Sixth Annual Report

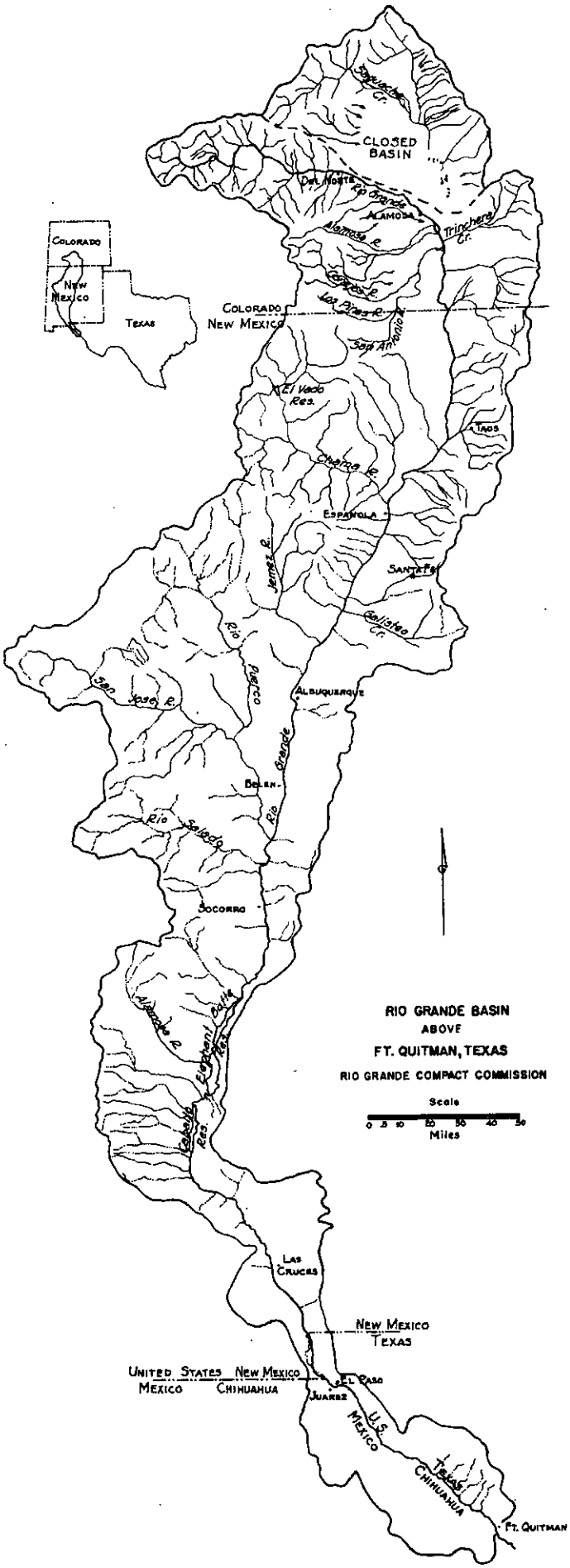
of the

RIO GRANDE COMPACT COMMISSION

1944

TO THE GOVERNORS OF

Colorado, New Mexico and Texas


CLOSED BASIN
Colorado
New Mexico
Texas
Colorado
New Mexico
Del Norte
Rio Grande
Alamosa
Alamosa R.
Trinchera Cr.
Conejos R.
Los Pinos R.
San Antonio
El Vado Res.
Chama R.
Jemez R.
Rio Puerco
Rio Grande
San Jose R.
Albuquerque
Belen
Rio Salado
Socorro
Alamosa R.
Elephant Butte Res.
Caballo Res.
Las Cruces
New Mexico
Texas
United States
Mexico
New Mexico
Chihuahua
El Paso
Juarez
U.S.
Mexico
Texas
Chihuahua
Ft. Quitman
RIO GRANDE BASIN
ABOVE
FT. QUITMAN, TEXAS
RIO GRANDE COMPACT COMMISSION
Scale
0 5 10 20 30 40 50
Miles

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This publication authorized by the Commission at the Sixth Annual (Sixteenth) Meeting in El Paso, Texas, February 9, 10 and 11, 1945.

COLORADO
M. C. HINDERLIDER
STATE ENGINEER
DENVER, COLORADO

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J. E. QUAID
316 CAPLES BLDG.
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Rio Grande Compact Commission

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NEW MEXICO
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SANTA FE, NEW MEXICO

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RUFUS H. CARTER, JR.
POST OFFICE BOX 897
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El Paso, Texas

February 10, 1945

HIS EXCELLENCY, JOHN C. VIVIAN
Governor of the State of Colorado.

HIS EXCELLENCY, JOHN J. DEMPSEY
Governor of the State of New Mexico.

HIS EXCELLENCY, COKE R. STEVENSON
Governor of the State of Texas.

Sirs:

At the Sixth Annual Meeting of the Rio Grande Compact Commission held in El Paso, Texas, February 9 and 10, 1945, the Commission reviewed and adopted schedules of deliveries and releases of water for the year 1944.

At the beginning of 1944, Colorado had a debit of 28,700 acre feet of water. During the year Colorado accumulated a credit of 112,200 acre feet leaving an accrued credit of 83,500 acre feet on December 31, 1944.

At the beginning of 1944, New Mexico had a debit of 59,200 acre feet of water. During the year New Mexico accumulated a debit of 77,400 acre feet, making an accrued debit of 136,600 acre feet on December 31, 1944.

Prior to January 1, 1944 the release of usable

water from Rio Grande Project storage had amounted to 115,900 acre feet in excess of the normal release of 790,000 acre feet provided by the Compact. During the year 1944, the release of usable water from Rio Grande Project storage was 75,600 acre feet in excess of the normal, making a total overdraft of 191,500 acre feet to December 31, 1944.

Pursuant to the provisions of Article XIII of the Compact, request was made by the Commissioner for New Mexico for a review by the Commission of New Mexico's schedule of water deliveries required by the Compact. The Commission is now engaged in a review of this schedule.

The expenses for administration during the fiscal year ending June 30, 1944, were $17,304.00 of which amount, $5,800.00 were borne by agencies of the United States under co-operative agreements. The balance of $11,504.00 was borne equally by the three States in the amounts of $3,834.67.

Factual data and records bearing upon the administration of the Compact are available in the files of the Commission.

Respectfully yours,

M. C. HINDERLIDER
Rio Grande Compact Commissioner
for Colorado

THOMAS M. McCLURE
Rio Grande Compact Commissioner
for New Mexico

J. E. QUAID
Rio Grande Compact Commissioner
for Texas

RIO GRANDE COMPACT

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

For the State of Colorado - M. C. Hinderlider

For the State of New Mexico - Thomas M. McClure

For the State of Texas - Frank B. Clayton

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

ARTICLE I.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE II.

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

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

(b) On the Conejos River near Mogote;

(c) On the Los Pinos River near Ortiz;

(d) On the San Antonio River at Ortiz;

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

(f) On the Rio Grande near Lobatos;

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

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

(i) On the Rio Grande near San Acacia;

(j) On the Rio Grande at San Marcial;

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

(l) On the Rio Grande below Caballo Reservoir.

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

Such gaging stations shall be equipped, maintained and operated by the Commission directly or in cooperation with an appropriate Federal or State agency, and the equipment, method and frequency of measurement at such stations shall be such as to produce reliable records at all times.

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
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 per cent 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
1000	742
1100	839
1200	939
1300	1042
1400	1148
1500	1257
1600	1370
1700	1489
1800	1608
1900	1730
2000	1856
2100	1985
2200	2117
2300	2253

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.

ARTICLE VI.

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.

ARTICLE VI.

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

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

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

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

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

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

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

In any year in which the aggregate of accrued debits of Colorado and New Mexico exceeds the minimum unfilled capacity of project storage, such debits shall be reduced proportionally to an aggregate amount equal to such minimum unfilled capacity.

To the extent that accrued credits are impounded in reservoirs between San Marcial and Courchesne, and to the extent that accrued debits are impounded in reservoirs above San Marcial, such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bore to the total amount of water in such reservoirs during the year.

ARTICLE VII.

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre feet of usable water in project storage; provided, that if the actual releases of usable water from the beginning of the calendar year following the effective date of this Compact, or from the beginning of the calendar year following actual spill, have aggregated more than an average of 790,000 acre feet per annum, the time at which such minimum stage is reached shall be adjusted to compensate for the difference between the total actual release and releases at such average rate; provided, further, that Colorado, or New Mexico, or both, may relinquish accrued credits at any time, and Texas may accept such relinquished water, and in such event the state, or states, so relinquishing shall be entitled to store water in the amount of the water so relinquished.

ARTICLE VIII.

During the month of January of any year the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debits of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total debit of each, and in amounts, limited by their accrued

debits, sufficient to bring the quantity of usable water in project storage to 600,000 acre feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre feet may be made from project storage in that year.

ARTICLE IX.

Colorado agrees with New Mexico that in event the United States or the State of New Mexico decides to construct the necessary works for diverting the waters of the San Juan River, or any of its tributaries, into the Rio Grande, Colorado hereby consents to the construction of said works and the diversion of waters from the San Juan River, or the tributaries thereof, into the Rio Grande in New Mexico, provided the present and prospective uses of water in Colorado by other diversions from the San Juan River, or its tributaries, are protected.

ARTICLE X.

In the event water from another drainage basin shall be imported into the Rio Grande Basin by the United States or Colorado or New Mexico, or any of them jointly, the State having the right to the use of such water shall be given proper credit therefor in the application of the schedules.

ARTICLE XI.

New Mexico and Texas agree that upon the effective date of this Compact all controversies between said States relative to the quantity or quality of the water of the Rio Grande are composed and settled; however, nothing herein shall be interpreted to prevent recourse by a signatory state to the Supreme Court of the United States for redress should the character or quality of the water, at the point of delivery, be changed thereafter 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 losses 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.

S/ M. C. Hinderlider
M. C. HINDERLIDER

S/ Thomas M. McClure
THOMAS M. McCLURE

S/ Frank B. Clayton
FRANK B. CLAYTON

APPROVED:

S/ S. O. Harper
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

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

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 United State Geological Survey.

(b) Gaging stations on streams and reservoirs in the Rio Grande Basin below Lobatos and above San Marcial shall be equipped, maintained and operated by New Mexico in cooperation with the U. S. Geological Survey; the gaging station on the Rio Grande at San Marcial shall likewise be the responsibility of New Mexico to the extent that this station is not maintained and operated by the International Boundary Commission, or 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 observations is sufficient in each case to establish any material changes in water levels in such reservoirs.

RESERVOIR CAPACITIES

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 records of flow of the Rio Grande at San Marcial, at San Acacia, and below Elephant Butte Reservoir may be correlated, 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.

EVAPORATION LOSSES

The Commission shall encourage the equipping, maintenance and operation, in cooperation with the United States 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.

ADJUSTMENTS 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 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.

TRANS-MOUNTAIN 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 allowance 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.

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

The Commission shall employ a secretary who shall be a registered professional engineer, or a Corporate Member of the American Society of Civil Engineers, experienced in irrigation, agricultural or hydraulic engineering. The period of employment of the secretary shall be at the pleasure of the Commission but not exceeding one year, at the end of which period his services shall automatically terminate; provided, however, that the Commission, upon unanimous agreement, may extend his employment for a period not exceeding one year following the year within which his employment has been automatically terminated, or may employ another individual under like conditions with respect to period of employment, it being the intent and purpose of the Commission to limit the term of employment of any such appointee so that any re-appointment, or the appointment of any successor, can be made for a period of but one year, and then only by the ananimous action of the Commission.

The salary of the secretary shall be determined by the Commission. He shall be reimbursed for his necessary traveling expenses incurred in performing his official duties, as may be determined by the Commission.

Each of the respective states, at its own expense, shall provide adequate office facilities for the use of the secretary of the Commission.

It shall be the duty of the secretary to collect and correlate all factual data and other records having a bearing upon the administration of the Compact, and to keep each Commissioner advised thereof. It shall be the further duty of the secretary to inspect all gaging stations maintained by the Commission, and to make recommendations to the Commission as to any changes or improvements to existing stations, and for the addition of new stations, to the end that reliable records may be had for the proper carrying out of the provisions of the Compact.

The secretary shall 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 at State Line;

(b) Deliveries by New Mexico at San Marcial; and

(c) Release and Spill from Project Storage.

He shall also compile a complete report covering his secretarial activities, and a summary of all factual data required by the Compact during the preceding calendar year, and submit the same to the Commission at its regular meeting in February, first following the calendar year covered by such report.

The secretary shall carry on such other duties as the Commission may assign to him from time to time, and shall devote his entire time to the duties of his office. He shall execute and deliver a surety bond satisfactory to the Commission, conditioned upon the faithful performance of the duties of his office.

COSTS

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 operation of gaging stations, of evaporation stations, the cost of engineering and clerical aid, and all other necessary expenses excepting the salaries and personal expenses of the Rio Grande Compact Commissioners.

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

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

The secretary shall present to each participating state through the Commissioner of such State, a certified statement of one-third of the cost of his salary, traveling expense, the expense incident to the maintenance of the offices of the Commission, and each Commissioner shall arrange for the prompt payment thereof by the appropriate agency of 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.

MEETINGS OF COMMISSION

The Commission shall meet in 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. The annual meeting in 1940 shall be held at Monte Vista, Colorado, and thereafter rotate alphabetically according to the states, the place in each state to be designated by the Commissioner from that state. 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.

In accordance with Par. 14, Minutes of the Fourth Annual (Thirteenth) Meeting of the Rio Grande Compact Commission, held in Denver, Colorado, February 24 and 25, 1943, the following was made a part of the Rules and Regulations.

ACTUAL SPILL

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total physical capacity of that reservoir, to the level of the uncontrolled spillway i.e.-2,219,000 acre feet in 1942.

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

RECORDS OF DELIVERIES AND RELEASES

Schedules of Deliveries by Colorado and New Mexico are set forth in Articles III and IV, respectively, of the Compact. Normal releases from Project Storage are fixed by the Compact at 790,000 acre feet per year. In February of each year the Commission holds its Annual Meeting at which time records of deliveries and releases for the previous calendar year are reviewed and adopted as official. The records adopted by the Commission for 1944 are shown on the following three pages.

Deliveries by Colorado at the Colorado-New Mexico state line produced an annual credit for 1944 of 112,200 acre feet after adjusting in accordance with the Compact. At the beginning of 1944, Colorado had an accrued debit of 28,700 acre feet; at the beginning of 1945, Colorado's accrued credit is 83,500 acre feet.

Deliveries by New Mexico at San Marcial resulted in an annual debit of 77,400 acre feet after adjusting in accordance with the Compact. At the beginning of 1944 New Mexico had an accrued debit of 59,200 acre feet; at the beginning of 1945 New Mexico's accrued debit is 136,600 acre feet.

The annual departure from normal release of water from Project Storage for 1944 was in excess by 75,600 acre feet after adjusting for evaporation losses. At the beginning of 1944 the accrued departure from normal release was in excess by 115,900 acre feet; at the beginning of 1945 the accrued departure from normal release is in excess by 191,500 acre feet.

Cooperation in supplying essential data for the schedule of deliveries and releases as well as the adjustment thereto has been received from:

Colorado State Engineer	New Mexico State Engineer
United Pueblos Agency	Soil Conservation Service
Geological Survey	Grazing Service
New Mexico Power Co.	Weather Bureau

International Boundary Commission, U. S. Section
Agricultural Adjustment Administration
Range Development Service of U.S.G.L.O.
Farm Security Administration
Forest Service

This cooperation is gratefully acknowledged.

CC1132

RIO GRANDE COMPACT

DELIVERIES BY COLORADO AT STATE LINE

YEAR 1944

Quantities in Thousands of Acre Feet to Nearest Hundred

MONTH	CONEJOS INDEX SUPPLY						RIO GRANDE SUPPLY			STORED WATER		DELIVERIES AND CREDITS			
	MEASURED STREAM FLOW				ADJUSTMENTS PER COMPACT	CONEJOS INDEX SUPPLY	RECORDED FLOW NEAR DEL NORTE	ADJUSTMENTS PER COMPACT	RIO GRANDE INDEX SUPPLY	GAIN (+) OR LOSS (-) IN STORAGE	TOTAL QUANTITY IN STORAGE AT END OF MONTH	CONEJOS RIVER AT MOUTHS NEAR LOS SAUCES	TOTAL FLOW AT LOBATOS LESS CONEJOS RIVER	ACTUAL DELIVERY AT LOBATOS GAGE	ADJUSTMENTS PER COMPACT
	CONEJOS RIVER AT MOGOTE	LOS PINOS RIVER NEAR ORTIZ	SAN ANTONIO RIVER AT ORTIZ	TOTAL MEASURED FLOW											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
JAN	2.5	——	——	2.5	-	2.5	10.8	-	10.8	0	0.2	3.8	12.4	16.2	-
FEB	3.0	——	——	3.0	-	3.0	10.7	-	10.7	0	0.2	4.7	13.4	18.1	-
MAR	3.6	——	——	3.6	-	3.6	17.1	-	17.1	0	0.2	6.8	27.1	33.9	-
1ST QTR.	9.1	——	——	9.1	-	9.1	38.6	0	38.6	0	——	15.3	52.9	68.2	-
APR	11.0	5.7	2.5	19.2	-	19.2	30.0	+0.1 [a]	30.1	+0.3	0.5	7.5	21.8	29.3	-
MAY	98.0	67.1	17.1	182.2	-	182.2	217.8	0	217.8	0	0.5	112.6	106.6	219.2	-
JUN	117.8	28.2	1.5	147.5	-	147.5	286.3	0	286.3	0	0.5	66.7	114.0	180.7	-
2ND QTR.	226.8	101.0	21.1	348.9	-	348.9	534.1	+0.1 [a]	534.2	+0.3	——	186.8	242.4	429.2	-
JUL	38.8	6.1	0.2	45.1	-	45.1	130.9	-0.1 [b]	130.8	0	0.5	13.6	44.1	57.7	-
AUG	6.9	1.2	0.0	8.1	-	8.1	80.2	-0.2 [a,b]	80.0	-0.3	0.2	0.3	3.6	3.9	-
SEPT	3.2	0.8	0.0	4.0	-	4.0	21.4	-0.1 [a]	21.3	0	0.2	0.6	2.0	2.6	-
3RD QTR.	48.9	8.1	0.2	57.2	-	57.2	232.5	-0.4 [a,b]	232.1	-0.3	——	14.5	49.7	64.2	-
OCT	4.6	1.2	0.2	6.0	-	6.0	20.7	-	20.7	0	0.2	1.8	4.7	6.5	-
NOV	3.4	——	——	3.4	-	3.4	13.3	-	13.3	0	0.2	2.4	13.6	16.0	-
DEC	2.5	——	——	2.5	-	2.5	11.5	-	11.5	0	0.2	2.8	19.4	22.2	-
4TH QTR.	10.5	1.2	0.2	11.9	-	11.9	45.5	0	45.5	0	——	7.0	37.7	44.7	-
YEAR	295.3	110.3	21.5	427.1	-	427.1	850.7	-0.3 [a,b]	850.4	0	——	223.6	382.7	606.3	-

REMARKS: Storage in reservoirs constructed after 1937 only.

[a] Adjustment for change in storage.

[b] Adjustment for transmountain diversions.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE	
C1	Balance at Beginning of Year	——	——	Dr	28.7
C2	Scheduled Delivery from Conejos River	211.8	——	Dr	240.5
C3	Scheduled Delivery from Rio Grande	292.3	——	Dr	532.8
C4	Actual Delivery at Lobatos plus 10000 acre feet	——	616.3	Cr	83.5
C5	Adjustments per Compact - Item 16	-	-	Cr	83.5
C6	Reduction of Credits per Article VI.	0	——	Cr	83.5
C7	Reduction of Debits per Article VI.	——	0	Cr	83.5
C8	Balance at End of Year	——	——	Cr	83.5

RIO GRANDE COMPACT
DELIVERIES BY NEW MEXICO AT SAN MARCIAL

YEAR 1944

Quantities in Thousands of Acre Feet to Nearest Hundred

MONTH	OTOWI INDEX SUPPLY					STORAGE OF WATER IN RESERVOIRS					DELIVERIES AND CREDITS				
						LOBATOS TO OTOWI		OTOWI TO SAN MARCIAL					ADJUSTMENTS ACCOUNT DEPLETION DURING JULY, AUGUST, SEPTEMBER		
	RECORDED FLOW AT OTOWI BRIDGE	ADJUSTMENTS ACCOUNT STORAGE ABOVE OTOWI	OTHER ADJUSTMENTS PER COMPACT	EQUIVALENT FLOW AT OTOWI UNDER 1929 CONDITIONS	OTOWI INDEX SUPPLY	GAIN (+) OR LOSS (-)	TOTAL AT END OF MONTH	GAIN (+) OR LOSS (-)	TOTAL AT END OF MONTH	TOTAL IN STORAGE AT END OF MONTH	RECORDED FLOW AT SAN MARCIAL GAGE	ACTUAL DELIVERY DURING SCHEDULE MONTHS	LOBATOS TO OTOWI	TRIBUTARIES BELOW OTOWI	OTHER ADJUSTMENTS PER COMPACT
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
JAN	35.0	+3.2	0.0	38.2	38.2	+3.2	34.0	+0.1	1.7	35.7	41.1	41.1	—	—	
FEB	41.0	+3.2	+0.1[a]	44.3	44.3	+3.2	37.2	+0.2	1.9	39.1	41.0	41.0	—	—	
MAR	58.9	+6.2	+0.2[a]	65.3	65.3	+6.2	43.4	+0.4	2.3	45.7	45.0	45.0	—	—	
1ST QTR.	134.9	+12.6	+0.3[a]	147.8	147.8	+12.6	—	+0.7	—	—	127.1	127.1	—	—	
APR	71.6	+29.2	+0.5[a]	101.3	101.3	+29.2	72.6	+0.2	2.5	75.1	43.5	43.5	—	—	
MAY	406.5	+120.5	+1.1[a]	528.1	528.1	+120.5	193.1	-0.3	2.2	195.3	324.0	324.0	—	—	
JUN	309.5	+6.6	+1.5[a]	317.6	317.6	+6.6	199.7	-0.4	1.8	201.5	260.0	260.0	—	—	
2ND QTR.	787.6	+156.3	+3.1[a]	947.0	947.0	+156.3	—	-0.5	—	—	627.5	627.5	—	—	
JUL	115.7	-11.7	+0.1[a]	104.1	—	-11.7	188.0	+0.3	2.1	190.1	88.5	—			0.3[d]
AUG	81.8	-58.2	+0.6[a]	24.2	—	-58.2	129.8	-0.2	1.9	131.7	44.6	—	0.1[b]	0.6[b]	
SEPT	60.7	-42.7	+0.4[a]	18.4	—	-42.7	87.1	-0.3	1.6	88.7	14.0	—			
3RD QTR.	258.2	-112.6	+1.1[a]	146.7	—	-112.6	—	-0.2	—	—	147.1	—	0.1[b]	0.6[b]	0.3[d]
OCT	43.3	-7.3	+0.5[ab]	36.3	36.3	-7.3	79.8	-0.2	1.4	81.2	47.1	47.1	—	—	
NOV	37.9	+2.4	0.0	40.3	40.3	+2.4	82.2	+0.4	1.8	84.0	30.6	30.6	—	—	
DEC	42.1	+3.0	0.0	45.1	45.1	+3.0	85.2	+0.2	2.0	87.2	44.6	44.6	—	—	
4TH QTR.	123.3	-1.9	+0.5[ab]	121.7	121.7	-1.9	—	+0.4	—	—	122.3	122.3	—	—	
YEAR	1,304.0	+54.4	+4.8[ab]	1,363.2	1,216.5	+54.4	—	+0.4	—	—	1,024.0	876.9	0.1[b]	0.6[b]	0.3[d]

REMARKS: Storage in reservoirs constructed after 1929 only.

[a] Adjustment for evaporation from reservoirs, Lobatos to Otowi.

[b] Adjustment for stock tanks.

[c] Does not include San Mateo reservoir which capacity during 1944 was less than 50 acre feet.

[d] Due to operation of Paguate reservoir.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
NM1	Balance at Beginning of Year	—	—	Dr 59.2
NM2	Scheduled Delivery at San Marcial	956.0	—	Dr 1,015.2
NM3	Actual Delivery in Schedule Months	—	876.9	Dr 138.3
NM4	Adjustments Account Depletion in July, Aug., Sept.	0.7	—	Dr 139.0
NM5	Other Adjustments - Item 16	0.3	0.0	Dr 139.3
NM6	Reduction of Credits per Article VI.	0.0	—	Dr 139.3
NM7	Reduction of Debits per Article VI.	—	2.7	Dr 136.6
NM8	Balance at End of Year	—	—	Dr 136.6

RIO GRANDE COMPACT
RELEASE AND SPILL FROM PROJECT STORAGE

YEAR 1944

Quantities in Thousands of Acre Feet to Nearest Hundred

MONTH	TOTAL PROJECT STORAGE CAPACITY AVAILABLE AT END OF MONTH	USABLE WATER			UNFILLED CAPACITY OF PROJECT STORAGE AT END OF MONTH	CREDIT WATER			FLOOD WATER IN STORAGE AND DEAD STORAGE AT END OF MONTH	TOTAL WATER IN PROJECT STORAGE AT END OF MONTH	RELEASE AND SPILL				
		STORED IN ELEPHANT BUTTE RESERVOIR	STORED IN CABALLO RESERVOIR	TOTAL IN STORAGE AT END OF MONTH		COLORADO CREDIT WATER IN STORAGE	NEW MEXICO CREDIT WATER IN STORAGE	TOTAL IN STORAGE AT END OF MONTH			RECORDED FLOW OF RIO GRANDE BELOW ELEPHANT BUTTE	RIO GRANDE BELOW CABALLO			
												RELEASE OF USABLE WATER	SPILL OF FLOOD OR CREDIT WATER	ACTUAL SPILL OF USABLE WATER	TOTAL RECORDED FLOW
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
JAN	2,564.9	1,219.5	245.9	1,465.4	999.5	0	0	0	0	1,465.4	72.3	0.3	0	0	0.3
FEB	2,564.9	1,199.8	281.5	1,481.3	983.6	0	0	0	0	1,481.3	65.1	20.4	0	0	20.4
MAR	2,564.9	1,173.0	261.0	1,434.0	1,030.9	0	0	0	0	1,434.0	71.8	89.3	0	0	89.3
1ST QTR.	———	———	———	———	———	———	———	———	———	———	209.2	110.0	0	0	110.0
APR	2,564.9	1,141.4	197.3	1,338.7	1,126.2	0	0	0	0	1,338.7	68.3	136.2	0	0	136.2
MAY	2,564.9	1,339.0	155.6	1,494.6	970.3	0	0	0	0	1,494.6	70.8	115.2	0	0	115.2
JUN	2,564.9	1,511.6	107.7	1,619.3	845.6	0	0	0	0	1,619.3	73.0	123.9	0	0	123.9
2ND QTR.	———	———	———	———	———	———	———	———	———	———	212.1	375.3	0	0	375.3
JUL	2,564.9	1,503.8	72.0	1,575.8	889.1	0	0	0	0	1,575.8	91.8	133.9	0	0	133.9
AUG	2,564.9	1,450.5	33.2	1,483.7	981.2	0	0	0	0	1,483.7	87.8	137.6	0	0	137.6
SEPT	2,564.9	1,393.0	30.8	1,423.8	1,041.1	0	0	0	0	1,423.8	66.2	86.3	0	0	86.3
3RD QTR.	———	———	———	———	———	———	———	———	———	———	245.8	357.8	0	0	357.8
OCT	2,564.9	1,364.5	81.1	1,445.6	1,019.3	0	0	0	0	1,445.6	66.9	16.1	0	0	16.1
NOV	2,564.9	1,323.4	143.6	1,467.0	997.9	0	0	0	0	1,467.0	66.4	0.3	0	0	0.3
DEC	2,564.9	1,290.6	207.1	1,497.7	967.2	0	0	0	0	1,497.7	78.4	8.2	0	0	8.2
4TH QTR.	———	———	———	———	———	———	———	———	———	———	211.7	24.6	0	0	24.6
YEAR	———	———	———	———	———	———	———	———	———	———	878.8	867.7	0	0	867.7

REMARKS:

ACCRUED DEPARTURE FROM NORMAL RELEASE

	ITEM	DEBIT	CREDIT	BALANCE	
P1	Accrued Departure at Beginning of Year	———	———	Dr	115.9
P2	Actual Release during Year	867.7	———	Dr	983.6
P3	Normal Release for Year	———	790.0	Dr	193.6
P4	Actual Net Evaporation Loss in Year	134.7	———	Dr	328.3
P5	Evaporation Loss if No Departures	———	136.8	Dr	191.5
P6	Accrued Departure at End of Year	———	———	Dr	191.5

TIME OF HYPOTHETICAL SPILL Neither hypothetical nor actual spill occurred.

WATER SUPPLY

The year 1944, in many respects, approached the average. Precipitation at many weather stations in the Rio Grande Basin was somewhat above the average while at others precipitation was slightly below the average. This and other factors contribute to the approach to normal experienced at many of the stream gaging stations.

Accuracy of Records

The Rules and Regulations of the Commission state that 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. Within the physical limitations of stream gaging the agencies obtaining records at Compact gaging stations have complied with these regulations.

Each station description includes a statement in regard to the general accuracy of the records. "Excellent" indicates that, in general, the daily records are accurate within 5 per cent; "good", within 10 per cent; "fair", within 15 per cent; "poor", 16 or greater per cent. These standards of accuracy are the same as those followed by the U. S. Geological Survey.

Acknowledgements

Water supply data contained in the following pages of this report have been supplied by Federal and State agencies, and by several individuals.

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

Rio Grande near Del Norte, Colorado.
Rio Grande near Lobatos, Colorado.
Conejos River near Mogote, Colorado.
Conejos River near Los Sauces, Colorado.
San Antonio River at Oritz, Colorado.
Los Pinos River near Ortiz, Colorado.

Records of storage in Troutvale Reservoir No. 2, Squaw Lake and Fuchs Reservoir were supplied by the Colorado Special Deputy State Engineer at Monte Vista, Colorado with the cooperation of the respective owners viz: Earl Brown, Craton Sanderson and Fred Fuchs.

Records of Transmountain Diversion were supplied by the Colorado Special Deputy State Engineer at Monte Vista, Colorado with the cooperation of the owners viz: Craton Sanderson, the Underwood Estate, George and Harley Fuchs, Leon Raber and Frank Lohr.

The U. S. Geological Survey in cooperation with the New Mexico Interstate Streams Commission furnished the following records:

Rio Grande at Otowi Bridge near San Ildefonso, New Mexico.
Rio Grande at San Acacia, New Mexico.
Rio Chama below El Vado Dam near Tierra Amarilla, New Mexico.
Storage in Carson Reservoir near Stong, New Mexico.
Storage in Nichols Reservoir near Santa Fe, New Mexico.

The U. S. Geological Survey in cooperation with the New Mexico Interstate Streams Commission and the Middle Rio Grande Conservancy District furnished the record of storage in El Vado Reservoir near Tierra Amarilla, New Mexico.

The New Mexico Power Company at Santa Fe, New Mexico furnished the record of storage in Granite Point Reservoir near Santa Fe, New Mexico.

The United Pueblos Agency, Albuquerque, New Mexico, furnished the records of storage in:

Acomita Reservoir near San Fidel, New Mexico.
New Laguna Reservoir at Laguna, New Mexico.
Paguate Reservoir near Laguna, New Mexico.

The U. S. Section of the International Boundary Commission, El Paso, Texas furnished the record of discharge of Rio Grande at San Marcial, New Mexico.

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

Discharge of Rio Grande below Elephant Butte Reservoir.
Discharge of Rio Grande below Caballo Reservoir.
Storage in Elephant Butte Reservoir.
Storage in Caballo Reservoir.

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

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR DEL NORTE, COLORADO

Location.- Water stage recorder in Sec. 29, T. 40 N., R. 5 E., 5 miles upstream from Pinos Creek, and 6 miles west of Del Norte, at State Bridge. From 1889 to September, 1907, station maintained at site four miles downstream, records are comparable.

Drainage area.- 1,320 square miles. Zero of gage is 7,982.21 feet above mean sea level, datum of 1929.

Records available.- October 11, 1889 to December 31, 1944.

Maximum discharge.- during period 1889-1944, 18,000 second feet October 5, 1911, from rating curve extended above 6,000 second feet. Gage height 6.80 feet. Year 1944; 7,070 second feet, May 16. Gage height 5.22 feet.

Accuracy.- Records considered excellent except those for period of ice effect, January 1, 1944 to March 5, 1944, which were computed on basis of seven discharge measurements, weather records, and are fair.

Remarks.- Diversions for irrigation above station. Flow regulated by three reservoirs above station, total capacity 117,800 acre feet, and by several smaller ones.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	175	190	210	320	762	6,110	3,540	1,160	778	302	296	215
2	188	160	213	330	872	6,020	3,580	1,260	603	380	240	215
3	192	170	230	315	738	5,330	3,440	1,290	519	386	225	225
4	203	195	245	370	682	4,540	3,310	1,380	470	362	215	200
5	198	195	240	420	905	4,050	3,080	1,450	446	338	220	180
6	205	195	220	484	1,390	4,200	3,190	1,570	422	328	245	180
7	210	205	215	575	1,800	4,600	2,930	1,690	422	314	255	195
8	185	195	225	610	1,980	3,920	2,630	1,640	416	308	230	188
9	165	210	244	618	2,130	4,410	2,540	1,660	404	302	200	170
10	165	180	264	519	2,260	4,670	2,320	1,670	398	296	205	155
11	178	155	290	498	1,920	4,780	2,140	1,600	398	285	210	165
12	168	145	330	596	2,300	4,780	1,970	1,590	380	265	230	165
13	155	170	360	666	3,230	4,890	1,800	1,500	368	265	240	170
14	150	140	380	491	4,050	6,190	1,860	1,460	362	265	200	170
15	150	165	350	440	5,580	6,740	1,810	1,380	332	290	190	165
16	160	165	330	422	6,470	5,630	1,710	1,300	270	422	240	165
17	160	170	310	386	6,230	4,940	1,550	1,270	250	464	270	165
18	155	180	330	404	4,090	4,300	1,520	1,320	235	422	255	170
19	160	160	280	404	3,880	4,450	1,660	1,280	255	380	205	180
20	150	150	300	434	4,240	5,170	2,100	1,260	260	368	205	185
21	155	200	280	398	4,410	5,530	2,050	1,220	260	356	190	190
22	162	210	260	356	4,690	5,280	1,830	1,170	250	362	190	190
23	180	180	255	362	4,850	4,760	1,740	1,150	240	368	210	210
24	192	190	275	470	5,350	4,740	1,710	1,150	240	350	240	220
25	190	250	300	561	5,070	4,800	1,670	1,110	255	338	275	210
26	185	230	310	596	4,490	4,820	1,730	1,070	285	326	205	200
27	180	220	285	762	4,370	4,670	1,550	1,040	308	320	195	200
28	175	215	265	861	4,090	4,300	1,360	993	314	314	205	210
29	185	205	250	778	5,030	3,950	1,320	982	320	320	210	190
30	170		280	690	5,920	3,760	1,200	971	314	320	215	180
31	180		310		6,020		1,150	894		314		170

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	5,426	210	150	175	10,760
February	5,395	250	140	186	10,700
March	8,636	380	210	279	17,130
April	15,136	861	316	505	30,020
May	109,799	6,470	682	3,542	217,800
June	144,330	6,110	3,760	4,811	286,300
July	65,990	3,580	1,150	2,129	130,900
August	40,460	1,690	894	1,305	80,250
September	10,774	778	235	359	21,370
October	10,428	464	265	336	20,680
November	6,711	296	190	224	13,310
December	5,793	225	155	187	11,490
Year	428,900	6,470	140	1,175	850,700

CC1138

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR LOBATOS, COLORADO

Location.- Water stage recorder in Sec. 22, T. 33 N., R. 11 E., 6 miles north of Colorado-New Mexico State line, 7 miles downstream from Culebra Creek, at highway bridge 10 miles east of Lobatos.

Drainage area.- 7,700 square miles (includes 2,940 square miles in closed basin). Zero of gage is 7,426.79 feet above mean sea level, datum of 1929.

Records available.- June 28, 1899 to December 31, 1944.

Maximum discharge.- During period 1899-1944, 13,100 second feet June 8, 1905, from rating curve extended above 8,000 second feet. Year 1944; 6,440 second feet May 18. Gage height 6.25 Ft.

Accuracy.- Records considered excellent except those for period of ice effect, January 1 to March 19, 1944, which were computed on basis of five discharge measurements, weather records, and are fair.

Remarks.- Diversions for irrigation above station. Flow regulated by many reservoirs on headwaters.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	239	300	330	551	544	4,690	1,890	113	49	51	177	261
2	240	295	350	551	573	5,140	1,740	103	44	54	186	324
3	240	300	380	508	780	5,240	1,720	88	46	56	200	382
4	239	310	420	481	738	5,170	1,730	74	44	51	200	297
5	230	330	445	467	619	4,730	1,810	66	44	54	204	376
6	248	330	480	474	698	3,820	1,970	61	41	63	204	382
7	268	335	450	508	1,100	2,940	2,130	58	42	63	200	382
8	270	345	430	619	1,830	2,550	2,260	56	39	66	188	382
9	250	345	455	674	2,620	2,610	2,070	56	44	71	200	376
10	260	320	470	755	2,860	2,450	1,860	54	38	74	232	341
11	278	315	520	730	3,320	2,620	1,660	51	36	71	252	341
12	274	310	560	619	3,140	2,900	1,420	71	41	71	252	347
13	250	310	600	558	3,140	2,900	1,100	71	42	74	252	330
14	250	305	640	603	3,700	2,880	822	63	39	76	247	347
15	256	300	680	658	4,610	2,800	619	54	39	79	252	347
16	265	300	660	596	5,170	2,760	544	46	44	103	252	330
17	265	300	630	508	5,760	2,840	467	41	49	106	252	359
18	260	300	640	454	6,210	2,840	389	63	51	106	292	347
19	250	305	670	414	5,700	2,690	324	71	54	110	389	335
20	248	310	619	395	5,790	2,230	292	68	46	134	382	359
21	250	305	690	395	5,290	2,090	261	66	46	143	364	370
22	255	320	666	389	4,950	2,340	261	58	42	147	330	389
23	265	320	627	376	5,000	2,640	330	56	34	147	324	440
24	290	325	611	359	5,150	2,710	266	58	33	143	330	414
25	295	330	588	324	5,300	2,580	218	61	34	151	347	400
26	290	325	603	297	5,240	2,570	186	71	39	155	359	380
27	290	320	619	282	5,020	2,430	172	61	41	159	370	360
28	290	315	611	313	4,320	2,400	159	61	44	164	292	370
29	290	310	573	421	3,640	2,360	151	58	49	172	276	375
30	285		537	515	3,590	2,180	134	54	51	177	271	365
31	290		544		4,090		127	54		181		360

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	8,169	295	230	264	16,200
February	9,135	345	295	315	18,120
March	17,098	690	330	552	33,910
April	14,794	755	282	493	29,340
May	110,492	6,210	544	3,564	219,200
June	91,100	5,240	2,090	3,037	180,700
July	29,082	2,260	127	938	57,680
August	1,986	113	41	64.1	3,940
September	1,285	54	33	42.8	2,550
October	3,272	181	51	106	6,490
November	8,074	389	177	269	16,010
December	11,168	440	261	360	22,150
Year	305,700	6,210	33	837	606,300

RIO GRANDE COMPACT COMMISSION

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NEW MEXICO

Location.- Water-stage recorder, Lat. 35°52'25" N., Long. 106°08'35" W., in San Ildefonso Pueblo Grant, 100 feet downstream from highway bridge, 1 3/4 miles southwest of San Ildefonso Pueblo, 2½ miles downstream from Rio Pojoaque and 7 miles west of Pojoaque. Datum of gage is 5,488.48 feet above mean sea level, datum of 1929.

Drainage area.- 14,300 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colorado).

Records available.- February 1895 to December 1905, June 1909 to December 1914 and October 1930 to September 1944 in reports of Geological Survey. February 1895 to December 1905 and June 1909 to December 1931 in reports of New Mexico State Engineer. January 1941 to December 1944 in reports of Rio Grande Compact Commission.

Extremes.- Maximum discharge during year, 10,400 second feet May 16 (gage height, 8.32 feet); minimum daily, 435 second feet Oct. 11.

1930-44: Maximum discharge, 22,500 second feet May 16, 1941; maximum gage height, 13.70 feet May 14, 1941; minimum daily discharge, 128 second feet June 21, 1934.

Remarks.- Records good. Flow partially regulated by operation of El Vado Reservoir on upper Rio Chama which stores water for irrigation. Diversions above station for irrigation.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	540	670	742	900	1,500	8,970	3,180	1,440	956	530	622	547
2	530	682	830	914	1,700	9,490	2,980	1,820	949	536	604	652
3	580	700	914	928	1,750	9,760	2,780	1,730	963	598	592	712
4	616	694	921	900	1,690	9,650	2,850	1,620	949	569	592	823
5	580	700	893	886	1,690	8,870	2,960	1,420	935	547	598	795
6	550	718	816	921	1,930	7,680	3,260	1,350	1,030	530	652	664
7	580	718	730	970	2,530	6,290	3,090	1,290	1,320	514	652	712
8	570	754	712	1,060	3,260	5,120	3,090	1,340	1,320	503	592	736
9	500	767	736	1,180	4,090	4,650	3,180	1,540	1,310	508	552	718
10	514	724	795	1,400	5,310	4,500	2,980	1,670	1,330	476	542	700
11	564	712	858	1,480	5,570	4,360	2,740	1,680	1,310	435	547	664
12	586	706	978	1,560	6,770	5,120	2,530	1,770	1,310	440	558	616
13	508	700	1,090	1,570	7,170	5,490	2,310	1,610	1,300	602	592	622
14	481	676	1,030	1,430	7,650	5,060	2,010	1,540	1,310	682	598	646
15	500	694	1,090	1,300	8,360	4,740	1,760	1,530	1,310	736	592	640
16	530	700	1,130	1,280	9,730	4,540	1,570	1,500	1,330	1,680	604	646
17	550	700	1,140	1,280	9,790	4,470	1,360	1,470	1,170	1,310	604	652
18	550	700	1,180	1,190	9,330	4,540	1,290	1,520	872	1,280	610	616
19	560	676	1,190	1,230	9,230	4,340	1,190	1,550	851	1,320	616	610
20	560	688	1,090	1,240	8,810	3,850	1,270	1,180	844	837	652	598
21	560	706	1,070	1,180	9,100	3,380	1,320	724	857	742	724	628
22	569	706	970	1,150	8,560	3,240	1,220	586	858	712	712	628
23	586	706	1,030	1,120	8,380	3,400	1,060	986	858	688	676	658
24	616	712	1,010	1,120	8,460	3,670	1,110	1,070	886	676	706	736
25	658	830	1,010	1,190	8,840	3,690	1,110	1,160	900	658	754	788
26	646	742	994	1,220	9,810	3,640	886	1,070	935	634	760	760
27	604	742	978	1,200	9,650	3,550	767	1,060	858	628	748	767
28	586	730	970	1,340	9,330	3,420	682	1,060	610	622	724	748
29	610	718	942	1,500	8,560	3,300	634	1,020	604	622	712	748
30	640		921	1,460	8,070	3,280	610	970	564	616	628	736
31	640		934		8,340		569	986		622		664

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	17,644	658	481	569	35,000
February	20,671	830	670	713	41,000
March	29,674	1,190	712	957	58,860
April	36,089	1,570	886	1,203	71,580
May	204,940	9,810	1,500	6,611	406,500
June	156,060	9,760	3,240	5,202	309,500
July	58,348	3,260	569	1,882	115,700
August	41,262	1,820	586	1,331	81,840
September	30,579	1,330	564	1,019	60,660
October	21,853	1,680	435	705	43,340
November	19,115	760	542	637	37,910
December	21,230	825	547	685	42,110
Year	657,500	9,810	435	1,796	1,304,000

RIO GRANDE COMPACT COMMISSION

RIO GRANDE AT SAN ACACIA, NEW MEXICO

Location.- Water-stage recorder, Lat. 34°15'20" N., Long. 106°53'30" W., in NE¼ Sec. 1, T. 1 S., R. 1 W., 0.2 mile downstream from San Acacia diversion dam, half a mile east of San Acacia, and 2 miles downstream from Rio Salado. Datum of gage is 4,680.16 feet above mean sea level, datum of 1929.

Drainage area.- 26,770 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- April 1936 to September 1944 in reports of Geological Survey. February to December 1925, January 1926 to September 1927 (gage heights and discharge measurements only) in reports of State engineer. January 1941 to December 1944 in reports of Rio Grande Compact Commission.

Extremes.- Maximum discharge during year, 10,300 second-feet May 28; maximum gage height, 6.16 feet Aug. 18; minimum daily discharge, 44 second-feet Sept. 8.
1936-44: Maximum discharge, 27,400 second-feet Aug. 5, 1936 (gage height, 8.35 feet, datum of gage, 4662.56 feet), from rating curve extended above 18,000 second-feet by logarithmic plotting; minimum daily, 1 second-foot June 23, 1939.

Remarks.- Records good. Socorro main canal north diverts 0.2 mile above gage. Diversions above station for irrigation.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	730	957	705	500	994	7,320	1,810	180	102	663	483	642
2	715	969	705	555	1,180	7,850	1,930	203	77	448	448	632
3	715	849	684	448	747	8,030	2,140	115	87	368	407	623
4	670	781	694	652	815	8,380	1,950	83	87	302	399	603
5	670	837	849	432	1,290	8,950	2,020	231	60	226	391	747
6	837	860	994	416	1,110	7,670	2,290	250	131	256	448	781
7	790	736	1,010	317	945	6,490	2,260	360	60	324	564	933
8	685	860	884	391	1,120	6,330	1,910	545	44	296	584	826
9	430	770	736	623	1,710	4,830	2,140	474	57	263	594	770
10	400	804	674	908	2,530	3,770	2,370	1,260	97	244	530	826
11	411	826	594	1,440	3,900	4,020	2,110	1,740	165	260	416	933
12	441	957	555	1,080	5,110	3,770	1,770	1,820	251	237	492	860
13	382	837	536	781	5,550	3,460	1,500	1,260	231	214	500	872
14	430	896	536	804	7,160	4,150	1,290	1,160	231	220	613	792
15	605	705	716	1,530	7,320	4,280	1,260	1,210	254	250	500	770
16	618	837	957	1,230	7,320	3,390	1,250	804	416	208	448	781
17	540	770	920	957	8,950	3,240	1,290	1,310	536	2,870	492	908
18	553	705	792	945	9,930	3,430	1,140	1,480	545	2,650	518	736
19	618	694	933	1,050	9,930	2,970	826	2,900	677	2,390	500	716
20	670	632	1,260	684	8,760	2,860	1,110	3,060	282	3,940	536	726
21	790	663	1,350	518	8,760	2,970	2,690	1,720	226	1,480	584	726
22	820	652	981	792	8,580	2,530	4,320	837	250	1,250	518	674
23	760	652	860	1,060	7,860	2,070	2,280	594	203	758	509	736
24	790	726	736	896	7,320	2,220	1,330	360	256	705	492	837
25	871	758	694	837	7,500	2,930	1,220	360	309	574	527	896
26	1,080	747	747	440	7,850	3,200	945	407	555	574	603	945
27	1,410	828	684	518	9,730	2,240	758	527	509	663	872	1,110
28	1,170	945	826	527	9,340	2,180	623	474	584	584	747	994
29	1,010	815	527	594	8,760	2,090	509	483	1,330	518	642	896
30	973		500	663	8,580	2,000	391	282	1,020	500	652	872
31	1,010		440		7,670		244	156		536		781

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	22,594	1,410	382	729	44,810
February	23,066	969	632	795	45,750
March	24,079	1,350	440	777	47,760
April	22,588	1,530	317	753	44,800
May	178,301	9,930	747	5,752	353,700
June	129,820	8,950	2,000	4,327	257,500
July	49,676	4,320	244	1,602	98,530
August	26,665	3,060	83	860	52,890
September	9,632	1,330	44	321	19,100
October	24,761	3,940	208	799	49,110
November	16,009	872	391	534	31,750
December	24,944	1,110	603	805	49,480
Year	552,100	9,930	44	1,509	1,095,200

RIO GRANDE COMPACT COMMISSION

RIO GRANDE AT SAN MARCIAL, NEW MEXICO

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and winch located at railroad bridge about one mile below San Marcial, New Mexico, and 177.1 miles above the American Dam at El Paso, Texas. The recorder is on the upstream end of the first bridge pier from the south abutment of the bridge and the zero of its gage is 4,455.38 feet, United States Coast and Geodetic Survey sea level datum. On February 17, 1943, while the deck of the railroad bridge was being raised about 12 feet, the recorder was moved to the downstream side of the Val Verde highway bridge 1.8 miles upstream from the railroad bridge. Elevation of zero of the gage at the highway bridge was not determined. The recorder was returned to the original location on the railroad bridge on June 25, 1943.

RECORDS: Based upon 122 meter measurements by wading and from cable about 1,000 feet above railroad bridge. Computations by shifting channel methods. 1944 records good. Records available: January 1895 to December 1944. Monthly records 1895-1943 will be found in Water Bulletin No. 13.

REMARKS: For gage history 1895 to 1938 see Water Bulletins Nos. 4, 7, and 8. El Vado and smaller reservoirs and many irrigation diversions and drainage returns above this station in Colorado and New Mexico, modify the river flow.

COMPARATIVE FLOWS FROM RECORDS: Momentary Peak: Max. October 11, 1904, 50,000 sec. ft. with water surface level of 4,459.5 feet on U.S.C.&G.S. datum about .25 mile above the present station gage. This is the greatest flood peak flow in, at least, the past 116 years, or since 1828. Min. sometimes dry. See Water Bulletin No. 6, page 79, for large peak flows since 1828 and their average frequency.

Average Daily: Max. Oct. 11, 1904, 33,000 sec. ft.; Min. sometimes dry.
Average Monthly: Max. May 1941, 16,159 sec. ft.; Min. sometimes dry.
Average Yearly: Max. 1941, 3,911 sec. ft.; Min. 1902, 277 sec. ft.
Average of Two Successive Years: Max. 1941-1942, 3,300 sec. ft.; Min. 1899-1900, 487 sec. ft.
Average of Three Successive Years: Max. 1905-1907, 2,830 sec. ft.; Min. 1900-1902, 609 sec. ft.
Average of Four Successive Years: Max. 1905-1908, 2,390 sec. ft.; Min. 1899-1902, 539 sec. ft.
Average of Five Successive Years: Max. 1905-1909, 2,260 sec. ft.; Min. 1898-1902, 697 sec. ft.
Average of Ten Successive Years: Max. 1903-1912, 1,980 sec. ft.; Min. 1931-1940, 1,140 sec. ft.
Average of Fifty Years: 1,560 sec. ft.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	751	798	716	667	589	7,310	2,000	254	197	971	514	668
2	736	776	674	482	815	7,170	1,830	194	136	735	554	646
3	722	743	627	527	977	7,410	1,900	144	86.4	611	478	642
4	708	685	836	551	767	7,660	1,910	113	72.2	408	444	620
5	693	692	641	553	759	8,190	1,910	74.7	89.2	371	395	548
6	651	741	730	463	943	8,280	1,920	62.9	80.6	285	341	564
7	632	802	896	353	906	7,770	1,780	130	55.6	279	403	713
8	371	700	966	323	855	7,160	1,660	194	60.3	275	511	734
9	278	671	830	411	1,100	6,940	1,860	313	46.3	273	578	745
10	282	680	704	610	1,470	4,660	1,920	453	28.5	265	554	724
11	280	695	605	752	2,200	3,980	2,150	1,040	29.0	228	530	700
12	278	695	563	1,160	3,570	3,910	1,950	1,460	41.6	238	472	734
13	399	723	552	1,070	4,890	3,680	1,560	1,460	178	213	429	764
14	362	734	449	689	5,830	3,430	1,360	1,040	172	195	399	767
15	371	700	598	697	6,540	3,900	1,180	956	158	194	457	730
16	457	634	736	1,030	7,480	3,870	1,140	985	186	250	462	703
17	471	675	858	1,200	7,520	3,490	1,140	839	265	458	476	703
18	610	660	772	1,020	8,190	3,090	1,140	976	334	2,070	505	702
19	720	733	783	1,060	9,090	3,250	991	1,380	413	2,660	498	683
20	813	697	710	1,020	9,290	3,260	722	2,260	547	2,260	482	670
21	968	660	837	900	8,410	2,760	808	2,470	477	3,200	476	689
22	825	625	1,020	800	8,350	2,650	1,510	1,580	344	1,460	508	673
23	787	674	1,050	830	7,960	2,420	2,690	897	249	926	529	684
24	745	748	978	833	7,590	2,000	1,940	557	203	718	557	687
25	715	803	826	924	7,180	1,770	1,410	327	258	680	557	718
26	752	753	705	845	6,990	2,380	1,170	399	272	607	577	781
27	1,180	727	687	626	7,500	2,810	939	426	407	593	622	845
28	1,610	709	642	607	9,200	2,510	744	420	523	680	687	925
29	1,050	748	707	550	9,460	2,120	584	396	497	820	707	903
30	850		694	573	8,830	2,140	456	398	632	575	708	942
31	827		583		8,240		354	319		526		902

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	20,734	1,880	17.3	669	41,100
February	20,681	836	538	713	41,000
March	22,675	1,080	353	731	45,000
April	21,926	1,430	280	731	43,500
May	163,491	9,650	545	5,274	324,000
June	130,970	8,750	1,720	4,366	260,000
July	44,628	4,020	286	1,440	88,500
August	22,500.6	2,680	58.0	726	44,600
September	7,036.7	1,070	27.3	234	14,000
October	23,724	3,420	166	765	47,100
November	15,410	736	310	514	30,600
December	22,507	946	432	726	44,600
Year	516,283.3	9,650	17.3	1,411	1,024,000

RIO GRANDE COMPACT COMMISSION

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

Location.- SW¼ Sec. 25, T. 13 S., R. 4 W., (map projection of land survey into Pedro Armendaris Grant) approximately 5,500 feet downstream from Elephant Butte Dam outlets.

Metering Equipment.- 3/4" diameter tramway cable - approximately 177 feet between wooden "A" frames equipped with sit-down car and reel.

River Section.- Section under cable regular gravel-sand bottom. Flow approaches cable at right angle at all stages. Channel dredged winter of 1938-39 connection power plant construction.

Control.- Control is slight river section constriction about 1,150 feet below gage occasioned by bridge, and confinement of river channel between hill and road grade. Flood discharge into river from Mescal Canyon and Cuchillo Creek, about one mile below gage, would cause backwater conditions at gage. Accuracy not affected as time of such conditions always known and compensated for by additional meter measurements as needed.

No appreciable inflow occurs between location abandoned April 23, 1942 and new gage 0.7 mile downstream. Several small arroyos enter river above present gage and the one abandoned, but inflow occurs only once or twice during rainy season for periods of only 1/4 to 1/2 hour at time. This volume is small and can always be accurately eliminated from record at times of occurrence.

Regulation.- Flow is completely regulated by storage in Elephant Butte Reservoir. Varying river flow depending entirely upon flow through power plant, or gate control at the dam.

Accuracy.- Records excellent.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,090	1,120	1,180	1,140	1,100	1,160	1,190	1,620	1,140	890	1,120	1,250
2	1,010	1,100	1,190	1,010	1,220	1,190	675	1,630	1,210	993	1,130	911
3	1,080	1,120	1,260	1,100	1,150	1,150	1,070	1,660	872	1,120	1,130	1,050
4	1,060	1,200	1,190	1,180	1,180	901	986	1,750	862	1,060	1,090	1,220
5	1,120	1,160	1,030	1,180	1,190	1,090	1,120	1,630	996	1,130	937	1,250
6	1,380	983	1,130	1,200	1,190	1,110	1,280	1,390	1,120	1,060	1,050	1,300
7	1,500	1,090	1,130	1,200	974	1,250	1,500	1,650	1,040	1,060	1,120	1,350
8	1,560	1,140	1,180	1,140	1,160	1,570	1,410	1,490	1,180	934	1,160	1,430
9	1,170	1,180	1,190	1,030	1,260	1,350	1,150	1,480	1,200	1,020	1,110	1,370
10	1,420	1,170	1,140	966	1,260	1,380	1,250	1,450	1,060	1,150	1,110	1,060
11	1,390	1,110	1,140	1,040	1,220	1,110	1,520	1,580	1,170	1,140	1,090	1,300
12	1,390	1,130	1,120	1,160	1,210	1,320	1,580	1,560	1,210	1,180	898	1,430
13	1,250	993	1,050	1,160	1,200	1,400	1,700	1,290	1,160	1,150	1,140	1,390
14	1,080	1,140	1,250	1,200	958	1,420	1,750	1,530	1,180	1,080	1,210	1,320
15	1,020	1,140	1,180	1,130	1,110	1,470	1,750	1,440	1,200	857	1,230	1,270
16	907	1,210	1,200	1,000	1,210	1,330	1,480	1,560	1,180	1,030	1,270	1,180
17	990	1,160	1,200	1,130	1,250	1,330	1,600	1,540	1,000	1,210	1,290	1,020
18	1,020	1,180	1,220	1,160	1,260	1,160	1,470	1,600	1,150	1,140	1,210	1,310
19	1,070	1,190	984	1,190	1,260	1,240	1,770	1,620	1,150	1,130	1,000	1,400
20	1,030	979	1,240	1,190	1,300	1,310	1,730	1,480	1,180	1,150	1,130	1,570
21	1,050	1,130	1,160	1,290	928	1,230	1,670	1,610	1,160	1,110	1,210	1,590
22	1,140	1,130	1,160	1,210	1,130	1,200	1,660	1,520	1,150	991	1,130	1,510
23	1,000	1,190	1,180	1,110	1,160	1,250	1,420	1,240	1,170	1,150	1,100	1,350
24	1,160	1,150	1,210	1,180	1,170	1,220	1,630	1,240	984	1,220	1,090	1,120
25	1,240	1,170	1,170	1,250	1,230	989	1,680	1,200	1,180	1,170	1,040	984
26	1,490	1,170	1,080	1,220	1,090	1,000	1,740	1,150	1,090	1,160	918	1,240
27	1,550	1,040	1,150	1,220	1,110	1,152	1,740	998	1,060	1,100	1,000	1,240
28	1,260	1,120	1,230	1,200	907	1,190	1,700	1,070	1,130	1,100	1,170	1,290
29	1,070	1,230	1,260	1,240	958	1,190	1,780	1,100	1,040	974	1,210	1,260
30	944		1,220	1,010	1,160	1,130	1,650	1,100	1,130	1,080	1,200	1,450
31	1,010		1,190		1,170		1,650	1,100		1,200		1,110

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	36,451	1,560	907	1,176	72,300
February	32,825	1,230	979	1,132	65,110
March	36,214	1,260	984	1,168	71,830
April	34,436	1,290	966	1,148	68,300
May	35,675	1,300	907	1,151	70,760
June	36,792	1,570	901	1,226	72,980
July	46,231	1,770	675	1,492	91,760
August	44,258	1,750	998	1,428	87,780
September	33,402	1,210	862	1,113	66,250
October	33,749	1,220	857	1,089	66,940
November	33,473	1,290	898	1,116	66,390
December	39,525	1,590	911	1,275	78,400
Year	443,000	1,770	675	1,211	878,800

RIO GRANDE COMPACT COMMISSION

RIO GRANDE BELOW CABALLO DAM, NEW MEXICO

Location.- In the NE¼SW¼ Sec. 30, T. 16 S., R. 4 W., N.M.P.M., approximately 4200 feet below Caballo Dam in Sierra County, N. Mex.; and about 20 miles south of Hot Springs, N. Mex., and approximately 102 miles northwest of El Paso, Texas.

Control.- No permanent control exists in the immediate vicinity of gage. A long range control is located 7000 ft. below the gage. This control is Percha Diversion Dam. In the immediate vicinity of the gage the Bojorquez bridge, 600 ft. below the gage, and an old semi-permanent delta of Percha Arroyo below the highway bridge acts as partial control. Moving sand causes discharge-gage relationship to be of a shifting nature. Shifts, however, are moderate. Sensitivity is good.

Discharge measurements.- Discharge measurements are made from a cable with a sit-down car equipped with reel. Measuring section is good, but was subject to considerable scour during spill from Caballo Dam April, May, June and July, 1942 during which period maximum mean daily discharge was 7650 sec.ft. Infrequently during summer months in past years check measurements were made from a cable located about 3/4 mile below Percha Dam and approximately 2 miles below the Caballo station. To this was added a measurement of the flow of the Arrey Canal; the sum representing a check on the Caballo station. As a result of spill from Caballo Dam water began flowing around the west end of the Caballo cable station April 26, 1942. Current meter measurements were made on April 28 and April 29, 1942 at the cable below Percha Dam and on the Arrey Canal. A sudden change in the river flow direction washed out the cable below Percha Dam on May 1, 1942. A new cable site was located and a measuring cable was installed about 7 miles downstream from the Caballo station. The first measurement at this, the Derry cable station, was made May 14, 1942. The section was regular, approach at right angles, bottom sand, results very satisfactory. Measurements were made at Derry until May 23, 1942. The highest discharge from Caballo during the period was therefore measured. Beginning May 24, 1942 measurements were again possible at the Caballo station. During this entire period of high discharge from Caballo reservoir an auxiliary gage was maintained at Percha Dam in order to check against the Caballo gage. The records during this flood period were considered excellent as a result of the checks made. Consequently all records during the period continue to be referred to the regular Caballo station gage.

Regulation.- The flow is regulated by storage in the Caballo Dam 4200 ft. upstream from the station. A small arroyo enters the river from the east side approximately 1500 ft. above the gage. This arroyo contributes momentary flood peaks 100-300 c.f.s. once or twice a year during the rainy season. However, this volume of water is relatively small and it is always possible to properly account for it.

Records available.- Records began at station February 8, 1938 but prior to this date discharge records are available for the Rio Grande at Percha Dam since 1922. Percha Dam is a diversion weir located about 2 miles below Caballo Dam.

Accuracy.- Excellent.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	9.0	791	2,310	2,040	1,610	2,170	2,390	2,360	567	5.0	5.0
2	5.7	9.7	791	2,550	2,040	1,580	1,960	2,450	2,460	648	4.9	5.0
3	5.7	9.4	678	2,460	1,980	1,720	1,980	2,600	2,460	752	4.9	84.4
4	4.8	9.0	753	2,210	1,890	1,710	2,100	2,850	2,450	747	5.0	178
5	3.7	9.7	1,110	2,220	1,830	1,760	2,140	3,000	2,250	348	4.9	146
6	4.0	9.5	1,110	2,160	1,900	1,820	2,170	2,880	2,060	10.7	4.9	129
7	3.5	9.7	1,090	2,140	1,910	1,910	2,340	2,810	1,770	4.6	4.9	82.4
8	3.3	10	1,020	2,320	1,880	1,930	2,340	2,810	1,700	4.2	4.9	258
9	3.3	11	902	2,480	1,960	1,900	2,280	2,440	1,700	4.2	4.8	773
10	3.8	10.5	736	2,480	1,880	2,000	2,230	1,860	1,700	4.2	4.7	773
11	3.8	10.5	1,030	2,320	1,770	2,100	2,230	1,740	1,710	4.2	4.6	678
12	3.1	10.5	1,200	2,350	1,700	2,100	2,230	1,860	1,710	4.2	4.5	465
13	3.3	10.5	1,270	2,660	1,780	2,100	2,210	1,910	1,620	4.2	4.3	318
14	3.3	373	1,370	2,470	1,820	2,080	2,000	2,040	1,530	4.2	4.3	104
15	4.0	1,040	1,360	2,440	1,870	2,010	1,980	2,040	1,530	642	4.3	6.9
16	3.3	965	1,110	2,370	1,860	1,920	2,390	2,210	1,530	993	4.3	5.3
17	3.7	799	1,190	2,360	1,930	2,070	2,390	2,320	1,480	940	4.6	5.3
18	4.3	746	1,590	2,160	1,930	2,210	2,390	2,160	1,440	915	4.6	5.3
19	4.5	657	1,720	2,170	1,430	2,230	2,390	1,910	1,400	762	4.6	5.2
20	4.4	560	1,720	2,360	1,680	2,310	2,360	1,880	1,350	492	4.6	5.1
21	5.5	535	1,650	2,330	2,000	2,410	2,250	1,980	1,240	199	4.6	5.1
22	7.0	407	1,540	2,260	1,990	2,290	2,230	1,980	1,080	6.2	4.6	5.1
23	6.9	445	1,660	2,260	1,950	2,220	2,120	2,150	994	5.3	4.7	5.2
24	7.2	440	1,920	2,270	1,900	2,380	1,620	2,140	944	5.3	4.8	5.2
25	4.9	387	2,210	2,260	1,850	2,410	1,540	1,990	799	5.2	4.9	5.3
26	4.6	542	2,280	2,190	1,840	2,390	1,820	2,030	607	5.2	4.9	5.3
27	5.6	700	2,170	2,030	1,900	2,350	1,980	2,060	467	5.2	4.9	5.2
28	6.9	791	2,170	1,920	1,910	2,280	2,090	2,050	368	5.2	5.0	5.1
29	8.5	791	2,260	2,010	1,910	2,260	2,480	2,160	307	5.2	5.0	5.1
30	8.2		2,330	2,040	1,910	2,190	2,490	2,290	404	5.0	5.0	5.0
31	8.8		2,260		1,730		2,440	2,290		5.0		5.0

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	155.3	8.8	3.1	5	308
February	10,307	1,040	9.0	355	20,440
March	44,991	2,330	678	1,451	89,240
April	68,580	2,660	1,920	2,286	136,030
May	57,970	2,040	1,430	1,870	114,980
June	62,350	2,410	1,580	2,078	123,670
July	67,340	2,490	1,540	2,172	133,570
August	69,280	3,000	1,740	2,235	137,410
September	43,420	2,480	307	1,447	86,120
October	8,102.5	993	4.2	261	16,070
November	142	5.0	4.3	4.7	282
December	4,088.5	773	5.0	132	8,110
Year	437,000	3,000	3.1	1,193	866,200

RIO GRANDE COMPACT COMMISSION

CONEJOS RIVER NEAR MOGOTE, COLORADO

Location.- Water stage recorder, in SE¼ Sec. 34, T. 35 N., R. 7 E., 3/4 mile downstream from Fox Creek, 8½ miles northwest of Mogote at Broyles Bridge 12 miles west of Antonito.

Drainage area.- 282 square miles. Altitude 8,300 feet above mean sea level.

Records available.- September 1, 1899 to March 31, 1900; April 17, 1903 to October 31, 1905, at a point one mile downstream from present site; from March 21, 1907 to October 5, 1911, at site three miles upstream; from January 1, 1912 to December 31, 1944, at present site.

Maximum discharge.- during period 1899-1900, 1903-1905, 1907-1944, 9,000 second feet (revised) October 5, 1911, from rating curve extended above 3,500 second feet. Gage height 8.50 feet, site and datum then in use. Year 1944; 2,890 second feet June 2. Gage height 4.83 feet.

Accuracy.- Records considered good except those during periods of ice effect from January 1 to February 15, 1944, which were computed on basis of discharge measurements, and weather records, and are fair.

Remarks.- No diversions or regulations above station.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	34	41	48	94	313	2,680	1,440	175	66	70	63	51
2	36	43	53	88	372	2,700	1,260	167	62	77	62	52
3	37	44	55	98	372	2,380	1,180	156	58	84	61	56
4	37	45	53	112	334	1,720	1,240	144	56	80	58	51
5	37	49	48	158	453	1,350	1,380	133	55	76	58	30
6	37	45	38	186	760	1,340	1,350	140	55	74	63	38
7	38	44	43	220	1,110	1,540	1,200	125	53	70	64	34
8	38	46	48	228	1,260	1,680	945	118	53	66	58	35
9	35	50	49	244	1,300	2,020	880	127	52	65	55	34
10	34	44	49	194	1,370	2,300	770	140	49	61	56	29
11	35	43	57	172	1,140	2,430	700	133	48	56	57	31
12	36	45	68	211	1,350	2,220	592	133	47	56	58	37
13	35	51	73	264	1,820	2,180	544	120	46	53	58	38
14	35	55	59	200	1,940	2,140	499	106	46	53	48	40
15	37	57	58	172	2,270	2,070	471	96	43	58	49	40
16	42	57	53	167	2,360	2,080	414	89	47	95	66	40
17	46	57	59	147	2,020	1,930	402	91	46	118	62	42
18	50	59	66	156	1,410	1,810	374	99	47	111	59	42
19	50	53	58	167	1,400	1,950	352	99	44	97	50	43
20	45	58	64	174	1,670	2,100	402	104	42	94	42	46
21	45	61	52	156	1,870	2,240	450	116	42	87	49	43
22	44	66	53	139	2,080	2,180	379	89	42	82	57	41
23	44	63	63	129	2,330	2,010	340	76	42	80	57	42
24	45	59	69	152	2,530	2,030	330	97	48	76	67	42
25	43	66	75	197	2,520	2,040	301	102	49	74	59	41
26	44	61	65	200	2,300	1,810	274	101	61	74	55	38
27	45	54	69	277	1,840	1,770	249	89	64	73	51	37
28	40	51	63	302	1,700	1,610	231	82	80	70	50	39
29	41	48	69	268	2,100	1,480	214	77	86	70	49	41
30	40		72	256	2,520	1,620	204	71	77	86	50	42
31	39		84		2,600		191	69		64		34

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	1,244	50	34	40.1	2,470
February	1,513	66	41	52.2	3,000
March	1,823	84	38	58.8	3,620
April	5,528	302	88	184	10,960
May	49,414	2,600	313	1,594	98,010
June	59,410	2,700	1,340	1,980	117,800
July	19,558	1,440	191	631	38,790
August	3,464	176	69	112	6,870
September	1,606	86	42	53.5	3,190
October	2,329	118	54	75.1	4,620
November	1,690	67	42	56.3	3,350
December	1,249	56	29	40.3	2,480
Year	148,800	2,700	29	408	295,200

RIO GRANDE COMPACT COMMISSION

CONEJOS RIVER NEAR LOS (LA) SAUSES, COLORADO

Location.- Water stage recorders on two channels in Sec. 2, T. 35 N., R. 11 E., ½ mile upstream from mouth, and 2 miles north of La Sauses. Stream enters Rio Grande River through two channels and published record is combined flow.

Drainage area.- 887 square miles. Zero of gage (North Channel) is 7,495.02 feet above mean sea level.

Records available.- March 29, 1921 to December 31, 1944.

Maximum discharge.- during period 1921-1944; 3,890 second feet on May 15, 1941. Year 1944; 3,260 second feet May 17, 1944.

Accuracy.- Records considered good. During period of ice effect, January 1 to January 14, 1944 and period of missing gage heights, July 12 to July 17, discharges were computed on basis of weather records and comparison with adjacent stations, and are fair.

Remarks.- Diversions for irrigation above station.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	48	82	81	104	216	2,200	563	6.0	5.8	11	36	39
2	49	83	84	109	350	2,190	499	5.1	7.2	11	40	38
3	52	84	91	112	437	2,110	456	5.1	7.6	12	40	40
4	55	84	91	107	356	1,950	506	5.1	8.3	14	40	42
5	52	81	99	106	316	1,370	556	5.1	9.8	13	40	42
6	55	81	96	128	520	910	653	4.6	11	12	41	44
7	66	81	94	174	995	832	645	4.6	9.9	11	41	44
8	62	82	94	218	1,560	812	541	4.6	12	14	41	45
9	59	83	100	240	1,860	924	440	4.6	10	28	41	45
10	64	83	108	257	1,930	1,090	399	4.6	11	28	41	44
11	66	82	116	215	2,200	1,250	355	4.6	13	32	40	44
12	64	80	136	136	1,880	1,430	276	5.1	11	32	40	44
13	60	80	157	159	2,230	1,360	224	5.1	10	32	40	45
14	61	79	165	208	2,750	1,250	181	4.6	11	32	40	43
15	65	79	157	167	2,980	1,160	140	4.6	12	32	40	41
16	64	80	139	124	3,010	1,080	104	4.8	15	40	40	40
17	61	80	131	95	3,090	964	72	5.0	15	40	40	40
18	60	80	145	65	2,740	816	49	5.5	16	38	40	40
19	58	80	116	57	1,890	744	31	6.0	15	37	40	39
20	59	79	124	71	1,910	795	25	6.0	15	37	40	40
21	59	80	103	72	2,160	869	23	5.6	11	35	42	41
22	60	80	100	64	2,250	941	22	6.0	5.6	38	41	41
23	61	80	98	64	2,300	906	18	5.6	5.6	39	41	41
24	63	80	104	57	2,460	855	17	5.8	6.0	40	42	47
25	65	80	108	45	2,560	894	17	7.4	6.9	39	42	48
26	67	82	115	43	2,490	906	10	7.4	9.0	39	42	51
27	68	83	106	49	2,200	862	10	6.0	10	39	42	51
28	69	83	95	120	1,760	801	9.2	6.0	10	40	41	53
29	74	81	88	232	1,610	734	8.8	5.1	11	40	40	56
30	77		91	198	1,740	618	8.8	5.1	11	40	40	57
31	79		102		2,020		7.4	5.1		38		64

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	1,922	79	48	62.0	3,810
February	2,352	84	79	81.1	4,670
March	3,434	165	81	111	6,810
April	3,796	257	43	127	7,530
May	56,770	3,090	216	1,831	112,600
June	33,623	2,200	618	1,121	66,690
July	6,866.2	653	7.4	221	13,620
August	165.8	7.4	4.6	5.35	329
September	311.7	16	5.6	10.4	618
October	933	40	11	30.1	1,850
November	1,214	42	36	40.5	2,410
December	1,389	64	38	44.8	2,760
Year	112,800	3,090	4.6	309	223,700

RIO GRANDE COMPACT COMMISSION

SAN ANTONIO RIVER AT ORTIZ, COLORADO

Location.- Water stage recorder in New Mexico, in Sec. 19, T. 32 N., R. 9 E., ¼ mile south of Colorado - New Mexico State line, ⅛ mile south of Ortiz, and ⅛ mile upstream from Los Pinos Creek.

Drainage area.- 110 square miles.

Records available.- January 1 to October 31, 1915; May 1, 1919 to October 31, 1920; October 1, 1924 to December 31, 1944.

Maximum discharge.- during period 1915, 1919-1920, 1924-1944; 1,750 second feet April 15, 1937, from rating curve extended above 1,100 second feet. Gage height 5.38 feet. Year 1944; 955 second feet, May 14, 1944. Gage height 4.19 feet.

Accuracy.- Records considered excellent except those estimated during winter periods, January 1 to April 18, 1944, which are poor.

Remarks.- Small diversions for irrigation above station.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			3.1	17	172	82	2.1	0	0.1	0.6	2.4	
2		3.0		18	172	65	1.9	0	0	0.9	2.6	
3				19	124	76	1.7	0	0	1.1	2.6	
4				21	101	68	1.7	0	0	2.2	2.6	
5				24	165	48	18	0	0	2.2	2.6	
6				25	226	45	18	0	0	1.9	2.8	
7				29	303	41	12	0.8	0	1.6	4.7	
8				31	333	37	6.8	1.9	0	1.2	5.0	
9				34	309	32	3.8	1.2	0	0.6	4.7	
10				36	402	28	2.4	0.4	0	0.5	6.8	
11				32	356	26	1.5	0.3	0	0.4	7.2	
12				28	545	22	1.4	0.4	0	0.4	5.0	
13				30	640	20	0.8	0.2	0	0.8	6.2	
14				32	620	18	0.4	0.1	0	0.9	8.2	
15				28	604	16	0.2	0.1	0	1.2	2.6	
16				25	541	14	0.2	0.1	0	8.0	5.5	
17				23	382	13	0.2	0	0	25	9.2	
18				22	220	12	0.1	0	0	13	6.5	
19				45	260	11	0	0	0	5.9	6.8	
20				34	256	9.9	0	0	0	4.2	4.5	
21		2.3		28	259	9.2	1.2	0.8	0	2.6	5.0	
22				26	239	8.8	7.5	2.6	0	2.2	4.0	
23				21	234	7.5	4.7	1.7	0	1.7	3.0	
24	2.0			29	210	6.8	3.0	0.8	0	1.7	3.5	
25				49	180	6.2	3.8	0.6	0	1.7	4.5	
26				58	155	3.5	4.0	1.2	0	1.7	3.3	
27				140	140	2.8	2.3	2.1	0	1.7	3.0	
28				191	129	2.3	1.2	1.9	0	1.9	2.8	
29				93	120	1.9	0.5	1.0	0	2.0	2.5	
30				86	111	1.9	0.2	0.6	0.1	2.6	2.0	
31					107		0.1	0.2		2.6		

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	62.0			2.00	123
February	75.4			2.60	150
March	236			7.61	468
April	1,274	191	17	42.5	2,530
May	8,605	640	101	278	17,070
June	734.8	82	1.9	24.5	1,460
July	101.7	18	0	3.28	202
August	19.0	2.6	0	0.61	38
September	0.2	0.1	0	0.01	0.4
October	95.0	25	0.4	3.06	188
November	132.1	9.2	2.0	4.40	262
December					
Year	11,300	640	0		22,500

RIO GRANDE COMPACT COMMISSION

LOS PINOS RIVER NEAR ORTIZ, COLORADO

Location.- Water stage recorder in New Mexico in N½ Sec. 34, T. 32 N., R. 8 E., 1 mile south of Colorado - New Mexico state line, 2 miles southwest of Ortiz and 2½ miles upstream from mouth.

Drainage area.- 167 square miles. Altitude 8,100 feet above mean sea level.

Records available.- January 1, 1914 to November 30, 1920; October 1, 1924 to December 31, 1944.

Maximum discharge.- during period 1914-1920, 1924-1944; 3160 second feet on May 12, 1941. Year 1944; 3,030 second feet May 15, 1944. Gage height 5.69 feet.

Accuracy.- Records considered excellent except those for period of ice effect, January 1 to March 31, 1944, which were computed on basis of discharge measurements and weather records, and are fair.

Remarks.- Diversions for irrigation above station.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			13	29	290	922	221	22	13	14	16	
2		18		30	342	820	206	19	12	15	16	
3				31	277	790	204	18	11	22	15	
4				40	277	576	209	18	11	19	14	
5				56	441	483	252	16	11	18	14	
6				84	665	519	218	20	11	18	16	
7				100	970	563	179	19	12	17	17	
8				115	1,080	548	148	18	13	15	11	
9				121	1,130	612	126	19	13	14	15	
10				95	1,170	630	116	23	12	14	17	
11				84	1,080	616	102	21	12	15	18	
12				98	1,430	562	86	21	12	15	19	
13				130	1,830	519	75	19	12	14	19	
14				102	1,830	479	67	18	12	14	11	
15				91	1,920	471	60	16	12	17	16	
16				89	1,910	447	57	15	14	27	29	
17				76	1,340	407	58	15	14	39	23	
18				78	922	372	52	22	14	30	22	
19				89	1,110	379	49	22	14	24	20	
20				87	1,280	391	48	22	13	21	19	
21		14		80	1,320	403	75	28	11	20	22	
22			25	75	1,440	375	96	22	11	19	27	
23				66	1,480	347	57	18	13	19	28	
24	15			76	1,380	337	56	19	12	18	28	
25				104	1,230	331	57	23	14	18	29	
26				119	1,030	319	46	22	16	17	23	
27				190	828	286	39	18	18	17	20	
28				215	862	253	33	18	19	17	17	
29				172	946	230	30	15	19	18	18	
30				172	998	236	26	14	17	18	15	
31					1,000		26	14		17		

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	434			14.0	861
February	435			15.0	863
March	589			19.0	1,170
April	2,894	215	29	96.5	5,740
May	33,826	1,920	277	1,091	67,090
June	14,213	922	230	474	28,190
July	3,084	262	26	99.5	6,120
August	594	28	14	19.2	1,180
September	398	19	11	13.3	789
October	580	39	14	18.7	1,150
November	570	29	11	19.0	1,130
December					
Year	57,600	1,920	11		114,300

CC148

RIO GRANDE COMPACT COMMISSION

RIO CHAMA NEAR TIERRA AMARILLA, N. MEX.

Location.- Water-stage recorder, Lat. 36°34'50" N., Long. 106°45'30" W., in NW¼ Sec. 15, T. 27 N., R. 2 E. (projected), 1.5 miles downstream from El Vado Dam, 2.7 miles upstream from Rio Nutrias, and 13 miles southwest of Tierra Amarilla.

Records available.- October 1935 to September 1944 in reports of Geological Survey. October 1913 to November 1916 at site 1.5 miles upstream (records of unregulated flow), published as Rio Chama near El Vado and near Tierra Amarilla, in reports of Geological Survey. October 1913 to September 1916 and February 1920 to December 1924 in reports of State engineer. January 1941 to December 1944 in reports of Rio Grande Compact Commission.

Extremes (regulated).- Maximum discharge during year, 4,750 second-feet Aug. 1 (gage height, 6.4 feet); minimum daily, 1.2 second-feet Feb. 12.

1935-44: Maximum discharge, 6,010 second-feet May 17, 1941 (gage height, 6.89 feet); maximum gage height, 9.63 feet May 30, 1937, site and datum then in use; minimum daily discharge, 1.2 second-feet Dec. 3, 1939 and Feb. 12, 1944.

Remarks.- Records good. Flow regulated by El Vado Reservoir. Diversions above station for irrigation.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	2.1	2.3	2.8	8.4	2,050	472	1,650	752	166	94	6.8
2	1.4	2.2	3.8	3.3	8.4	2,000	467	1,520	752	166	94	6.8
3	1.8	2.2	4.3	3.3	8.4	1,830	467	1,430	752	166	94	6.8
4	1.8	2.3	2.8	3.8	8.4	1,580	467	1,210	745	166	63	6.8
5	1.4	2.3	2.3	3.8	8.4	1,130	462	1,010	789	163	10	6.8
6	1.4	2.3	1.8	3.8	9.3	590	462	1,010	1,100	163	9.3	6.8
7	1.4	2.3	2.3	3.8	9.3	395	451	998	1,100	163	9.3	6.8
8	1.4	2.8	2.8	4.3	9.3	395	451	1,020	1,100	137	8.4	6.8
9	1.4	1.8	4.3	4.8	9.3	400	446	1,240	1,100	110	8.4	6.8
10	1.5	1.4	5.3	4.8	10	444	446	1,240	1,090	110	8.4	6.8
11	1.6	1.8	5.8	5.3	10	1,000	441	1,230	1,090	181	8.4	6.8
12	1.5	1.2	2.8	7.8	127	1,280	441	1,220	1,080	381	7.6	6.8
13	1.6	1.4	3.3	7.6	281	1,100	436	1,200	1,080	325	7.6	6.8
14	1.5	1.4	4.8	7.6	286	908	436	1,190	1,070	334	7.6	6.8
15	1.5	1.4	2.8	7.6	290	842	436	1,190	1,070	334	7.6	7.6
16	1.6	1.8	2.8	7.6	298	842	420	1,180	770	334	7.6	7.6
17	1.5	1.8	3.3	8.4	303	842	420	1,170	590	194	7.6	7.6
18	1.5	2.3	3.8	8.4	303	687	415	930	590	115	7.6	7.6
19	1.6	2.3	4.8	8.4	303	489	415	495	586	115	7.6	7.6
20	1.6	1.8	3.8	8.4	307	489	395	307	586	113	7.8	7.6
21	1.6	1.8	3.3	7.8	311	489	381	363	586	113	7.6	7.8
22	1.6	1.8	3.8	7.6	311	489	376	807	586	113	8.4	7.6
23	1.6	1.8	4.3	7.6	316	489	376	807	580	113	8.4	8.4
24	1.7	2.3	5.3	7.6	606	484	302	800	580	113	9.3	9.3
25	1.7	2.8	3.8	8.4	1,940	484	253	793	580	113	8.4	9.3
26	1.8	2.3	3.3	8.4	2,000	484	249	786	321	113	7.6	8.4
27	1.8	2.3	2.8	9.3	2,000	478	245	779	173	97	6.8	8.4
28	1.9	2.3	2.8	8.4	2,000	478	241	765	169	94	6.8	8.4
29	1.9	1.8	2.8	7.6	2,000	478	241	759	169	94	6.8	8.4
30	2.0		2.8	8.4	2,000	472	305	759	166	94	6.8	8.4
31	2.1		2.8		2,000		1,310	752		94		8.4

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	49.8	2.1	1.4	1.61	99
February	58.1	2.8	1.2	2.00	115
March	107.8	5.8	1.8	3.48	214
April	196.3	9.3	2.8	6.54	389
May	18,081.2	2,000	8.4	583	35,860
June	24,118	2,050	395	804	47,840
July	13,126	1,310	241	423	26,030
August	30,610	1,650	307	987	60,710
September	21,702	1,100	166	723	43,050
October	5,087	381	94	164	10,090
November	552.5	94	6.8	18.4	1,100
December	233.4	9.3	6.8	7.53	463
Year	113,900.0	2,050	1.2	311	226,000

C-1149

RIO GRANDE COMPACT COMMISSION

SANTA FE CREEK NEAR SANTA FE, N. MEX.

Location.- Water-stage recorder and sharp-crested concrete control, Lat. 35°41'15" N., Long. 105°50'10" W., in NW¼SW¼ Sec. 24, T. 17 N., R. 10 E., about 500 feet downstream from Granite Point Dam, and 6 miles east of Santa Fe.

Records available.- May to June 1910 (at site 3 miles downstream), April 1913 to December 1914 (at a site 2 miles downstream) and October 1930 to September 1944 in reports of Geological Survey. January 1913 to November 1930 (at a site 2 miles downstream) and November 1930 to December 1931 in reports of State engineer. January 1943 to December 1944 in reports of Rio Grande Compact Commission.

Extremes.- Maximum discharge during year, 37 second-feet May 16 (gage height 1.00 feet); minimum daily, 0.7 second-foot Jan. 1-4. 1930-44: Maximum discharge, 418 second-feet Apr. 23, 1942 (gage height, 3.51 feet) from rating curve extended above 150 second-feet; minimum daily, 0.2 second-foot Dec. 3-14, 16-29, 1943.

Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversion above station. Flow regulated by Granite Point Reservoir (capacity, 648 acre-feet).

Mean Daily Discharge in Second Feet, January 1 to December 31, 1944.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.7	1.6	1.4	2.7	9.8	22	6.6	8.9	3.2	4.3	3.2	3.6
2	.7	1.5	1.4	4.1	5.5	22	6.3	8.0	3.2	4.3	3.2	3.6
3	.7	1.5	1.4	4.5	6.6	23	6.3	7.1	3.2	4.1	3.2	3.6
4	.7	1.5	1.4	4.8	6.6	23	7.1	6.8	3.2	4.1	3.2	3.6
5	1.0	1.5	1.4	5.5	7.1	23	7.7	7.1	3.0	3.9	3.2	3.6
6	1.5	1.5	1.4	6.6	7.4	23	18	8.0	3.2	3.6	3.2	3.6
7	1.5	1.5	1.4	8.0	6.0	23	10	6.6	3.2	3.6	3.2	3.6
8	1.5	1.5	1.4	8.6	5.3	24	9.5	7.4	3.2	3.6	3.2	3.6
9	1.5	1.5	1.4	9.5	5.5	24	9.9	10	3.4	3.6	3.2	3.6
10	1.5	1.5	1.4	9.2	5.8	24	10	10	3.2	3.2	3.2	3.6
11	1.5	1.5	1.4	8.3	8.3	24	9.2	10	3.4	3.2	3.4	3.6
12	1.5	1.5	1.5	8.0	23	23	8.6	9.5	3.6	3.2	3.4	3.6
13	1.5	1.5	1.5	9.9	36	23	8.9	9.0	3.9	3.4	3.4	3.6
14	1.5	1.5	1.7	11	36	12	8.6	8.9	4.1	3.4	3.4	3.6
15	1.5	1.5	1.7	10	36	9.5	7.7	8.3	4.3	3.4	3.4	3.6
16	1.5	1.5	1.7	9.5	36	13	8.0	7.1	4.1	3.4	3.2	3.6
17	1.5	1.4	1.7	8.9	36	12	7.1	6.6	4.1	3.6	3.2	3.6
18	1.5	1.5	1.7	8.6	36	11	6.8	6.8	4.1	3.6	3.2	3.6
19	1.5	1.4	1.7	9.5	36	9.9	8.6	6.8	4.1	3.6	3.2	3.6
20	1.5	1.4	1.7	9.5	36	8.3	10	6.3	4.3	3.6	3.2	3.6
21	1.5	1.4	1.7	9.9	35	8.6	20	5.5	4.1	3.6	3.2	3.6
22	1.5	1.4	1.7	9.9	35	8.3	14	5.0	4.1	3.6	3.2	3.6
23	1.7	1.4	1.7	9.9	35	8.0	13	5.3	4.3	3.2	3.4	3.6
24	1.7	1.4	1.7	10	35	8.0	18	5.3	4.5	3.2	3.4	3.6
25	1.7	1.4	1.7	10	35	6.8	20	5.5	4.5	3.2	3.4	3.6
26	1.7	1.4	1.7	11	34	8.3	17	5.5	4.1	3.2	3.4	3.4
27	1.5	1.4	1.7	12	34	7.1	14	4.8	4.3	3.2	3.4	3.2
28	1.5	1.4	1.7	12	33	7.1	13	4.5	4.3	3.2	3.4	3.2
29	1.5	1.4	1.7	13	22	6.0	12	4.1	4.6	3.2	3.4	3.2
30	1.5		1.7	13	21	6.3	11	3.6	4.5	3.2	3.6	3.2
31	1.5		1.9		22		9.9	3.6		3.2		3.2

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	43.6	1.7	.7	1.41	86
February	42.3	1.6	1.4	1.46	84
March	49.2	1.9	1.4	1.59	98
April	267.4	13	2.7	8.91	530
May	725.9	36	5.3	23.4	1,440
June	451.2	24	6.0	15.0	895
July	334.8	20	6.3	10.8	664
August	211.9	10	3.6	6.84	420
September	116.0	4.6	3.0	3.83	228
October	108.7	4.3	3.2	3.51	216
November	98.8	3.6	3.2	3.29	196
December	109.4	3.6	3.2	3.53	217
Year	2,560	36	0.7	6.99	5,100

RIO GRANDE COMPACT COMMISSION

RESERVOIRS IN COLORADO

SQUAW LAKE RESERVOIR.- Dam and adjacent staff gage located in approximate Sec. 12, T. 39 N., R. 4 W., on Squaw Lake. Total capacity of reservoir, 158 acre-feet as determined by original survey. Water used for irrigation of lands below the Del Norte gaging station.

TROUTVALE NO. 2 RESERVOIR.- Dam and adjacent staff gage located in Sec. 10, T. 41 N., R. 3 W., on South Clear Creek. Total capacity of reservoir, 435 acre-feet as determined by original survey. Water is used for fish culture with only occasional sale for irrigation.

FUCHS RESERVOIR.- Dam and adjacent staff gage located in Secs. 2 and 11, T. 37 N., R. 4 E., on Pinos Creek. Total capacity of reservoir, 211 acre-feet as determined by original survey. Water used for irrigation of lands adjacent to Pinos Creek.

Last Day of	SQUAW LAKE			TROUTVALE NO. 2			FUCHS					
	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.
Jan.												
Feb.												
Mar.												
Apr.	8.5	149	+125	5.7	147	-21	16.0	211	+186			
May	8.5	149	0	5.7	147	0	16.0	211	0			
June	8.5	149	0	5.7	147	0	16.0	211	0			
July	8.5	149	0	5.7	147	0	13.9	165	-46			
Aug.	2.6	43	-106	5.7	147	0	5.4	33	-132			
Sep.	0	0	-43	5.7	147	0	5.4	33	0			
Oct.	0	0	0	5.7	147	0	5.4	33	0			
Nov.												
Dec.												
Year			-24			-21			+8			

RESERVOIRS IN NEW MEXICO

CARSON RESERVOIR.- Dam and water stage recorder located in NW¼ Sec. 12, T. 25 N., R. 10 E., on Aguaje de la Petaca. Total capacity of reservoir, 5,684 acre-feet as determined by survey in 1941. Water used for irrigation of lands of the Carson Reclamation District.

EL VADO RESERVOIR.- Dam and water stage recorder (staff gage used below elevation 6,878.0) located in SE¼ Sec. 4, T. 27 N., R. 2 E., on Rio Chama. Total capacity of reservoir, 200,340 acre-feet as determined by original survey in 1927. Water used for irrigation of lands in Middle Rio Grande Conservancy District.

GRANITE POINT RESERVOIR (Enlargement).- Dam and staff gage located in Santiago Ramirez Grant and SW¼ Sec. 24, T. 17 N., R. 10 E., on Santa Fe Creek. Total capacity of reservoir 650 acre-feet, determined by survey about 1935, of which only 174 acre-feet are Compact water. Water is for municipal use in the City of Santa Fe, New Mexico.

NICHOLS RESERVOIR.- Dam, staff gage and water-stage recorder located in NE¼ Sec. 21, T. 17 N., R. 10 E., on Santa Fe Creek. Total capacity of reservoir, 796 acre-feet as determined by original survey in 1942. Water is for municipal use in the City of Santa Fe, New Mexico.

Last Day of	CARSON			EL VADO			GRANITE POINT (Enlarg.)			NICHOLS		
	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.	Gage Height Ft.	Contents Ac-Ft.	Change Ac-Ft.
Jan.		0	0	6,818.9	34,000	+3,190		0	0	122.2	17	0
Feb.		0	0	6,822.0	37,240	+3,240		0	0	121.9	16	-1
Mar.		0	0	6,827.4	43,370	+6,130		0	0	122.8	19	+3
Apr.	9.4	16	+16	6,848.5	72,620	+29,250		0	0	156.1	400	+381
May		0	-16	6,899.8	193,100	+120,480	222.2	65	+65	171.0	810	+410
June		0	0	6,901.8	199,700	+6,600	225.9	174	+109	166.4	667	-143
July		0	0	6,898.2	188,000	-11,700	225.9	174	0	170.9	806	+139
Aug.		0	0	6,877.6	129,800	-58,200	225.8	174	0	169.2	752	-54
Sep.		0	0	6,857.1	87,110	-42,690		174	0	165.7	646	-106
Oct.		0	0	6,852.9	79,830	-7,280		174	0	166.4	667	+21
Nov.		0	0	6,854.3	82,220	+2,390		174	0	166.9	682	+15
Dec.		0	0	6,856.0	85,160	+2,940		174	0	166.5	672	-10
Year			0			+54,350			+174			+655

RIO GRANDE COMPACT COMMISSION

RESERVOIRS IN NEW MEXICO

ACOMITA RESERVOIR. Dam and staff gage located in SE¼ Sec. 29, T. 10 N., R. 7 W., on San Fidel Arroyo; water for reservoir is diverted from Rio San Jose. Total capacity of reservoir, 850 acre-feet as determined by original survey in 1937. Water is used for irrigation of lands on the Acoma and Laguna Indian Reservations.

NEW LAGUNA RESERVOIR. Dam and staff gage located in SW¼ Sec. 1, T. 9 N., R. 6 W., on Rio San Jose. Total capacity of reservoir, 683 acre-feet as determined by survey in 1938. Water used for irrigation of lands on the Laguna Indian Reservation.

PAGUATE RESERVOIR. Dam and staff gage located in NE¼ Sec. 26, T. 10 N., R. 5 W., on Paguate Creek. Total capacity of reservoir, 976 acre feet as determined by original survey. Water used for irrigation of lands on Laguna Indian Reservation.

Last Day of	ACOMITA			NEW LAGUNA			PAGUATE					
	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet			
Jan.	124.4	294	+1	5862.0	683	+46	90.8	714	+45			
Feb.	128.0	428	+134	5862.0	683	0	91.3	800	+86			
Mar.	134.5	770	+342	5862.0	683	0	91.2	782	-18			
Apr.	135.7	835	+65	5861.5	566	-117	90.4	654	-128			
May	131.6	606	-229	5860.3	319	-247	88.6	415	-239			
June	125.6	335	-271	5855.0	0	-319	90.4	654	+239			
July	122.5	232	-103	5855.0	0	0	91.7	873	+219			
Aug.	122.0	218	-14	5855.0	0	0	91.1	763	-110			
Sept.	118.6	145	-73	5855.0	0	0	90.6	684	-79			
Oct.	111.0	35	-110	5855.0	0	0	89.5	525	-159			
Nov.	118.8	149	+114	5855.0	0	0	91.3	800	+275			
Dec.	124.8	308	+159	5858.2	62	+62	91.4	818	+18			
Year			+15			-575			+149			

ELEPHANT BUTTE RESERVOIR. Dam and gages located in NW¼ Sec. 30, T. 13 S., R. 3 W., on Rio Grande. Total capacity of reservoir, 2,219,000 acre-feet as determined by partial survey and estimate in 1940. Water is used for power development and irrigation in New Mexico and Texas.

CABALLO RESERVOIR. Dam and gages located in SW¼ Sec. 19, T. 16 S., R. 4 W., on Rio Grande. Total capacity of reservoir, 345,872 acre-feet as determined by original survey. Water is used to irrigate lands in New Mexico and Texas.

PROJECT STORAGE. The combined storage in Elephant Butte and Caballo Reservoirs. Total Project Storage capacity, 2,564,872 acre-feet of which 100,000 acre-feet in Caballo is for flood control.

Last Day of	ELEPHANT BUTTE			CABALLO			PROJECT STORAGE					
	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet	GAGE HEIGHT Feet	CONTENTS Acre-feet	CHANGE Acre-feet			
Jan.	4373.36	1,219,500	-31,100	4172.39	245,880	+65,430		1,465,380	+34,330			
Feb.	4372.45	1,199,800	-19,700	4176.06	281,490	+35,610		1,481,290	+15,910			
Mar.	4371.18	1,173,000	-26,800	4173.94	261,010	-20,480		1,434,010	-47,280			
Apr.	4369.69	1,141,400	-31,600	4166.70	197,260	-63,750		1,338,660	-95,350			
May	4378.53	1,339,000	+197,600	4161.39	155,620	-41,640		1,494,620	+155,960			
June	4385.31	1,511,600	+172,600	4154.12	107,720	-47,900		1,619,320	+124,700			
July	4385.00	1,503,800	-7,800	4146.99	71,960	-35,760		1,575,760	-43,560			
Aug.	4383.00	1,450,500	-53,300	4135.42	33,150	-38,810		1,483,650	-92,110			
Sept.	4380.76	1,393,000	-57,500	4134.53	30,800	-2,350		1,423,800	-59,850			
Oct.	4379.60	1,364,500	-28,500	4149.11	81,140	+50,340		1,445,640	+21,840			
Nov.	4377.91	1,323,400	-41,100	4159.72	143,560	+62,420		1,466,960	+21,320			
Dec.	4376.48	1,290,600	-32,800	4168.03	207,140	+63,580		1,497,740	+30,780			
Year			+40,000			+26,690			+66,690			

EVAPORATION AND PRECIPITATION

Evaporation records from eight stations, two in Colorado and six in New Mexico, and precipitation records from ten stations, three in Colorado and seven in New Mexico are shown on the following page.

In each case the unit of measure is the inch.

Measurements of evaporation are made in accordance with standard practice for the various pans in use.

Precipitation measurements are made in standard 8-inch rain gages and, in some places, with recording rain gages.

The records of evaporation and precipitation at Elephant Butte Dam and El Vado Dam and the precipitation records at Caballo Dam, Pankey Ranch and San Marcial antedate the effective operation of the Compact. The stations near Wagon Wheel Gap, near Conejos and at Summitville were installed by the U. S. Weather Bureau at the request of the Commission. The evaporometer at San Marcial, New Mexico was installed by the U. S. Section of the International Boundary Commission, El Paso, Texas.

The Rio Grande Compact Commission acknowledges the cooperation of the U. S. Weather Bureau and the U. S. Section of the International Boundary Commission in furnishing the records of evaporation and precipitation contained in this report.

RIO GRANDE COMPACT COMMISSION

EVAPORATION AND PRECIPITATION, RIO GRANDE BASIN

COLORADO

WAGON WHEEL GAP (near). In Mineral county, elevation 8,500 feet, Lat. 37°46'N., Long. 106°49'W., near Creede, Colorado. Standard land pan, anemometer, maximum and minimum thermometers, standard 8-inch rain gage and recording rain gage.

CONEJOS DAM (near). In Conejos county, elevation 8,500 feet, Lat. 37°04' N., Long. 106°16' W., 15 miles west of Antonito, Colorado. Standard land pan, anemometer, maximum and minimum thermometers and standard 8-inch rain gage.

SUMMITVILLE. In Rio Grande county, elevation 11,330 feet, Lat. 37°26' N., Long. 106°36' W., at Summitville, Colorado. Maximum and minimum thermometers, standard 8-inch rain gage and recording rain gage.

PLACE	EVAPORATION													PRECIPITATION											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
WAGON WHEEL GAP (near)	---	---	---	---	3.67**	9.33	6.71	6.47	5.83	3.26	-	-	-	0.83	0.73	2.43	1.73	0.48	0.41	0.65	0.89	0.45	1.97	1.08	0.25	11.90
CONEJOS DAM (near)	---	---	---	4.44*	6.89*	9.65	6.41	7.77	6.86	5.13	-	-	-	0.18	0.05	0.75	1.02	0.23	0.10	0.63	0.18	0.20	1.08	0.22	T	4.64
SUMMITVILLE														5.88	5.59	6.16	5.86	1.31	1.97	3.37	2.25	1.29	3.64	2.60	3.31	43.23

*Adjusted to full month. ** For last one half of month.

NEW MEXICO

EL VADO DAM. In Rio Arriba county, elevation 6,796 feet, Lat. 36°36' N., Long. 106°44' W., at El Vado Dam near Tierra Amarilla, New Mexico. Standard land pan, anemometer, maximum and minimum thermometers, standard 8-inch rain gage and recording rain gage.

SAN MARCIAL. Precipitation: In Socorro county, elevation 4,430 feet, Lat. 33°42' N., Long. 106°59' W., at railroad station San Marcial, New Mexico for months of January to May inclusive; at Tiffany, New Mexico three miles northeast of San Marcial from June to December, inclusive. Standard 8-inch rain gage and maximum and minimum thermometers. Evaporation: International Boundary Commission evaporometer near old post office approximately one half mile west of railroad station, San Marcial, New Mexico.

PANKEY RANCH. In Sierra county, elevation 5,000 feet, Lat. 33°28' N., Long. 107°15' W., at Pankey Ranch 18 miles north of Hot Springs, New Mexico. Standard 8-inch rain gage.

ELEPHANT BUTTE DAM. In Sierra county, elevation 4,576 feet, Lat. 33°09' N., Long. 107°11' W., at Elephant Butte, New Mexico. Standard land pan, anemometer, maximum and minimum thermometers and standard 8-inch rain gage.

CABALLO DAM. In Sierra county, elevation 4,190 feet, Lat. 32°54' N., Long. 107°18' W., at Caballo Dam near Caballo, New Mexico. Standard land pan, anemometer, maximum and minimum thermometers, standard 8-inch rain gage and recording rain gage.

AGRICULTURAL COLLEGE. In Dona Ana county, elevation 3,909 feet, Lat. 32°17' N., Long. 106°45' W., at State College, New Mexico. Standard land pan, anemometer, maximum and minimum thermometers and standard 8-inch rain gage.

FARMINGTON EVAPORATION STATION. In San Juan county, elevation 5,300 feet, Lat. 36°43' N., Long. 108°12' W., adjacent to the Animas River at Farmington, New Mexico. Floating pan, anemometer, and standard 8-inch rain gage.

PLACE	EVAPORATION													PRECIPITATION											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
EL VADO DAM	---	---	---	---	---	9.18	8.32	7.99	6.85	4.04	-	-	-	1.25	0.63	1.09*	0.84	0.55	0.10	2.66	1.27	1.03	1.26	1.17*	1.85*	13.70
SAN MARCIAL	1.26	4.13	7.91	13.06	13.79	14.71	11.44	8.68	6.93	3.89	2.84	2.46	91.10	0.10	0.00	0.00	0.17	0.04	0.15	0.86	2.00	1.10	1.00	0.60	0.20	6.22
PANKEY RANCH														0.24	0.19	0.08	0.08	0.09	0.32	1.20	3.81	3.31	0.89	1.18	0.82	12.21
ELEPHANT BUTTE DAM	1.98	5.19	9.06	13.18	14.61	18.70	13.18	12.15	10.13	6.55	3.85	2.47	111.05	0.17	0.18	0.10	0.06	0.28	0.02	2.48	3.06	2.21	0.58	0.98	0.35	10.47
CABALLO DAM	2.52	4.79	9.20	12.34	14.28	17.14	13.28	11.90	9.70	6.26	3.94	2.74	108.09	0.11	0.29	0.02	0.12	0.20	0.02	1.28	1.46	3.70	0.99	1.33	0.40	9.92
AGRICULTURAL COLLEGE	2.66	3.89	8.02	11.17	12.05	13.64	12.26	10.22	7.43	6.65	3.52	2.33	93.84	0.63	0.94	0.19	0.01	0.39	0.62	1.23	2.65	0.63	1.06	1.01	0.41	9.77
FARMINGTON EVAPORATION STATION	---	1.51	3.92	5.62	6.80	7.19	6.58	6.28	4.46	3.15	1.45	0.69	-	0.65	0.74	0.34	0.62	0.72	0.04	0.78	0.84	0.71	0.25	0.81	0.86	7.36

Partly interpolated.

RIO GRANDE COMPACT COMMISSION

TRANSMOUNTAIN DIVERSIONS

WEMINUCHE PASS (East Ditch) FUCHS

Bristol 8-day recorder and 3-foot wooden Parshall flume. Ditch crosses Continental Divide at Lat. 37°41' N., Long. 107°19'W., in Sec. 4, T. 39 N., R. 4 W., (projected survey), 25 miles southwest of Creede, Colorado. Diversion originates on North Fork of the Rio de los Pinos, a tributary to the San Juan River; empties into Weminuche Creek, a tributary of the Rio Grande. Diversion is from Rio Grande above the Del Norte gaging station.

WEMINUCHE PASS (West Ditch) RABER-LOHR

Bristol 8-day recorder and 3-foot wooden Parshall flume. Ditch crosses Continental Divide at Lat. 37°41'N, Long. 107°19' W., in Sec. 4 T. 39 N., R. 4 W., (projected survey), 25 miles southwest of Creede, Colorado. Diversion originated on left bank of Rincon La Vaca Creek, a tributary to the Rio de los Pinos in the San Juan River Basin; emptied into Weminuche Creek, a tributary of the Rio Grande. Diversion is from Rio Grande above the Del Norte gaging station.

TABOR

Bristol 8-day recorder and 2-foot wooden Parshall flume. Ditch crosses Continental Divide at Lat. 37°56'N., Long. 107° 11'W., in Sec. 34, T. 43 N., R. 3 W., (projected survey), adjacent to Colorado State Highway No. 149, 14 miles northwest of Creede, Colorado. Diversion originates from right bank of Cebolla Creek, a tributary to the Gunnison River; empties into Deep Creek, a tributary to Clear Creek in the Rio Grande Basin. Diversion is from Rio Grande above the Del Norte gaging station.

Mean Daily Discharge in Second Feet, Season of 1944

Day	July	Aug.	Sept.	July	Aug.	Sept.	July	Aug.
1		2.02	0.85		6.86	3.80		1.30
2		2.22	0.80		6.86	3.80		1.30
3		2.12	0.80		6.86	3.80		1.05
4		2.12	0.80		7.33	3.80		1.18
5		2.32	0.80		6.41	3.80		1.30
6		2.22	0.80		5.97	3.80		0.28
7		1.92	0.80		5.68	3.80		0.28
8		2.22	0.80		5.68	3.80		0.28
9		3.42	0.80		6.86			0.28
10		2.64	0.80		5.97			0.28
11		2.22	0.80		5.53			
12		2.12	0.80		5.11			
13		1.92	0.80		4.44			
14		1.92	0.80		4.18			
15		1.92	0.80		4.31			
16		2.02	0.80		4.31			
17		2.02			4.31			
18		2.53			4.18			
19	2.75	1.92			4.70		2.32	
20	4.18	1.20		6.86	4.98		2.16	
21	4.31	0.97		7.81	4.31		2.65	
22	4.31	1.85		8.30	3.92		2.65	
23	4.18	.12		7.81	4.05		2.82	
24	4.31	1.20		8.46	4.60		2.73	
25	3.80	1.20		7.97	4.05		2.57	
26	3.44	0.97		7.65	3.56		2.48	
27	2.97	0.80		7.65	3.08		2.16	
28	2.64	0.80		7.65	3.68		2.16	
29	2.64	0.80		7.81	3.08		2.16	
30	2.42	0.85		7.49	3.20		2.16	
31	2.12	0.80		7.02	3.32		2.09	
Total	44.07	53.37	12.85	92.48	161.38	30.40	31.11	7.53
Max.	4.31	3.42	0.85	8.46	7.33	3.80	2.82	1.30
Min.	2.12	0.80	0.80	7.02	3.08	3.80	2.09	0.28
Mean	3.59	1.72	0.80	7.71	4.88	3.80	2.39	0.75
Ac.Ft.	87.4	105.9	25.5	183.4	300.3	60.3	61.7	14.9

Season's Summary

Total cfs	110.29	274.26	38.64
Max.	4.31	8.46	2.82
Min.	0.80	3.08	0.28
Mean	1.84	5.38	1.68
Ac. Ft.	218.8	544.0	76.6

RIO GRANDE COMPACT COMMISSION

TRANSMOUNTAIN DIVERSIONS

	SQUAW PASS	TREASURE PASS	PIEDRA PASS
	Bristol 8-day recorder and 2-foot wooden Parshall flume. Ditch crosses Continental Divide at Lat. 37°36'N., Long. 107°13'W., 24 miles southwest of Creede, Colorado. Diversion intercepts headwaters of Williams Creek, a tributary of Huerto Creek in the San Juan Basin; empties into Squaw Creek, a tributary of the Rio Grande above the Del Norte gaging station. Diversion is from Rio Grande below the Del Norte gaging station.	Bristol 8-day recorder and 2-foot wooden Parshall flume. Ditch crosses Continental Divide at Lat. 37°29'N., Long. 106°48'W., in Sec. 32, T. 38 N., R. 2 E., (projected survey), adjacent to U. S. Highway No. 160 on the summit of Wolf Creek Pass, 17 miles southwest of South Fork, Colorado. Diversion originates on Wolf Creek, a tributary to the San Juan River; empties into Middle Creek, a tributary to South Fork in the Rio Grande Basin. Diversion is from the Rio Grande below the Del Norte gaging station.	Bristol 8-day recorder and 2-foot metal Parshall flume. Ditch crosses Continental Divide at Lat. 37°35'N., Long. 107°00'W., in Sec. 4, T. 38 N., R. 1 W., (projected survey), 20 miles south of Creede, Colorado. Diversion originates on the headwaters of the Piedra River, a tributary to the West Fork of the San Juan River in the San Juan Basin; empties into South River, a tributary to the Rio Grande. Diversion is from the Rio Grande above the Del Norte gaging station.

Mean Daily Discharge in Second Feet, Season of 1944

Day	July	August	July
1		1.37	
2		1.30	
3		1.24	
4		1.24	
5		1.24	
6		1.24	
7		1.24	0.82
8		1.24	0.99
9		1.24	0.82
10		1.24	0.77
11		1.24	0.77
12		1.24	0.77
13		1.24	0.66
14		1.24	1.05
15		1.24	1.37
16	1.21	1.24	1.44
17	3.62	1.24	1.30
18	3.62	1.24	1.11
19	3.81	1.24	1.50
20	4.81	1.24	1.37
21	4.01	1.24	1.05
22	3.08	1.24	0.82
23	2.99	1.24	0.60
24	2.57	1.24	0.40
25	2.40	1.24	0.40
26	2.32	1.24	0.32
27	2.16	1.24	0.16
28	2.01		0.16
29	1.79		0.16
30	1.72		0.15
31	1.50		0.16
Total	43.62	33.67	19.09
Max.	4.01	1.37	1.44
Min.	1.50	1.24	0.15
Mean	2.73	1.25	0.76
AcFt.	86.5	66.8	37.9

No water of record was diverted by means of this diversion during 1944.

Summaries for the Season

Total cfs.	77.29	19.09
Maximum	4.01	1.44
Minimum	1.24	0.15
Mean	1.80	0.76
Acre Feet	153.3	37.9

RIO GRANDE COMPACT COMMISSION

BUDGET

At the Fifth Annual (Fourteenth) Meeting of the Rio Grande Compact Commission held in Santa Fe, New Mexico on February 24 and 25, 1944 the following budget for the operation of gaging stations and administration of the Compact was adopted for the fiscal year ending June 30, 1945.

Item	Total Cost	Borne by United States		Borne by Compacting States		
		U. S. G. S.	I. B. C.	Colorado	New Mexico	Texas
GAGING STATIONS:						
In Colorado	$ 3,500.00	$ 1,700.00		$ 1,800.00		
In New Mexico above Elephant Butte	7,100.00	2,900.00	$ 1,200.00		$ 3,000.00	
below San Marcial	2,500.00					$ 2,500.00
Subtotal	$13,100.00	$ 4,600.00	$ 1,200.00	$ 1,800.00	$ 3,000.00	$ 2,500.00
Administration	6,500.00			2,166.00	2,167.00	2,167.00
Total Cost	$19,600.00	$ 4,600.00	$ 1,200.00	$ 3,966.00	$ 5,167.00	$ 4,667.00
Net to States	$13,800.00			$ 3,966.00	$ 5,167.00	$ 4,667.00
Cash Adjustment				Dr. 634.00	Cr. 567.00	Cr. 67.00
Adjusted Net to States	$13,800.00			$ 4,600.00	$ 4,600.00	$ 4,600.00

At the Sixth Annual (Sixteenth) Meeting of the Rio Grande Compact Commission held in El Paso, Texas on February 9, 10 and 11, 1945 an identical budget for the operation of gaging stations and administration of the Compact was adopted for the fiscal year ending June 30, 1946.

COST OF OPERATION
For the Fiscal Year Ending June 30, 1944.

The cost of operation borne by the states for the fiscal year was $11,504.00; a cost to each state of $3,834.67. This latter amount was $765.33 less than the budget. The cost of operation is shown in the following table.

Item	Total Cost	Borne by United States		Borne by Compacting States		
		U. S. G. S.	I. B. C.	Colorado	New Mexico	Texas
GAGING STATIONS:						
In Colorado	$ 3,500.00	$ 1,700.00		$ 1,800.00		
In New Mexico;						
Above Elephant Butte	7,100.00	2,900.00	$ 1,200.00		$ 3,000.00	
Below San Marcial	2,500.00					$ 2,500.00
Subtotal	$13,100.00	$ 4,600.00	$ 1,200.00	$ 1,800.00	$ 3,000.00	$ 2,500.00
ADMINISTRATION:						
Secretary's salary, expense	$ 4,076.00			$ 1,348.74	$ 1,363.63	$ 1,363.63
Printing Fifth Annual Report	128.00			64.00	64.00	
Subtotal	$ 4,204.00			$ 1,412.74	$ 1,427.63	$ 1,363.63
TOTAL	$17,304.00	$ 4,600.00	$ 1,200.00	$ 3,212.74	$ 4,427.63	$ 3,863.63
Borne by States	$11,504.00			$ 3,212.74	$ 4,427.63	$ 3,863.63
Share of each	11,504.00			3,834.67	3,834.66	3,834.67
Cash Adjustment				Dr.$ 621.93	Cr.$ 592.97	Cr.$ 28.96

AMENDED WATER SUPPLY RECORDS

Minutes of the Sixth Annual (Sixteenth) Meeting of the Rio Grande Compact Commission held in El Paso, Texas, February 9, 10 and 11, 1945 state in part:

> ". . . . factual data used in the compilation of reports of the Commission, which factual data had been revised and published by the U. S. G. S. or the U. S. Section of the International Boundary Commission subsequent to use by the Compact Commission in computing debits and credits, should be published in succeeding Annual Reports of the Commission, together with proper explanatory notes."

A check of records as published by the Commission with records as published by the U. S. G. S. and the U. S. Section of the International Boundary Commission reveals that changes have been made in the following listed records:

Rio Grande near Del Norte, Colorado, 1941
Rio Grande near Lobatos, Colorado, 1941
Los Pinos River near Ortiz, Colorado, 1941

Rio Grande near Del Norte, Colorado, 1942
Rio Grande near Lobatos, Colorado, 1942
Rio Grande at Otowi Bridge, New Mexico, 1942
Conejos River near Mogote, Colorado, 1942
Conejos River near Los Sauces, Colorado, 1942
Los Pinos River near Ortiz, Colorado, 1942.

These records, as amended, are herewith published.

By virtue of the magnitude of Actual Spill in 1942, the values derived from the amended records have no effect on debits, credits or departures from normal release as they now exist.

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR DEL NORTE, COLO.

Location.- Water-stage recorder, Lat. 37°41' N., Long. 106°28' W., near east line of Sec. 30 T. 40 N., R. 5 E., 5 miles upstream from Pinos Creek and 6 miles west of Del Norte. Zero of gage is 7,982.21 feet above mean sea level (general adjustment of 1929).

Drainage Area.- 1,320 square miles.

Records available.- July 1889 to November 1906 (at site 4 miles downstream), April 1908 to September 1913, and October 1933 to December 1941, in reports of Geological Survey. July 1889 to December 1906 and April 1908 to December 1941 in reports of State Engineer. January 1941 to December 1941 in report of Rio Grande Compact Commission. May to September 1907 (at site 4 miles downstream), unpublished in files of office of State Engineer.

Extremes.- Maximum discharge during year, 7,980 second-feet June 20 (gage height, 5.66 feet); minimum daily discharge, 140 second-feet Jan. 3.
1889-1941: Maximum discharge, about 18,000 second-feet Oct. 5, 1911 (gage height, 6.80 feet), from rating curve extended above 6,000 second-feet; minimum daily discharge 90 second-feet Dec. 3, 1934.

Remarks.- Records excellent except those for periods of ice effect, Jan. 1 to Apr. 4, Dec. 23 to 31, which were computed on the basis of nine discharge measurements and weather records and are good. Small diversions above station for irrigation. Flow regulated by three main reservoirs (total capacity, 117,600 acre-feet) and several smaller ones.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	185	155	172	338	1,280	4,110	4,110	1,810	834	706	1,140	356
2	174	150	178	331	1,290	4,110	3,990	1,690	826	650	1,140	280
3	140	145	175	340	1,590	3,860	3,970	1,660	762	938	1,070	270
4	150	148	175	338	1,620	3,780	4,010	1,530	682	1,160	1,030	260
5	150	150	180	380	1,460	3,700	4,710	1,450	650	982	998	225
6	155	150	180	326	1,980	3,620	4,240	1,630	642	905	960	186
7	160	150	185	308	2,370	3,950	3,800	1,830	666	802	894	235
8	160	152	190	308	2,410	4,410	3,680	2,080	698	794	826	260
9	160	154	185	332	2,640	3,900	3,290	2,030	650	770	872	220
10	165	156	180	386	3,020	3,460	3,250	1,980	596	730	834	220
11	170	160	175	356	3,580	3,290	3,250	1,890	554	722	786	240
12	170	165	170	362	4,320	3,190	3,340	1,740	470	714	754	178
13	175	165	170	368	5,600	3,190	3,290	1,620	440	1,360	786	200
14	170	168	180	356	5,810	3,380	2,970	1,490	642	2,050	730	178
15	160	168	190	380	5,170	3,680	2,550	1,690	596	1,560	722	166
16	145	170	210	404	4,520	4,070	2,260	1,590	519	1,410	706	178
17	150	165	240	410	4,630	5,030	2,260	1,600	505	1,300	722	178
18	150	162	260	380	4,980	6,380	2,520	1,630	554	1,210	722	170
19	150	163	280	350	4,820	7,590	2,430	1,530	690	1,170	658	154
20	155	160	300	344	4,280	7,620	2,570	1,390	810	1,190	596	147
21	155	165	315	374	4,180	7,360	2,370	1,340	1,220	1,360	533	154
22	160	165	295	368	4,490	7,280	2,140	1,210	834	1,550	512	166
23	155	162	295	362	4,430	7,360	2,030	1,120	1,210	1,450	422	162
24	150	165	280	362	4,560	7,510	2,100	960	894	1,390	440	150
25	150	168	250	398	4,960	7,050	2,100	894	746	1,530	526	152
26	155	165	225	446	5,240	6,670	2,050	949	666	1,550	526	142
27	155	165	210	540	4,960	6,280	1,940	927	610	1,420	477	145
28	155	168	215	706	4,820	6,060	1,890	894	568	1,430	440	149
29	160		218	938	4,490	5,440	1,770	905	666	1,370	416	156
30	165		222	1,180	4,220	4,780	1,770	883	834	1,270	386	162
31	160		234		4,010		1,740	861		1,180		167

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	4,914	185	140	159	9,750
February	4,479	170	145	160	8,880
March	6,734	315	170	217	13,360
April	12,771	1,180	308	426	25,330
May	117,630	5,810	1,280	3,795	233,300
June	152,110	7,620	3,190	5,070	301,700
July	88,390	4,710	1,740	2,851	175,300
August	44,803	2,080	861	1,445	88,870
September	21,034	1,220	440	701	41,720
October	36,823	2,050	650	1,182	72,840
November	21,619	1,140	386	721	42,880
December	6,026	356	142	194	11,950
Year	517,133	7,620	140	1,417	1,025,680

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR LOBATOS, COLO.

Location.- Water-stage recorder, Lat. 37°5'N., Long. 105°45'W., in Sec. 22, T. 33 N., R. 11 E., 6 miles north of Colorado-New Mexico State line, 7 miles downstream from Culebra Creek, and 10 miles east of Lobatos. Zero of gage is 7,426.79 feet above mean sea level (general adjustment of 1929).

Drainage Area.- 7,700 square miles (includes 2,940 square miles in closed basin).

Records available.- June 1899 to September 1913 and October 1933 to December 1941 in reports of Geological Survey. June 1899 to December 1941 in reports of State Engineer. January 1941 to December 1941 in report of Rio Grande Compact Commission.

Extremes.- Maximum discharge during year, 8,090 second-feet May 16 (gage height 6.83 feet); minimum daily discharge, 93 second-feet Sept. 10, 11.
1899-1941: Maximum daily discharge 15,100 second-feet (estimated) June 8, 1905; minimum daily discharge, 6 second-feet July 19, 20, 22, Aug. 3, 4, 1934.

Remarks.- Records excellent except those for periods of ice effect, Jan. 1 to March 16 and Dec. 19 to 31, which are computed on basis of eleven discharge measurements and weather records and are good. Diversions above station for irrigation. Flow regulated by reservoirs on headwaters.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	230	220	305	537	460	4,390	5,650	247	143	440	1,830	964
2	230	210	315	501	682	4,100	4,910	209	134	658	1,750	937
3	210	205	340	447	928	3,960	3,940	186	134	690	1,690	937
4	200	200	360	440	1,190	4,010	3,150	159	127	746	1,660	937
5	195	200	410	421	1,390	3,880	2,940	123	123	919	1,600	955
6	200	195	420	389	1,520	3,610	3,210	110	120	1,110	1,530	928
7	200	200	400	364	1,840	3,270	3,580	130	116	1,120	1,470	892
8	205	205	380	324	2,310	3,480	3,720	116	110	1,090	1,390	848
9	205	205	370	302	2,820	4,200	3,260	143	96	1,040	1,330	822
10	215	210	350	302	3,480	4,390	2,750	130	93	991	1,270	886
11	220	215	340	313	3,930	4,090	2,140	213	93	955	1,280	831
12	225	220	341	313	4,540	3,560	1,970	223	96	910	1,270	822
13	230	220	389	308	5,440	3,160	1,980	204	106	892	1,220	805
14	230	220	414	308	6,350	2,790	2,050	172	120	1,000	1,160	840
15	225	220	408	282	7,430	2,580	1,970	155	127	1,510	1,150	788
16	220	225	460	276	7,890	2,620	1,800	151	123	1,910	1,090	780
17	205	225	522	266	7,600	2,610	1,580	177	127	1,920	1,050	797
18	200	225	588	232	6,610	2,850	1,370	223	138	1,850	1,040	772
19	195	240	619	237	6,140	3,300	1,250	209	116	1,780	1,010	740
20	200	250	674	266	6,300	3,960	1,130	177	113	1,700	973	730
21	205	260	690	252	5,600	4,810	1,180	190	130	1,640	946	720
22	210	270	698	247	4,540	5,420	1,120	186	120	1,630	946	730
23	210	280	698	252	4,010	6,150	1,040	200	218	1,720	857	730
24	220	300	730	247	3,940	6,420	901	186	266	1,850	788	700
25	215	310	730	237	4,220	6,480	780	168	313	1,900	857	670
26	205	315	755	242	4,540	6,610	682	151	414	1,890	901	640
27	205	310	755	237	5,030	7,180	580	138	553	1,910	937	560
28	200	305	730	237	5,540	7,160	494	138	282	1,950	991	510
29	205		674	292	6,960	6,810	421	138	287	1,920	1,010	470
30	205		611	359	6,810	6,240	364	138	318	1,900	982	460
31	210		573		4,960		308	143		1,890		460

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	6,530	230	195	211	12,950
February	6,660	315	195	238	13,210
March	16,049	755	305	518	31,850
April	9,430	537	232	314	18,700
May	132,810	7,890	460	4,284	263,400
June	134,110	7,180	2,580	4,470	266,000
July	62,220	5,650	308	2,007	123,400
August	5,223	247	110	169	10,360
September	5,056	414	93	169	10,030
October	43,431	1,950	440	1,401	86,140
November	39,978	1,830	788	1,199	71,360
December	23,841	964	460	763	46,890
Year	481,148	7,890	93	1,318	954,290

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RIO GRANDE COMPACT COMMISSION

LOS PINOS RIVER NEAR ORTIZ, COLO.

Location.- Water-stage recorder, Lat. 36°58' N., Long. 106°3' W., in New Mexico, in N½ Sec. 34, T. 32 N., R. 8 E., 1 mile south of Colorado-New Mexico State line, 2 miles southwest of Ortiz, and 2½ miles upstream from mouth.

Drainage area.- 187 square miles.

Records available.- October 1933 to October 1941 (except winters) in reports of Geological Survey. January 1914 to November 1920 and October 1924 to October 1941 (except winters) in reports of State Engineer. April 1941 to October 1941 (Compact months only) in report of Rio Grande Compact Commission.

Extremes.- Maximum discharge during year, 3,160 second-feet May 12 (gage height 5.77 feet); minimum daily discharge recorded, 17 second-feet September 12, but may have been less during periods of January to March and November and December. 1914-20, 1924-41: Maximum discharge, 3,160 second-feet May 12, 1941; minimum daily discharge, 5 second-feet August 11, Sept. 19, 1934.

Remarks.- Records good. During periods of missing gage heights June 22 to 28, July 20 to 23, discharge computed on basis of two discharge measurements and comparison with a related station. Diversions above station for irrigation.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				52	303	893	389	42	24	57		
2				45	370	845	386	38	24	47		
3				46	503	857	334	36	22	46		
4				45	556	800	317	34	20	51		
5				50	652	724	320	34	20	51		
6				50	875	682	303	36	18	55		
7				48	1,080	806	276	60	18	46		
8				55	1,290	875	247	38	18	53		
9				68	1,360	703	234	77	21	50		
10				79	1,430	632	210	77	20	45		
11				70	1,590	604	196	53	19	44		
12				68	2,040	554	190	46	17	42		
13				70	2,410	541	182	46	18	57		
14				80	2,270	536	176	48	52	164		
15				66	1,830	536	173	60	42	111		
16				70	1,580	545	163	53	30	104		
17				77	1,620	572	173	52	27	96		
18				68	1,780	637	158	53	25	86		
19				60	1,540	682	132	42	24	86		
20				57	1,160	705	150	37	42	100		
21				58	1,010	682	120	36	79	98		
22				57	1,140	650	160	48	42	98		
23				57	1,150	640	137	36	70	98		
24				55	1,260	650	85	31	55	111		
25				68	1,360	680	83	27	37	113		
26				75	1,440	620	77	26	30	113		
27				100	1,460	560	71	24	27	106		
28				140	1,320	500	64	22	26	104		
29				173	1,150	477	57	22	81	96		
30				237	1,040	416	50	27	100	88		
31					988		45	25		88		

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January					
February					
March					
April	2,224	237	45	74.1	4,410
May	39,539	2,410	303	1,275	78,420
June	19,602	893	416	653	38,880
July	5,638	389	45	182	11,180
August	1,286	77	22	41.5	2,550
September	1,049	100	17	35.0	2,080
October	2,504	166	38	82	4,970
November					
December					
Year	71,842	2,410	17	335.9	142,490

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR DEL NORTE, COLORADO

Location.- In Sec. 30, T. 40, N., R. 5 E., at highway bridge 6 miles west of Del Norte, Pinos Creek enters 5 miles downstream.

Records available.- October 11, 1889, to December 31, 1942.

Gage.- Stevens A-30 recorder in standard shelter equipped with pitcher pump and reservoir flushing device, and street key extending through recorder shelf, constructed during February, 1934, replacing old shelter at same site. Located on right bank just below highway bridge. Elevation of intake is -.06 foot of gage. Reference point is slot in screw on recorder shelf; elevation 10.89 feet above zero of gage. Outside gage is standard chain type range (0-6.7) on downstream side of first span from right end of bridge.

Bench Marks.- No. 1 is spike in tree 12 feet west of shelter. Elevation 7.29 ft. above zero of gage. No. 2 is standard bronze tablet set in concrete post located 60 ft. south of shelter just inside fence. Elevation 5.75 ft. above zero of gage. Zero of gage = 7,982.21 feet above mean sea level.

Control.- Located 150 feet downstream at gravel bar which rarely shifts. Same control for all stages.

Discharge measurements.- (a) Made from cable of 250 ft. span located 1,500 feet upstream; low water measurements made by wading near recorder. (b) Initial point for sounding is left bank of river. (c) Bed composed of coarse gravel and small boulders. (d) One channel at all stages, depth of water at extreme low stage 0.5 ft. Flow fairly smooth and well distributed in cross-section. (e) Channel straight for half mile above and below station. (f) Banks low and covered with brush. Highway grade prevents overflow around bridge at stage less than 5.5 ft. at left end, and 6.2 ft. at right end. (g) Conditions favorable for accurate measurements.

Floods.- See official records of State Engineer's office.

Zero flow.- Not determined.

Winter flow.- Ice forms complete cover.

Regulations.- Flow regulated by reservoirs on headwaters.

Diversions.- Few small diversions for irrigation above station.

Accuracy.- With gage heights from recorder, favorable measuring conditions, and frequent measurements to define slight changes in control, records are excellent.

Cooperation.- Station maintained by the State Engineer in cooperation with U.S.G.S.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	164	140	140	374	1,270	5,510	2,520	1,570	905	275	344	215
2	158	147	142	547	1,340	5,400	2,390	1,630	706	275	332	215
3	154	150	145	603	1,280	5,280	2,320	1,630	540	270	326	240
4	152	160	151	666	1,320	5,280	2,300	1,620	505	260	320	225
5	149	170	149	746	1,620	5,190	2,360	1,550	526	255	296	210
6	148	160	142	861	1,700	5,330	2,370	1,560	491	250	296	195
7	144	154	145	642	2,020	5,740	2,270	1,450	446	250	302	172
8	143	152	150	498	2,360	4,890	2,190	1,280	416	245	285	168
9	143	148	170	618	2,630	4,960	2,100	1,140	398	235	306	200
10	146	137	200	738	3,170	5,650	1,970	1,100	386	245	285	230
11	150	140	215	1,080	3,270	5,970	1,920	1,150	477	326	280	210
12	153	144	210	1,070	3,340	6,180	1,760	1,180	596	368	290	230
13	155	138	220	1,030	2,720	5,880	1,730	1,330	512	356	296	240
14	158	127	235	1,530	2,320	5,650	1,840	1,330	470	362	296	248
15	145	123	255	1,600	2,220	5,030	1,870	1,240	464	368	296	256
16	138	117	245	1,380	2,210	4,960	1,980	1,180	446	368	290	275
17	137	105	250	1,520	2,240	5,140	2,050	1,160	422	368	250	272
18	137	99	245	1,270	2,140	5,210	2,020	1,140	398	362	245	264
19	136	100	290	960	2,270	5,330	2,050	1,160	374	344	240	262
20	135	112	290	927	2,540	5,070	1,830	1,150	362	332	250	250
21	135	170	265	1,030	3,100	4,710	1,660	1,140	350	326	215	237
22	135	178	270	1,360	3,700	4,390	1,620	1,050	344	326	225	250
23	132	170	280	1,970	4,050	3,970	1,600	1,050	344	338	285	270
24	132	166	280	1,780	4,850	3,720	1,590	1,060	344	374	255	265
25	132	154	270	1,590	5,440	3,150	1,570	1,060	332	386	255	260
26	135	150	250	1,600	5,860	2,790	1,550	1,020	326	392	205	240
27	138	147	245	1,460	6,670	2,860	1,550	1,000	314	404	210	199
28	142	141	265	1,490	6,280	2,720	1,600	993	302	398	260	208
29	145		330	1,430	6,230	2,860	1,590	971	285	422	205	222
30	145		340	1,340	6,160	2,590	1,530	971	280	398	230	229
31	153		360		5,510		1,340	938		320		210

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	4,469	164	132	144	8,860
February	3,999	178	99	143	7,930
March	7,124	360	140	230	14,130
April	33,710	1,970	374	1,124	66,860
May	101,810	6,670	1,260	3,284	201,900
June	141,410	6,180	2,590	4,714	280,500
July	59,040	2,520	1,340	1,905	117,100
August	37,803	1,630	938	1,219	74,980
September	13,061	905	280	435	25,910
October	10,198	422	255	329	20,230
November	8,172	344	205	272	16,210
December	7,164	275	168	231	14,210
Year	427,960	6,670	99	1,172	848,800

RIO GRANDE COMPACT COMMISSION

RIO GRANDE NEAR LOBATOS, COLORADO

Location.- In Sec. 22, T. 33 N., R. 11 E., at highway bridge 6 miles north of State line and 10 miles east of Lobatos.

Records available.- June 28, 1899, to December 31, 1942.

Gage.- Stevens A-35 recorder in cobblestone well 5 feet square located on right bank under bridge. On well a timber shelter was constructed in March 1934, replacing former shelter. A pitcher pump and reservoir flushing device were installed. Reference point is slot in screw, set in edge of recorder shelf. Elevation 12.69 feet above zero of gage. Outside gage (0-6.7') is chain on bridge. The intake has an elevation of -.05 foot. Zero of gage is 7,426.79 ft. above mean sea level.

Bench Marks.- No. 1 is point on rock (marked with red paint) located in front of shelter. Elevation 7.40 ft. above zero of gage. No. 2 is standard bronze tablet in concrete post located at base of cliff 75 ft. downstream from shelter. Elevation is 8.29 ft. above zero of gage.

Control.- No well defined control.

Discharge measurements.- (a) Made from two span highway bridge; low water measurements made by wading at riffle ¼ mile upstream. (b) Initial point is left end of upstream handrail. (c) Bed composed of large boulders embedded in silt and is fairly permanent. (d) One channel at all stages, flow smooth and well distributed in cross-section; velocity varies from 0.5 foot per second at low stage to 5 feet per second at high stages. (e) Channel curves slightly 200 feet upstream, and is straight for 2000 feet downstream. (f) River is in a small canyon which prevents overflow. (g) Conditions favorable for accurate measurements.

Floods.- See official records of State Engineer's office.

Point of zero flow.- Not determined.

Regulations.- Flow regulated somewhat by reservoirs on headwaters, and diversions for irrigation.

Diversion.- Numerous diversions for irrigation above station.

Accuracy.- With gage heights from recorder, favorable measuring conditions, and frequent measurements to define slight changes in stage-discharge relation, records are excellent.

Cooperation.- Station maintained by State Engineer in cooperation with U.S.G.S.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	470	310	390	588	2,920	4,860	530	68	71	61	96	297
2	465	310	380	588	2,730	4,510	447	66	93	66	99	302
3	456	310	370	573	2,640	4,150	402	74	85	71	106	347
4	415	310	370	611	2,500	4,250	370	76	88	71	110	302
5	400	310	380	605	2,480	4,170	364	88	106	71	106	302
6	395	310	340	892	2,710	4,070	359	76	110	68	113	287
7	390	310	320	1,050	3,000	4,090	341	74	106	68	110	195
8	390	310	360	1,040	3,400	4,320	287	74	110	68	110	308
9	390	310	400	1,040	3,850	4,520	261	68	110	68	113	292
10	390	310	470	955	4,280	4,950	218	66	106	68	113	308
11	390	250	510	946	4,800	5,050	195	58	106	71	110	292
12	400	250	600	1,140	5,240	5,410	190	63	103	79	113	276
13	350	250	682	1,410	5,410	5,080	204	63	90	90	134	287
14	330	250	698	1,550	4,800	4,910	195	82	82	85	130	287
15	326	250	690	1,860	3,990	4,960	177	71	79	82	155	347
16	305	250	603	2,270	3,260	4,570	151	68	82	82	223	402
17	290	250	666	2,610	2,720	4,120	155	63	79	79	209	408
18	275	250	596	2,860	2,520	3,610	147	66	71	79	190	376
19	270	250	627	2,970	2,360	3,420	134	61	63	85	209	376
20	260	250	642	2,710	2,330	3,430	130	61	66	99	209	380
21	230	290	603	2,270	2,430	3,430	123	61	61	99	209	355
22	225	290	603	2,160	2,680	3,320	116	58	58	103	204	340
23	220	290	642	2,820	3,160	2,970	99	54	58	103	204	360
24	200	290	698	3,750	3,610	2,480	90	56	58	99	223	370
25	205	290	706	4,020	3,860	1,960	85	54	58	88	232	335
26	220	290	635	3,890	4,340	1,510	79	61	58	85	228	320
27	235	290	558	3,540	4,610	1,050	74	66	58	96	276	305
28	260	290	516	3,350	5,080	780	74	63	58	96	287	310
29	265		522	3,100	5,030	714	68	56	58	110	276	330
30	270		573	3,040	5,270	580	66	54	58	113	324	330
31	300		603		5,170		63	54		96		320

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	9,955	470	200	321	19,750
February	7,920			283	15,710
March	16,752	706	320	540	33,230
April	60,208	4,020	573	2,007	119,400
May	115,180	5,410	2,330	3,651	224,500
June	107,244	5,410	580	3,575	212,700
July	6,194	530	63	200	12,290
August	2,025	88	54	65.3	4,010
September	2,369	110	58	79.6	4,740
October	2,599	113	61	83.8	5,160
November	5,221	324	96	174	10,360
December	10,046	408	195	324	19,930
Year	343,731	5,410	-	942	681,800

RIO GRANDE COMPACT COMMISSION

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.

Location.- Water-stage recorder, Lat. 35°52'25", N., Long., 106°08'35", W., in San Ildefonso Pueblo Grant, 100 feet downstream from highway bridge, 1 3/4 miles southwest of San Ildefonso Pueblo, 2½ miles downstream from Rio Pojoaque, and 7 miles west of Pojoaque (revised). Datum of gage is 5,488.48 feet above mean sea level, datum of 1929.

Drainage area.- 14,500 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colorado).

Records available.- February 1895 to December 1905, June 1909 to December 1914, October 1930 to September 1942 in reports of Geological Survey. February 1895 to December 1905, June 1909 to December 1931 in reports of State engineer. January 1941 to December 1942 in reports of Rio Grande Compact Commission.

Average Discharge.- 15 years (1927-42), 1,667 second-feet.

Extremes.- Maximum discharge during year, 16,400 second-feet Apr. 23 (gage height, 10.22 feet); minimum daily, 735 second-feet Jan. 6.

1930-42: Maximum discharge, 22,500 second-feet May 16, 1941; maximum gage height, 13.70 feet May 14, 1941; minimum daily discharge, 128 second-feet June 21, 1934.

Remarks.- Records good except those for periods of missing or doubtful gage-height record, which are fair. Flow partially regulated by operation of El Vado Reservoir on upper Rio Chama which stores water for irrigation. Diversions above station for irrigation.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,090	1,010	982	2,480	7,520	12,500	1,870	2,000	1,400	945	592	655
2	1,070	1,040	926	2,620	8,750	11,600	1,990	1,440	1,400	945	538	632
3	910	1,050	942	3,040	8,850	11,100	1,700	1,300	1,360	945	508	632
4	950	1,040	1,030	3,340	8,580	11,600	1,640	1,540	1,420	915	508	705
5	819	1,040	1,200	3,850	8,580	11,400	1,590	1,350	1,470	915	512	832
6	735	1,030	1,290	5,060	8,850	10,800	1,490	1,580	1,210	915	516	805
7	883	1,040	1,330	4,130	9,410	10,200	1,540	1,450	1,210	868	512	780
8	875	1,040	1,120	3,680	10,500	9,690	1,810	1,360	1,180	805	512	680
9	926	1,050	1,010	3,680	11,400	9,690	1,760	1,320	1,140	780	508	592
10	868	1,050	1,230	3,940	13,000	9,130	1,810	1,290	1,100	780	492	524
11	889	1,030	1,770	4,620	13,900	8,850	1,870	1,140	1,440	780	492	655
12	966	1,050	1,520	5,400	14,700	8,310	1,930	1,100	1,490	805	492	680
13	1,020	1,010	2,030	4,950	15,600	8,580	1,810	1,270	1,210	805	492	705
14	1,080	1,040	2,890	4,800	14,700	8,310	1,700	975	1,100	832	492	705
15	1,040	1,020	2,450	6,720	12,600	8,040	1,640	1,100	1,010	805	496	730
16	1,010	950	2,260	7,540	9,410	7,800	1,590	1,040	975	755	512	730
17	1,130	903	2,190	8,790	9,410	7,400	1,640	1,180	945	806	520	730
18	1,100	791	2,070	11,400	9,130	7,000	1,490	1,040	915	805	552	730
19	1,030	889	2,260	10,100	8,580	6,520	955	975	1,010	780	570	755
20	1,010	861	2,190	9,110	9,470	5,710	1,330	945	1,180	730	565	730
21	982	942	2,130	8,160	9,970	5,820	1,330	915	1,140	632	570	730
22	982	990	2,190	8,160	10,200	5,380	1,390	915	1,140	596	578	730
23	990	958	2,380	13,200	10,200	5,060	1,440	1,010	1,100	583	588	705
24	1,020	903	2,730	15,000	11,100	4,460	1,440	1,250	1,100	592	588	705
25	982	903	2,380	11,600	11,600	3,900	1,440	1,100	1,100	601	592	780
26	998	918	2,320	11,900	11,600	3,310	1,340	832	1,070	592	610	805
27	1,010	910	2,260	11,600	12,200	2,780	1,260	915	1,070	588	601	755
28	1,040	982	2,190	11,100	12,500	2,170	1,260	1,010	1,100	574	601	705
29	1,080		2,260	10,200	12,800	1,870	1,290	1,100	1,040	578	610	610
30	1,050		2,300	9,690	12,800	1,640	1,290	1,210	975	592	680	680
31	1,050		2,360		12,800		1,330	1,250		596		705

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	30,564	1,130	735	986	60,620
February	27,440	1,050	791	980	54,430
March	58,190	2,890	925	1,877	115,400
April	219,880	15,000	2,480	7,328	436,100
May	340,710	15,600	7,520	10,990	675,800
June	220,620	12,500	1,640	7,354	437,800
July	47,965	1,990	955	1,547	95,140
August	36,902	2,000	832	1,190	73,190
September	35,000	1,490	915	1,167	69,420
October	23,259	945	574	750	46,130
November	16,399	680	492	547	32,530
December	21,897	832	524	706	43,430
Year	1,078,806	15,600	492	2,956	2,140,000

RIO GRANDE COMPACT COMMISSION

CONEJOS RIVER NEAR MOGOTE, COLORADO

Location.- In Sec. 34, T. 33 N., R. 7 E., at Broyles Bridge, 5½ miles west of Mogote.

Records available.- September 1, 1899 to March 31, 1900, and April 17, 1903 to October 31, 1905, at a point 1 mile below present station. March 21, 1907 to October 5, 1911, 3 miles above present station; January 1, 1912 to December 31, 1942, at present station.

Gage.- Stevens type A-30 recorder in standard shelter (timber) located on right bank 20 feet below bridge. It was constructed in March 1934, replacing old shelter. Shelter is equipped with pitcher pump and reservoir flushing device, and street key extending through recorder shelf. Elevation of intake is 0.5 foot. Reference point is slot in screw set in edge of recorder shelf. Elevation 10.15 feet above zero of gage. Outside gage is vertical staff on downstream side of right bridge abutment.

Bench Marks.- No. 1 is spike in root of large cottonwood tree 40 feet downstream on opposite side of road from shelter. Elevation 7.93 feet above zero of gage. No. 2 is bronze tablet set in concrete located inside fence 60 feet downstream from shelter. Elevation 7.50 feet above zero of gage.

Control.- Located 100 feet downstream at gravel bar which is practically permanent; same for all stages.

Discharge measurements.- (a) Made from cable of 150 feet span located 85 feet downstream from shelter; low water measurements by wading near control. (b) Initial point for soundings right bank of river. (c) Bed composed of coarse gravel and silt which may shift during high water. (d) One channel at all stages, flow fairly smooth and well distributed in cross-section; velocity ranges from 0.5 foot per second at low water to 6-7 feet per second at extreme flood stages. Channel straight for several hundred feet above and below station. (e) Banks lined with scattered brush, and subject to overflow during extreme flood stages. (f) Conditions favorable for accurate measurements.

Floods.- See official records of State Engineer's office.

Zero Flow.- Not determined.

Winter Flow.- Ice forms almost complete cover.

Regulation.- None except that formed by small lakes on headwaters.

Diversions.- Practically no diversions above station.

Accuracy.- With gage heights from recorder, favorable measuring conditions, and practically permanent control, records are excellent.

Cooperation.- Station maintained by the State Engineer in cooperation with the U.S.G.S.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	37	33	38	104	350	1,990	740	214	77	49	58	37
2	40	34	39	137	401	2,050	800	211	81	49	61	39
3	40	35	40	174	378	2,120	730	252	70	50	64	52
4	39	36	41	191	453	2,080	615	252	72	49	61	46
5	37	37	38	244	592	1,980	578	186	74	49	53	39
6	36	34	37	248	692	2,080	592	174	74	49	59	34
7	36	36	30	197	840	2,290	555	163	74	49	59	34
8	38	38	31	165	977	2,080	570	184	69	48	57	36
9	39	39	40	181	1,170	2,120	578	145	61	45	59	36
10	44	38	48	208	1,400	2,010	533	137	57	46	53	36
11	48	36	60	313	1,520	2,200	498	137	100	46	51	36
12	50	36	72	361	1,460	2,240	477	129	167	48	50	35
13	50	35	78	386	1,080	2,090	441	123	131	55	49	36
14	49	34	78	512	933	2,010	424	120	102	63	52	37
15	46	31	74	658	944	1,890	418	109	88	61	54	37
16	42	27	72	658	911	1,760	401	107	78	65	55	36
17	40	24	69	674	944	1,840	453	111	72	66	43	35
18	39	24	69	555	999	1,990	435	104	65	68	56	35
19	37	25	84	418	1,090	1,920	401	102	61	61	55	36
20	37	27	65	366	1,280	1,760	334	102	59	57	55	31
21	34	28	65	412	1,540	1,620	302	96	58	57	39	36
22	31	30	70	666	1,780	1,450	277	92	57	57	37	33
23	29	32	78	810	1,890	1,320	252	88	55	55	49	34
24	28	34	85	592	1,840	1,280	252	86	53	54	57	38
25	29	36	91	464	2,090	1,060	240	85	52	53	55	37
26	31	38	79	424	2,160	933	236	81	52	52	43	35
27	32	39	75	389	2,370	880	232	75	51	51	42	28
28	33	41	74	384	2,080	780	220	72	50	51	51	32
29	33		75	389	2,160	692	281	68	49	56	40	40
30	32		81	355	2,030	666	220	66	49	52	38	40
31	32		91		1,910		197	64		53		40

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	1,168	50	28	37.7	2,320
February	937	41	24	33.5	1,860
March	1,967	91	30	63.5	3,900
April	11,613	810	104	387	23,030
May	40,244	2,370	350	1,298	79,820
June	50,861	2,290	666	1,695	100,900
July	13,282	800	197	428	26,340
August	3,905	252	64	126	7,750
September	2,158	167	49	71.9	4,280
October	1,665	68	45	53.6	3,300
November	1,554	64	37	51.8	3,080
December	1,136	52	28	36.6	2,250
Year	130,488	2,370	24	358	258,800

RIO GRANDE COMPACT COMMISSION

CONEJOS RIVER NEAR LOS SAUSES, COLORADO

This stream enters the Rio Grande through 2 channels, a half mile apart; a gage is maintained on each channel making virtually 2 stations, although only the combined records are published.

NORTH CHANNEL: Location.- In Sec. 2, T. 35 N., R. 11 E., 100 feet below highway bridge ½ mile above mouth. Records available.- March 29, 1921, to December 31, 1942. Gage.- Stevens Type E recorder in standard timber shelter on left bank. Charts set by weight and tape referred to slot in screw in recorder shelf. Elev. 12.03 ft. above zero of gage (7,495.02 ft. above sea level). Chain gage near shelter. Control.- Located 25 ft. downstream at gravel bar, which will shift during infrequent high water. Same control at all stages. Discharge measurements.- (a) Made from 100 ft. span cable or by wading. (b) Bed composed of fine gravel and sand well compacted. (c) One channel at all stages, flow smooth with small velocity and well distributed in cross-section. (d) Channel straight 100 ft. upstream and 400 ft. downstream. (e) Banks covered with brush, may overflow slightly, but grade of highway prevents overflow around station at stages less than 6.5 ft. (f) Conditions favorable for accurate measurements.

SOUTH CHANNEL: Location.- In Sec. 11, T. 35 N., R. 11 E., 2 miles north of Las Sauses and ½ mile above mouth, and 130 ft. below highway bridge. Established.- March 29, 1921 by State Engineer's office. Control.- No well defined control. Gage.- Stevens Type E recorder installed November 1, 1936, in small timber shelter on right bank near road, replacing former shelter 30 ft. upstream. Charts set by weight and tape used from reference point, slot in screw in edge of recorder shelf. Elev. 7.08 ft. above zero of gage (7,495.89 ft. above sea level). Outside gage is chain on bridge railing. Discharge measurements.- (a) Made from highway bridge, downstream side in high water. Low water measurements by wading 100 ft. above station. (b) Bed composed of sand and gravel which shifts during high water. (c) One channel at all stages, flow smooth with low velocity. (d) Channel straight for 300 ft. upstream and 100 ft. downstream. (e) Banks covered with brush and subject to overflow, but bridge prevents overflow around bridge at stages of less than 5 ft. (f) Conditions favorable for accurate measurements.

Floods.- See official records of State Engineer's office. Zero Flow.- Not determined. Winter Flow.- Ice forms partial cover at times as most of flow is return water. Regulation.- Storage and irrigation diversions above station. Diversions.- Practically entire flow above station diverted for irrigation. Flow at station consists mainly of return flow. Accuracy.- With gage heights from recorders, and favorable measuring conditions and frequent measurements to define control, records are excellent. Cooperation.- Stations maintained by State Engineer in cooperation with U.S.G.S.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	92	57	55	97	669	1,190	67	3.6	19	30	29	45
2	85	58	57	101	618	1,100	72	3.4	20	31	29	46
3	73	58	60	112	593	1,070	68	3.8	20	31	29	46
4	73	58	63	166	575	1,310	66	3.4	22	31	29	45
5	72	62	52	240	726	1,360	60	3.4	21	30	29	45
6	61	56	65	304	903	1,200	60	3.4	22	30	29	45
7	61	61	57	322	1,060	1,240	54	3.6	23	30	28	44
8	68	64	55	286	1,320	1,400	52	3.6	23	29	28	48
9	70	64	64	224	1,580	1,310	51	3.8	23	28	28	47
10	66	56	81	229	1,780	1,300	49	3.8	23	29	28	47
11	77	52	86	299	2,080	1,240	41	4.6	25	28	29	47
12	73	52	92	427	2,270	1,270	31	4.8	25	28	29	47
13	73	52	108	525	2,140	1,260	27	5.9	25	29	32	47
14	76	48	113	605	1,430	1,210	23	7.5	26	28	35	50
15	77	44	107	891	1,120	1,180	21	12	28	28	35	52
16	71	41	97	1,030	1,000	986	16	12	26	28	33	51
17	62	37	102	1,140	923	896	15	12	24	28	33	51
18	59	35	105	1,240	898	850	14	12	25	28	34	51
19	56	35	105	1,010	934	838	11	13	26	29	33	51
20	54	40	103	755	1,050	773	8.6	13	25	29	33	51
21	51	46	104	643	1,240	695	7.0	12	25	30	32	51
22	47	50	92	826	1,490	613	5.5	11	27	31	31	52
23	39	51	102	1,500	1,720	525	5.5	11	28	31	31	51
24	40	51	114	1,810	1,860	444	5.5	11	28	30	31	51
25	44	53	123	1,320	1,840	351	5.5	12	29	30	31	52
26	46	56	120	935	1,940	265	5.1	11	29	30	31	53
27	47	56	101	808	1,900	224	5.1	12	30	28	36	51
28	56	63	103	746	2,030	200	5.3	13	30	28	44	53
29	59		100	722	1,660	172	4.6	13	30	28	43	50
30	59		97	746	1,540	82	4.3	15	30	28	43	49
31	56		97		1,330		3.7	15		28		48

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January	1,942	92	39	62.6	3,850
February	1,454	64	35	51.9	2,870
March	2,780	123	52	89.7	5,510
April	20,059	1,810	97	669	39,790
May	42,219	2,270	575	1,362	83,740
June	26,554	1,400	82	885	52,670
July	863.7	72	3.7	27.9	1,710
August	268.6	15	3.4	8.66	533
September	754	30	19	25.1	1,500
October	904	31	28	29.2	1,790
November	965	44	28	32.2	1,910
December	1,517	53	44	48.9	3,010
Year	100,280.3	2,270	3.4	275	198,900

RIO GRANDE COMPACT COMMISSION

LOS PINOS RIVER NEAR ORTIZ, COLORADO

Location.- In Sec. 34, T. 32 N., R. 8 E., 2 miles southwest of Ortiz.

Records available.- January 1, 1914 to November 30, 1920; October 1, 1924 to December 31, 1942.

Gage.- Stevens Type E installed March 25, 1937 in small timber shelter on left bank near road. Shelter has overall height of 14 feet and is equipped with funnel flushing device. It is located at site of pressure gage used previously. Charts set by weight and tape used with reference point, which is slot in screw in edge of recorder shelf. Elevation 9.15 feet above zero of gage. Outside gage has inclined staff graduated to tenths.

Bench Marks.- No. 1 is standard bronze tablet set in concrete located 5 feet upstream from shelter and nearly in line with front of it. Elevation 7.48 feet above zero of gage.

Control.- Located 200 feet downstream at gravel bar, which will shift during high water. Same control at all stages.

Discharge measurements.- (a) Made from cable located just above control, low water measurements by wading near recorder. (b) Bed composed of coarse gravel overlaid by silt. (c) One channel at all stages, flow smooth and well distributed, velocity ranges from 0.5 foot per second at low stages to 6 feet per second at high stages. (d) Channel curves slightly above station and is straight for 300 feet downstream. (e) Banks lined with brush and not subject to overflow. (f) Conditions favorable for accurate measurements.

Floods.- See official records of State Engineer's office.

Zero flow.- Not determined.

Winter flow.- Ice forms complete cover.

Regulations.- None.

Diversions.- Water diverted for irrigation above station.

Accuracy.- With sufficient measurements to determine changes in control, records are good.

Cooperation.- Station maintained by State Engineer's office in cooperation with U.S.G.S.

* Not a Compact consideration.
Not included in totals for the year.

Mean Daily Discharge in Second Feet, January 1 to December 31, 1942

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				70	302	751	144	30	22	12	17	
2				79	315	695	155	30	28	12	21	
3				94	308	819	141	29	20	13	23	
4				110	390	890	111	29	20	13	21	
5				123	502	695	100	29	19	15	17	
6				123	589	652	88	28	17	15	19	
7				94	786	656	79	28	17	14	20	
8				81	964	598	77	26	15	14	19	
9				92	1,140	576	79	25	15	13	17	
10				108	1,310	551	70	25	14	13	16	
11				217	1,390	559	60	25	39	13	16	
12				237	1,240	542	55	24	39	14	15	
13				268	797	510	48	23	32	14	14	
14				400	670	479	45	22	21	18	14	
15				479	680	421	44	22	18	17	14	
16				563	638	410	43	22	16	17	15	
17				589	680	400	41	22	14	18	14	
18				456	770	387	43	21	13	19	13	
19				342	902	370	34	21	15	18	14	
20				298	1,120	336	34	20	15	16	14	
21				370	1,330	312	34	20	14	15	14	
22				666	1,360	274	33	20	14	15	18	
23				819	1,200	251	32	19	14	15	20	
24				530	1,180	230	32	19	13	15	23	
25				404	1,220	198	32	18	13	15	21	
26				356	1,250	170	32	17	13	15	21	
27				339	1,110	155	32	16	13	15	19	
28				342	950	138	32	15	13	16	17	
29				353	936	123	32	14	12	17	19	
30				332	819	116	31	14	12	14	18	
31					764		30	15		18		

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in Acre-feet
January					
February					
March					
April	9,334	819	70	311	18,610
May	27,614	1,390	302	891	54,770
June	13,244	890	116	441	26,270
July	1,843	155	30	59.5	3,660
August	688	30	14	22.2	1,360
September	540	39	12	18.0	1,070
October	468	19	12	15.1	928
November	*523	*25	*13	*17.4	*1,040
December					
Year	53,731	1,390	12	-	106,570