	0.00	0.35	2.19	1.80	0.54	2.24	0.67	0.01	9.98
Jemez Canyon Dam	Evap. Precip.	0.00	- 1.17	2.81	7.64 1.08	7.88 0.00	8.31 0.48	11.23 2.21	12.62 1.22	10.11 0.14	5.87 1.70	- 1.24	- 0.00	12.05
Elephant	Evap.	3.56	5.17	8.70	12.10	17.04	21.14	15.05	13.28	13.59	9.76	5.91	4.26	129.56
Butte Dam	Precip.	0.03	0.08	0.35	0.42	0.00	0.00	3.47	0.49	0.23	2.83	0.74	0.18	8.82
Caballo	Evap.	4.24	5.19	8.52	10.24	14.85	17.39	13.13	12.78	11.08	9.12	6.07	3.78	116.39
Dam	Precip.	0.06	0.03	0.32	0.28	0.00	0.01	1.91	1.46	0.27	4.72	0.40	0.01	9.47
State	Evap.	-	6.10	-	10.14	10.99	12.81	11.98	10.01	9.59	6.43	3.78	-	7.17
Univer.	Precip.	0.23	0.31	0.45	0.00	0.00	0.31	1.22	0.84	0.03	3.21	0.43	0.14	





- Horse Lake Creek above Heron Reservoir
- Willow Creek below Heron Reservoir, near Parkview •••••
 - Rio Chama below El Vado Dam

 - Rio Chama below Abiquiu Dam
 - Rio Grande at Otowi Bridge
- Santa Fe River near Santa Fe
- **Rio Grande below Cochiti Dam**
- Galisteo Creek below Galisteo Dam
- Jemez River below Jemez Canyon Dam

NOTE: Screened areas denote reservoirs, whose capacity is all or in part subject to provisions of the RIO GRANDE COMPACT

BERNALILLO, NEW MEXICO BASIN GRANDE ABOVE RIO

Revised March 1989



